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Domain Coherence Within Knowledge Organization: People, Interacting Theoretically, Across Geopolitical and Cultural Boundaries*

Abstract: Domain analysis is the study of the evolution of discourse within research communities. Domain analytical studies of knowledge organization are here drawn together for meta-analysis to demonstrate coherence of theoretical poles within the domain. Despite geopolitical and cultural diversity, the domain shows theoretical coherence.
Résumé : L'analyse de domaine est l'étude de l'évolution du discours au sein d'une communauté de recherche. Les études sur l'analyse du domaine en organisation de l'information sont combinées aux fins d'une méta-analyse dans le but de démontrer la cohérence des pôles théoriques du domaine. Malgré la diversité géopolitique et culturelle, le domaine fait preuve de cohérence théorique.

1. Domain Analysis and Discourse in Information Science

Domain analysis is the study of the evolution of discourse around theoretical poles represented through the formal products, usually the literature, of a research community. Domain analysis is one way of generating new knowledge about the interaction of communities of scholars with information. Domain analysis of international research communities brings the promise of new comprehension of how people interact with information in different places. This paper is an example of the use of domain-analytic tools to observe the on-going evolution of the knowledge (or information) organization community across time and across cultural boundaries.

Domain analyses of information science have consistently demonstrated two key poles in the domain—bibliometrics and information retrieval (most recently and concisely summarized by Klavans and Boyack 2011). Knowledge organization (sometimes also called information organization) is a key sub-domain of information science, which is devoted to the conceptual order of knowledge. In the broadest sense KO is the arena in which the heuristics of ordering knowledge are studied. More narrowly, within information science, KO is the arena in which classification and ontology, thesauri and controlled vocabulary, epistemology and warrant are studied and in which applications are developed and tested (often, resource description is included as well). While the activities and tools of KO (for instance, classification or taxonomy or typology) have always been a part of scholarship, and their applications (indexes, bibliographic classifications, etc.) have always been a part of library-and-information science, the formal domain as represented by the International Society for Knowledge Organization (ISKO) and its chapters dates from 1989 (Dahlberg 2010).

2. Domain Analysis of Knowledge Organization

Analyses of KO are more segmented than those of information science, which is to say that only partial snapshots of analysis have been published to date. However, several studies exist using different source materials and with varying geopolitical emphases. These studies are arrayed in Table 1.

Citation	Domain	Venues
McIlwaine. 2003.	Knowledge organization 1998-2002	Journals articles conference proceedings
López-Huertas and Jiménez Contreras. 2004.	Spanish KO 1992-2001	Journal articles, monographs, dissertations
Smiraglia. 2006.	ISKO 9 2006 Vienna	Conference proceedings
Smiraglia. 2007.	KO in North America 2007	Conference proceedings
Smiraglia. 2008.	ISKO 10 2008 Montréal	Conference proceedings
Saumure and Shiri. 2008.	KO 1966-2008	Journal articles
Smiraglia. 2009.	KO in North America	Journal articles, conference proceedings
Ibekwe-SanJuan and SanJuan. 2010.	KO 1988-2008	Journal articles
Smiraglia. 2011a.	KO in Latin America	Conference proceedings
Smiraglia. 2011b.	ISKO 11 2010 Rome	Conference proceedings

Table 1. Domain-analytical studies of Knowledge Organization

Use of domain-analytic tools, also sometimes called content-analysis tools (e.g., citation analysis, author co-citation analysis, co-word analysis, etc.) has been employed for the effective visualization of the intension and extension of domains. That is, using such tools to develop multi-dimensional maps of the parameters of domains helps us visualize both the panoply of topics being treated in a domain, and the direction of its research fronts. There is much value in domain-analytic visualization. In knowledge organization it is considered a technique for generating the ontology of a domain. In information science more broadly it is a technique for observing the evolution of knowledge and the sharing of information in, between, or among domains, or even the effective shift of a

domain from one theoretical paradigm to another (for a fuller explanation see White and McCain 1997, Hjørland 2002, and Tennis 2003). For instance, the studies of KO have revealed meta-level concepts of extension and intension as illustrated in Table 2.

Domain	**Extension**	**Intension**
Knowledge organization 1998-2002	Universal systems Resource discovery Thesauri	Interoperability Bias Terminology Visualization
Spanish KO 1992-2001	Thesauri Classification KO Documentary languages	 UDC Cognitive and systemic Disciplinary models Terminology
ISKO 9	Ontology Classification	Data modeling Cultural integration Knowledge management
KO in North America 2007	Classification Domain-specificity	Facets Social classification Applications
ISKO 10	Foundations Users Thesauri Discourse communities	Epistemology IR and KM Models, Warrants
KO 1966-2008	Organizing information Cataloging and classification Cognition Thesauri	Interoperability Digitization Metadata Education
KO in North America	IR Semantics Epistemology Multi-cultural and multi-linguistic aspects	Classification Domain analysis Social classification
KO 1988-2008	Classification Information Knowledge organization Knowledge	Metadata Cultural vocabulary Technological emphasis
KO in Latin America	IR Documentation KO Informatics	Knowledge representation Terminology NLP

ISKO 11	Classification Foundations KO and KR	Systems Applications Special subjects Special objects

Table 1. Extension and Intension of KO

Despite the variability in scope of the domain represented by the individual studies, distinct commonalities are observed. Classification, ontology, thesauri, and theoretical foundations (e.g., epistemology) are consistent demarcations of the domain's extension. Applications constitute the intension, with occasional overlapping emphases on multicultural or multilingual issues, terminology, and informatics. There is a remarkable coherence within the domain, despite geographical distinctions. Friedman (2007) suggests one reason in his analysis of the demographics of contributors to ISKO international conferences and classification workshops run by the American Society for Information Science and Technology's Special Interest Group on Classification Research (SIG/CR)—the clear majority of authors are professors from North American, or Western European institutions. Yet, Smiraglia (2011b) demonstrates a similar domain-coherence among contributors to a Latin American KO conference.

3. Meta-Analysis Suggests Hypotheses

The present study is a meta-analysis of these several studies, the purpose of which is to generate hypotheses for further study at a more global level. Specifically, this study will draw detail from the several prior studies to demonstrate:

-Coherence across KO as a domain;

-Relationship between KO and IS (or LIS) as sub-domain and domain;

-Differences in intension as geopolitical trace evidence; and,

-Theoretical coherence despite divergent formal literatures (journals, conferences, etc.)

Several related analytical studies that include KO can be relied upon for comparison. These are arrayed in Table 3.

Smiraglia, Richard P. and Gregory H. Leazer. 1994. Reflecting the maturation of a profession: thirty-five years of *Library Resources & Technical Services. Library resources & technical services* 38: 27-46.
Carter, Ruth C. and Marie Kascus. 1991. *Cataloging & classification quarterly* 12no 3/4: 69-79.

McIlwaine Ia C. and Nancy J. Williamson. 1999. International trends in subject analysis, *Knowledge organization*, 26: 23-29
Olson, Hope A. 2000. Codes, costs, and critiques: the organization of information in *Library Quarterly*, 1931–2004. *Library quarterly* 76: 19–35

Table 3. Related Analyses of KO-allied literature

4. Conclusion: Domain Coherence

This research promises theory-building through meta-analysis, by comparing results across the several studies in tables 1 and 2, and through grounded-theory brought forward from the related literature in table 3, applied to the meta-analytical results. Aside from the value of demonstrating meta-analytical methodology, this paper will indicate the evolution of KO as a theoretically coherent research community. The strength of this demonstrable domain-coherence suggests the evolution of a vital domain of scholarship with a strong technological base, working multi-culturally within and alongside its meta-domain of information science.

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Smiraglia, Richard P. 2008. ISKO 10’s bookshelf: an editorial. *Knowledge organization* 35: 187-91.

Smiraglia, Richard P. 2007. A glimpse at knowledge organization in North America: an editorial. *Knowledge organization* 34: 69-71.

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White, Howard D. and Katherine W. McCain. 1997. Visualization of literatures. In *Annual review of information science and technology* 32, Medford N.J.: Information Today, pp. 99-168.