Presentation proposal for 10th European Networked Knowledge Organisation Systems (NKOS) Workshop at the TPDL Conference, Berlin

**Workshop Theme: Relation between ontologies and (other) KOS**

# Complementary use of ontologies and (other) KOS

**Douglas Tudhope**
**Hypermedia Research Unit, University of Glamorgan**

**1. Aims**
The presentation will discuss the relationship between formal ontologies and thesauri (and related KOS).   There are many different kinds of KOS, serving different specific purposes. However, there tends to be some confusion, between the different types of KOS and how they should be used.

**2. Methods**
The STAR and STELLAR projects have developed semantic and natural language processing techniques to link digital archive databases and textual reports, via an overarching core ontology framework, the CIDOC Conceptual Reference Model (CRM), extended for archaeological purposes by English Heritage. The work has involved mapping datasets to the core ontology, extracting semantic web representations in RDF and developing semantic search techniques that operate over RDF generated from various datasets and reports.

**3. Presentation**
This presentation will discuss some key differences between thesauri and ontologies and offer tentative proposals for complementary use of different kinds of KOS.   It will reflect on experiences from two recent research projects that develop mapping/extraction tools to the CRM.

The comparison between thesauri and ontologies will focus on potential differences of *purpose*, which has been articulated as an issue in previous NKOS workshops. Is it meaningful to describe the purpose of a general type of KOS/ontology? Attention is often focused on the internal relationships within a KOS. However, the relationship from a KOS to application entities has tended to receive less attention and can be problematic.

This will be combined with a discussion of different ways of using the two types of KOS together. These include transforming (publishing) one to the other, mapping between them and complementary use. Examples of complementary use will be discussed from STAR/STELLAR and (in less detail) Europeana.

**4. Underlying work**
The presentations draws on discussions on the relation of thesauri to ontologies from ISO 25964 work and on experiences from the STAR (*Semantic Technologies for Archaeology Resources)* and STELLAR (*Semantic Technologies Enhancing Links and Linked data for Archaeological Resources)* Projects in combining thesauri and

glossaries with the CIDOC CRM as a core ontology. These two projects aimed to provide a degree of semantic interoperability between diverse archaeological datasets (from different projects and organizations) and archaeological reports, extracted from the OASIS grey literature library, provided by the Archaeological Data Service.

The CRM does not supply a vocabulary of concepts, beyond the class names in the ontology. Therefore, various KOS were used in conjunction with the ontology for various purposes. An (extended) set of EH glossaries were closely identified with associated fields in the datasets. In some cases, fields were effectively controlled but in other cases an intellectual alignment operation was required for semi-controlled fields. In addition to the glossaries, several thesauri supplied controlled vocabulary for the STAR Demonstrator and an informal mapping between glossaries and thesaurus hierarchies with CRM classes supported the NLP.

Web based tools were developed in order to make it easier for data owners who are not ontology specialists to express their excavation data in terms of the CRM and to generate semantic / linked data representations. The STELLAR tools convert archaeological data to RDF in a consistent manner, without requiring detailed knowledge of the underlying ontology. These tools work from a set of templates that express commonly occurring patterns encountered in the STAR project. In addition to CRM-based templates, there is a template allowing a glossary/thesaurus connected with the dataset to be expressed in SKOS. The templates are available from the STELLAR Project website, along with the tools that operate over the templates. To generate RDF, the user chooses a template for a particular data pattern and supplies the corresponding input from their database.

**References**
http://www.asis.org/Bulletin/Apr-11/AprMay11_Tudhope_etAl.pdf
http://hypermedia.research.glam.ac.uk/kos/star
http://hypermedia.research.glam.ac.uk/resources/STELLAR-applications/
http://www.comp.glam.ac.uk/pages/research/hypermedia/nkos/nkos2009/presentations/stella-publ-ISO25964Progress2009.ppt

**Contact**
Douglas Tudhope,
Faculty of Advanced Technology,
University of Glamorgan,
Pontypridd, Wales, CF37 1DL, UK
Email: dstudhope@glam.ac.uk