

KOSO: A Metadata Ontology for Knowledge Organization Systems

Katrin Weller

Heinrich-Heine-University Düsseldorf, Dept. of Information Science,
Universitätsstr.1, Building 23.21.04, 40547 Düsseldorf, Germany
weller@uni-duesseldorf.de

Abstract. This poster paper introduces KOSO, an ontology to structure expert knowledge about different types of knowledge organization systems (KOS). It serves as a metadata vocabulary for describing ontologies and other KOS and helps to capture cross-concordances and interrelations between them.¹

Keywords: Metadata, ontology, knowledge organization systems.

1 Introduction: Motivation and Objectives

Motivated by the need for effective methods to organize the ever-growing number of available ontologies, some efforts have begun to create categorizations or establish metadata for describing ontologies, e.g. [1], [2], [3], [4]. Within a comparable approach, we now want to include the whole spectrum of knowledge organization systems (KOS): from collaborative folksonomies over traditional classification systems and thesauri to heavyweight ontologies.

Different KOS can be used in interaction. For example using both a professional thesaurus as well as a user-generated folksonomy for indexing a document collection (or alternatively: two competing or complementary ontologies) helps to support multiple perspectives in retrieval systems. Furthermore, the lightweight KOS types often provide a useful starting point for creating more complex representations [5], [6] and should thus be made easily accessible for reuse and semantic upgrading.

We propose the development of a metadata ontology for all KOS and present the Knowledge Organization Systems Ontology (KOSO). This ontology has three aims: a) to provide shared definitions for the different types of KOS, b) to enable detailed descriptions of individual KOS which help to precisely retrieve those sources that match certain criteria like domain and complexity, and c) to capture structured information on possible interrelations and interactions of different KOS, including semantic interoperability and options for semantic upgrades.

¹ An extended version of this poster abstract will be presented in the 1st International Workshop on Knowledge Reuse and Reengineering over the Semantic Web (KRRSW 2008) hosted at ESWC 2008.

2 Basic Structure of the Ontology & Future Work

Metadata should be provided to classify different KOS types and furthermore to describe them in regard of used representation languages and natural languages, their structural components and size, their domain and aim, producers, actual applications and available versions, etc. Relations to other available KOS will be specified, e.g. if an ontology reuses parts of another one or if a classification system has explicitly established cross-references to a given thesaurus.

The ontology has been developed in OWL-DL. It currently comprises 79 concepts, 37 properties (object and datatype properties), restrictions that are used to explicitly define some of the classes, and about 35 exemplary instances. The object properties are mainly used to represent the possible types of interrelations between different KOS, like `is_modified_version_of`, `consists_of_modules`, `has_concordances_to`, `reuses`, or `is_used_in_combination_with`. The KOS included so far are ontologies, classifications, thesauri and folksonomies. Some first approaches for specifying subtypes of these KOS have begun (e.g. faceted classification or decimal classification). The representation of more types of KOS, like topic maps and nomenclatures, and more fine-grained sub-classes is planned.

Besides Knowledge Organization System six other main concepts, each with subclasses, have been created so far (more are to follow) which allow for a modularized development of core facets: Domain, Language, Document, Platform, Developer and Knowledge Relation. The last one is considered of very high importance for describing the specificity of a KOS, as different types usually make use of specific semantic interrelations to structure their vocabulary in use [7].

As this is preliminary work in progress, lots of remodeling, broadening and specifying of KOSO is to be done. This will only be fruitful if a community joins in the discussion and if points of contact to comparable projects are established.

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