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Knowledge Organization for Feminism and Feminist Research: A Discourse Oriented Study of Systematic Outlines, Logical Structure, Semantics and the Process of Indexing

Jenny Samuelsson

Umeå university, Department of Sociology, 901 87 Umeå, Sweden
<jenny.samuelsson@soc.umu.se>


ABSTRACT: The focus in this article is an analysis of the knowledge organization systems that index and classify feminist research texts in a Swedish bibliographic context. The theoretical and analytical framework is primarily discourse theoretic. At first, a feminist discourse is defined, of which feminist research is seen as a part. Feminist perspectives are analyzed through text analysis of PhD dissertations as feminist articulations. I also analyze the possibilities to classify and index feminist research with the national universal knowledge organization systems (KOS): Svenska Ämnesord (SÄ) and Klassifikations system för svenska bibliotek (KSB), and one subject specific system: Kvinnohistoriska samlingarnas ämnesord (KvÄ). The systems are analyzed as articulations. The KOS are studied in order to discuss how they are able to articulate feminist perspectives. In the national universal systems, a severe marginalization of feminist research is noticed. Feminist discourse consisting of feminist theoretical and metatheoretical perspectives are not considered at all in the KOS, which could not be considered as feminist articulations. The marginalization is interpreted as an objectivistic and universalistic epistemology and ontology; monodisciplinary knowledge and thematic topics are privileged. Feminism is misunderstood as a field relating to socio-political women’s issues, which has marginalized status in the systems. In the subject-specific system Kvinnohistoriska samlingarnas ämnesord incomplete and inadequate knowledge organization is shown. The structure of this index is too simplistic and feminist discourse as such is not defined. Successful organization of feminist knowledge needs to be based on a particular understanding of knowledge and knowledge organization as contextually shaped (and shaping).

1.0 Introduction

This article deals with knowledge organization of feminist research, in bibliographic catalogues and in a Swedish context. The impetus for the study derives from widely-acknowledged deficiencies in the knowledge organization of feminist texts, and the concomitant practical difficulties faced when searching and retrieving feminist texts in bibliographic catalogues (i.e. Berman 1971, 1984; Dickstein, Mills and Waite 1988; Feinberg 1971, 1984; López-Huertas and de Torres Ramírez 2007; Olson 1991,
well as context (Palmer and Knott Malone 2008). In a Swedish context Klassifikationssystem för svenska bibliotek (KSB) (“Swedish Library Classification System”), and Svenska Ämnesord (SÄ) (“Swedish Subject Index”) as well as Kvinnobibliotekets samlingarnas ämnesord (KvÄ) (“Subject Index for the Collections of Feminist History”) have been criticized (Hansson 1999; Axelsson 2004; Folkesson and März 2006; Klasson 1996; Pettersson 2001, 2003). This research indicates that feminist material is excluded from the norm, and is depreciated, if it could be represented in the systems at all (i.e. Olson 2002a; Pettersson 2001, 2003).

New or improved systems for organizing feminist knowledge must necessarily build on an understanding of the deficiencies of current systems for organizing feminist texts. Previous research on knowledge organization for feminism and feminist research has not given much attention to the improvement of knowledge organization system and practice, though some research has come to important conclusions. Especially, Hope Olson has paid much attention to the improvement of existing universal KOS (knowledge organization systems) (Olson 1991, 1996, 1998, 2002a, 2002b; Olson and Ward 1997). It is, however, an insufficient effort to improve the universal systems in order to visualize feminist knowledge. Only a few studies have discussed principles for building domain-specific KOS (López-Huertas and de Torres Ramírez 2007; López-Huertas, de Torres Ramírez and Barité 2002; Olson 2007). They are insufficient, as they do not discuss the importance to carefully define the domain or discourse of feminist and gender studies, and what specific knowledge they articulate. Seeking an understanding of these issues in regard to feminist knowledge and research, constitutes the main aim and focus of this study. This article is based on knowledge organization for feminism and comparative literature. (GENA is a good source for identifying Swedish gender research (www. databasGENA.nu)). I chose to restrict my analysis chronologically to dissertations published between 1962 and 2005, as no dissertation with a gender perspective was published before 1962, and my analysis was completed during 2006.

A total of 159 dissertations were identified, 65 of them in comparative literature and 94 in sociology. The first step in my analysis was to cursorily read these dissertations using a discourse analytical framework. One of the important starting points was to define the main themes and perspectives in the texts in order to make reasonable and convincing definitions of the discourses analyzed (Winther Jørgensen and Phillips 2000). The cursory reading of the 159 dissertations allowed me also to ascertain whether they could properly be classed as “feminist”. A total of 53 of the 65 originally identified dissertations in comparative literature, and 63 of the 94 originally identified dissertations in sociology were deemed to represent a “feminist” perspective (see appendix for Femin.: no or Femin.: yes). An analysis of these 116 dissertations, and of secondary literature on feminist knowledge, formed the basis for developing a definition of feminist discourse, as outlined in part 4. A closer discourse analysis of the variety of feminist perspectives represented in 17 of the literature dissertations and 16 of the sociology dissertations was conducted. The results of this analysis are presented in part 8.

The KOS chosen for analysis are as mentioned above Svenska Ämnesord (SÄ), Klassifikationssystem för svenska bibliotek (KSB) and Kvinnobibliotekets samlingarnas ämnesord (KvÄ). SÄ is a Swedish subject heading system used in Swedish library catalogues as well as in the national bibliographic catalogue LIBRIS. It is similar to Library of Congress Subject Headings, but consists of fewer subject headings. KSB is a Swedish national and universal classification system. It was originally published in 1923 and is still in use in most Swedish libraries. Klassifikationssystem för svenska bib-

1. How can deficiencies in the knowledge organization of feminist research, and feminist texts generally, be described and understood?
2. What are the feminist perspectives articulated in feminist PhD dissertations, and in what way do they articulate a feminist discourse?
3. How are these feminist perspectives indexed and classified?
4. What do systems for the knowledge organization of feminist texts need to recognize about feminist knowledge in order to improve the latter’s visibility?

2.0 Methods used

I have used the bibliographic database GENA, consisting of bibliographic posts representing Swedish dissertations with a “gender perspective,” to identify Swedish PhD dissertations in the disciplines of sociology and comparative literature. (GENA is a good source for identifying Swedish gender research (www. databasGENA.nu)). I chose to restrict my analysis chronologically to dissertations published between 1962 and 2005, as no dissertation with a gender perspective was published before 1962, and my analysis was completed during 2006.

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3.0 Theoretical and metatheoretical framework

My theoretical and methodological approach is poststructuralist and discourse-oriented; I espouse a social constructionist, anti-essentialist perspective (Burr 1995; Laclau and Mouffe 2001; Wenneberg 2001; Winther Jørgensen and Phillips 2000).

3.1 Social constructionism

The ontological starting point is that the physical reality exists, but is only understandable in its representations, through language (i.e. Laclau and Mouffe 2001, 108). The leading epistemological idea of this social constructionist perspective is that the world and knowledge about it, and thus knowledge organization, are culturally, historically and socially contingent, and very important as they also shape meaning (Bowker and Star 1999; Burr 1995, 2ff; Talja et al 2002). Social processes are in that way very important; the ways in which we understand the world are shaped and maintained within and through social processes. Common truths are shaped through social interaction (Burr 1995, 2ff; Wenneberg and Phillips 2000, 12). The shaping of reality and common truths is made with spoken and written language, but also in social interaction and practices. From a discourse theoretical perspective the common truth is shaped in discourses, with the help from different kinds of articulations (Laclau and Mouffe 2001). Knowledge and practice has a strong connection; different social worldviews result in different social actions. Thereby it is possible to argue for that the social construction of knowledge and “truth” has concrete social consequences (Wenneberg 2001, 68 ff; Winther Jørgensen and Phillips 2000, 12; Burr 1995, 2 ff).

3.2 Poststructuralism and discourse theory

The function of language is accentuated in different degrees in different social constructionist fractions. Discourse theory, developed by Ernesto Laclau and Chantal Mouffe considers knowledge and language as totally constituting—there is no world behind the words. Written and spoken language, articulations, shape society and result in social consequences (Bowker and Star 1999; Talja et al 2003) That is why a discourse theoretical perspective focuses on the shaping of meaning in articulations, of specific discourses (Talja et al 2003, 273). Naturally, this perspective pays serious attention to rhetoric, argumentation, and language.

Laclau and Mouffe’s discourse theory is strongly influenced by poststructuralist philosophy of language. One of poststructuralisms fundamental ideas is that the signs—in language—get their meaning from each other in a structural network. This is a theory adopted from structuralism, that is from Ferdinand de Saussure’s philosophy of language. Unlike structuralism and Saussure, Laclau and Mouffe mean that all signs are interchangeable. Signs get their meaning through their difference from the meaning of other signs. The meaning is then changed depending on discourse context (Laclau 1993a, 433f; Winther Jørgensen and Phillips 2000, 18; Laclau and Mouffe 2001).

Structuralistic philosophy of language makes a rigorous distinction between the structure and use of language (langue and parole). The concrete use of language (parole) was considered not to be able to say anything about the structure of language (langue). Laclau and Mouffe argue, on the contrary, that it is in the concrete use of language (parole) that the structure of language (langue) is shaped. Consequently, poststruc-

Kvik consists of 25 main classes, hierarchically built with sub classes (see http://libris.kb.se/subjecttree.jsp). KVÄ is used as subject heading system in the bibliographic catalogue of Women’s History Collections in Gothenburg, Sweden. This is one of the biggest collections of feminist knowledge (including women’s studies, masculinity studies and gender studies) in Europe, and it is indexed in the bibliographic database KVINNSAM. The list has a simple, alphabetic structure consisting of subject headings relevant to the areas of feminism and women. KVINNSAM is accessible as a part of LIBRIS (http://libris.kb.se/form _extended.jsp?f=kvin).

The knowledge organization of feminist research was studied in three ways. Part 5 and 6 discuss the structure of the selected KOS, the assumptions on which knowledge organization practice is based, and how these premises have impact upon the practice of indexing and classifying feminist knowledge. Part 8 analyzes the actual subject designations and given classifications of the original 159 dissertations (as results of KO practice). The subject headings and classifications designated by applying KSB and SÄ were studied in bibliographic posts in LIBRIS; and the subject headings designated by applying the subject-specific KvÄ were studied in KVINNSAM and the above presented GENA. KVINNSAM is a bibliographic database consisting of references to important texts for women’s studies, masculinity studies and gender studies, feminist knowledge included.
Articulations.

Discourse theory has a special understanding of discourse and articulations. It builds on Foucault’s definition of discourse, but is more pluralistic in the view that several discourses about knowledge can exist in parallel, in the same epoque (Winther Jørgensen and Phillips 2000). In Hegemony and socialist strategy (2001) Laclau and Mouffe define discourse as a definition of meaning in one domain. The discourse is a totality—every sign has its, though momentary, unambiguous meaning established in relation to other signs in the discourse. The discourse struggles to eliminate all ambiguity by making ambiguous signs unambiguous signs. This is a continuing process; the definition of meaning is never completely ended, but is constantly continuing (Laclau and Mouffe 2001, 110).

In this text I show the possibilities to define a feminist discourse and discuss the shaping of meaning in that feminist discourse; in KOS etc. Above all, I analyze the conceptions discourse, and: articulation. Articulation is all written and spoken language and all action. In this article I define and discuss KOS, bibliographic posts and feminist dissertations as articulations.

3.3 Discourse theory, LIS and KO

I argue that discourse theory and poststructuralism are well suited for analyses in LIS. These theories have a focus on language and linguistic processes, which I argue also is the case in LIS. For example; documents consist of language and searchterms are words (Talja et al 2002, 273). KOS are also built on language.

In the same way as other articulations shape meaning and have social consequences KOS has an important role in shaping, maintaining and supporting some practice, with some special interests (e.g., Albrechtsen and Jacob 1999, 523; Bowker and Star 1999; Olson 2001, 639). Not only do the KOS themselves reflect the power structures in society; to that also the practices of KO, indexing and classification, assist (e.g., Radford and Radford 2005, 70-71; Olson 2002a; Andersen 2004). Olson describes the practice of indexing and classification as “naming information” (Olson 2002a, 4). In a framework of discourse theory, in concordance with Laclau and Mouffe (2001), every single subject heading and classification, as well as the practical use of them in indexing and classification, are seen as shaping meaning, and are in that way important. Of course, the possibilities given in the systematic structure as well as the outlines for KO practice of the KOS are setting specific rules. Though, ultimately, the indexer or classifier decides which subject should have a name and which should remain nameless (Olson 2002a, 4).

I agree with the argument put forth by approaches that argue that KO practices and systems need to be adapted to the diverse contexts in which they are to be applied and to the specific needs existing in those contexts. Information needs are seen here to be shaped by broad (or more specific) social, cultural and historical contexts (e.g., Andersen 2004; Frohmann 1994; Hansen 2006; Hjørland 1998; Sundin and Johannisson 2005; Talja et al 2005). Hitherto especially domain analysis, standpoint epistemology and feminist KO-research has paid attention to this. Domain analysis, developed by, above all, Birger Hjørland, analyzes “knowledge-domains as thought or discourse communities, which are part of society’s division of labour” (Hjørland and Albrechtsen 1995, 407), and are one of few analytical frameworks in LIS that are studying knowledge domains epistemologically (Hjørland and Albrechtsen 1995; Hjørland 1993, 2002).

3.4 Theories of specific knowledge domains

To ensure good mediation of information, the specific knowledge produced in specific knowledge domains, must be analyzed carefully. Only then, meaningful and relevant KOS could be worked out (Hjørland and Albrechtsen 1995; Hjørland 2002). The most fundamental part of the domain analysis is the epistemological analysis of a knowledge domain (Hjørland 2002, 439). Such analyses could then work as guiding principles for selection, organization and retrieval of information (440). The development of methodologies for constructing KOS for specific knowledge domains are also central for domain analysis (425). These outlines for domain analysis have been important for how I have chosen to develop my analysis of the feminist knowledge, the feminist discourse and the KO of it.

Standpoint epistemology is focused on how different groups of people, especially oppressed groups such as women or ethnic minorities, construct their reality in different ways, from their own specific positions in society (e.g., Harding 1986). Standpoint epistemology is similar to the domain analytic framework in focusing on specific groups and their need for information and knowledge, but is more concentrated on issues of power, such as who has power. Such reasoning could throw light upon why and how feminist
perspectives are made invisible in the universal KOS, which is just a central argument for standpoint epistemology within LIS (Spivey 1995, 62; Trosow 2001, 360; Olson 2002a; 2002b; Olson and Schlegl 2001). Hope Olson’s aforementioned argumentation discusses how women and women’s interests, as well as feminist knowledge, are marginalized in the universal KOS from a standpoint perspective. She deconstructs the universal KOS and their universalistic and objectivist norms, and tries to adapt them to diverse contexts and needs, not least feminist.

Though domain analytic and standpoint epistemological approaches are important for my argumentation, I do not find them sufficient. In this article I focus on the possibility to use discourse theory for analyzing feminist KO, and do not outline above mentioned analytic frameworks more. My conviction is also that they do not argue enough for how texts and knowledge as articulations are shaping and producing meaning, at what effects. I mean that standpoint epistemology and domain analysis throw too much light upon the social background to articulations—texts, while I and discourse oriented frameworks want to focus the articulations in themselves and what effects they make in society. This is a big difference.

My perspective is therefore, in this part, discourse oriented, in accordance with Talja et al (2002; 2003; 2005) as well as Radford and Radford (2005). Michel Foucault (1977, 90-91) describes in “Fantasia of the Library” the rigorous order with which the library describes the world, but also the possibilities to see it differently:

Fantasies are carefully deployed in the hushed library, with its columns of books, with its titles aligned on shelves to form a tight enclosure, but within confines that also liberate impossible worlds…. The imaginary is not formed in opposition to reality as its denial or compensation; it grows among signs, from book to book, in the interstice of repetitions and commentaries; it is born and takes place in the interval between books. It is a phenomenon of the library.

The most important with seeing KO from a discourse oriented perspective is the possibility to argue that KOS shapes and produces meaning, and that this meaning is changeable. This is an important point of departure for my analysis, which wants to point at KOS meaningful functions as producers of meaning.

4.0 Feminism, feminist research and feminist discourse

4.1 Feminism

I define, referring to Hooks and others, that feminism is a movement to end sexism, exploitation and oppression (Hooks 2000, viii). The struggle is not against a specific sex, but against all thinking and action that privileges one sex over another. This is for some feminists a controversial argumentation—some researchers maintain that feminism is a movement that struggles to end patriarchy, oppression and exploitation of women only (Freedman 2003; Frye 2000; Gemzöe 2002).

4.2 Feminist research

Feminist research is here seen as an integral part of the feminist movement and struggle. Feminist research discusses the why and how of gender-based oppression, what this oppression consists of, and how oppression can be countered. My understanding of feminism is not limited to the oppression of women; for me, feminist research embraces work designed to address and redress power inequalities in gender relations in general. Feminism is seen here as a critical approach aimed at critiquing and changing inequitable gender relations; it is these features that define a “feminist perspective” in research. It is important here to distinguish “feminist research” from “gender research.” The former adopts a concept of gender which is inseparable from one of power, whilst the latter may in addition include research which merely focuses on some dimension of gender without adopting the specific concept of gender relations as power relations (Thurén 2002, 2003). Feminist research may in this light be considered a sub-category of gender research; the latter being an umbrella term for all research on gender, including research on sexual inequality, women’s studies, masculinity studies, queer studies, and feminist research (Smirthwaite 2005). I have, above, discussed different research focusing on sex/gender, and have described different ways to discuss gender in dissertations. Generalizing, Smirthwaite does not take these differences in the research into consideration. Some research included in the umbrella description of gender research does not understand sex or gender as socially and culturally constructed, though Smirthwaite considers just that as a common factor (Smirthwaite 2005, 79). One example is that research, as mentioned, considers sex or gender as a
variable, describing just two sexes. Not all feminist research discusses gender. E.g. biologistic feminist research argues that men and women are biologically different, and therefore should be treated and be able to live equally, but in different ways.

4.3 A feminist discourse

My point of departure is that feminist research articulates feminist discourse. Critique of power inequities in gender relations and concomitant demands for change constitute, I argue, the focal points of feminist discourse. It is on these bases that I have defined the selected dissertations as "feminist." A total of 53 of the 65 originally identified dissertations in comparative literature, and 63 of the 94 originally identified dissertations in sociology were deemed to represent a "feminist" perspective thus defined.

The various gender discourses (including that of feminism) articulated in the main set of dissertations can together be said to constitute a "discursive order" of gender (Winther Jørgensen and Phillips 2000, 63-64). All these dissertations are included in this discursive order, or rather, they help articulate it. The gender discursive order constitutes a broad scope in terms of how gender relations are conceived; within this broad discourse, feminist research is distinguished by its critical and emancipatory stance vis-à-vis inequitable gender relations. Some examples of other kinds of gender perspectives articulated in the research can be seen in my empirical material consisting of Swedish PhD-dissertations. In this article I primarily discuss some Swedish dissertations from my empirical material which are originally written in English, not in Swedish.

In Literature, for example, are: Susanna Roxmans Guilt and glory: Studies in Margaret Drabble’s Novels 1963-80 (1984) (number in appendix: L6); Eva Margareta Löfgrens Schoolmates of the Long-Ago: Motifs and Archetypes in Dorita Fairlie Bruce’s Boarding School Stories (1993) (L20); and, Laurel Ann Lofsvolds Fredrika Bremer and the Writing of America (1999) (L31). None of these uses any feminist theory through their focus on female writers, characters and their situation. They do not include a power discussion related to sex or gender and they do not have a relation to the feminist movement in any way.

In the feminist dissertations we see apparent discussions of sex and gender related to power, as well as critique and emancipation of these inequal power relations. Johanna Esseveld’s (1988, 8) dissertation Beyond silence: Middle-Aged Women in the 1970’s (S17) will serve as an example from the Sociology dissertations. It is making the invisible visible, to make women’s lives visible from their own perspectives:

I attempt to make women’s silences audible by presenting their reflections and actions in their daily lives, against the background of a particular society and historical period.

Esseveld is interested in the silences in women’s lives, silences that also traditional sociology has been a part in producing. The dissertation studies a group of women, more silenced than others: middle-aged women, during the 1970’s: “I believe that this generation of women offers an insight into a theoretical problem: continuity and change in identity against the background of a changing society,” Esseveld (8) writes. Esseveld’s (45) feminist perspective is discussed carefully and could be described as standpoint feminist. Above all Dorothy Smith’s texts form an important basis:

What must be explained is that which actually occurs in women’s everyday world and how these events are experienced by them. In giving central emphasis to women’s experience, I do not assume that all women share one and the same experience. Instead, I assume experience to be located in society and history, embedded in a set of social relations which produce both its possibilities and limitations.

In this perspective on human beings, their social lives and how they should be studied, is the perspective that women produce and shape their lives, but also are limited and influenced by them.

A feminist perspective is also elucidated. Esseveld (45) wants to “contribute to the development of a ‘critical’ science,” which is critical to objectivity, hier-
archy and control in the social sciences. It is also important that science is emancipatory (46):

Emancipation suggests to me the eventual end of social and economic conditions that oppress women and the achievement of a society free from sexist bias. The ideal for such a science is that it should enhance the self-emancipation of women, I believe that social scientists can contribute to this process by analysing and exposing the social and societal relations that constrain and limit individual experience.

Science can change reality and when reality changes, scientific explanations also must change.

Tiina Mäntymäki's *Hard & Soft: the Male Detective’s Body in Contemporary European Crime Fiction* (2004) (L61) is one of these, and will serve as an example here. It is strongly influenced by queer theory and assumes a constructionist gender theory following Judith Butler (e.g., Butler 1990). This study analyzes the representations of the male body, which is an unusual theme in feminist literary research. Mäntymäki (2004, 12) is also studying the representations of women as “the Other” together with murder victims and murderers. *Hard & Soft* describes the male detective as a “complete stagingsetting of the male norm.” The detective can be assumed to be held in an iron-grip of the male norm,” and here its shaping of meaning is focused: “What kind of meanings does the body of the male detective become invested with as a gendered body within the normative framework of gender?” The dissertation is influenced by postcolonial and queer theoretical currents in its viewpoint on gender, but also in the criticism of heteronormativity and eurocentrism. The detective characters discussed are male, but also Western, white, heterosexual, Christian, and middle-class. This implies, according to Mäntymäki (12) that:

also other aspects to do with embodiment and engendering are accentuated. Their kinship with the generic norm of ‘human being,’ expressed in their maleness, heterosexuality, being Western etc. contributes to a concealment of gender and a gendered body.

Mäntymäki (12) argues that the ideology of normativity on the one hand contributes to the construction of a genderless, invisible body, and on the other hand defines what a man and his body are supposed to be: “the detective can be assumed to be held in an iron-hard grip of a ‘male norm.’”

In comparing the different views on gender and power, expressed in the different dissertations, we can thus see a breadth in the discursive order on sex/gender. We also see, distinctly, that the feminist perspective on sex and gender and power is separated from other research in that it is more explicitly focused on criticizing and emancipating sex and gender discrimination.

5.0 Universal knowledge organization systems

My research showed that the general systems for organizing knowledge investigated are not well-suited to the task of structuring feminist perspectives or themes. Previous research has, as stated above, also come to this conclusion (Olson 2002a; Intner and Futtas; Feinberg 2005; Pettersson 2001, 2003). Feminist knowledge is marginalized and rendered invisible by general knowledge organization systems. This marginalization may in turn be interpreted as a consequence of a putative objectivistic and universalistic epistemology and ontology embodied in these systems.

The universal systems discussed, SÅ and KSB—*Svenska Ämnesord* (SÅ) (“Swedish Subject Index”) and *Klassifikationssystem för svenska bibliotek* (KSB) (“Swedish Library Classification System”), tend to privilege mono-disciplinary knowledge at the cost of interdisciplinary knowledge, and thematic topics at the cost of conceptual perspectives. This is here shown in the case of how feminist perspectives are conceived. For example, guidelines for knowledge organization practice tend to encourage indexes and classifiers to search for central themes (Nauri, Svanberg and Olsson 2004; Noaksson 1997), that are relatively easy to find and define objectively, a practice which has the effect of marginalizing less substantive, more persuasive or conceptual knowledge (see for example Nauri, Svanberg and Olsson 2004; Noaksson 1997).

These systems articulate feminism as a field relating to socio-political women’s issues lumped together with material on women in general, under the same main class category, and usually far down the classification hierarchy (e.g., Olson 2001, 2002a, 2002b; Palmer and Knott Malone 2008). This type of knowledge is given marginal status and feminist knowledge is often given a plain wrong classification. Feminist knowledge gets placed in non-relevant categories and is consequently obscured.

I only give some small examples. Feminism in KSB shall be classified as a movement or ideology below the mainclass *Samhälls- och Rättssvåsen* (O) (Social and
juridical system) and Sociala frågor och socialpolitik: kvinnofrågor (Ohja) (Social questions and social politics: women’s questions). In SÅ feminism is understood in the same way, and it is possible to index associative relationships to feminism, for example: Feminism: religiösa aspekter, Feminism: politiska aspekter and so on (Feminism: religious aspects, Feminism: political aspects). It is not possible to express feminism as an aspect in itself; then you are directed to the closest subject heading: genusspekter (gender aspects), which is subordinated to main subject headings.

The contexts in which feminism is articulated are also underestimated in KSB. Klasson has shown (Klasson 1995) that the selection of main classes as well as their internal order says a lot about the ontological and epistemological views that lie behind its construction. From a feminist point of view it is possible to be critical of KSB, as the hierarchical order sees the male individual as normative (Klasson 1995).

The subjects that form the main classes show this fact; subjects traditionally associated with male interests, for example Idrott, lek och spel (Sports and games) och Militärväsen (Militarybeing) has their own main classes, while feminism, is placed under Kvinnofrågor (Women’s Issues) (Ohj), far down the hierarchy (Klasson 1995; Pettersson 2001, 2003).

There are however ways of improving the visibility of feminist knowledge, even in these universal systems. One promising avenue is to develop possibilities to express associative relations, in which feminist knowledge can be expressed in relation to thematic terms. That is also one of the directions that Olson suggests in a recent article (Olson 2007). The challenge is, I argue, to accommodate an understanding of feminist discourse as a political and ideological movement as well as a theoretical field of knowledge which aims to critique unequal gender relations and change them; feminism is thus much more than socio-political issues relating to women. Yet, however much these these existing universal systems are tweaked to accommodate feminist knowledge, feminist discourse will remain an exceptional case, requiring special accommodation, as the systems themselves are built on the very objectivist and universalistic premises that a lot of feminist discourse questions.

6.0 Subject-specific knowledge organization

The structure of the KvÄ index is too simple and does not allow for associative relationships between terms at all, which is as I see it, the biggest lack. For example, the system does not allow for the distinction between feminist perspectives and substantive themes. It is not possible to know if the subject heading feminist theory is used to articulate that the document is about feminist theory, or if it articulates a feminist, theoretical perspective. Feminist discourse is not defined; this index is designed to classify texts within the broad subject field of women’s studies, masculinity studies and gender research, as well as other material relevant to the field. There are, at this point, no possibilities to distinguish between the subject headings Research, Gender Studies, Women’s studies or SexRole Research. The premises and guidelines for knowledge organization practice are under-developed and poorly defined. The only directions written are about equivalence relationships, and are only published internally in the organization. The deficiencies of this KOS in the context of the present study are strongly related to its over-simple structure.

KvÄ has been analyzed in some minor studies, but it has not been argued that the feminist perspectives should be articulated in the indexing. In the Danish KVINFO’s classification system, as well as the European Women’s Thesaurus, it is possible to articulate associative relationships, but not perspectives as compared to thesauri. There is also no possibility to distinguish between feminist studies and gender studies, which shows that the domain is not properly defined.

7.0 Feminist perspectives in comparative literature and sociology dissertations

After defining feminism, feminist research and a feminist discourse I further analyzed the specific feminist perspectives represented in a sample of 33 feminist PhD dissertations, 17 of them in comparative literature and 16 in sociology. The question addressed here is: in what ways are these dissertations feminist? This analysis is done by identifying the feminist metatheoretical, theoretical, and to a lesser extent, methodological stances articulated in the 33 dissertations. The aim is to penetrate the discourse, or discourses, of feminist research. The comparison between the various feminist perspectives represented in the selected dissertations reveals that “feminist discourse,” as defined above, can be understood as several discourses within a feminist discursive order, when compared to each other. Analyzing the dissertations according to theoretical and metatheoretical approach and by year of publication it is clear that the broad category of feminist discourse masks various perspectives which all deal with inequality in gender relations. These perspectives are united in their critical stance towards power imbalances in
gender relations and in their call for change, but differ in their views on how to express this critique and bring about change. In line with these differences, gender and power are also understood differently.

The feminist discursive order may be said to be made up of critical, women-centered, and reflexive discourses in its critique of, and calls for change in, inequities in gender relations. Early feminist discourse takes the guise of a critical discourse which understands sexual oppression and gender inequities as a function or effect of patriarchal or capitalist social structures. This critical discourse addresses gender and sexual oppression first and foremost as either an individual or structural issue. One example articulating this discourse (not included in my empirical material) is Kate Milletts Sexual Politics. Among the Swedish dissertations, in sociology, we have as examples of this discourse Rosmari Eliassons Könsdifferenser i sexuellt beteende och attityder till sexualitet (Sexual Differences in Sexual Behaviour and Attitudes Towards Sexuality) (1971) (S2) and Ann-Mari Sellerbergs Kvinnorna på den svenska arbetsmarknaden under 1900-talet: en sociologisk analys av kvinnornas underordnade position i arbetslivet (Women in the Swedish Labour Market during the 20th Century: a Sociological Analysis of the Women’s Subordinated Positions in their Working Life) (1973) (S3). They are both analyzing and criticizing oppression of women in society, Sellerbergs concerning working life, and Eliassons concerning sexuality.

During the late 1980s a feminist discourse emerged within both sociology and literary criticism which centred women qua women. Within literary criticism this strand of feminist discourse was influenced by French post-structuralism and Anglo-American biographical approaches; whilst in sociology, the influences came from stand-point epistemology and critical discourse analysis. An example among the dissertations is for example the aforementioned Beyond Silence in Sociology.

A reflexive feminist discourse emerged simultaneously, continuing into the 1990s and 2000s. Structuralist and post-structuralist gender theories dominate during this period, based on social constructionist assumptions. The aforementioned Hard & Soft is an good example of one dissertation articulating this discourse. These structuralist strands merge with earlier feminist theory, whilst their social constructionist aspects simultaneously spread to knowledge domains further afield.

The analysis shows that the feminist perspectives represented by these “ideal-type” discourses overlap in practice. A single dissertation text may well “belong” to more than one of these feminist discourse types. Further, these discourses co-exist in the development of feminist theory. A particular phase in the development of feminist theory bears hallmarks of earlier phases, such that “women-centering” and “critical” discourses co-exist qua feminist theory, regardless of discipline.

The observations made above: the diversity of feminist perspectives, the overlaps between them, and the unifying features of feminism, are grounded on an empirical investigation of feminist metatheory in a number of dissertations. Chronologies of feminist theory development provide rough guides of what constitutes feminism, but they cannot provide sufficiently specific descriptions of the content of feminist research at document level. These conclusions imply some important things for knowledge organization of feminist knowledge, and especially feminist research.

8.0 Subject indexing and classification of the PhD dissertations

How the PhD dissertations had been classified according to KSB and SÄ was studied using the LIBRIS catalogue. How the material had been indexed according to KVA was also studied using the bibliographic catalogues KVINNSAM and GENA. The results from this analysis are presented in the appendix, where the dissertations and the KO of them are listed chronologically. The analyses of the subject headings and classifications are compared with my conclusions about the different dissertations and their feminist perspectives. Through these analyses of the classifications and subject headings given, a picture emerged of how feminist discourse is organized in these systems. This picture confirms that the dissertations are not searchable as feminist knowledge within the classification and subject heading systems examined.

The feminist dissertations mentioned above—Hard & Soft by Tiina Mäntymäki and Essevelds Beyond silence—are not indexed and classified with regard to the feminist content in rememberance. Hard & Soft: The Male Detective’s Body in Contemporary European Crime Fiction (2004) (L61) has got the SVÄ subject headings Masculinity in literature and Body, human, in literature. These subject headings say nothing about the feminist content, but something about the thematics concerning the human body, meaning the male body. Hard & Soft has also been classified (KSB) in a similar way compared to the subject headings: with G.096z, which means Literature: special motifs: Masculinity (Litteraturvetenskap:
särskilda motiv: manlighet). Essevelds Beyond Silence: Middle-Aged Women in the 1970’s (1988) (S17) has got the classification (KSB) "Öhja-qa" (Könsroller: Kvinnofrågor: Förenta Staterna) meaning Sex roles: Women’s questions: United States. The most specific classification concerning the feminist viewpoint in the dissertation is “women’s issues,” which actually says nothing about the feminist perspective, it just says that the dissertation is about “women’s issues.” What this means is not defined. But these dissertations are not the only ones indexed or classified without the feminist content in rememberance. None of the dissertations in my empirical corpus are in fact indexed or classified according to its feminist perspective with the universal KOS.

The two feminist dissertations discussed have also got subject headings from the domain specific index (KVÄ), in the databases GENA and KVINNSAM. Hard & Soft is indexed with Masculinity, Image of Men, Body and Gender. This says, as well as the KO in SA and KSB, something about the focus on the male body, but nothing about the fact that the dissertation is feminist in its perspective. Beyond Silence is indexed with Living Conditions, and Middle age. The feminist content in the dissertations is made invisible in these bibliographic posts, and as is the case with the classifications and indexings with SA and KSB, none of the dissertations in my empirical corpus are in fact indexed or classified according to feminist perspective, not even in KVÄ.

The dissertations I mentioned in part 4.3 which are not feminist but whose content is about gender or about women and that could not be included in a feminist discourse, have the same classifications and subject headings as the feminist dissertations mentioned above. It is interesting, but not surprising, that it is impossible to distinguish between feminist or non-feminist dissertations at all using the KOS, domain specific as well as universal (See for example L20, L24, L31, S4, S8, S33).

The blind-spot, that the feminist content is not indexed and classified, is related to the systems’ shortcomings: weaknesses in dealing with feminist concepts; and an inability to express relations between concepts which would benefit the visibility of feminist perspectives. This study finds all three systems inadequate for the task of indexing and classifying feminist knowledge. As seen in the examples above, the feminist content is not at all visible. And further, inconsistency in indexing and classification is a severe problem in all three systems. KVÄ was the least adequate index system of the three, as the level of content detail used for indexing the dissertations varied over time, and concepts were not always correctly applied. For example, some of the dissertations from the 1980’s were indexed with only biographical names, while dissertations from the 1990’s are very thoroughly indexed. Ebba Witt-Brattströms Moa Martinsson: skrift och drift i trettioåret (1988) (L9), is just indexed with the personal name of the author; Martinsson, Moa. Nothing about the content in the dissertation is revealed. Another dissertation, Annelie Brännström Öhman’s Kärlekens ödeland: Rut Hillarp och kvinnornas fyrtiotalsmodernism (The Wasteland of Love: Rut Hillarp and Women’s Modernism of the 40’s) (1998) (L28) has got a lot of subject headings, the name of the author included: Hillarp, Rut, 1940’s, literary studies, authors, Sweden, poetry, modernism, marginalization.

Concepts are, as mentioned before, also differently applied for the indexing of different dissertations. The indexers are strongly influenced by the keywords the authors use to describe their dissertations in the abstracts. That, of course, causes inconsistencies. If an author chooses to include the abstract keyword gender or feminism, the indexer chooses to include it in GENA and KVINNSAM too. As in Känslans röst: det melodramatiska i Selma Lagerlöfs romankonst (The Voice of Affect: Melodrama in Selma Lagerlöf’s Novels) (2002) (L44). Furthermore, the meaning of single subject headings shift in KVÄ. During the 1980’s feminism and theory were used together to signify the dissertations which were about feminist theory. From the 1990’s and the 2000’s get the subject heading feminist theory is used to signify dissertations about feminist theory instead.

9.0 Conclusion and further work

This article shows that indexing and classifying of feminist material presents considerable challenges; and that the classification system and subject heading systems studied are inadequate for this purpose. Making improvements within existing systems can only provide a partial solution. Successful organization of feminist knowledge needs instead to be based on a particular understanding of knowledge and knowledge organization as contextually shaped (and shaping). Knowledge and knowledge organization need to be seen as contextually contingent; attempting to develop a universally valid and objective way of organizing this form of knowledge is futile.

A knowledge organization system for feminist research needs to recognize that feminist material articulates particular ideas about gendered power rela-
tions as well as more substantive themes or topics. Functioning knowledge organization systems and practice need to be based on an understanding of the central problems addressed in the research being classified and an understanding of the knowledge interests that underlie the research. Such systems need to be inclusive and to recognize different ontological and epistemological perspectives; they need to be accommodating of different worldviews and knowledge stances. Literature is composed of conversations, arguments, theories, methodologies and methods; feminist literature is first and foremost about expressing feminist discourse qua theme, perspective, and feminist tradition (such as critical, women-centring, and reflexive feminisms). Ideally, the relevant knowledge organization system would also be sensitive to methodology and method. The actual associative relations between concepts would, however, need to be determined on a context by context basis.

The premises and guidelines for knowledge organization practice also need to change. This practice needs to be premised on an understanding of the nature of the knowledge domain or discourse in question. A reasonable starting point for knowledge organization practice is inter alia a question-oriented indexing (Soergel 1985). This involves identifying those aspects of the document that link the document to the knowledge domain or discourse in which the information system in question is operational. The problems of indexing and classifying feminist material can partially be overcome by improving development of systems and premises for knowledge organization practices. Part of the indexing and classification problem is most likely linked to librarians’ lack of expertise in the area of feminist discourse.

The task of making knowledge and science in general, and feminist knowledge and research in particular, visible on its own terms in library catalogues, requires an understanding of the nature of knowledge and science, and a sensitivity to the implications of such understanding for knowledge organization. Such a dialogue on the nature of knowledge and its implications for knowledge organization systems needs to be conducted within the discipline of library and information science as well as among practitioners working in the places where knowledge organization is done. It needs also to be brought to the attention of the political institutions where decisions pertaining to knowledge organization development are made.

The content of knowledge and science has meaning; when it is articulated, written or otherwise expressed, it is in turn understood and re-articulated, and so on. Knowledge organization systems also need to recognize and re-articulate this characteristic of knowledge. Development of expertise and knowledge of various kinds is central to the process of developing knowledge-sensitive knowledge organization systems that work; that require: subject-specific expertise, a sensitivity to theory of knowledge issues, and an understanding of the social and cultural factors that affect access to and supply of knowledge.

Interest in the development of feminism and feminist knowledge is widespread. If the knowledge organization systems used in general libraries continue to neglect the nature of feminist discourse, the visibility of the latter will also be ever more compromised even as feminist texts continue to increase in number. Further, ignoring the need to develop better knowledge organization systems for specific collections of feminist materials, will also compromise visibility of feminist materials on their own terms.

In this article I have shown a close link between knowledge organization and power. Articulations, such as indexes, classifications, and feminist texts, can always be traced back to the social interests of groups or individuals, and these interests have in turn various social consequences. I do not address here whose interests are served by omitting the premises of feminist discourse from knowledge organization systems but, one might ponder, who benefits from the invisibility of feminist material? And why the insistence on working with universal knowledge organizational systems which continue to render feminist materials invisible, edition after edition? Why the lack of investment in specific knowledge organization systems for feminist and gender-related materials?

More and more texts are now produced in digital environments, providing new opportunities for improved knowledge organization and improved visibility for feminist materials. A digital text can be categorized and described using metadata that are part of metadata schemata, and thus sorted into digital collections and digital libraries. Further, digital contexts increasingly allow users and producers of feminist knowledge to participate in knowledge organization. I suggest that this could constitute a successful feminist strategy for knowledge organization, especially if libraries do not improve the visibility given to feminist discourse. This strategy can also play an important role in a library context. Professional users, such as feminist researchers and activists, can thereby also help index and classify feminist material.
References


Olson, Hope A. 2002a. The power to name: locating the limits of subject representation in libraries. Dordrecht: Kluwer.


### Appendix

This appendix presents the references of the analyzed dissertations. They are organized chronologically. The appendix also presents how the dissertations are indexed and classified according to the KOS analyzed. The classifications with Klassifikationssystem för svenska bibliotek and the subject headings from Svenska ämnesord are downloaded from the swedish national bibliographic catalogue LIBRIS (www.libris.kb.se). The subject headings from Kvinnohistoriska samlingarnas ämnesord are downloaded from the catalogues KVINNSAM (http://libris.kb.se/form_extended.jsp?l=kvin) and GENA (www.databasen GENA.nu).

<table>
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<tr>
<th>Literature</th>
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L9: Witt-Brattström, Ebba, Moa Martinson: skrift och drift i trettioåret, Stockholm , 1988
Femin.: yes, Klassifikationssystem för svenska bibliotek: Gez Martinsson; Moa, Svenska ämnesord: Gena: Martinsson; Moa, Kvinnansam: Martinsson: Moa


L11: Larsson, Lisbeth, En annan historia: om kvinnors läsning och bibliotek, Sverige, Kvinnsam: författare, Sverige, 1900-talet

Femin.: yes, Klassifikationssystem för svenska bibliotek: Gc.0972, Goa, Bc-t, Objacke, SVENSKA ÄMNESSORD: GENA: könsidentitet, läsning, populärlitteratur, veckotidningar, Kvinnansam: könsidentitet, läsning, populärlitteratur, veckotidningar

L13: Bergström, Eva, Om jag får be om ölost: kring kvinnliga författares kvinnobilder i svensk romantik, Göteborg , 1991
Femin.: yes, Klassifikationssystem för svenska bibliotek: Gc.47, Gc.0972, SVENSKA ÄMNESSORD: GENA: 1900-talet, författare, Kleve; Stella, pseud. för Mathilda Malling, Sverige, Kvinnsam: 1900-talet, Benedictsson; Victoria, Eliot; George, läsning, Sverige, Kvinnansam: 1880-talet, Benedictsson; Victoria, Eliot; George, läsning, Sverige

Femin.: yes, Klassifikationssystem för svenska bibliotek: Gc.46, Gc.0977, SVENSKA ÄMNESSORD: Skräckromantik > litteraturhistoria, Sverige > 1800-talet, Skräckromantik > litteraturhistoria, Sverige > 1800-talet, Skräckromnaner > svenska > 1800-talet, skräckromantik i litteraturen, skräck, Skräckromantik > litteraturhistoria > 1800-talet: Gena: 1800-talet, Flygare-Carlén; Emilie, Lagerlöf; Selma, Ljungstedt; Aurora, romaner, skräck, Sverige, Kvinnansam: Sverige, Flygare-Carlén; Emilie, litteraturvetenskap, Lagerlöf; Selma, Ljungstedt; Aurora

Femin.: yes, Klassifikationssystem för svenska bibliotek: Gc.49, Gc.0972, Ohja-c, SVENSKA ÄMNESSORD: Kvinnliga författare > Sverige > 1880-talet, kvinnor i litteraturen GENA: 1880-talet, författare, hemsör, skrivande, yrkesarbete, Kvinnansam: författare, skrivande, förvärvsarbete, 1880-talet, hemmet

L16: Evers, Ulla, Hettan av en gud: en studie i skapandetemat hos Edith Södergran, Göteborg , 1992
Femin.: no, Klassifikationssystem för svenska bibliotek: Gez Södergran; Edith, SVENSKA ÄMNESSORD: GENA: Södergran; Edith, Kvinnansam: Södergran; Edith

L17: Schottenius, Maria, kvinnliga hemlighetens: en studie i Kerstin Ekman berättarkonst, Lund , 1992
Femin.: yes, Klassifikationssystem för svenska bibliotek: Gez Ekman; Kerstin, SVENSKA ÄMNESSORD: GENA: Ekman; Kerstin, Kvinnansam: Ekman; Kerstin

Femin.: yes, Klassifikationssystem för svenska bibliotek: Gez Lagerlöf; Selma, SVENSKA ÄMNESSORD: GENA: Lagerlöf; Selma, Kvinnansam: Lagerlöf; Selma

Femin.: yes, Klassifikationssystem för svenska bibliotek: Gez Benedictsson; Victoria, Eliot; George, SVENSKA ÄMNESSORD: GENA: 1880-talet, Benedictsson; Victoria, Eliot; George, läsning, Sverige, Kvinnansam: 1880-talet, Benedictsson; Victoria, Eliot; George, läsning, Sverige

L20: Löfgren, Eva Margareta, Schoolmates of the long-ago: motifs and archetypes in Dorita Fairlie Bruce’s boarding school stories, Stockholm , 1993
Femin.: no, Klassifikationssystem för svenska bibliotek: Gez Bruce; Dorita Fairlie, SVENSKA ÄMNESSORD: Folkböcker > Storbritannien, Folkböcker > England GENA: 1900-talet, Bruce; Dorita Fairlie, flickböcker, flickskolor, Storbritannien, Kvinnansam: Bruce; Dorita Fairlie, flickböcker, Storbritannien, 1900-talet, flickskolor

L21: Ney, Birgitta, Bortom berättelserna: Stella Kleve - Mathilda Malling, Stockholm , 1993
Femin.: yes, Klassifikationssystem för svenska bibliotek: Gez Malling; Mathilda, SVENSKA ÄMNESSORD: GENA: 1880-talet, författare, Kleve; Stella, pseud. för Mathilda Kruse, Sverige, Kvinnansam: Litteraturvetenskap, Sverige, 1880-talet, Kleve; Stella; pseud. för Mathilda Kruse, författare

Femin.: no, Klassifikationssystem för svenska bibliotek: Dbz Kristeva; Julia, SVENSKA ÄMNESSORD: GENA: Kristeva; Julia, psykoanalytiskt, teori, Kvinnansam: Kristeva; Julia, psykoanalys, teori, litteratur

L23: Järstav, Kristin, Att utvecklas till kvinnan: studier i den kvinnliga utvecklingsromanen i 1900-talets Sverige, Lund , 1996
Femin.: yes, Klassifikationssystem för svenska bibliotek: Gc.5, Gc.0972, SVENSKA ÄMNESSORD: Svensk litteratur > kvinnliga författare, herrvård, Utvecklingsromaner, historia > Sverige > 1900-talet GENA: 1900-talet, bildning, Browallius; Irja, Krusenstjerna; Agnes von, romaner, Sjöstrand; Ingrid, Sverige, utveckling, Kvinnansam: Sverige, litteraturvetenskap, romaner, utveckling, 1900-talet, Krusenstjerna; Agnes von, Browallius; Irja, Sjöstrand; Ingrid, manlighet, bildning
L24: Littberger, Inger, Ulla Isakssons romankonst, Lund , 1996
Femin.: no, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Isaksson; Ulla, SVENSKA ÄMNESORD:
GENA: författare, Isaksson; Ulla, Sverige, Kvinnam: Isaksson; Ulla, författare, Sverige,
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Eabg,03, Ojih, SVENSKA ÄMNESORD:
genusforskning, könsrollsfrågor, litteraturundervisning> gymnasieskolan > Sverige > 1988 och 1990 GENA:
gymnasieskolan, litteraturhistoria, pedagogik, Sverige, undervisning, Kvinnam: gymnasieskolan, litteraturvetenskap,
genus, undervisning, Sverige
L26: Meijling Bäckman, Ingrid, Den resfärda: studier i Emilia Fogelklous självbiografi, Lund , 1997
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Lz Fogelklou; Emilia, SVENSKA ÄMNESORD:
GENA: Fogelklou: Emilia, KvÄkare, Norlind; Arnold, självbiografer, teologer, Kvinnam: Fogelklou: Emilia, Norlind; Arnold, självbiografer, KvÄkare, teologer
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Elgström; Anna Lenah, SVENSKA ÄMNESORD:
Kvinliga författare > Sverige > 1910-talet GENA: 1900-talet, Elgström; Anna Lenah, författare, Sverige, Kvinnam: Sverige, författare, 1900-talet
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Hillarp; Rut, SVENSKA ÄMNESORD:
GENA: Hillarp: Rut, marginalisering, modernismen, poesi, Sverige, Kvinnam: 1940-talet, litteraturvetenskap, författare, Sverige, poesi, modernismen, marginalisering, litteraturvetenskap, modernismen
L29: Gustafsson Rosenqvist, Barbro, Att skapa en ny värld: samhällssyn, kvinnonsyn och djuppsykyologi hos Karin Boye, Uppsala , 1999
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Boye; Karin, SVENSKA ÄMNESORD:
GENA: Boye; Karin, författare, Kvinnam: Författare, Sverige, 1900-talet, litteraturvetenskap
L30: Lagerström, Mona, Dramatisk teknik och könsideologi: Anne Charlotte Lefflers tidiga kärleks- och äktenskapsdramatik, Göteborg , 1999
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Leffler; Anne Charlotte, SVENSKA ÄMNESORD:
GENA: 1820-talet, författare, Leffler; Anne Charlotte, Sverige, Kvinnam: Författare > Sverige > 1800-talet
L31: Lofsvold, Laurel Ann, Fredrika Bremer and the writing of America, Lund , 1999
Femin.: no, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Bremer; Fredrika, Nq,07, SVENSKA ÄMNESORD:
GENA: Bremer; Fredrika, författare, resor, Sverige, Kvinnam: författare, Sverige, resor
L32: Hackman, Boel, Jag kan sjunga hur jag vill: tankevärld och konstsyn i Edith Södergrans diktion, Uppsala , 2000
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Södergran; Edith, SVENSKA ÄMNESORD:
GENA: 1900-talet, Finland, författare, Södergran; Edith, Kvinnam: 1900-talet, Finland, författare
L33: Malmberg, Lena, Från Orfeus till Eurydike: en rörelse i samtidens lyrisk, Lund , 2000
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Orfeus, SVENSKA ÄMNESORD:
GENA: Orfeus i litteraturen, Svensk poesi > historia > 1970-talet > 1980-talet > 1990-talet GENA: 1900-talet, Eurydike, Frostenso, Katrinarina, Johnsson; Arne, Jäderlund; Ann, Lillpers; Birgitta, myter, Orfeus, poesi, Svensbro; Jesper, Öijer; Bruno K., Kvinnam:
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Orfeus, SVENSKA ÄMNESORD:
GENA: Orfeus i litteraturen, universitet i litteraturen, Svensk litteratur > teman och motiv > 1900-talet GENA: Bjerne; Ulla, kvinnlighet, kvinnobilden, lesbiskism, Lindin; Ester, mellankrigstiden, Suber; Margareta, Sverige, Kvinnam: romaner, universitet, genus, Sverige, 1900-talet, kvinnobilden
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Orfeus, SVENSKA ÄMNESORD:
L36: Andræ, Marika, Rött eller grönt?: flicka blir kvinna och pojke blir man i B. Wahlströms ungdomsböcker 1914-1944, Uppsala , 2001
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Orfeus, SVENSKA ÄMNESORD:
GENA: 1970-talet, litteratur och politik, Litterära motiv > 1900-talet GENA: Bjerne; Ulla, kvinnlighet, kvinnobilden, kvinnorörelsen, Nelvin; Åsa, självbiografier, Strandberg; Kerstin, Sverige, Thorvall; Kerstin, Kvinnam: Sverige, litteraturvetenskap, kvinnorörelsen, självbiografier, författare, 1970-talet, feminism, kvinnobilden
Femin.: yes, KLASSEIFFIKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Wägner, SVENSKA ÄMNESORD:
GENA: 1930-talet, emancipation, feminism, författare, moderskap, Sverige, utopier, Wägner; Elin, Kvinnam: författare, Sverige,
litteraturvetenskap, utopier, 1930-talet, feminism, emancipation, modernskap

L38: Kolbe, Gunlöf, Om konsten att konstruera en kvinna: retoriska strategier i 1820-talets rådgivare och i Marie Sophie Schwartz’ romaner, Göteborg , 2001


Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gez Lagerlöf; Selma, SVENSKA ÅMSENSORD: Litteraturforskning>genusspekter>Sverige>1800-talet>1900-talet GENA: 1800-talet, 1900-talet, Genres: Adlersparre; Sophie, Borelius; Helma, Dagny, forskare, Hertha, kvinnorörelsen, litteraturkritik, pionjärer, Roos; Rosalie, Sverige, tidskrifter, Tidskrift för hemmet, kvinnor i litteraturen, genus GENA: 1800-talet, 1900-talet, forskare, Tidskrift för hemmet, kvinnorörelsen, Dagny, Hertha, litteraturkritik

L40: Stenberg, Lisbeth, En genialisk lek: kritik och överskridande i Hertha, litteraturkritik

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gez Lagerlöf; Selma, SVENSKA ÅMSENSORD: BIBLIOTEK: Ls-c.g, Gk:ks.46, Gk:ks.47, SVENSKA ÄMNESORD: Litteraturforskning>genusaspekter>Sverige>1800-talet>1900-talet GENA: 1800-talet, 1900-talet, Adlersparre; Sophie, Borelius; Helma, Dagny, forskare, Hertha, kvinnorörelsen, litteraturkritik, pionjärer, Roos; Rosalie, Sverige, tidskrifter, Tidskrift för hemmet, kvinnor i litteraturen, genus GENA: 1800-talet, 1900-talet, forskare, Tidskrift för hemmet, kvinnorörelsen, Dagny, Hertha, litteraturkritik


Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gez Lagerlöf; Selma, SVENSKA ÅMSENSORD: Svensk litteratur>historia>1890-talet>seksklassitet 1902 GENA: 1800-talet, 1900-talet, feminism, författare, kärlek, Lagerlöf; Selma, litteraturkritik, Sverige, utopier, Kvinnansam: författare, Sverige, 1800-talet, 1900-talet, utopier, kärlek, litteraturkritik, femininism

L42: Arping, Åsa, anspråksfulla byggsamheten: auktoritet och genus i 1830-talets svenska romandebatt, Göteborg , 2002

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gez.0972, Ge.096z, SVENSKA ÅMSENSORD: Kvinnliga författare>Sverige>1700-talet, retoric, tillfällespoesi, politiska skrifter GENA: 1700-talet, Braeign; Anna Margareta von, författare, Nordenflycht; Hedvig Charlotta, poesi, retoric, Sverige, Kvinnansam: 1700-talet, författare, litteraturvetenskap, Sverige, retoric, poesi

L43: Billung, AnnaCarin, Hvad er sannhet?: studier i Cora Sandels novellistik, Uppsala , 2002

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gdb.01, Gdb.5, Gdbz Sandel; Cora, SVENSKA ÅMSENSORD: Modernism (litteratur) >Norge GENA: 1900-talet, författare, kvinnobild, Norge, noveller, Sandel; Cora pseud. för Sara Fabricius, Kvinnansam: Sandel; Cora pseud. för Sara Fabricius, författare, Norge, 1900-talet, kvinnobild, noveller

L44: Karlsson, Maria, Känslans röst: det melodramatiska i Selma Lagerlöfs romaner, Göteborg , 2002

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gez Lagerlöf; Selma, SVENSKA ÅMSENSORD: melodramer, Kvinna, nödförfattare>historia, >Sverige>analys och tolkning GENA: 1800-talet, 1900-talet, feminism, författare, Lagerlöf; Selma, melodramer, Sverige, Kvinnansam: författare, Sverige, 1800-talet, 1900-talet, Feminism


Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gez.55, Goa, SVENSKA ÅMSENSORD: Svenska rapportböcker>historia GENA: 1930-talet, dokumentärskildringar, Ekelöf; Maja, etnicitet, författare, klassstillhörighet, Lidman; Sara, Mydral; Jan, Sverige, Kvinnansam: författare, 1900-talet, 1970-talet, Sverige, dokumentärskildringar, genus, etnicitet, klassstillhörighet

L46: Stolt, Gunvor, Att bryta egen väg: Jeanne Oterdahl i föredrag och författarskap, Uppsala , 2002

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gez Oterdahl; Jeanne, SVENSKA ÅMSENSORD: Kvinnliga författare>Sverige>1900-talet GENA: 1900-talet, föreläsningar, författare, kvinnobild, Oterdahl; Jeanne, Sverige, utbildning, Kvinnansam: författare, Sverige, 1900-talet, utbildning, kvinnobild, föreläsningar

L47: Ulfgård, Maria, För att bli kvinna - och av lust: en studie i tonårsflickors läsning, Lund , 2002

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Goa, Sverige, SVENSKA ÅMSENSORD: Tonårsflickor>överläsning och läsning>historia, Sverige, Läsvanor>genusspekter>Sverige, Litteraturreception>genusspekter>Sverige, litteraturvetenskap GENA: flickböcker, könsidentitet, litteraturvetenskap, läsning, populäröversättning, romaner, ungdomar, ungdomsböcker, Kvinnansam: läsning, ungdomar, romaner, ungdomsböcker, könsidentitet, flickböcker, populäröversättning, litteraturvetenskap


Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gez.52, Ge.53, Ge.0972, G.096z, G.096z Lesbianism, SVENSKA ÅMSENSORD: Kvinnor i litteraturen, Svensk litteratur>historia>1918-1939 (mellankrigstiden), Sverige, Kvinnliga författare>historia>1918-1939 (mellankrigstiden), Genius: Bjerne; Ulla, kvinnlighet, kvinnobild, lesbianism, Lindin; Ester, mellankrigstiden, Suber; Margareta, Sverige, Kvinnansam: litteraturvetenskap, mellankrigstiden, Sverige, kvinnobild, kvinnlighet, lesbianism

L49: Lindén, Claudia, Om kärlek: litteratur, sexualitet och politik hos Ellen Key, Stockholm , 2002

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Lz Key; Ellen, SVENSKA ÅMSENSORD: Kärlek>genusspekter, Sexualitet>genusspekter GENA: feminism, feministisk teori, genus, jämställdhet, Key; Ellen,
kristendom, kvinnorörelsens, kärlek, litteraturvetenskap, sexualitet, Svenska Ämnesordratsteori, Kvinnam: feminism, kärlek, jämställdhet, sexualitet, litteraturvetenskap, feministisk teori, kvinnorörelsens, Svenska Ämnesordratsteori, kristendom, genus

L50: Staberg, Jakob, Att skapa en ny man: C. J. L. Almqvist och jämställdhet, sexualitet, litteraturvetenskap, manlighet, manskultur, nätverk, sekelskiftet, Sverige, Kvinnam: manskultur, sekelskiftet, nätverk, manlighet, Sverige, litteraturvetenskap

L51: Lars, Christina, Regi med feministiska förtecken: Suzanne Osten på teatern, Umeå , 2002

Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Almqvist; Carl Jonas Love, Bkz Mannasamfund, SVENSKA ÄMNESORD: GENA: Almqvist; Carl Jonas Love, litteraturvetenskap, manlighet, manskultur, nätverk, sekelskiftet, Sverige, Kvinnam: manskultur, sekelskiftet, nätverk, manlighet, Sverige, litteraturvetenskap

L52: Bergenmar, Jenny, Förvildade hjärtan: livets estetik och 1900-talet, 2000-talet, kvinnorörelsen, kvinnokultur

Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Ick Osten; Suzanne, ibk, SVENSKA ÄMNESORD: Kvinnliga regissörer>Sverige>1900-talet>2000-talet, Teaterregi>genusaspekter GENA: dramatik, feminism, kvinnokultur, kvinnorörelsens, Osten; Suzanne, regissörer, Sverige, teater, Kvinnam: regissörer, teater, feminism, dramatik, Sverige, 1900-talet, 2000-talet, kvinnorörelsens, kvinnokultur


Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Lagerlöf; Selma, SVENSKA ÄMNESORD: GENA: Lagerlöf; Selma, författare, Sverige, 1890-talet, 1900-talet, 2000-talet, författarskap, Sverige, litteraturvetenskap

L54: Bengtsson, Mari, Fantastiska fröknar: studier av romantik, publik, kvinnobilden, Sverige

Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Lagerlöf; Selma, SVENSKA ÄMNESORD: GENA: Lagerlöf; Selma, författare, Sverige, 1890-talet, 1900-talet, 2000-talet, författarskap, Sverige, litteraturvetenskap


Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Wigström; Eva, G.07, SVENSKA ÄMNESORD: Folksagor>historia, Konstasagor>historia>Sverige>1800-talet, film, intertextualitet, kvinnobilden, litteraturvetenskap, myter, pulp, venera, barsagor, sexualitet, Kvinnam: Rödluvan, litteraturvetenskap, film, kvinnobilden, sexualitet, Sverige, 1890-talet, 1900-talet


Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Gcz Lilja; Gertrud, SVENSKA ÄMNESORD: GENA: 1900-talet, feministisk teori, författare, Lilja; Gertrud, litteraturvetenskap, modernismen, Sverige, Kvinnam:
S12: Gisselberg, Margareta, Att stå vid spisen och föda barn: om hushållarbete som kvinnonarbete, Umeå, 1986

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Qc, SVENSKA ÄMNESORD: GENA: hushållarbete, kvinnokultur, reproduction, Kvinnasam: hushållarbete, kvinnokultur, reproduction


Femin.: no, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Qc, SVENSKA ÄMNESORD: GENA: Frankrike, social bakgrund, social ställning, Sverige, äktenskap, Kvinnasam: Frankrike, social bakgrund, social ställning, Sverige, äktenskap

S14: Cwejian, Klassifikationssystem for svenska bibliotekina, Befrielse eller exploatering?: om kvinnoliv i statens, kyrkans och frihetsrörelsens Polen, Göteborg, 1987

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Qc, SVENSKA ÄMNESORD: GENA: katalicism, Polen, politik, reproduction, yrkesarbete, Kvinnasam: katalicism, Polen, politik, reproduction, förvärvsarbete

S15: Peterson, Abby, Women in political movement, Göteborg, 1987

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja, Qc, SVENSKA ÄMNESORD: GENA: kvinnor i politiken GENA: kvinnor i politiken, Sverige, äktenskap, Kvinnasam: kvinnor i politiken

S16: Håkansson, Per Arne, Längtan och livsform: homosexuellas situation i ett heterosexuellt samhälle, Lund, 1987

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohj, SVENSKA ÄMNESORD: GENA: homosexualitet, Sverige, homosexuellt, relationer, Kvinnasam: homosexualitet, relationer

S17: Esseveld, Johanna, Beyond silence: middle-aged women in the 1970’s, Lund, 1988

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-qa, SVENSKA ÄMNESORD: GENA: levnadsförhållanden, medelåldern, USA, Kvinnasam: levnadsförhållanden, medelåldern, USA


Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-phb, My-phb, SVENSKA ÄMNESORD: GENA: hälsa, Keny, kvinnorörelsen, samhällsutveckling, Kvinnasam: historia, Keny, kvinnorörelsen, samhällsutveckling, hälsa


Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Ohja-c, Dc, SVENSKA ÄMNESORD: GENA: arbetsslöhet, lönearbete, mödrar, tid, vardagslivet, Kvinnasam: arbetsslöhet, arbete, mödrar, tid, vardagslivet


Femin.: no, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Goa, Gc:993, SVENSKA ÄMNESORD: GENA: könsroller, populärliteratur, veckotidningar, veckotidningsnoveller, Kvinnasam: könsroller, populärliteratur, veckotidningar, noveller

S21: Lindholm, Margareta, Talet om det kvinnliga: studier i feministiskt tänkande i Sverige under 1930-talet, Göteborg, 1990

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c.5, Lz Myrdal, Alva, Gcz Wägner, Elin, SVENSKA ÄMNESORD: Feminism>historia>Sverige>1930-talet GENA: 1930-talet, feminism, Myrdal; Alva, utopier, Wägner: Elin, Kvinnasam: Feminism>Sverige, Feminism, Myrdal; Alva, Utopier, Wägner; Elin, 1930-talet

S22: Ekström, Marianne, Kost, klass och kön*, Umeå, 1990

Femin.: no, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Qc-cox, Oc-c, Ohj-c, SVENSKA ÄMNESORD: GENA: hushåll, husmödrar, klassamhället, mat, samlevnad, Kvinnasam: hushåll, husmödrar, klassamhället, mat, samlevnad


Femin.: no, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Oahb-c, Voa, Vnac-c, Oahb-c, SVENSKA ÄMNESORD: Hälsa>klassskillnader, hälsa>könsskillnader GENA: hälsa, klassställhörlighet, könsolkheter, sjukdomar, Sverige, Kvinnasam: hälsa, genus, könsolkheter, klassställhörlighet, Sverige, sjukdomar

S24: Billing, Yvonne Due, Køn, karriere, familie:, Lund, 1991

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Qe-coa, Qa-c, Ohja-c, Qc, SVENSKA ÄMNESORD: GENA: könsskillnader i sjuklighet*, Stockholm, 1990

Femin.: no, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Oabk-c, Qd-c, SVENSKA ÄMNESORD: Hälsa>klassskillnader, hälsa>könsskillnader GENA: hälsa, klassställhörlighet, könsolkheter, sjukdomar, Sverige, Kvinnasam: hälsa, genus, könsolkheter, klassställhörlighet, Sverige, sjukdomar


Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Ohja-c, SVENSKA ÄMNESORD: GENA: feministiskt tänkande i Sverige under 1930-talet, Göteborg, 1990

Femin.: no, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Ohja-c, SVENSKA ÄMNESORD: GENA: feministiskt tänkande i Sverige under 1930-talet, Göteborg, 1990

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Qd-c, SVENSKA ÄMNESORD: Hälsa>klassskillnader, hälsa>könsskillnader GENA: hälsa, klassställhörlighet, könsolkheter, sjukdomar, Sverige, Kvinnasam: hälsa, genus, könsolkheter, klassställhörlighet, Sverige, sjukdomar

S26: Ahanmisi, Osholayemi, Strength in weakness: Bini women in organisation, kontorister, Uppsala, 1992

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Qd-c, SVENSKA ÄMNESORD: GENA: kvinnoliv i organisation, kontorister

S27: Ahamisi, Osholayemi, Strength in weakness: Bini women in organisation, kontorister, Uppsala, 1992

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Qd-c, SVENSKA ÄMNESORD: GENA: kvinnoliv i organisation, kontorister

S28: Ahmamisi, Osholayemi, Strength in weakness: Bini women in organisation, kontorister, Uppsala, 1992

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Qd-c, SVENSKA ÄMNESORD: GENA: kvinnoliv i organisation, kontorister

S29: Ahmamisi, Osholayemi, Strength in weakness: Bini women in organisation, kontorister, Uppsala, 1992

Femin.: yes, KLASSEKATIONSSYSTEM FÖR SVENSKA BIBLIOTHEK: Ohja-c, Qd-c, SVENSKA ÄMNESORD: GENA: kvinnoliv i organisation, kontorister

S28: Morhed, Anne-Marie, Mellan kvinnofråga och kvinnovetenskap: om kvinnodiskursens utveckling och disciplinering, Uppsala, 1993

S29: Olsson, Sven-Erik, Kvinnor i arbete och reproduction: havandeskapens tillämpning*, Lund, 1993

S30: Schlytter, Astrid, Om rättvisa i barnomsorgen: den kommunala barnomsorgens fördelningsregler ur ett vardagsperspektiv, Lund, 1993
Femin.: yes, Klassifikationssystem för svenska bibliotek: Ohlc-b, SVENSKA ÅMNESORD: Barnomsorg>Sverige, kommunal Service GENA: barnomsorg, feminism, föräldrar, kommunala tjänster, lagar, mödrar, rättvisa, Sverige, Kvinnansam: barnomsorg, lagar, mödrar, rättvisa, föräldrar, Sverige, feminism, kommunala tjänster

Femin.: yes, Klassifikationssystem för svenska bibliotek: Ohlc-b, SVENSKA ÅMNESORD: Könnsroller>Sverige, kommunal Service GENA: barnomsorg, feminism, föräldrar, kommunala tjänster, lagar, mödrar, rättvisa, Sverige, Kvinnansam: barnomsorg, lagar, mödrar, rättvisa, föräldrar, Sverige, feminism, kommunala tjänster

S32: Holmberg, Carin, Det kallas kärlek: en socialpsykologisk studie om kvinnors underordning och männens överordning bland unga jämställda par, Göteborg, 1993
Femin.: yes, Klassifikationssystem för svenska bibliotek: Oac-c, Ohj-c, SVENSKA ÅMNESORD: Könnsroller>Sverige, Parrelationer>Sverige, könsmaktsordning GENA: arbetsfördelning, hushållskarbe, jämställdhet, kärlek, parförhållanden, patriarchalism, sexualitet, Sverige, vardagslivet, Kvinnansam: arbetsfördelning, hushållskarbe, jämställdhet, kärlek, parförhållanden, patriarchalism, sexualitet, Sverige, vardagslivet, kvinnorollen, genus

S33: Lannerheim, Lena, Syster blir till: en sociologisk studie av sjuksköterskaryrkets framväxt och omformering, Göteborg, 1994
Femin.: no, Klassifikationssystem för svenska bibliotek: Ep-c, Vpl-c, Ep-c, SVENSKA ÅMNESORD: Sjuksköterskeutbildning>Sverige, Sjuksköterskor>Sverige GENA: medicinhistoria, offentliga sektorn, organisation, professionalisering, samhällsförändring, sjuksköterskor, Sverige, utbildning, vård, Kvinnansam: medicinhistoria, sjuksköterskor, samhällsförändring, professionalisering, vård, organisation, utbildning, Sverige, offentliga sektorn

S34: Schreiber, Trine, Forhållningar och skuffelser i kvindeerhvervene: kvinders møde med ny teknologi og organisatorisk forandring*, Umeå, 1994

S35: Blomqvist, Martha, Könshierarkier i gungning: kvinnor in kunskapsföretag, Uppsala, 1994

S36: Roman, Christine, Like på olika villkor: könnssegregering i kunskapsföretag, Uppsala, 1994

S37: Knoll, Thomas, Not a piece of cake: ambivalence about female-headed families*, Lund, 1995

S38: Muliniari, Diana, Motherwork and politics in revolutionary Nicaragua: Huellas de Dolor y Esperanza, Lund, 1995

ÄMNESORD: Fackföreningar>Island, Kvinnor>arbete och
BIBLIOTEK: Ohai-dc, Ohafb-dc, Ohja-dc, SVENSKA
fackföreningar på Island, Lund, 1995
arbetsmarknad, fackföreningar, facklig verksamhet, Island,
strategi mot underordning: diskussion kring kvinnliga
S40: Gudbjörg Linda Rafnsdóttir,, Kvinnofack eller integrering som
utveckling, kvinnorörelsen
Lund, 1997
syrianska kvinnors exempel: en diskussion om grounded theory*
S45: Freyne-Lindhagen, Marianne, Identitet och kulturmöte:
beroende, normer
Uppsala, 1997
Personer med funktionshinder>sociologiska aspekter,
BIBLIOTEK: Oabk-c, Oabbc, Oabka-c, Oabb-c, SVENSKA
ÄMNESORD: ungdomar, utveckling, Kvinnsam: ungdomar, Sverige,
frigörelse, GENA: identitet, könsidentitet, socialisation, tonåringar,
ungdomar, utveckling, Kvinnans: ungdomar, Sverige, Frigörelse,
identitet, 1900-talet, psykologi, sociologi, tonåringar, socialisation,
utveckling, könsidentitet
S42: Torgerdur, Einarsddottir, Läkaryrket i förändring: en studie av
utvecklingen och könsroller, Sverige
Stockholm, 1998
ÄMNESORD: könsskillnader, mortalitet GENA: dödlighet, frigörelse,
hälsa, social ställning, könsroller, levnadsförhållanden, Sverige,
familjen, heder, identitet, invandrare, könsidentitet, lönearbetare,
migration, närverk, patriarkalism, skilsmiss, Sverige, turkiskor,
Kvinnsam: migration, genus, identitet, etnicitet, skilsmiss,
familjen, heder, patriarkalism, turkiskor, invandrare, Sverige,
närrverk, arbete, könsidentitet
S46: Jeffner, Stina, Liksom våldtäkt typ: om betydelsen av kön och
heterosexualitet för ungdomars förståelse av våldtäkt, Uppsala, 1997
Femin.: yes, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Ohdib-c, M, SVENSKA ÅMNESORD: Invandrarkvinnor>Sweden,
Syrianer>Sverige, Kulturell
Identitet>Sverige, Kulturkontext>Sverige, Invandrare>Sverige
GENA: identitet, invandrare, kulturer, levnadsförhållanden, Sverige,
syrianer, Kvinnans: syrianskor, Sverige, invandrare, identitet, teori,
levnadsförhållanden, kulturer
S47: Akpınar, Aylin, Male’s honour and female’s shame: gender and
ethnic identity constructions among Turkish divorcées in the
migration context, Uppsala, 1998
Femin.: yes, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Ohdib-c, Ohja-c, Oabka-c, SVENSKA ÅMNESORD: feminism,
heterosexualitet, normer, teori, ungdomar, våldtäkt,
vårdningen, Kvinnans: feminism, heterosexualitet, normer, teori,
ungdomar, våldtäkt, vårdningen, genus
S48: Nilsson Lindström, Margareta, Tradition och överskridande:
en studie av flickors perspektiv på utbildning, Lund, 1998
Femin.: yes, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Em-coa, Oabka, Oabbc, Oabka-c, SVENSKA
ÄMNESORD: Utbildningsval>flickor,
Flickor>Sverige, Könssroller>släpvänförvärmlande, social
segregation, traditioner, utbildningsval GENA: flickor, intervjuer,
Sverige, utbildning, ömnasval, Kvinnans: flickor, utbildning,
Sverige, ömnasval
S49: Hemström, Örjan, Male susceptibility and female
emancipation: studies on the gender difference in mortality*,
Stockholm, 1998
Femin.: no, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Oja-c, Oja, Oabka-c, SVENSKA ÅMNESORD: könsrollnader, mortalitet GENA: dödlighet,
frigörelse, hälsa, könsrollnader, könnsroller, levnadsförhållanden, social
ställning, Sverige, Kvinnans: dödlighet, könsrollnader, socialmedicin,
hälsa, social ställning, levnadsförhållanden, könsroller, frigörelse
S50: Dryler, Helen, Educational choice in Sweden: studies on the
gerender difference in mortality*, Stockholm, 1998
Femin.: no, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Em-coa, Oabka, Oabbc, Oabka-c, Ohja-c,
SVENSKA ÅMNESORD: Utbildningsval>flickor,
Flickor>Sverige, Könssroller>släpvänförvärmlande, social
segregation, traditioner, utbildningsval GENA: flickor, intervjuer,
Sverige, utbildning, ömnasval, Kvinnans: flickor, utbildning,
Sverige, ömnasval
Femin.: yes, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Ohdib-c, M, SVENSKA ÅMNESORD: Invandrarkvinnor>Sweden,
Syrianer>Sverige, Kulturell
Identitet>Sverige, Kulturkontext>Sverige, Invandrare>Sverige
GENA: identitet, invandrare, kulturer, levnadsförhållanden, Sverige,
syrianer, Kvinnans: syrianskor, Sverige, invandrare, identitet, teori,
levnadsförhållanden, kulturer
S45: Freyne-Lindhagen, Marianne, Identitet och kulturmöte:
syriska kvinnors exempel: en diskussion om grounded theory*,
Lund, 1997
Femin.: yes, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Ohdib-c, M, SVENSKA ÅMNESORD: Invandrarkvinnor>Sweden,
Syrianer>Sverige, Kulturell
Identitet>Sverige, Kulturkontext>Sverige, Invandrare>Sverige
GENA: identitet, invandrare, kulturer, levnadsförhållanden, Sverige,
syrianer, Kvinnans: syrianskor, Sverige, invandrare, identitet, teori,
levnadsförhållanden, kulturer
S44: Barton, Karin, Diklassifikationssystem för svenska
biblioteckality and gender: autonomy as an indication of adulthood,
Uppsala, 1997
Femin.: yes, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Vpd-c, Ochja, Othb-c, SVENSKA ÄMNESORD: könsroller,
könsroller> Sociologi > Sverige GENA: familjen, hierarkier, karrier,
könsolikhet, läkar, professionalisering, Sverige, yrkesutbildning,
Kvinnans: familjen, forskning, karrier, könsolikhet, läkar, Sverige,
yrkesutbildning, professionalisering, genus, hierarkier
S43: Franssén, Agneta, Omsorg i tanke och handling: en studie av
kvinns arbetste i vården, Lund, 1997
Femin.: yes, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Vpd-c, Ochja, Othb-c, SVENSKA ÄMNESORD: könsroller,
könsroller> Sociologi > Sverige GENA: familjen, hierarkier, karrier,
könsolikhet, läkar, professionalisering, Sverige, yrkesutbildning,
Kvinnans: familjen, forskning, karrier, könsolikhet, läkar, Sverige,
yrkesutbildning, professionalisering, genus, hierarkier
S42: Torgerdur, Einarsddottir, Läkaryrket i förändring: en studie av
den medicinska professionen heterogenisering och
eköndifferentiering*, Göteborg, 1997
Femin.: no, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Vpd-coa, Ochja-coa, SVENSKA ÄMNESORD: könsroller,
könsroller>Sociologi > Sverige GENA: familjen, hierarkier, karrier,
könsolikhet, läkar, professionalisering, Sverige, yrkesutbildning,
Kvinnans: familjen, forskning, karrier, könsolikhet, läkar, Sverige,
yrkesutbildning, professionalisering, genus, hierarkier
S41: Waa, Peter, Ungdom i gränsland, Umeå, 1996
Femin.: no, KLASSEFIKATIONSSYSTEM FÖR SVENSKA
BIBLIOTEK: Oabk-c, Oabbc, Oabka-c, SVENSKA
ÄMNESORD: Ungdomar och könsroller>Sverige> Tornedalen,
Ungdomar och könsroller>Sverige>Norrbottnen, ungdomar på
landsbygden, Ungdomar på landsbygden>Sverige>Norrbotten
GENA: identitet, könsidentitet, socialisation, tonåringar,
ungdomar, utveckling, Kvinnans: ungdomar, Sverige, Frigörelse,
identitet, 1900-talet, psykologi, sociologi, tonåringar, socialisation,
utveckling, könsidentitet
Femin.: no, Klassifikationssystem för Svenska Bibliotek: Oep-b, Svenska Ämnesord: Polisarbete > Sverige, Ämn: brottsförening, familjen, hemmet, lag, misshandel, polisen, rättsväsen, Sverige, Kvinnam: polisen, misshandel, vårdningar, hemmet, familjen, Sverige, lag, brottsförening, rättsväsen

S64: Nyman, Charlott, Mine, yours or ours?: sharing in Swedish couples" , Umeå , 2002
Femin.: no, Klassifikationssystem för Svenska Bibliotek: Oac-b, Oja-b, Qci, Svenska Ämnesord: Jämställdhet > Sverige, Familjeekonomi > Sverige, Gena: arbetsfördelning, familjen, hemmet, hushållsarbete, hushållsengagerade, hushållsomödrar, hushållsomödrar, hemvårdare, Sverige, Arbetsfördelning, hemvårdar, Jämställdhet

S65: Evertsson, Lars, Vårfårdspolitik och kvinnoverk: organisation, vårfårdsstat och professionaliseringens villkor, Umeå , 2002
Femin.: no, Klassifikationssystem för Svenska Bibliotek: Oeb-c, Ohl-b-c, Vpd-b-c, Svenska Ämned: Organisation, Vårfårdsstat och Professionaliseringens Villkor

S75: Mählck, Paula, Mapping gender in academic workplaces: ways of reproducing gender inequality within the discourse of equality, Umeå, 2003

Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Epia-c, Ofah-c, Ohj-c, SVENSKA ÄMNESORD: kvinnor inom högskolan>Sverige, kvinnliga akademiker>arbete och arbetsmarknad>Sverige, kvinnliga forskare>arbete och arbetsmarknad>Sverige GENA: akademiker, arbetsmarknad, jämställdhet, karriär, Sverige, universitet, Kvinnam: akademiker, jämställdhet, arbetsmarknad, Sverige, karriär, universitet

S76: Gardberg Morner, Claudia, Självständigt beroende: ensamstående mammors försörjningsstrategier, Göteborg, 2003

Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Ohc-c, Qadi-c, Ohi-c, SVENSKA ÄMNESORD: ensamstående mödrar>ekonomiska förhållanden>Sverige, ensamstående mödrar>sociala förhållanden>Sverige GENA: enfamiljer, ensamstående mödrar, arbetsmarknad, ekonomisk ställning, ensamstående mödrar, försörjningsbegreppet, myndigheter, nätverk, strategier, Sverige, Vårdårdsstaten, Kvinnam: ensamstående mödrar, försörjningsbegreppet, arbetsmarknad, ekonomisk ställning, Sverige, Vårdårdsstaten, 1990-talet, myndigheter, nätverk

S77: Darvishpour, Mehrdad, Invandrarkvinnor som bryter patriarkalism, Iranskor, Sverige, Sverige, jämställdhet, skilsmässa

Femin.: no, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Oac-c, Qadj-c, Ohja-c, SVENSKA ÄMNESORD: invandrare, iranskor, islam, patriarkalism, Gränsmässa, Sverige, Sverige, jämställdhet, skilsmässa, invandrare, iranskor, islam, patriarkalism, Sverige

S78: Evertsson, Marie, Facets of gender: analyses of the family and of the labour market, Stockholm, 2004

Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Ohe-c, Ohj-c, Oac-c, Oac-c, Ofah-c, Ohj-c, SVENSKA ÄMNESORD: Könsroller>Sverige, Könsroller>Förenta Staterna, Ungdomar och könsroller>Sverige, Kvinnam: arbete och arbetsmarknad>Sverige, Från skilda kvinnor>arbete och arbetsmarknad>Sverige GENA: arbetsfördelning, arbetsliv, arbetsmarknad, familjen, genus, arbetsmarknad, hemmet, hushållsarbete, jämställdhet, skilsmässa, Sverige, Kvinnam: arbetsfördelning, arbetsmarknad, hemmet, skilsmässa


Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Ohe-c, Oac-c, Oac-c, Oac-c, Kpea-s, SVENSKA ÄMNESORD: Brudköp>Sydafrika, Åktenskapet>Sydafrika, Kvinnliga politiker>Sydafrika GENA: African National Congress, brudköp, genus, makt, politiker, Sydafrikanska republiken, Åktenskapet, Kvinnam: Brudpris>Sydafrika, Åktenskapet, makt, politiker, genus

S80: Eriksson, Maria, I skuggan av pappa: familjerätten och hanteringen av faders våld, Uppsala, 2004

Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Vnamb, Oac, SVENSKA ÄMNESORD: våld i familjen, kvinnomisshandel, barnmisshandel, män som misshandlar, fader, Familjerätt>genusaspekter GENA: barn, faderskap, familjerätt, fader, misshandel, makt, skilsmässa, Sverige, våld, vårdnadsfrågor, Kvinnam: våld, misshandel, fader, skilsmässa, familjerätt, vårdnadsfrågor, barn, Sverige, faderskap, makt

S81: Thörn, Catharina, Kvinnans plats(er): bilder av hemlöshet, Göteborg, 2004

Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Oaa-c, Oack-ba, SVENSKA ÄMNESORD: Hemlösa kvinnor>Sverige, Kvinnam: feministisk teori, hemlöshet, hemmet, kvinnouppfattning, nätverk, ungdom, självuppfattning, socialtjänst, social verksamhet, Sverige, Kvinnam: Hemlöshet>Sverige, kvinnouppfattning, myndigheter, socialtjänst, social verksamhet, självuppfattning, socialtjänst, hemmet, Sverige, Kvinnam: feministisk teori

S82: Svensson, Robert, Social control and socialisation: the role of morality as a social mechanism in adolescent deviant behaviour, Stockholm, 2004

Femin.: no, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Oaa-c, Oack-ba, SVENSKA ÄMNESORD: Ungdomar>etik och moral, Ungdomsbrottslighet>genusaspekter, kontroll, societet, socialisation GENA: etik, familjen, könnsroller, narkotikamissbruk, skolan, skuldkultur, socialisation, ungdomar, uppväxtvillkor, Kvinnam: Narkotikamissbruk>ungdomar>är den Rolle, skuldkultur, etik, uppväxtvillkor, familjen, skolan, socialisation

S83: Magdalénic, Sanja, Gendering the sociology profession: Sweden, Britain and the US, Stockholm, 2004

Femin.: no, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Oaa-c, Oac-c, Oac-c, Oac-c, SVENSKA ÄMNESORD: Sociologi>genusaspekter>historia>Förenta Staterna, Sociologi>genusaspekter>historia>Sverige, Sociologi>genusaspekter>historia>Storbritannien, Sociologi>genusaspekter>historia>Förenta Staterna, Genus (socialt kön) GENA: forskare, genus, historia, karriär, könsfördelning, organisationer, professioner, sociologer, sociologi, Storbritannien, Sverige, sociologi, Storbritannien>genusfördelningen, USA, Kvinnam: Sociologi>historia>Sverige>Storbritannien>USA, sociologi, professioner, karriär, forskare, organisationer, könsfördelning

S84: Hägerström, Jeanette, Vi och dom och alla dom andra på Komvux: etnicitet, genus och klass i samband, Lund, 2004

Femin.: yes, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Em-c, Ohe-c, SVENSKA ÄMNESORD: Kommunal vuxenutbildning>sociala aspekter, Etnicitet>sociala aspekter>Sverige GENA: etnicitet, genus, invandrare, könsfördelning, social ställning, sociologi, Sverige, vuxenutbildning, Kvinnam: etnicitet, genus, könsfördelning, social ställning, Vuxenutbildning>Sverige, invandrare

S85: Grönlund, Anne, Flexibilitets gränser: förändring och friktion i arbetsliv och familj, Umeå, 2004

Femin.: no, KLASSEFICATIONSSYSTEM FÖR SVENSKA BIBLIOTEK: Ohe-c, Oac-c, SVENSKA ÄMNESORD: Arbetsmiljö>Sverige, Sveriges arbetsliv>sociala aspekter, Kvinnam: Flexibilitet>Sverige, Organisationförändringar>Sverige, Flextid>Sverige GENA: arbetsfördelning, arbetsförhållanden,
The Convergence of Metadata and Bibliographic Control?
Trends and Patterns in Addressing the Current Issues and Challenges of Providing Subject Access

Jack Hang-tat Leong
University of Toronto Libraries, The Richard Charles Lee Canada-Hong Kong Library, 130 St. George Street, Toronto, Ontario, Canada, M5S 1A5, Canada, <jack.leong@utoronto.ca>

ABSTRACT: Resource description and discovery have been facilitated generally in two approaches, namely bibliographic control and metadata, which now may converge in response to current issues and challenges of providing subject access. Four categories of major issues and challenges in the provision of subject access to digital and non-digital resources are: 1) the advancement of new knowledge; 2) the fall of controlled vocabulary and the rise of natural language; 3) digitizing and networking the traditional catalogue systems; and 4) electronic publishing and the Internet. The creation of new knowledge and the debate about the use of natural language and controlled vocabulary as subject headings becomes even more intense in the digital and online environment. The third and fourth categories are conceived after the emergence of networked environments and the rapid expansion of electronic resources. Recognizing the convergence of metadata schemas and bibliographic control calls for adapting to the new environment by developing tools that exploit the strengths of both.

1.0 The trend of convergence

Resource description and discovery have been facilitated generally in two approaches, namely bibliographic control and metadata. Rooted in library and information science, standards of bibliographic control, such as the Anglo-American Cataloguing Rules (AACR) and the International Standards for Bibliographic Descriptions (ISBD), have mandated effective organization and arrangement of information, making it readily identifiable and retrievable. The practice and theory of this domain have emphasized the “systematic, uniform, and consistent approaches to describing intellectual or artistic content and physical characteristics” (Howarth 2005, 39). Metadata, a file management concept originated in the computer science community, has been conceived as an information management and retrieval tool to handle ever-increasing online information sources. The concept of metadata is often referred to as “structured data about data” deriving from its roots in computer systems. At the end of the twentieth century, the term was redefined by the library, archive, and museum information communities, warranting a “confluence in
The proliferation of digital publications creates challenges to both traditional bibliographic control and metadata schemas. As developed primarily for books and textual documents, traditional bibliographic control’s capability to manage and provide access to networked electronic resources is questioned by the sheer number of electronic resources and other conditions, particularly the need for trained cataloguers (Chan 2005; Gross and Taylor 2005; Markey 2007). Nevertheless, the search results produced by information retrieval systems utilizing less structured metadata are often unsatisfactory. As a result, the metadata community has proposed various measures to improve performance of these systems. Among these measures, the most prominent ones seem to be building end-user thesauri, providing vocabulary mapping and adopting major subject headings and classification systems in subject metadata fields. These strategies interestingly resemble a number of fundamental mechanisms in bibliographic control, suggesting a direction of cooperation between bibliographic control and metadata schemas in addressing the current challenges. Figure 1, which illustrates the emergence of common concepts and tools of bibliographic control and metadata schemas, demonstrates this converging trend visually. As a result of this convergence, subject access has been improved significantly with the synergy of human analysis and computer algorithms, controlled vocabulary and keywords, as well as users and trained cataloguers.

2.0 Challenges to knowledge organization

2.1. The advancement of new knowledge

Knowledge is being constructed on a continuous basis as new discoveries are made and new concepts are conceived. A brief review of the weekly list of new Library of Congress Subject Headings (LCSH) reflects this phenomenon. Even though it seems to be a subject heading system responding fairly conservatively towards new knowledge based on the practice of literary warrant, LCSH includes dozens, if not hundreds, of new subject headings every week (Cataloging Pol-
icy & Support Office 2006). To complicate the issue, new knowledge is increasingly introduced in non-traditional formats. Besides books or textual documents of various kinds, new knowledge can be conveyed in a sound recording, a video clip, or an Internet website, to name only a few.

2.1.1 Organizing new knowledge

Beghtol (2004, 19) argues that classification systems can be termed “professional classifications” and “naïve classifications.” While professional classifications, such as the Dewey Decimal Classification (DDC) and the Library of Congress Classification (LCC), attempt to organize and provide access to pre-existing knowledge, naïve classifications, usually developed by the domain-specific individuals who “have no particular interest in classificatory issues,” primarily facilitate the discovery of new knowledge (Beghtol 2004, 19). Beghtol’s argument suggests that new knowledge, before it becomes established and recognized in publications, is usually dealt with by naïve classifications within a particular context. This model of two-tier development of classification systems can explain interestingly the rise and popularity of numerous metadata standards for managing Internet resources. As “professional classifications” are not tailored for discovering and managing new information, which is often the content of Internet resources, the communities in various subject areas develop their own “naïve classifications” to deal with their knowledge management needs. Internet directories, search engines and folksonomies are thus developed for this purpose.

Professional and naïve classifications serve different contexts and purposes. Nevertheless, they depend on each other and have a “cyclical relationship” (Beghtol 2004, 22). Professional classifications provide one means of formulating research into new knowledge. As new knowledge is disseminated among scholars using naïve classification systems, it gradually attains the status of literary warrant and enters the professional classification systems for conception of new knowledge. Beghtol’s model can illustrate the divide in terms of context and purposes of traditional bibliographic control (professional classifications) and less structured metadata applications (naïve classifications), such as folksonomies. Nonetheless, since the advancement of information and communications technology has been narrowing the time-lapse between new knowledge and knowledge harvested from literary warrant, there is a need to investigate and propose a new model for addressing the needs of managing new knowledge. Because naïve classifications and professional classifications adopt similar structural principles for organizing knowledge, synergy between these two systems is possible and desirable. For example, as shown by the subject analysis and classification dimensions in Figure 1, from the metadata direction, many schemas have included data fields of controlled vocabularies and classification systems to improve the effectiveness of information search and retrieval (Lee-Smeltzer 2000). On the bibliographic control side, the move to a faceted syntax of LCSH and other subject headings and classifications demonstrates the employment of metadata techniques for facilitating the automation of the traditional cataloguing and classification processes. The convergence in the subject analysis and classification dimensions suggests unambiguously that both systems are modifying themselves while bringing them closer to each other.

2.1.2 An era of interdisciplinary knowledge

Besides the rapid creation of new knowledge, the interdisciplinary characteristics of new knowledge create challenges to standard information retrieval and classification systems. In the knowledge era with advanced information communication technology, people have access to a very wide spectrum of knowledge. Moreover, studies that cover several traditional disciplines contribute more and more to new knowledge. The issue of “interdisciplinarity” as a new information retrieval problem and its resolutions are discussed by McIlwaine (2000), who presents the revision of two interdisciplinary fields, namely tourism and environmental science, in the Universal Decimal Classification (UDC). Her discussion demonstrates the flexibility of UDC, a highly faceted classification system, in addressing changes and interdisciplinarity. In the online and networked environment, the ability to allow the co-existence of basic classes appears to be critical. Since faceted classification systems can enable synthesis, the networked information retrieval systems often engage the faceted approach if they require a classification system for providing an information organization schema that can benefit from computer manipulation.

The advancement of new knowledge and the increasing popularity of interdisciplinary studies have led to the rapid appearance of new subject terms in their common usage format. Since there is often a significant time lapse before a new concept is included in controlled vocabulary, it is necessary to examine the advantages and disadvantages of employing
natural language and controlled vocabulary in information retrieval tools for the new environment.

2.2 The fall of controlled vocabulary and the rise of natural language

Librarians started to realize the significance of subject access to library materials in the end of the nineteenth century. Since then, the advantages and disadvantages of using natural language or controlled vocabulary for providing subject access have been debated continuously. The usefulness and strengths of controlled vocabulary for subject searching, particularly in terms of synonym and homonym control and term relationship, have been reinforced by various studies (Rowley 1994; Tillotson 1995; Gross and Taylor 2005). Most bibliographic control systems, therefore, continue to adopt this approach for providing subject access. However, the proliferation of networked electronic resources and the digitization of catalogue systems have enabled the natural language approach to play a more significant role in providing subject access to the electronic resources which are huge in number and fluid in structure. Indeed, the popularity of folksonomies and keyword searches enabled by database systems and Internet search engines asserts that natural language has become a dominant approach in some metadata applications that require less structure. This section briefly illustrates the tension between using natural language and controlled vocabulary in subject access and identifies the trend of adopting both approaches in new subject access systems.

2.2.1 The adaptations of natural language and controlled vocabulary in the online environment

As the expertise dimension of Figure 1 illustrates, a natural language approach often utilizes terms that are used by the authors or users to describe the primary content of the items for retrieval. Compared to the controlled vocabulary, the process of deriving natural language terms seems to be easier as people can use any words that they conceive. The assignment of subject headings to an item using controlled vocabulary requires trained cataloguers to examine a list of established headings and read through the instructions to find or construct the most appropriate headings. Moreover, in terms of access points, the natural language approach appears to be more comprehensive and exhaustive because users can use any, and as many, terms as they can conceive of for the item. Resource cataloguers thus have more choices to provide direct access points that can capture the most common and recent terminology. Controlled vocabulary headings, limited by rules and the principle of literary warrant, appear to be less efficient in utilizing current terminology from the user’s perspective. Controlled vocabulary systems do provide cross-references to refer from common terms not included in their lists to the authorized headings. However, not all natural and common terms are considered. Even if the common terms are included in the reference system, more steps are involved to access the item using these terms.

In the electronic and networked environment, the advantages of the natural language approach become very helpful to address the sheer number of resources available. Moreover, complemented by computer algorithms and statistical analysis, the performance of subject access systems using the natural language approach has been improved (Bates 1989). Nevertheless, the drawbacks of the natural language approach are noticeable in the new environment. First, the terms may not be consistent. Different people may use different terms to describe the same content. Moreover, resources on a single topic, such as food, can bear different terms as their subject entries, such as cooking, diet and grocery. Third, the natural language approach does not provide any cross-references among the subject terms. As a result, relationship and hierarchy of subjects cannot be determined. Finally, the choice of terms is limited because the authors and the users are familiar with a certain set of vocabulary only while a subject heading system usually provides cross-reference and index tools to enrich the list of possible subject entries. These drawbacks pose two challenges in subject access. Users may have to try a number of synonyms to identify an item that they know by subject. Moreover, when they wish “to retrieve all information, or as much information as possible, on a given subject, [they] must search all synonyms for that subject” (Chan 1994, 155).

In their discussion on folksonomies, a natural language approach of providing subject access, Guy and Tonkin (2006) observe similar drawbacks in what they call “sloppy tags” or “low-quality, redundant or nonsense metadata.” To address these drawbacks, critics of folksonomies suggest some resolutions that exploit the strengths of subject analysis and access using controlled headings. Indeed, controlled vocabulary seems to be more consistent, uniform and unique. Moreover, the controlled vocabulary system is adopted by most libraries and therefore the catalogue systems using these headings can become standardized in subject access. Moreover, syndetic structure and subject author-
ity files have been established among the controlled headings, and they provide a rich set of vocabulary for the authors or users to describe a resource. Traditional catalogue systems using controlled vocabulary have been serving users to identify a known item or gather items on the same subject in a very efficient and seamless manner in the library environment for a long time. The strengths of controlled vocabulary, such as its higher performance in the measures of precision and recall, can be used to complement the drawbacks of the natural language approach in the development of new subject access tools that can embrace these two approaches simultaneously (Chan 2000). As demonstrated by the automation of Dewey Decimal Classification (DDC) and Faceted Application of Subject Terminology (FAST), controlled vocabulary systems are being modified to adapt to the online environment and to enable the engagement of the natural language and controlled vocabulary approaches. Koch (2000), for example, argues that quality-controlled subject gateways, which exploit both the controlled vocabulary and the deep-structured classification systems, provide quality measures, to support systematic resource discovery. The quality measures include using controlled vocabulary, together with a thesaurus, for indexing resources and deep-structured classification systems for providing advanced searching and browsing capabilities.

2.2.2 Embrace the combination of natural language and controlled vocabulary

Several tools and projects have been developed to facilitate the simultaneous engagement of natural language and controlled vocabulary. Buckland (1999), for instance, implemented the Unfamiliar Metadata Vocabularies Project that maps initial natural language terms to controlled vocabularies in various database systems. In the automatic and online mapping process, statistics and intelligent computer algorithms are employed to provide weighting for linking user’s initial terms to controlled vocabularies ranked by their relevance. Users can then enter the controlled vocabularies to the information retrieval system for accessing the required items seamlessly and effectively. The success of this project depends very much on the quality of the mapping process, which seems to be an information retrieval system itself. Moreover, an additional layer, which can be as complicated as retrieving the actual item in the database system, is added in the subject access process. Nevertheless, this project demonstrates the feasibility of employing both natural language and controlled vocabulary in an information retrieval system.

Howarth (2004b) also discusses the development of a natural language gateway to metadata-enabled repositories. In order to combine the strengths of natural language and controlled vocabulary, “a common, natural language ‘gateway’ that could enable end-users to access resources without having to know the underlying metadata tagging, or domain-specific vocabularies” is required (Howarth, 2004b, 61). This gateway would directly link users to resources, eliminating the additional layers for end-user’s convenience. Issues of multiple languages, quality assurance and interoperability in the development of “subject gateways” are discussed in Day and Neuroth (2004), Freyre and Naudi (2003), Howarth (2004a), Kelly, Closier and Hiom (2005), Vizine-Goetz and Beall (2004) and Tramullas and Garrido (2005). However, as Howarth’s (2004b) study concludes, some metadata fields seem to be problematic in terms of matching natural language and the metadata vocabularies. Further investigation is necessary to develop more useful terminology and matching mechanism.

2.2.3 From user terms to expertise terms

In response to the new searching capabilities enabled by a computer system, Bates (1986, 1998) proposes the implementation of an end-user thesaurus that provides indexes from user’s terms to controlled terms. This thesaurus would enable the information retrieval system to fulfill the design principles that Bates (1986) conceives in the online environment, namely: 1) indexing and access according to the “uncertainty principle;” 2) high variety or redundancy principle; and, 3) complexity principle. These principles are developed from the recognition that, while the document is a representation of a definite state of knowledge, a query related to information need appears to be a representation of an anomalous, inadequate and incoherent state of knowledge. Recently, a number of commercial information retrieval systems have implemented a thesaurus-enhanced interface (Shiri, Revie and Chowdhury 2002).

Green and Fraser (2004) conduct an empirical investigation of the semantic relationship between approximately 600 English verbs that have multiple meanings. Their study aims to raise the awareness of verb polysemy among people involved in using or developing thesauri. Spiteri (2002, 24) enriches the hierarchical displays in information retrieval thesauri by proposing a theoretical framework of incorporating
word association testing in the development of thesauri. This framework enables thesaurus developers to:

a) compile a list of terms that end-users associate most frequently with a chosen descriptor;

b) determine how end-users inter-relate response and stimulus terms; and,

c) incorporate user-defined term relationships within thesaurus displays.

Zeng and Chen (2003) discuss the development of an integrated thesaurus management and cross-thesaurus search system for facilitating interoperability among networked database systems. This integrated system includes controlled subject headings and thesauri of different schemas. It demonstrates how the usage of controlled vocabulary and thesauri synthesize individual databases, transcends the limitation of the type of resource in a database, and maintains dynamic updates of indexes to data.

Interestingly, when traditional catalogue systems are digitized and networked, they become online database systems that can also benefit from the aforementioned thesaurus projects. The following section details the challenges and opportunities generated by the transition of catalogue systems from the separated and manual environment to the networked and automated world.

2.3 Digitizing and networking the traditional catalogue systems

In terms of subject access, traditional catalogue systems focus on Cutter’s two objectives of subject approach (Cutter 1904, 12): “1) to enable a person to find a book of which the subject is known and 2) to show what the library has on a given subject.” As a result of unique and uniform subject headings, identification, retrieval, and browsing of library materials have been precise, complete and relevant in their ideal practice. In other words, catalogue systems that use subject heading and classification systems in subject access yield a rather high performance in the measures of precision and recall (Gorman 2004).

Library catalogue systems were designed originally as manual systems for handling traditional library materials that are tangible, well-defined, self-contained and relatively stable. Without modifications, catalogues cannot utilize the new capabilities of automated and networked systems. As many principles of catalogue systems originate from a manual card catalogue approach, having catalogue systems networked and digitized entails a review of these principles. For example, the traditional cataloguing system’s definition of access points, usually by title, author and subject, becomes less critical because an automated catalogue system enables every single field in the catalogue record to become an access point. In other words, subject access is not limited to the controlled headings in the subject fields. It can be enriched by including keywords in title, author, notes and other identifiable fields in the catalogue records. This enrichment seems to be the precursor of the cooperation model between natural language and controlled vocabulary.

2.3.1 From card to computer—the golden opportunity of online catalogues

The replacement of card catalogues by online catalogue systems in the 1970s-1980s raises some far-reaching and important problems. As Hildreth (1985, 272) pointed out, although online searches are popular and satisfying to users, “closer analysis of user search sessions … reveals that many such searches fail … or do not retrieve all relevant materials.” Early online catalogues brought with them a few shortcomings, such as the lack of maintenance and loss of syndetic structure. Most importantly, catalogue cards, over years of being used and maintained, captured many interesting sorts of data, including dashed-on entries, local data and even dirt (an indicator of an item’s popularity). When they were replaced by electronic files, these data were lost (Baker 1994). Nevertheless, these shortcomings have gradually been overcome as technology continues to advance.

The benefits of an online catalogue surpass its problems. For instance, an online catalogue not only indexes every field of the catalogue record, but also locates any words in a particular field regardless of the order of their appearance. In the manual system, only the beginning word of the pre-defined access points can be searched systematically. An automated catalogue system is able to index and provide access to every single field in a catalogue record. In addition, with the new capabilities of Boolean and proximity operators, users can have almost infinite searching strategies to formulate their queries and search for desired items. Subject access has been improved by using a combination of controlled vocabulary, natural language, and searching operators. In other words, an online catalogue system has the potential to deconstruct the dichotomy between approaches of hierarchical browsing, facilitated by controlled vocabulary and subject authority files, and analytical searching,
which is enabled by the capabilities for locating and combining character strings anywhere in the catalogue record (Dodd 1996). An online catalogue system with these capabilities can then combine the features and strengths of hierarchical browsing and analytical searching for providing more seamless subject access.

When the searching capabilities of an online library catalogue system are fully realized, users may feel overwhelmed by the numerous “combinatorial choices of subject elements” (Bates 1989, 405). Users also need assistance in adjusting the size of output sets according to their information needs. Bates suggests the implementation of an end-user super-thesaurus that incorporates vocabulary for online search features and capabilities (1989). The importance of controlled vocabulary and the authority control structure in the catalogue system is reinforced in the electronic environment (Gross and Taylor 2005). Beside their traditional role of maintaining the internal structure of the catalogue records, controlled vocabularies and their authority structure provide the linkages and hierarchies to develop this super-thesaurus. Moreover, there are presumably users who prefer a compact and precise method of information retrieval enabled by a controlled vocabulary system in academic research.

2.3.2 The paradise lost of online catalogues

Among many other good suggestions to enhance the capability of online catalogues, the concept of super-thesaurus has not been implemented in most Online Public Access Catalogues (OPACs), which often adopt the Machine Readable Cataloging (MARC) standard for providing interoperability in the networked environment. Apart from making the catalogue systems available online and including a few more access points, many OPACs remain relatively unchanged in terms of information retrieval theory and practice. They often assume a highly structured database and expert searchers who are familiar with their conceptual framework. In their study to compare the use of OPACs and Google™, Campbell and Fast (2004) argue that while Internet search engines assist novice users by giving them starting points so that they can develop better knowledge of these systems, OPACs generally fail to direct users’ common entry terms to the access points that exist in their systems. Although both OPACs and Internet search engine systems are recognized as having similar goals, Campbell and Fast (2004) conclude that some changes are necessary for making OPACs engaging systems to users who are used to turning to the Web for fulfilling their information needs. Implementing an end-user thesaurus that links users’ entry terms to the controlled terms in the systems can facilitate these changes. On the one hand, OPACs can build on the strengths of traditional catalogue systems that provide a rich cross-reference network in the form of authority file systems and the hierarchies of subject heading references, such as related terms, used-for terms, see also references, broader terms and narrower terms. On the other hand, some conventional practices used in OPACs, such as a limited number of access points and subject headings and enumerative classification systems, would need to be modified to fully utilize the capabilities of the online environment and to meet the different expectations of users in terms of subject access. Nevertheless, with appropriate modifications, OPACs have great potential to combine the strengths of both bibliographic control and metadata. Markey (2007), for example, suggests that the paradise lost for OPACs can be regained if they embrace post-Boolean probabilistic searching, subject cataloguing and qualification metadata. In Figure 1, the main applications and rules dimensions show that OPACs and MARC seem to be appropriate entities for the merging of bibliographic control practices and metadata standards.

2.3.3 The transformation of subject headings in the digital age

Not all the potentials of the electronic catalogue system are fully realized because subject analysis theory and practice is still rooted in the manual card cataloguing environment. Most OPACs employ subject headings and classification notations that are developed from an enumerative approach. Library of Congress Subject Headings (LCSH), the indexing language most widely used in OPACs, is largely developed from an enumerative syntax (Svenonius 2000). In general, a subject heading or classification notation derived from an enumerative approach has been pre-established as a whole concept, which may indeed consist of a number of sub-concepts, providing the exact meaning according to the item’s context. It requires not only a full-string manipulation in searching but also pre-coordination in establishing headings at the indexing and searching stages. In this approach, headings are combined at the stage of indexing or cataloguing. As a result, enumerative subject headings and classification systems cannot fully utilize the flexibility of combining subject keywords by Boolean or other conjointing operators and notational synthesis.
2.3.3 The rise of faceted subject analysis

Recent online information retrieval studies have recognized the limitations of a pre-coordinated subject approach and have suggested the use of a faceted approach to constructing subject headings and classification notations. In classification literature, the faceted approach to subject analysis was first introduced by Ranganathan in his Prolegomena to Classification in 1933. In each basic class, Ranganathan (1962) considers a notation a combination of pre-defined facets (aspects), namely Personality, Matter, Energy, Space and Time (PMEST), expressed in that citation order. Because of the lack of universal application of the PMEST facets and the complexity of building the faceted notations accordingly, Ranganathan’s Colon Classification had not been very popular outside India. Nevertheless, the faceted classification approach demonstrated in Colon Classification embodies the computer amenability that is needed in managing and organizing information in the digital and networked environment.

Faceted subject analysis generates discrete units of classification categories. Using Ranganathan’s theory, for example, a subject category can be comprised of finer sub-categories in the pre-defined PMEST and the basic class categories. Significantly, computer systems can operate and manipulate more efficiently and effectively on these discrete units. Subject terms in each facet can be joined or disjoined in the process of searching. Term coordination can happen at any stage in the cataloguing or retrieval process, which include “1) during vocabulary construction; 2) at the stage of cataloging or indexing; or, 3) at the point of retrieval” (Chan 2000). A faceted approach appears to be more flexible and simpler in syntax. Faceted headings can be combined in any way as needed. Complex headings can be broken down into different facets according to established categories. A faceted approach, with its post-coordinate practice, simpler syntax and discrete basic unit, may enable major subject heading and classification systems to benefit from the capability of computer systems so that they can better adapt to the digital environment. La Barre (2007), for example, argues that faceted classification might bridge the gap between library and Web communities. Her thorough review of faceted applications indicates that the Web community has been using the faceted approach without realizing that there are already faceted systems developed in library and information science literature. Meanwhile, the library community may not be familiar with the computing technology and concepts that can facilitate the implementation of a faceted approach.

Bean and Green (2003), using the term “frame representations”—a facet in a faceted subject notation, suggest that the user requirement of high recall and high precision can be achieved by adopting frame representations in developing subject retrieval systems. Query structure, information visualization and the overall information retrieval process can be enhanced by applying the faceted approach to knowledge organization (Binding and Tudhope 2004). Recognizing the logical, semantic and syntactic strengths of Ranganathan’s faceted analysis theory and the Classification Research Group’s enrichment of the faceted approach, Broughton (2002) enhances and proposes the use of Bliss Bibliographic Classification (BC2), a faceted classification system, to manage Internet resources. Crowston and Kwasnik (2004), realizing the advantages of faceted classification, adopt this approach to address the issues of multidimensionality of classifying genres. In their discussion of using document genres as a means to retrieve useful information, Crowston and Kwasnik argue that a document’s genre is a subtle and complex concept. The content and form of a document are often intertwined with its purpose and function. Consequently, the classification of genres appears to be a multidimensional phenomenon that can be addressed by using a faceted classification approach.

Siperti (1998) highlights the ability to express compound subjects in faceted classification systems, and this ability has become a critical characteristic in online information retrieval systems. The faceted subject approach has produced significant impact in the traditional classification community. In their strategic plan to adapt to the new environment, the Subcommittee on Metadata and Subject Analysis of the Subject Analysis Committee of the Association of Library Collections and Technical Services (1999) has made a number of suggestions. One of them is to adopt a faceted version of LCSH in the subject fields in order to provide more satisfactory subject access to digital objects (Chan 2005). The faceted LCSH, known as Faceted Application of Subject Terminology (FAST), aims to “minimize the need to construct complex subject headings” by simplifying the syntax, adopting a faceted approach, and retaining the richness of the LCSH vocabulary (Chan 2005, 415). The FAST development demonstrates the efforts and initiatives of subject heading and classification systems to adapt to the new information development. It can facilitate the cooperation between the bibliographic control and
metadata approaches by creating a subject heading system that can be adopted by both approaches. The use of FAST headings in the subject metadata fields allows an information retrieval system to benefit both from the strengths of metadata and bibliographic control. Nevertheless, issues of consistency and continuity have to be addressed for existing information retrieval systems to adopt FAST headings. In the second part of the following section, the issues surrounding the implementation and applications of FAST by OCLC will be discussed in more detail.

2.4 Electronic publishing and the Internet

The tremendous volume of electronic publications available in the Internet creates unprecedented challenges to information organization and retrieval. Moreover, many of these digital materials appear to be amorphous, ill-defined, not self-contained, unstable and volatile. These characteristics of electronic resources have initiated dramatic changes in traditional subject access theory and practice. Consequently, metadata schemas have been developed by various domain-specific communities to handle the issues of organizing and providing access to online information resources (Campbell 2002; Greenberg and Campbell 2003; Tramullas and Garrido 2005). However, as illustrated in the objects dimension of Figure 1, collaboration between metadata schemas and bibliographic control is required to deal with the overlapping entities of electronic resources and the so-called “traditional” resources, such as electronic books and journals. This leads to the investigation of modifying a traditional subject analysis approach on the side of bibliographic control to enable the cooperation between metadata schemas and bibliographic control.

3.0 A comparison of metadata schemas and traditional catalogue systems

Metadata schemas and traditional catalogue systems share similar objectives in terms of providing subject access to information resources. Nevertheless, distinctive features can also be highlighted in these two systems. In terms of subject access, some metadata, such as folksonomies and machine-generated indexes, primarily use natural language or keywords for the sake of efficiency and simplicity (Guy and Tonkin 2006). This practice is complemented by statistical tools and computer algorithms in order to improve the measures of precision and recall of the system. Meanwhile, traditional catalogue systems often adopt a controlled vocabulary, which requires trained experts in subject analysis. Metadata schemas, supported by automated metadata generation mechanisms, require less time and fewer human resources to generate metadata records (Campbell 2002; Greenberg, Sutton and Campbell 2003). Created primarily for digital resources, these records can fully utilize the capability of computer applications. This utilization of computer power enables metadata schemas to better accommodate a high quantity of objects. Appearing to be very standardized and consistent, catalogue systems using the bibliographic control approach usually provide quality records that yield a high performance in terms of precision and recall (Chan 2000).

3.1 A spiral dance between bibliographic control and metadata schemas –the automation of subject analysis

Two major strategies for adapting bibliographic control techniques to the application of metadata schemas are developed. The first strategy would be the automation of the assignment of subject headings and classification notations, which, once automated, should be integrated. In terms of automatic classification development, DDC seems to demonstrate a greater flexibility than LCC. For example, OCLC has developed a system that enables the browsing and searching of a DDC notation for a subject automatically. In addition, automation of DDC has also been successfully incorporated in the NetFirst, CyberDewey and Cooperative Online Resource Catalog (CORC) projects (Chan 2000; Vizine-Goetz 1997; Vizine-Goetz and Beall 2004).

The automation of constructing LCC notations seems to have started drawing researchers’ attention. For example, the design of a hierarchical interface (HI) to LCC (HILCC) has been proposed by Davis (2002). This interface provides automatic subject access to resources in the libraries’ electronic collections with a mapping table of three levels that links OPAC records against the HILCC. This system enables the browsing of subject menus and may serve as a model for the automation of the assignment of LCC according to established subject headings. Frank and Paynter (2004) also developed a feasible model of automating the assignment of LCC notations based on established subject headings. Their model primarily uses a tree-nodes approach to organizing LCC notations and LCSH terms. An LCC notation is represented as the node and LCSH as the branches. The heading at the deepest level of the tree would be the most specific
heading within the LCC given in the node. These initiatives demonstrate the possibility of automating the assignment of LCC numbers.

Some of the issues and the complexity of this process were discussed in Williamson (1986), who explored the feasibility of automating the LCC system for the online environment. She raised four primary problems that would need to be addressed in the computerization of the LCC system. The first issue of converting printed schedules to machine-readable form has been resolved. The following three problems continue to hinder the use of LCC in the digital environment. First, LCC’s high degree of enumeration entails complex schedule layouts and topic displays. For example, the automated LCC system will need to display the whole hierarchy in Figure 2 in order to illustrate the complete meaning of the concept “circuits” in LCC’s schedules. To further complicate the issue, there is also “hidden” enumeration from the “use of auxiliary tables and the ‘A-Z’ instructions for alphabetical arrangements using book numbers to create subtopics” (Williamson 1986, 47).

The lack of coordination, integration and mnemonics among LCC’s classes, all of which were developed and have been perpetuated separately, created another problem for the automation of LCC. This situation creates obstacles for LCC’s automation that requires consistency and coordination among its classes (Williamson 1986). The third problem in the automation of LCC is created by the non-hierarchical characteristic of LCC’s notation. LCC’s hierarchy is illustrated by its schedules that reflect classes, subclasses and constituent subjects, such as the one in Figure 1, rather than its notations. All these obstacles can be overcome eventually with more human effort and financial funding. Indeed, the recent implementation of Cataloguer’s Desktop and Classification Web by the Library of Congress demonstrates that substantial efforts have been made in LCC’s automation. Nonetheless, the issues raised by Williamson remain hindrances to the seamless adoption of LCC in an online environment.

![Figure 2. Hierarchy of LCC schedules illustrating the concept of “circuits” (Williamson 1986, 47)](image-url)

### 3.2 A spiral dance between bibliographic control and metadata schemas—faceted subject headings

The second strategy attempts to simplify the subject headings and incorporate the faceted approach in order to enable the exploitation of bibliographic control in metadata applications and to address the complexity and computer amenability issues. A faceted heading is comprised of multiple concepts structured according to the pre-defined facets, which seem to be simpler in syntax. Moreover, the discreteness of the facets can make better use of the computer capabilities. The contrast between faceted and enumerative subject analysis has been illustrated in the section discussing the challenges created by digitizing and networking catalogue systems. This section therefore focuses on a particular project that transforms the LCSH from the enumerative approach to the faceted approach. Initiated by OCLC, the Faceted Application of Subject Terminology (OCLC FAST) project aims to exploit the strengths of the controlled vocabulary of LCSH and the simplicity and computer amenability of faceted subject headings for its adoption in metadata. OCLC FAST is “derived from LCSH but applied with simpler syntax” and adopts a faceted approach so as to retain the “richness of the LCSH vocabulary” for metadata applications (Chan 2005, 415). Developed from the existing headings that have already been used, the following facets have been conceived: topical, geographic, form, period, personal names, corporate names, conference/meetings, uniform titles, and name-title entries. Moreover, all OCLC FAST headings, except for the period facet, have been established in an OCLC FAST authority file. Although specificity may have been lost in providing more flexibility and simplicity, the goal of developing a new subject schema for metadata that builds on the rich vocabulary of LCSH while being easy to use, understand and maintain seems promising (Chan 2005).

OCLC FAST is a relatively new project, its success and adoption in the metadata environment are to be evaluated and determined. Several studies have been
published about the implementation and applications of OCLC FAST. Mitchell and Hsieh-Yee (2007) conducted a study to assess the feasibility of applying OCLC FAST headings to records in the *Ulrich's Periodicals Directory™* for providing subject access. They find that converting the sample of 100 random Ulrich’s subject terms to OCLC FAST headings is useful and fairly easy to accomplish. Acknowledging a few problems that are resolved fairly easily, the authors conclude that the adoption of OCLC FAST headings would benefit the Ulrich’s system as it will provide an addition means of subject access. Although the actual incorporation of OCLC FAST terms in Ulrich’s records has yet to come, this feasibility study has demonstrated the possible adoption of a faceted *LCSH* by other subject classification systems.

The OCLC FAST project has received more attention, particularly in the digital environment. Several libraries have used OCLC FAST terms to provide subject headings for their digital projects. Nevertheless, several issues needed to be addressed in this project. First, the authority of these headings is established by the literary warrant of OCLC’s WorldCat records, which happen to be records of primarily non-digital materials. These headings may not be able to describe adequately some of the content of digital and networked resources that often convey new knowledge. Second, the headings remain pre-coordinated within the same facet. The topical headings, for example, usually contain a number of interesting sub-topics, such as Revolution (United States, 1775-1783) and Quartets (Pianos (2), percussion). This multiplicity in the topical facet recreates issues of using the enumerative approach, undermining the project’s efforts to achieve simplicity and computer amenability. Last but not least, the decline in quality and accuracy of OCLC FAST, a simplified version of *LCSH*, remains to be assessed. Will users and cataloguers accept the decline in quality and accuracy? In a qualitative analysis of 5000 bibliographic records converted from *LCSH* to OCLC FAST, the quality and accuracy issues are highlighted. Sponsored by ALCTS Subject Analysis Committee and reported by Qiang Jin (2008), the analysis concludes that although most OCLC FAST headings cover the “aboutness” in post-coordination, some headings become generic and lose their meanings. Relationship established in enumerative headings is lost in post-coordinated headings. Some OCLC FAST headings in certain facets make little or no sense when they are taken out of context.

In addition to the issues discussed above, OCLC FAST headings are often criticized for its partially faceted syntax. OCLC FAST’s topical facet remains enumerative. The problem of inconsistent syntax rules associated with *LCSH* passes on to OCLC FAST headings. Anderson and Hofman (2006), therefore, propose a fully faceted syntax for *LCSH*. Using the facets developed in *BC2*, Anderson and Hofman (2006, 8) demonstrate workable rules to restructure *LCSH* from enumerative syntax to faceted syntax. The fully faceted *LCSH*, in the words of the authors, “offers solutions to three problems that confront the current *LCSH* system: 1) inconsistent syntax rules; 2) inability to create headings that are coextensive with the topic of a work; and 3) lack of effective displays for long lists of subdivisions under a single subject heading in OPACs and similar electronic displays.” The proposed syntax by Anderson and Hofmann shows that *LCSH* can become fully faceted. The success of this proposal depends on further testing and whether cataloguers and users find the new system more useful than the current approach. Interestingly, the model suggested by Anderson and Hofmann illustrates another step that can be made by subject cataloguing systems to move closer to the convergence of traditional bibliographic control and metadata.

### 4.0 Conclusion

This investigation of the current issues in bibliographic control and metadata schemas concludes that resolutions of these issues suggest a tendency towards convergence of these two approaches. Tools developed and adopted in these two approaches appear to effectively complement each other. To address the challenges of the rapid advancement of new knowledge in both digital and non-digital materials, information retrieval systems need to exploit the timeliness and computer amenability of metadata and the consistency, quality and conciseness of bibliographic control. Moreover, digitized and networked catalogue systems have enabled traditional bibliographic tools to incorporate both natural language and controlled vocabulary in providing subject access, while the metadata realm is recognizing the advantages of using the controlled vocabulary approach.

The huge volume of digital and networked information resources creates unprecedented challenges to both bibliographic control and metadata applications. In their attempt to provide quality subject access to these resources, metadata schemas and applications have recommended the use of traditional tools in bibliographic control, such as major subject headings and classifications systems. The bibliographic control
community also responds to the proliferation of online resources by revising the International Standard Bibliographic Description for Computer Files (ISBD(CF)) and re-titling it International Standard Bibliographic Description for Electronic Resources (ISBD(ER)). Chapter 9 of the Anglo-American Cataloguing Rules has been consequently modified and renamed from “Computer Files” to “Electronic Resources” (Howarth 2005). Another significant attempt of adapting cataloguing tools in the networked and digital environment is demonstrated by the FAST project, which revises LCSH using the faceted approach, aiming to provide an subject heading schema that appear to be “easy to use, understand, and maintain” for metadata (Chan 2005, 415).

Mitchell (1998) suggests that the differences between metadata schemas and bibliographic control may have been caused by different terminology used for similar concepts. Howarth (2005, 37) further argues the similarities of metadata and bibliographic approaches “have become sufficient to warrant a confluence in terminology and definition.” This author has examined the trend and pattern of recent projects in bibliographic control and metadata for dealing with the issues and challenges created by the advancement of new knowledge, the choice of adopting natural language or controlled vocabulary approaches, the digitized and online catalogue systems and the proliferation of digital and online resources. The trends and patterns consequently identified suggest a larger convergence between the tools of bibliographic control and that of metadata. This convergence will lead to the triumph of the hybrid approach, a combination of the human approach of control vocabulary and the automation approach of algorithmic generation of metadata, in providing subject access. The dichotomy of human and automation approaches has turned into a spiral, which reaches a higher level of subject access every time when these two approaches meet and complement each other.

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The Use of Concept Maps in Knowledge Organization:
An Analysis of Conference Papers†∗

Alon Friedman
255 West 10th Street, #3RN, New York, NY USA 10014,
<Dr.alon.friedman@gmail.com>

ABSTRACT: Concept mapping is a technique for representing knowledge in graphic form. It is often used in academic conference papers by professionals in the field of knowledge organization. By examining the entire run of conference proceedings from ISKO and ASIS SIG/CR, looking specifically at the nationality and professional occupation of the authors who used concept maps in their papers, this study analyzes how concept maps have been implemented. A total of 652 papers and 327 concept maps were examined, from nine volumes of ISKO conference proceedings and thirteen volumes of ASIS SIG/CR conference proceedings. In addition, I applied Dahlberg’s classification in order to better understand the nature my findings. I found that Dahlberg’s “object” category covers the majority of titles and concept maps found in the proceedings. Future studies need to address how concept maps used by researchers can be organized to support retrieval.

† This article is adapted from the author’s 2007 Ph.D. thesis: Concept map as “sign;” concept mapping in knowledge organization through a semiotics lens, Long Island University.

∗ I owe a great deal of gratitude to Dr. Smiraglia, who introduced me to Dahlberg’s theories and the importance of classification in the context of concept maps.

1.0 Introduction

Concept mapping provides visual representation of knowledge structures and argument forms. It has provided visual representation of knowledge structures in academic and business settings since the late 1930s. Concept mapping has mostly been employed to facilitate collaborative learning in the educational paradigm. Friedman (2006) found that concept mapping is used frequently in academic conference proceedings by scholars of knowledge organization. He examined the Sixth and Eighth ISKO conference proceedings and discovered that the technique has become a standardized procedure in the field.

Scholars define the field of knowledge organization as one that specializes in the arrangement and retrieval of concepts and knowledge. According to Dahlberg (2006, 1995 and 1983), knowledge units are the core of the theoretical examination of knowledge organization. Concept mapping is a technique for visualizing the relationships among concepts. In this study, concept maps were used as a focal point for examining how academic scholars in the field of knowledge organization represent knowledge units (i.e.,
concepts). Given the growing popularity of concept mapping, I applied Dahlberg’s classification system to examine the titles of the papers and the titles of the concept maps that authors used to illustrate their findings. I proposed the following three questions:

1. How do scholars represent concepts using concept maps?
2. How can knowledge units (i.e. concepts) contained in the maps be classified?
3. Do national or professional differences influence the way concepts are mapped?

I believe that by addressing these questions, we will better understand the value of concept maps in representing academic knowledge.

2.0 Background

The term “concept map” was developed by Novak and Gowin (1984) who aimed to provide a better tool for lecturers, teachers, and their students. Their definition employs three key terms: concept, proposition, and learning. According to them, the label stands for a single word, although sometimes we can use symbols such as “+” or “%.” Propositions are statements about some object(s) or event(s) in the universe. They can be either naturally occurring or constructed. They contain two or more concepts that are connected with other words to form a meaningful statement. Sometimes these are called semantic units or units of meaning. The term “learning,” according to Novak and Gowin, stresses the important role of prior knowledge in students’ acquisition of new concepts. However, Novak and Gowin do not refer to the use of concept maps by academic researchers, nor do they address how to classify the titles of maps. Concept mapping has mostly been employed to facilitate collaborative learning in the field of education (Roth 1994; Roth and Roychoudhury 1994). However, other fields also examine the use and nature of concept maps. In the history of science, concept maps have been used to represent the processes of conceptual change in scientific revolutions (Nersessian 1989; Thadgard, 1992). In the philosophy of science, Toulmin (1958) developed a theory of scientific argument based on typed concept maps, which are regarded as one of the major themes of the rhetoric of western thought (Golden, Berquist and Coleman 1976). In the field of computer science, Sowa (2000) examined the nature of concept maps in Artificial Intelligence. And in the field of knowledge organization, Priss (2004) has studied the nature of concept maps and developed a methodology of concept mapping with regard to programming languages.

The field of knowledge organization facilitates the arrangement of knowledge to assist its retrieval. A more precise definition is provided by Smiraglia (2005); according to him, knowledge organization involves the “ordering of what is known,” particularly for information retrieval. Nowadays, with the increasing variety of non-printed material, including electronic documents, sound, images and maps that carry intellectual and physical properties, defining the field of knowledge organization has become more complex. In addition, according to Andersen and Skouving (2006), the field of knowledge organization cannot be known only for its principles and rules; it needs to be recognized as a human and social activity. According to Hjørland (2003), the term knowledge organization means the organization of information in bibliographic recordings, including citation indexes, full-text records, and electronic documents over the Internet. Dahlberg (2006) provides a different understanding, stating that the field of knowledge organization needs to be concerned with the structuring and systematic arrangement of concepts or knowledge units. This structure is completed by assigning value to inherent knowledge elements according to the contents of references of all kinds. As a technique, studying concept maps provides a lens for examining how knowledge units are represented by academic scholars in the field knowledge organization.

3.0 Methodology

I examined the entire contents of the volumes of conference proceedings of two conferences that took place between 1990 and 2006: a total of 22 meetings, during which 642 papers were presented, containing 327 concept maps. In order for a concept map to count in the study, it must present text, image, and links that illustrate the relationship between the nodes and arcs in the map. The arcs represent the type of relationship between the nodes they represent, which is consistent with the definition of the term concept map given by Lambiotte et al. (1984).

The study progressed through four steps. First, I recorded the nationality and occupation of the authors of the papers. In the second stage, I calculated the most-used mapping formats. In the third stage, I used Dahlberg’s classification to classify the papers and concept maps. In the final stage, I conducted cross tabulation to check for national or occupational influences.
4.0 Results

I examined the entire contents of the volumes of published proceedings of the two series of conferences that took place between 1990 and 2006. This included a total of 22 meetings, during which 652 papers were presented. ASIS SIG/CR contained 158 papers and ISKO proceedings contained 494 papers. Note that the last printed ASIS SIG/CR occurred in 2002. Although the meetings continue, the proceedings were not available during the period in which this study took place. Out of 652 papers, I found a total of 327 concept maps: 202 maps from ISKO and 125 maps in ASIS SIG/CR. However, a closer look at the number of papers and the number of concept maps per conference in both series of proceedings reveals that the ASIS SIG/CR conferences showed a higher percentage and a closer relationship between the number of concept maps and the number of papers per conference than the ISKO conferences did. Although the ISKO proceedings included more concept maps, the ratio of the number of concept maps to the number of papers per conference indicates that the ASIS SIG/CR presenters employ more concept maps per paper than the ISKO presenters. The reason for the difference is the relatively larger number of papers presented during each ISKO conference event: recall that the ISKO proceedings included 494 papers, compared to only 158 papers at ASIS SIG/CR conferences.

First I examined the occupation of each author who contributed a paper to the conference proceedings. The results were classified into three categories: professor/academic teachers, practitioner, and student. Regarding the relative proportions, I found no major differences between the two sets of conference proceedings. In both conference series, the majority of the authors were professors: out of 602 authors, 431 were professors. In addition, I examined the country of employment of each researcher. During the period under examination, most of the presenters at ASIS SIG/CR were American-based, whereas most of the presenters at ISKO were based in Europe. Unlike ASIS SIG/CR, I found that the majority of presenters at ISKO conferences were professors who worked in one of four major European countries: Spain, France, Germany, and Denmark. The USA and Canada supplied the next largest number of participants. It is interesting to note that in the early ISKO conference proceedings (ISKO #1 - #4) the majority of presenters came from the host country. This trend changed over time. In the last ISKO conference (#9: Vienna, Austria), the majority of the presenters came from the United States.

With regard to the characteristics of the authors who included concept maps as part of their papers, I found no major difference between the two conferences. Table 1 shows the top-ranked country of employment and occupation of those who presented concept maps at ASIS SIG/CR meetings.

In contrast, the ISKO presenters were a more international group. However, at the majority of ISKO conferences, the United States-based presenters who used concept maps did not outnumber researchers from other countries. Out of 101 ISKO concept-map presenters, only 21 worked in the United States. Researchers from Germany ranked second, with 10 concept maps. Table 2 presents the top-ranked country of employment and occupation of the concept map creators for each ISKO conference.

<table>
<thead>
<tr>
<th>ASIS SIG/CR #1</th>
<th>Number of presenters using Concept maps</th>
<th>Top Country of Employment</th>
<th>Top Occupation</th>
<th>Total number of maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASIS SIG/CR #2</td>
<td>4</td>
<td>USA = 75%</td>
<td>Professor = 63%</td>
<td>10</td>
</tr>
<tr>
<td>ASIS SIG/CR #3</td>
<td>3</td>
<td>USA = 100%</td>
<td>Professor = 78.5%</td>
<td>6</td>
</tr>
<tr>
<td>ASIS SIG/CR #4</td>
<td>5</td>
<td>USA = 80%</td>
<td>Professor = 75%</td>
<td>12</td>
</tr>
<tr>
<td>ASIS SIG/CR #5</td>
<td>6</td>
<td>Canada = 40%</td>
<td>Professor = 88%</td>
<td>18</td>
</tr>
<tr>
<td>ASIS SIG/CR #6</td>
<td>4</td>
<td>USA = 50%</td>
<td>Professor = 81%</td>
<td>18</td>
</tr>
<tr>
<td>ASIS SIG/CR #7</td>
<td>3</td>
<td>Germany = 66%</td>
<td>Professor = 79%</td>
<td>9</td>
</tr>
<tr>
<td>ASIS SIG/CR #8</td>
<td>1</td>
<td>Canada = 100%</td>
<td>Professor = 54%</td>
<td>1</td>
</tr>
<tr>
<td>ASIS SIG/CR #9</td>
<td>3</td>
<td>USA = 66%</td>
<td>Professor = 62%</td>
<td>10</td>
</tr>
<tr>
<td>ASIS SIG/CR #10</td>
<td>4</td>
<td>Denmark = 50%</td>
<td>Professors = 62%</td>
<td>9</td>
</tr>
<tr>
<td>ASIS SIG/CR #11</td>
<td>6</td>
<td>USA = 83%</td>
<td>Professors = 63%</td>
<td>8</td>
</tr>
<tr>
<td>ASIS SIG/CR #12</td>
<td>3</td>
<td>USA = 66%</td>
<td>Professor = 67%</td>
<td>9</td>
</tr>
<tr>
<td>ASIS SIG/CR #13</td>
<td>3</td>
<td>USA = 100%</td>
<td>Professor = 82%</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 1. ASIS SIG/CR presenters according to profession and country of occupation
Overall, the majority of the contributors to both sets of conference proceedings are United States-based professors who used concept maps to illustrate their findings. Future studies should address the issue of country of employment and area of research of the participants who contribute to knowledge organization conferences, as well as the factors that influence the use of concept maps. Next, I counted the most frequently used form of maps found throughout the two sets of conference proceedings.

5.0 The most used forms of concept maps

Out of the 327 maps I reviewed, I found three main classifications: concept maps, mind maps, and conceptual graphs. Concept Maps consist of text, images, and links, all of which describe the relationship between specific nodes and arcs that yield the semiotic essence of any given presentation. Mind Maps are diagrams that are used to represent words, ideas, tasks, or other items that are linked to, and arranged around, a central word or concept. Conceptual Graphs are systems of logic that are based on both the existential graphs of Charles Sanders Peirce and propositional logic. Table 3 presents the findings.

<table>
<thead>
<tr>
<th></th>
<th>Concept Maps</th>
<th>Mind Maps</th>
<th>Conceptual Maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISKO</td>
<td>128</td>
<td>23</td>
<td>51</td>
</tr>
<tr>
<td>ASIS</td>
<td>78</td>
<td>13</td>
<td>34</td>
</tr>
<tr>
<td>SIG/CR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>206</td>
<td>36</td>
<td>85</td>
</tr>
</tbody>
</table>

*Table 3. The form of concept maps most used*

Accounting for 62% of the total, the concept map was the most-used format. As the preferred method of displaying scientific information in the series of ISKO and ASIS SIG/CR conferences, concept maps integrate graphics and text most efficiently. It is interesting to note that most researchers added further graphic representations to their maps, without providing detailed explanations of their meaning. This apparent oversight should be examined in future studies. Next, I employed Dahlberg’s classification in order to better understand the nature of the concept maps found in the two series of conference proceedings.

6.0 Analysis using Dahlberg’s classification

In order to understand the topical parameters of the papers and their concept maps I used Dahlberg’s (2006) Classification System for Knowledge Organization Literature to categorize the titles of both papers and concept maps. Dahlberg outlines ten categories: (1) general-form concepts, (2) theories and principles, (3) object classification systems and thesauri, (4) activity processes, (5) property attributes, (6) persons, (7) institution (8) technology and production, (9) application and determination, and (10) distribution and synthesis. The first group classifies certain kinds of documents, including bibliographic works and conference proceedings. The second category refers to theories and principles that deal with indexing and classification. The next group, “object,” addresses classification systems and thesauri that deal with the classification of the object. “Activity process,” which is the fourth category, involves methods of classifying and indexing. The fifth category deals with the property attributes of indexing and classification. The sixth category, “person,” deals with subject-related systems. The next group involves concepts from fields (mainly technological) that are related to knowledge organization; the title of this class is “technology and production.” The seventh classification, “application and determination,” covers the
methods of the field that are applied to document forms and subject contents. It also covers intellectual products in the field. “Distribution and synthesis,” the last group, addresses the environment of the field and its social organization, as well as issues of education, law, economics, and service. Dahlberg concludes that the first category and the last three categories are successful for arranging the research framework of knowledge organization (2006, 14).

With respect to the use of paper titles, major differences emerged between the two series of conferences. Most of the titles of ISKO papers fell into two major groups: “object,” which ranked at the top, and “technology,” which ranked second. Under Dahlberg’s classification, papers classified under the “object” group discuss concepts and classification in knowledge organization. Under this heading, 115 out of 652 titles were classified, which represents 15% of the total number of papers. In every ISKO conference proceeding examined for this study, “object” appeared at least five times or more. Based on Dahlberg’s classification, the second-highest ranking group (“technology”) discusses concepts from other fields that are directly related to the field of knowledge organization. “Technology” accounted for 90 out of 652 titles, representing 13% of the overall number of papers. This category maintained a strong presence throughout the two series of conference proceedings. The one exception is the third ISKO (1994) conference, where none of the papers were classified under this group. Only 40 titles, accounting for 6% of the total, came from the third group, “application.” According to Dahlberg’s classification, the “application” group discusses methods that are applied to classify documents and data classes.

In comparison, the most dominant group-theme classification in the ASIS SIG/CR proceedings was “activity component,” which appeared in 12 out of 13 conferences. The “activity” group applied to 36 titles out of 158, representing 22% of the overall number of papers. “Technology,” which was also one of the top groups in ISKO, ranked second at these conferences. It accounted for 31 paper titles, or 19% of the overall number. With only 24 paper titles, equaling 15% of the overall number, the “application” group came third.

Thus the proceedings from the two series of ISKO and ASIS SIG/CR conferences share the same second and third place classification groups: “technology” and “application.” When examining the proceedings with regard to the “activity” group, the following difference emerged: in ASIS SIG/CR, “activity” was the highest-ranking term, but in ISKO it was a relatively distant sixth place. In ASIS SIG/CR, I found that American presenters led both in terms of nationality and in the use of the following categories: “activity,” “technology,” and “application.” The second leading group of contributors was from the UK. This group secured second place in both of Dahlberg’s top categories. Overall, the majority of contributors were American professors, who presented a total of 89 papers out of 158 papers.

It is interesting to note that in the proceedings of both series of conferences, the researchers from the USA had a stronger presence than those from any other countries. In the ISKO conference proceedings, cross-tabulation demonstrates that many American papers were classified under Dahlberg’s “object.” In ASIS SIG/CR, the American-based contributors lead the way, with “activity” the leading group. In both series of proceedings, professors were the leading professional category. Future research needs to analyze the relationship between the country of employment of authors and their respective subject of research.

Applying Dahlberg’s classification to the concept maps used in ISKO conference papers, the “object” group appeared most often. Out of 202 maps, 51 came under this category, representing 25%. At every ISKO conference, this classification appeared at least twice. “Activity,” which discusses the methods and activities of classes and their explanation, featured second at ISKO. This category holds 39 maps, representing 19% of the overall total. In third place, the group “technology” consists of a total of 30 maps, or 14% of the total. The most dominant classification in the ASIS SIG/CR events was “technology and production,” which appeared in 11 out of 13 conferences. It was present in 20 out of 125 maps, totaling 17%. In second place, I found the group “activity,” with 20 maps, representing 16% overall. In third place, the “object” group accounted for 17 maps, or 14%. Table 4 summarizes the concept maps found in the entire set of ISKO conference proceedings.

The most dominant group-theme classification in the ASIS SIG/CR events was “technology and production,” which appeared in 11 out of 13 conferences. Maps classified under this group display concepts from fields related to knowledge organization. The second highest category was “activity,” which stands for methods and activities of classifying and indexing. The third ranked group was “object,” which stands for a particular activity relate to the object in the concept systems. Table 5 summarizes the concept maps in the entire series of ASIS SIG/CR proceedings according to Dahlberg’s classification.
In summary, although the series of ISKO and the ASIS SIG/CR conference events do not reveal the same top-ranked themes, I found similar patterns regarding Dahlberg’s “object” group. This particular group was ranked third in ASIS SIG/CR and first in ISKO. In addition, the “activity” group was among the top three most-used categories in both series of conference proceedings. At ISKO, “activity” was ranked in second place, the same as it was ranked in ASIS SIG/CR. More studies need to examine how authors employ concept maps to define the major concepts in their discussions.

7.0 Cross Tabulation

I conducted cross tabulation to analyze the sources of the papers and concept maps by country of origin and institutional affiliation. At ISKO, Americans contributed 23% of papers to the conference out of a total of 494 papers, while American presenters at ASIS SIG/CR accounted for 159 papers, or 61% of the concept map contribution. I also found that the majority of the contributors were professors. At ISKO, 54% of all papers examined were authored by professors, and at ASIS SIG/CR, 65% of all contributors were professors. With regard to concept maps, the majority (38%) of the contributors in both series of conferences were also U.S.-based professors.

Between the two series of conference proceedings, I found no difference with regard to the creators of concept maps vs. authors of papers. United States-based professors were the most highly represented group in both conference series and for both types of contribution. At ISKO conferences, 38% of creators of concept maps were American. At ASIS SIG/CR, 72% of all concept map makers were based in the United States. The majority of those who included concept maps in their papers were professors. At ASIS SIG/CR, 74% of the concept-map presenters were professors, while at ISKO 81% of concept maps were created by professors.
I also found a similar pattern between the papers and the maps using Dahlberg’s classification. Most of the titles of the papers at ISKO fell into two major groups: “object,” which ranked at the top, and “technology,” which ranked second. I found that the concept maps and the papers had the same leading group-theme, “object,” which accounted for 11% of all paper titles and 25% of all concept maps found in ISKO. “Activity” ranked second and “technology” third. Things were different at the ASIS SIG/CR conference meetings, where the most dominant group-theme classification was “technology,” followed by “activity” and “object.”

With regard to concept maps, the most dominant Dahlberg classification at ISKO was “object,” which applied to 25% of all the maps. Once again, “activity” ranked second and “technology” third. In contrast, the most dominant classification among the ASIS SIG/CR concept maps was “technology,” which appeared in 23% of all the maps. The second ranked category was “activity,” while “object” was third.

It is noteworthy that while Dahlberg suggests that her first category and last three categories (“general form,” “technology,” “application,” and “distribution”) are the most popular, I found, regarding the titles of the papers, that “object” and “activity” ranked at the top of both series of conference proceedings. These two categories do not even appear on her list of most-popular groups. When looking at ISKO concept maps, “object” once again ranked highest. In terms of Dahlberg’s ranking, the only match I found in the ASIS SIG/CR proceedings was the group “technology and production.” Dahlberg’s classification has never been examined with regard to its application to the nature of paper titles or concept maps in knowledge organization conference proceedings. Future studies need to apply Dahlberg’s categories to the classification of conference papers and concept maps in order to evaluate the strength of Dahlberg’s scheme. In addition, more studies are needed to understand how concept maps are used by academic researchers, especially to define the core concepts in their discussions.

8.5 Summary and Discussion

Knowledge organization is often defined in terms of facilitating information retrieval. Dahlberg maintains that the core examination of knowledge organization can be found in the knowledge units, or concepts. Concept mapping (which shows the relationship among concepts) is a technique for visualization. In this study, concept maps were used as a lens for examining how knowledge units are represented by academic scholars in the field of knowledge organization. Using Dahlberg’s classification, I examined the titles of the papers and the titles of the concept maps found in two major series of conference proceedings in the field of knowledge organization: ISKO and ASIS SIG/CR.

A total of 642 papers and 427 maps were found in the proceedings of these two series of conferences between 1990 and 2006. In both series, the majority of the researchers who utilized concept maps as part of their papers were professors: they created 227 out of the 329 total maps contained in the proceedings. In addition, the majority of the participants who employed concept maps as part of their presentation were based in the United States. This trend had a stronger impact at the ASIS SIG/CR events, where the majority of the presenters worked in the U.S. By contrast, the ISKO presenters were a more international group.

I found that concept maps were the preferred method for representing knowledge. Concept maps were defined as maps that represent text, images, and links that explicate a relationship between the nodes and arcs in the map. It is interesting to note that researchers most often did not provide detailed explanation about either their maps or the connections between the nodes and arcs. Using Dahlberg’s classification, I found that the “object” category predominated in both series of conference proceedings when evaluating the title of the papers and the titles of concept maps. Similarly, “activity” ranked near the top in both series. I conducted cross-tabulation to conclude that the United States provided the greatest number of contributors and concept map creators in both of these series of conferences. I also found that the majority of the contributors were professors. With regard to concept maps, the majority of the contributors in both conferences were also U.S.-based professors. The predominant form of concept maps used by authors was concept maps—rather than mind maps or conceptual graphs. Future studies need to address how the work and concept maps used by researchers in conference proceedings can be classified in the field of knowledge organization.

References


Tensions Between Language and Discourse in North American Knowledge Organization

D. Grant Campbell

University of Western Ontario, Faculty of Information and Media Studies
London, Ontario Canada N6A 5B7, gcampbel@uwo.ca

ABSTRACT: This paper uses Paul Ricoeur's distinction between language and discourse to help define a North American research agenda in knowledge organization. Ricoeur's concept of discourse as a set of utterances, defined within multiple disciplines and domains, and reducible, not to the word but to the sentence, provides three useful tools for defining our research. First, it enables us to recognize the important contribution of numerous studies that focus on acts of organization, rather than on standards or tools of organization. Second, it provides a paradigm for reconciling the competing demands of interoperability, based on widely-used tools and techniques of library science, and domain integrity, based on user warrant and an understanding of local context. Finally, it resonates with the current economic, political and social climate in which our information systems work, particularly the competing calls for protectionism and globalization.

1. Introduction

As the North American chapter of the International Society for Knowledge organization (ISKO) held its second symposium at Syracuse in June 2009, the scholars and practitioners in attendance found themselves negotiating a familiar tension between universal and local perspectives. On the one hand, the presenters attempted to define a collective research agenda that held special relevance for North American knowledge communities: on the other hand, they strove to situate that agenda within the broader context of international research and practice that characterises knowledge organization as a field and ISKO as a forum for that field. Furthermore, they showed a profound awareness that all practice, whether global or local, draws, not only on contextual knowledge, but on universal principles such as hierarchy, synonymy, warrant, syndetic structure and faceted classification. Thus specifically North American practice was analyzed through such general prisms as Ranganathan’s facet analysis (La Barre 2009), and the visualisations of domain analysis (Smiraglia 2009). From the other direction, international theory and practice were studied through specifically North American traditions such as the philosophical pragmatism of Peirce and James (Dousa 2009) and the evolution of the Dewey Decimal Classification (Green 2009). The presentation which formed the basis of this paper (Campbell 2009) uses a theory of language posited by Paul Ricoeur in 1977 to link this current tension between the global and the local to our traditional tendency to view subject tools as “languages.” Ricoeur’s attempt to expand views of language beyond the purely semiotic realm provides a useful guide for describing and defining North American knowledge organization research in the coming decade. In particular, Ricoeur’s distinction between semiotics and semantics—between language as a self-enclosed, self-referential system and discourse as an open, multi-disciplinary array of speech events—suggests productive ways of negotiating local and global perspectives in both research and practice.
Familiarity with specific professional and knowledge domains has long been recognized as an essential part of information organization, particularly in the understanding of literary and user warrant (Lancaster 1986) and the provision of services for special libraries (Foskett 1966, xiii). However, the very act of investigating context can be seen as the application of professional tools that are distinct from that context. In 1999, Marcia Bates (1045) argued that representing information requires a specific skill set which is distinct from actually "knowing" the information, and defended the distinction by comparing information professionals to professional actors:

We take it for granted that when we see a film or television program like "ER" ("Emergency Room"), that it is actors who portray the physicians, because that is the way it has always been done .... In like manner, representing information—whether you are indexing or formulating a search strategy or helping someone articulate what they want to find—is different from knowing the information .... Creating databases and catalogs involves creating representations of forms of information.

This familiar tension between specific subject knowledge and general representation strategies has acquired a fresh resonance in 2009, given its resemblance to the tensions between global and national interests in North American economies, and the conflicting arguments for protectionism and for free trade in the wake of the recent world recession. Economic hardship has created fresh barriers on a continent previously dominated by free trade agreements such as the North American Free Trade Agreement (NAFTA). As massive government spending programs attempt to stimulate moribund economic sectors, a fresh spirit of protectionism, amplified by patriotic appeals to buy nationally and environmentally-conscious appeals to eat locally, has cooled our enthusiasm for acting and interacting as a global community, governed by global standards.

As this new regionalism conflicts with global perspectives, knowledge organization will reflect such conflict in its practices, just as the North American Industrial Classification reflected free trade and harmonisation in the past (Campbell 2003). This analysis, therefore, will use Ricoeur’s language theory to pose a distinctly North American question. How can our information systems establish optimal levels of interoperability between one system and another: interoperability that enables community members to gain access to global information resources, while still preserving the data structures, information models and community affordances that make their systems a manifestation of their distinct cultures and communities? And how can the North American knowledge organization community establish research that supports information professionals as they work to reconcile global and local perspectives?

2. Subject access systems as languages

In her ambitious survey of the intellectual foundations of information organization, Elaine Svenonius (2000, 3-6) identifies three distinct strands of thought that underlie most of our knowledge organization theory and practice:

- systems theory, articulated by Ludwig von Bertalanffy and popularized in information science by Charles Cutter, resulting in concepts of the information system as a holistic structure, governed by a specific purpose, achieved through the operation of general laws and principles;
- the philosophy of science, pioneered by Cleverdon and resulting in information retrieval metrics such as precision and recall; and
- language philosophy, pioneered by Wittgenstein’s language games and Kaiser’s indexing, which applied linguistic concepts such as vocabulary and syntax to the task of information organization.

While the bulk of this analysis will draw on the linguistic roots of knowledge organization, it is useful to recall the other two traditions as well. From systems philosophy, we can derive a model of productive interaction between global and local perspectives. A good information system presumably works to serve a purpose derived from, and informed by, its embedding domain, and thus derives its very existence from local, contextual needs and practices (Svenonius 2000, 3-4). At the same time, the system accomplishes this purpose through the application of general principles. North American knowledge organization researchers and practitioners should aim for a similarly productive mix of perspectives. From the philosophy of science, we can derive, not only a rigorous attention to methods of inquiry, but also a commitment to studying not just information principles, but also information acts. Precision and recall metrics, by their nature, are generally performed on concrete phenomena in the form of pre-existing documents, thus paving the
way for Ricoeur's focus on discourse, as well as on language. The linguistic dimension of subject access tools appears in such terms as “controlled vocabulary” and “thesaurus,” and the use of these tools involves the inherently linguistic concepts of vocabulary and syntax: the establishment of authorized terms and their inter-relationships, and the use of a standardized syntax for concatenating terms together to form classification numbers or precoordinate subject headings. Other theorists such as Blair (1990) have explored the similarities between information description on the one hand and semiotics and linguistic analysis on the other. Others have linked subject access to post-modernism (Mai 1999) and post-structuralism (Campbell 2008). The use of linguistics as a paradigm for subject access systems has placed linguistic theory, with its strengths and its limitations, close to the heart of subject analysis. For this reason, Paul Ricoeur’s analysis of this linguistic tradition provides a means of enabling us to recognize some of the limitations of classical linguistics, and to prevent those limitations from hindering the growth of an active and vital North American research agenda.

3. The linguistic approach: Saussure and Ricoeur

In his highly-influential *Course on General Linguistics* (1916), Ferdinand de Saussure articulated numerous propositions that have since been widely adopted, not as empirical evidence of how language works, but as metaphors for how language-like systems such as subject tools work. First, a language can be considered in two separate ways. For Saussure, linguistics is primarily concerned with language as *langue*, which he defines as the entire system of linguistic units and the code that relates them together: he distinguishes this “self-contained whole” (1985, 29) from the “executive” domain of specific “speech acts,” which he terms *parole* (32). This distinction, for Saussure, separates the individual from the social and the incidental from the essential: “Language is not a function of the speaker; it is a product that is passively assimilated by the individual. ... Speaking, on the contrary, is an individual act. It is willful and intellectual” (33).

Second, Saussure argued that the “sign” was a combination of concept and sound-image, or of “signified” and “signifier.” Furthermore, he argued that the sign is intrinsically arbitrary, and derives its meaning, not from any innate relationship between the word and the thing, but from the differences between words in the *langue* system. As Ricoeur points out (1976, 5), the sign rests on a play of differences: “in such a system no entity belonging to the structure of the system has a meaning of its own; the meaning of a word, for example, results from its opposition to the other lexical units of the same system.”

In the first of a series of lectures delivered at Texas Christian University in 1973, Paul Ricoeur takes issue with Saussure’s linguistic theory: not with its importance or validity, but with the ensuing impact Saussure’s treatment had on later linguistic theory, and its effect on questions of words and truth. For Ricoeur, these questions go back at least as far as Plato, who debated, in such dialogues as *Cratylus*, the *Sophist* and the *Theaetetus* how false statements are made. Plato, Ricoeur argues, concludes that we cannot understand falsehood solely through the meaning of words; the paradox of falsehood lies in the act of making statements, and hence in the sentence, not the word (Ricoeur 1976, 1). For Ricoeur, Saussure’s emphasis on the importance of *langue* had blinded theorists to the importance of *parole*. *Langue*, Ricoeur argued, had the advantage of being self-contained and theoretically finite, and generally studied within a single discipline: that of linguistics. *Parole*, on the other hand, is theoretically infinite and, as an event, can take place and be studied within a variety of disciplines. Ricoeur suggests an alternative, two-dimensional approach to language which rests on two irreducible entities: the semiotic “sign,” which emerges through the *langue*, and the semantic “sentence,” which emerges from the speech-acts that constitute *parole*, and which he terms “discourse.” For Ricoeur, the sentence is a basic and intrinsic unit related to semantics, rather than semiotics. While a sentence is composed of words, its propositional content cannot be reduced to its words: it remains a union, however succinct, of a noun and a verb (Ricoeur 1976, 10).

When we take Ricoeur’s two-part transformation of Saussure’s linguistic theory and transfer it into the realm of subject tools and knowledge organization, a suggestive similarity presents itself. Language deals with signs and sentences: with the semiotic units of a closed, self-referential system, and with the semantic units of spoken and written discourse, embedded in their social, cultural, political and economic context. Similarly, Beghtol draws on Robert Fairthorne’s important distinction between two dimensions of “aboutness,” the subject content of a document that must be rendered using the signifying system of the subject tool: “Extensional aboutness, in Fairthorne’s terms, is the inherent subject of the document; intentional aboutness is the reason or purpose for which it
has been acquired by a library or requested by a user” (Beghtol 1986, 84).

This relationship has always been a complex one, as subject cataloguers attempt to negotiate the anticipated needs of the user with a perceived “essential” content that could be put to a variety of uses. Some work on the assumption that “a document has an intrinsic subject, an ‘aboutness’, that is at least to some extent independent of the temporary usage to which an individual might put one or more of its meanings” (Beghtol 1986, 85). Others operationalize aboutness as an estimate about probable search behaviour (Maron 1977, 38), while still others argue that we should be moving from a document-centric (and presumably extensional) approach to a domain-centered, contextual, and implicitly intensional notion of aboutness (Mai 2005, 599). These varying perspectives situate themselves along a distinction between inside and outside, and between being and doing. Some see the subject as an essential entity distinguished by its differences from other entities in a defined ontology of subjects: “This document is about theories of economics as opposed to education, and its authorized term is Economic theory.” Others see the subject as a reference to an external context which determines the priority of a subject’s facets: “Our users will want this document for its treatment of economic dimensions of educational policy.”

4. Tensions between language and discourse in North American knowledge organization

Ricoeur suggests that the prominence of semiotics in the twentieth century has prevented theorists of language from investigating discourse to its full potential. His efforts to rectify that bias have promising implications for viewing North American research, which has already shown how specific acts of classification and description can be assembled and analyzed for patterns. Existing catalogue records have provided fruitful ground for emerging theories of the work (Smiraglia 2001), for the study of OCLC catalogue records (Miksa et al 2006), and for hyperlinking patterns (Vaughan and Thelwall 2003). North American researchers are well-primed to assemble data on the discursive acts of knowledge organization, through such tools as OCLC, multiple library catalogues accessed through the Z39.50 protocol, and the growing archives of harvested metadata records accessed through the Open Archives Initiative. User tagging systems have provided rich new sources of user-centered knowledge organization in the areas of images and social bookmarking sites (Besiki and Jorgensen 2008; Kipp and Campbell 2006). And the Wayback Machine of the Internet Archive provides longitudinal evidence of knowledge organization on websites.

5. Standard tools and special interests

In particular, North American researchers could use the distinction between system and statement, between semiotics and semantics, as a way of finding a uniquely North American harmony between international standards and domain-specific interests. This distinction is frequently fraught with conflict between global standards and specialized needs. Jesse Shera (1965, 70), writing in 1951, likened this distinction to roads and highways in the United States, some of which are administered at a national level, and others at state or local levels. He argued urgently that libraries are obligated to protect and administer the general level of bibliographic management, and:

To prevent ... the continuing trend toward the further atomization of this general level through the proliferation of isolated, independent, and uncoordinated specialized bibliographic services, created without reference to bibliographic needs at the general level, and administered, as they have been in the past, according to ad hoc local procedures.

The field of Library and Information Science has traditionally excelled at the creation and study of standard tools which enable us to create uniform descriptions of subject content. Whether they be universal schemes such as Dewey’s Decimal Classification, The Library of Congress Classification and the Library of Congress Subject Headings, or subject-specific schemes such as MeSH, the NASA Thesaurus and the Art and Architecture Thesaurus, these widely-used tools have large vocabularies and intricate and sophisticated syntactic structures that lend themselves to analysis as semiotic systems. This talent for building large subject systems has manifested itself on the Web in the form of library application profiles for Dublin Core metadata, of the use of faceted classification in information architecture, and the growth of field-specific metadata schemes.

These impressive tools often appear to the practitioner as self-enclosed and consistent systems that, like Ricoeur’s interpretation of langue, are the product of a specific discipline, in this case information science. We can assess their success at following prin-
principles of thesaurus construction, the consistency of their policies regarding equivalence, the rigour of their hierarchical structures, and their adherence to consistent facet orders. Furthermore, universal schemes such as DDC and LCSH have been analyzed for gender bias and other injustices (Olson 1998). Such studies typically use the structures, authorized vocabularies, and syndetic devices to chart the limits of what can or cannot be expressed within these subject languages, and showing how certain unarticulated presuppositions govern their use in the subject analysis process. These studies have had an important and beneficial impact on the revision and improvement of these schemes over the years: but while revising a vocabulary or classification may widen its range of possible utterances, it only addresses part of the issue. In addition to analyzing our potential utterances, we have to look at the utterances themselves.

Ricoeur’s concept of semantics as a necessary partner to semiotics provides a conceptual frame for orienting numerous promising areas of research that look at what people actually do. First, focusing on acts helps us to investigate the enormous increase in personal information management that has extended from traditional practices onto the Web through Web 2.0 tools such as bookmarking systems. Equally important, the subject indexing and classification patterns of professional intermediaries can be explored in counterpoint to these new user-centered initiatives, through the availability of metadata harvesting sites.

North American researchers are also well-placed to address the problem of multilingual subject access. At the policy level, multilingual information access often appears to be a seamless process of translation at the system level, in which one term is mapped to an equivalent term in another language. In reality, the implementation of multilingual access is far more complex and ambivalent, and North American scholars are ideally placed to study how the uneven implementation of linguistic plurality policies is manifested in our knowledge organization systems. Researchers have noted unexpected anomalies in the transformations of bilingual catalogues (Arsenault and Menard 2007), and overt commitments to multicultural access are often belied by the rudimentary state of cataloguing and subject access to non-English documents.

North American researchers also need to address a growing trend of regarding information creation separately from its discursive context. The long-term contraction of funding for libraries has given rise to outsourcing, in which information communities end up suffering at the hands of their own skill in standards creation. The sharing of catalogue descriptions has been an intrinsic part of information organization at least since the rise of MARC, and the development of semantic Web tools also rests on the notion of data retooling and reuse. But cooperative cataloguing was never intended to suggest that library records are solely the product of enclosed, self-referential descriptive processes, or that they can be created in a vacuum. Shared cataloguing ventures have always assumed that libraries would use the time saved by downloading basic records to shape those records into discursive artifacts appropriate for their libraries. Outsourcing, on the other hand, assumes that there is no discourse specific to the information context.

6. Allocutionary and interlocutionary acts

Finally, Ricoeur’s treatment of discourse offers us a chance to situate knowledge organization within a multidisciplinary framework that links our concerns with domains, warrant, and aboutness productively with concerns posed in other fields. Discourse, in Ricoeur’s sense of specific, semantic statements, leads us to consider documents, in the tradition of Suzanne Briet (1951), and later Bowker and Star (1999), Day (2001), and Frohmann (2004). Viewing classification and organization as specific statements about other statements enables us to embed knowledge organization in a kaleidoscope of local contexts. And while we can certainly view documents as artifacts which contain some innate meaning, distinct from the utterer’s meaning, Ricoeur also posits a complex relationship between the meaning inherent in discourse and the meanings that we extract from it.

On the one hand, Ricoeur argues for the existence of the illocutionary act: what the author or creator of the document meant, or intended. By considering the illocutionary act of discourse, we can link knowledge organization to fields that explicitly deal with authorial gestures. Literary studies in general, and genre theory in particular, have a rich vocabulary for dealing with authorial intent, and these fields have begun to act upon information studies in general (Crowston and Williams 2000; Toms, 2001).

On the other hand, Ricoeur also considers the allocutionary act: what the user takes from discourse, or what he or she is expected to take from it. Knowledge organization has traditionally made extensive use of this allocutionary perspective in its notions of user warrant and intensional aboutness; further connections could be made with reader-response criti-
cism in literary studies, and with media theory, particularly with Stuart Hall's classic taxonomy of responses to media messages (2001).

While these opportunities are enticing, we must also recall that addressing local and global issues is deeply relevant to the North American intellectual and economic environment at present. On the one hand, our information environments grow progressively more interlinked, and North American researchers must continue to explore the available options and instruments that enable communities to assert their own needs and identities over collections described by universal standards. We need to track the degree to which options built into tools like DDC are actually employed; the extent to which Canadian libraries use the special areas of LC set aside for Canadian history and literature. We need to theorize the optimal relations between human- and machine-readability in specific community settings.

At the same time, we must remember that our work does not exist in a vacuum, and we must take care to prevent our concern for local users and specific domains from collapsing into unforeseen allegiances, owing to unforeseen resemblances. Knowledge organization scholars must make considered decisions about how far to reflect global and local concerns in their research and their systems. Economic and cultural protectionism constitutes a perfectly understandable response to concerns about recession, carbon footprints and fears about global pandemic. However, North American scholars in all fields must make informed and considered decisions about how such concerns will be embedded in their tools and activities.

7. Conclusion

Concerns for context, for diversity, and for flexibility have been present in the professional and academic communities of knowledge organization for a very long time. Likewise, the concerns for clear design, for international standards, and for enhancing universal access to information through technological and terminological continuities have figured large in North American information research. As the North American knowledge organization community continues to assess its heritage and plan its future, Paul Ricoeur's theories of language, while far-removed from the particularities of our field, may provide a useful orienting distinction. Our concern for developing large, inclusive, interoperable and standard subject access tools must be counterbalanced by an equally close look at what information communities actually do with these tools. The conceptual clarity and discipline of information science that guide the creation of subject languages must co-exist alongside the inconsistent, haphazard and multidisciplinary context in which these languages are used. Like the most enduring human communities, we make tools and we use them. We combine together, but we don't dissolve into each other. As a professional field, and as a discipline of intellectual inquiry, North American knowledge organization embodies both wide sympathies and local loyalties.

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Examining the KO Roots of Taylor’s Value-Added Model*

David M. Pimentel

Syracuse University, School of Information Studies, <pimentel@syr.edu>

ABSTRACT: The Value-Added Model, as developed by Robert Taylor in his 1986 monograph Value-Added Processes in Information Systems, has been highly influential in the field of library and information science. Yet despite its impact on the broader LIS field, the potential of the Value-Added Model has gone largely unexplored by knowledge organization (KO) researchers. Unraveling the history behind the Model’s development highlights the significant contributions made by studying the work practices of professional indexers. In light of its foundation on KO praxis, this paper reexamines Taylor’s Model as a robust framework for evaluating knowledge organization systems.

* The author is grateful for the helpful suggestions and feedback offered by the reviewers.

1.0 Introduction

This paper considers how the Value-Added Model proposed by Taylor (1986) has important roots in the theory and practice of knowledge organization (KO). The purpose for examining Taylor’s model in light of its KO origins is twofold: first, to give due credit for the influence of KO praxis on the development of Taylor’s model, and second, to suggest how the model might effectively serve as a tool for evaluating KO systems. Furthermore, this examination of the Value-Added Model is motivated by Taylor’s central focus on the user and the information use environment. The growing trend of social classification (i.e., user-generated indexing of Internet resources) only serves to highlight the need for a user-centered perspective on KO evaluation.

While Taylor’s model has been influential in library and information science (LIS) generally, it has not garnered particular attention from KO researchers. By focusing on the genesis of the Value-Added Model, this paper attempts to reframe Taylor’s contribution. For over twenty years the Value-Added Model has been woven into the broad fabric of LIS; pulling on some of those same threads reveals how North American KO helped to shape the overall pattern.

In the sections that follow this paper provides a general overview of the Value-Added Model and addresses its general applicability across various information systems and contexts. The focus then shifts to the model’s origins in an NSF-sponsored study of abstracting and indexing services (Taylor 1983). Taylor’s analysis of the abstracting-and-indexing process, which included in-depth interviews with A&I professionals, provided the foundation for the development of his Value-Added Model. In this respect, the A&I enterprise can be regarded as a quintessential value-adding process. And given the centrality of indexing to any KO endeavor, this paper suggests that Taylor’s Value-Added Model is particularly well-suited to evaluate KO processes.
2.0 Background and Context

In order to situate the Value-Added Model in its historical context, it is helpful to consider the background of its creator. Robert Saxton Taylor (1918-2009) studied history as an undergraduate at Cornell University. Soon after graduation he was drafted into the U.S. Army, where he served as a member of the Army’s Counter Intelligence Corps from 1942 to 1947. Under the GI Bill, Taylor enrolled at Columbia University, earning a master’s degree in library science in 1950. After earning a Fulbright in 1956, he went on to work in various teaching and administrative capacities: librarian, professor, and director of the Center for the Information Sciences at Lehigh University (from 1962 to 1967), and later professor and director of the Program in Language and Communication at Hampshire College (from 1967 to 1972).

With his experience in military intelligence, coupled with his training in librarianship, Taylor was uniquely suited to make contributions to the burgeoning information science field in North America. In 1968, the very same year that the American Documentation Institute became the American Society for Information Science, Taylor served as that organization’s president. It was during this same time that he published his study on question negotiation in the reference process (Taylor 1968). That landmark study was among the first in the field to emphasize a distinctly user-centered perspective, and remains one of the most cited works in LIS (Eisenberg and Dirks 2008). Taylor went on to work as dean at Syracuse University from 1972 to 1981, where he instigated the renaming of the School of Library Science into the School of Information Studies. The change to the name of the school in 1974 reflected Taylor’s discerning vision for an expansive, yet distinct, information field. His varied contributions were recognized in 1992 when Taylor was honored with the Award of Merit from the American Society for Information Science (now ASIS&T).

His research on the reference interview process established Taylor as a champion of the user, and his later work did not veer from that path. Focusing on people, and the ways they go about using information, remained central to Taylor’s development of the Value-Added Model in the 1980s. His focus on users yielded a distinctly ecumenical perspective on information practices. In the preface to Value-Added Processes in Information Systems, Taylor (1986, ix) described his book as:

A synthesis of what it is we as information people do … In focusing on the use of information, we can look across systems at similarities, rather than at differences caused by varying technologies, disciplinary traditions, and a need to protect a turf.

These are not merely niceties doled out in the introduction; Taylor takes pains to generalize his terms, and he does so by focusing ever on the user. His framing of the concept of system is illustrative of the point. For Taylor (1986, 10), a system can be almost anything: ranging from “entirely machine based” to “entirely human based”—so long as it functions “to provide chunks of information to some set of potential users.”

The Value-Added Model has been widely cited in the literature: a search of cited-references using ISI Web of Knowledge in June 2009 retrieved 174 citations to the 1986 text; a similar search of Google Scholar identified 320 citations. In addition, Taylor (1986) has been compared with Dervin and Nilan (1986) as among the “most clearly articulated” voices of the “user turn” in LIS (Rosenbaum 2003). When not being used as a shorthand for a user-based approach in information science research, Taylor (1986) has been cited in the literature of information systems design, and has also crossed into MIS and computer science journals. Such broad adoption in the research literature can be considered (at least in part) a function of the generalizable nature and applicability of the Value-Added Model. In much the same way that Taylor frames the notion of system on behalf of the user, the entire notion of value itself is placed squarely on the user.

The Value-Added Model hinges on the idea that people interact with systems within a context: what Taylor calls the information use environment. Information systems either help users to perform better (or not), but “better performance” is defined with reference to the user’s context (Taylor 1986, 55). Taylor, therefore, intentionally defines enhancements to information systems with respect to addressing the needs of the users of information systems. The concept of the information use environment is significant, because it increases the model’s inherent flexibility. Differing information use environments will value the same enhancements differently. Taylor’s model is still cited for the conceptual contributions it makes to notions of value (e.g., Stvilia et al 2007), and contextualized use (e.g., Choo 2009).
3.0 Overview of the value-added model

As part of the discussion of the Value-Added Model, Taylor first presents his readers with the Value-Added Spectrum. Figure 1 reproduces the Value-Added Spectrum (originally Figure 1-1 in Taylor 1986, 6), with four groups of processes, stacked one on top of the other. At the base of the diagram are Organizing processes, upon which the other three groups build. Working up the Value-Added Spectrum from Organizing processes, Taylor situates Analyzing processes, Judgmental processes, and (at the top level) Decision processes. Each of these four groups is supplemented with “examples of the activities supporting that particular process” (Taylor 1986, 5-6). The Spectrum includes an axis that parallels the four groups of processes; from the bottom up, they are Data, Information, Informing Knowledge, Productive Knowledge, and Action.

Some of the assumptions behind the Spectrum are discussed later in this paper, but it is worth noting one matter directly. Researchers in KO can validate, resoundingly, that activities such as grouping, classifying, or even formatting all require decision-making processes in and of themselves. The Value-Added Spectrum does not malign classifying as something that is a sub-decision, or anything similar. Rather, the Spectrum merely articulates how the system activities (in the center) are related to a class of processes (on the right).

Taylor’s model is most typically associated with the explication of six user criteria and the 23 corresponding values added. Table 1 reproduces the framework of user criteria and values added (Figure 4-2 in Taylor 1986, 50). Six broad user criteria—ease of use, noise reduction, quality, adaptability, time saving, and cost saving—represent dimensions of a user’s evaluation of information systems, and serve as rubrics for the particular values added. As pointed out by Eisenberg and Dirks (2008, 3), the “relative priority of one or another criteria will depend on the person, situation, needs, setting, and other user-centered aspects.”

In the center column, Taylor (1986, 51) refers to the 23 values added as the “interface”—“these are the values added by the system which aid customers in matching their needs.” Some of the added values are clearly tangible (e.g., index terms or faster delivery), while others are less so (e.g., accuracy or reliability). Such ambiguity is perhaps to be expected, given Taylor’s ambitious goal “to construct an early model of a complex human activity, a model that would be useful in the description of information-providing systems of any type, and eventually in their design” (Taylor 1986, 54).

The final column, on the far right, is labeled “system.” These processes and features are sample activities that exemplify Values Added in the center, which in turn are associated with the user criteria in the first column.

4.0 Taylor’s study of abstracting & indexing operations

Taylor makes it clear that the 23 values were derived through a variety of means – including a review of the information science literature as well as consultation with information professionals. But the empirical work behind generating the 23 values was largely carried out during an NSF-sponsored study (Taylor 1983) of the abstracting and indexing (A&I) process. In his monograph, Taylor (1986) presents the study of the A&I process within the fuller context of his Value-Added Model. The intimate link between the
A&I process and the Value-Added Model is perhaps best understood as an overall commitment to the “praxis of information” (Taylor 1986, 2).

By focusing on praxis, Taylor respectfully acknowledges the many achievements of LIS professionals: not only the nascent database systems of the 1980s, but also the centuries-old practices of print-based libraries and archives. At several points in the introductory chapter, Taylor reiterates how information systems do, to a large degree, work. His statements are not meant to obviate the need for further improvements to information systems; instead Taylor (1986, 3) points to the need to rigorously describe “what it is those systems do and how they do it.” Taylor offers an analogy to engineering: the steam engine provided wide utility and functionality for centuries before science could fully explain the thermodynamic principles behind its workings. Information phenomena are vastly complex, and so it is praxis where Taylor focused his attention. A&I offered Taylor (1986, 96) “a particular and well-defined operation in the information life cycle” where he could consider how various stages added value to “aid a user in making choices.”

Taylor’s study of A&I operations is the central focus of his sixth chapter (Taylor 1986, 96-125). He conducted interviews with A&I professionals, collecting approximately 60 hours of taped discussions; an appendix provides the detailed list of questions (Taylor 1986, 238-242). By talking through the A&I process with experts in A&I praxis, Taylor allowed interviewees to identify numerous points in the process where value was added. Interviewees were also engaged in identifying the particular values being added. This robust exchange between researcher and A&I practitioners allowed patterns to emerge: showing “where and how a specific value was added or strengthened” in the overall A&I process (Taylor 1986, 97).

The process of A&I was sequenced along eight phases: 1) acquisitions, control, and claiming, 2) cita-

<table>
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<tr>
<th>USER CRITERIA OF CHOICE</th>
<th>INTERFACE (Values Added)</th>
<th>SYSTEM (Value-added Processes: Examples)</th>
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<tr>
<td>Ease of Use</td>
<td>Browsing</td>
<td>Alphabetizing</td>
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<td>Formatting</td>
<td>Highlighting important terms</td>
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<td>Noise Reduction</td>
<td>Access I (Item identification)</td>
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<td>Access II (Subject description)</td>
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<td>Access III (Subject summary)</td>
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<td>Adaptability</td>
<td>Closeness to problem</td>
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<td>Time-Saving</td>
<td>Response Speed</td>
<td>Reduction of processing time</td>
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<tr>
<td>Cost-Saving</td>
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<td>Lower connect-time price</td>
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Table 1. User Criteria and Values Added (Taylor 1986)
tion development, 3) citation augmentation, 4) indexing, 5) abstracting, 6) editing, 7) formatting, and 8) dissemination. Taking the first phase as an example, Taylor’s (1986, 106-107 emphasis original) interviews highlighted Reliability, Comprehensive, and Selectivity as the major values added.

Reliability has to do principally with consistency of input, or with known coverage of a subject. Comprehensive represents a value in those services whose mandate is total coverage of a subject, and whose clients come to value such coverage. Selectivity is the converse of comprehensiveness, and has value when the clients want a filtering process, and do not want coverage but solutions.

The claiming process added the value of Currency and strengthened the value of Reliability. Taylor’s study of A&I operations continues in this fashion throughout the eight phases. The data is reported not only in terms of “values added” during a particular phase in the A&I process, but also as “values intensified.” This latter designation is necessary to capture the cumulative effect of value-adding processes in information systems: when a specific value had already been added during an earlier phase, Taylor characterized its subsequent additions as “strengthened” or “intensified.” The opposite effect is also possible: when “no method for claiming” was reported, the values added were Minus comprehensiveness, Minus currency, and Minus reliability.

5.0 No value without KO?

Keeping in mind the important influence of A&I operations in the development of the Value-Added Model, let us turn attention back to the Value-Added Spectrum (in Figure 1). The Spectrum seems to build on assumptions that are crucial for KO researchers. First there is the notion that “organizing processes” are fundamental to more complex information tasks. In other words, higher-order information processes are not possible without the more essential organizing processes at the base of the Spectrum. But this linearity obscures dependency. Since the higher-order processes (analysis, judgment, and decision) rely and build upon each successively preceding phase, the higher-order processes can be considered as more fragile or volatile. All stages beyond the first are at the mercy of the preceding phases, and hence beholden to the foundational KO processes.

In a manner of speaking, this problematizes precisely where Taylor indicates the most value resides. For while the layers upon layers of value needed for Decision Processes are not inconsequential, the argument can be made (via first principles) that the root organizing processes have been largely undervalued, given the reliance of the entire enterprise on their soundness or efficacy.

Furthermore, the Spectrum can be viewed as obscuring the very real and important analysis, judgment, and decisions that are needed to maintain organizing processes. Given Taylor’s esteem for information praxis, and his careful, respectful treatment of the A&I process, it would appear that such a slight is unintended. Rather, the Spectrum reflects the realities of a user-based perspective: where people place a higher value on information that has been more thoroughly tailored to their decision context.

Taylor’s Value-Added Spectrum would seem to present an opportunity for KO research: articulating how a stable base of organizing processes can ultimately support a wide range of information use environments. At the same time, KO research must grapple with designing and maintaining organizing processes that serve both as solid foundations for, and flexible inputs to, later processes.

6.0 Intellectual Technologies in the Value-Added Model

It should also be noted that the Value-Added Model does offer an additional perspective relevant to the sphere of KO. Taylor (1986, 10) employs the rubric “intellectual technologies” to encompass the related phenomena of indexing, classification, and systems analysis. Taylor discusses intellectual technologies in two distinct but complementary ways. First, intellectual technologies form a component in the process of designing information systems (Taylor 1986, 24-29). Later, intellectual technologies serve as a focal area in an overall vision for professional education in an emerging information discipline (Taylor 1986, 208-213). Intellectual technologies are specifically described as (Taylor 1986, 212, emphasis in original):

the methods used to organize information for storage, retrieval and for communication in textual form, graphic structure, and visual image. These technologies are content driven, tempered and informed by the ways that users (a) structure their information environments and (b) make use of information. These will range from
the design of a data base management system to
the design of a form used to record an or-
der...from the structure of accounting systems
to the design of library classifications. These all
require a type of organization – a structuring of
the information content, whether the purpose is
for storage or for communication.

This broad perspective on the structuring of informa-
tion offers several possible paths for KO researchers.
Taylor’s characterization of intellectual technologies
could serve as a point of departure for augmenting
and extending current definitions of Knowledge Or-
With its particular emphasis on users creating informa-
tion structures, Taylor’s notion of intellectual
technologies could serve as a lens to analyze the vari-
ous user-driven folksonomy structures emerging in
the current Web environment (cf. Weinberger 2007).

7.0 Evaluating KO processes
with the value-added model

Taylor’s contribution in the Value-Added Model is a
robust framework for considering an enormous range
of information practices and processes. It is important
to note how the particular Values Added are concep-
tually generalizable, having the ability to describe
seemingly disparate phenomena. Consider Access III
(Subject Summary) as a case in point, with its purpose
“to provide a summary and/or brief explanation of the
content of an item” (Taylor 1986, 60). LIS and KO
scholars can immediately recognize the direct parallels
between the Access III value and the abstracting por-
tion of the A&I operation, and indeed, given the gene-
sis of the Value-Added Model, this would seem a valid
connection to make. Yet the Access III value does not
end at abstracting, but rather can be seen in a range of
contexts outside A&I (Taylor 1986, 60):

The function of such processes is to benefit users
by reducing a large amount of information
into a compact item without losing too much in-
formation in the process .... They may take the
form of an abstract, executive summary, a news
brief, or a table of contents... a chemical struc-
ture diagram; a map; a graph or chart; a mathe-
atical formula.

So the essence of the Access III value is really about
the generalizable phenomenon of compression: chunking information so users can “be informed in
less time and with less effort” (Taylor 1986, 60). It is
in this generalizability, coupled with its grounding in
A&I operations, that Taylor’s model shows potential
as an evaluation tool for KO processes.

The Value-Added Model is steeped in Taylor’s
study of the quintessential KO practice of indexing
and abstracting. His analysis of the work of informa-
tion professionals was further grounded in an unwav-
ering user-based perspective. Perhaps most impor-
tantly, Taylor’s Value-Added Model offers a vocabu-
larly for talking about and evaluating information
processes in such a way that parallels can be drawn
across seemingly disparate information processes. In
this regard, Taylor’s vocabulary has the potential to
augment or otherwise enrich emerging frameworks
for evaluating KO systems (e.g. Tennis 2006).

The richness of the Value-Added Model is in its
ability to describe a vast range of information proc-
esses. This can be considered a particular strength in a
time when increasing specialization (in the informa-
tion field and beyond) threatens to create major gaps
in scholarly communication. Instead of slouching to-
wards academic Babel, information researchers could
commit to speaking a common language of evaluation;
that language could specifically be articulated to keep
user needs and preferences as the central focus of our
discussion. KO researchers have an opportunity to
lead such a charge. The Value-Added Model offers us a
vocabulary grounded in the analysis and evaluation of
KO practice; it is explicitly designed to assess value in
a way that transcends the particularities of any one
technology platform or use environment.

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Classical Pragmatism and its Varieties:  
On a Pluriform Metatheoretical Perspective for Knowledge Organization* 

Thomas M. Dousa  

University of Illinois, Graduate School of Library and Information Science, 
Urbana-Champaign, USA, <tdousa2@illinois.edu>


ABSTRACT: Pragmatism is a metatheoretical perspective within knowledge organization (KO) that derives from an American philosophical tradition active since the late 19th century. Its core feature is commitment to the evaluation of the adequacy of concepts and beliefs through the empirical test of practice: this entails epistemological antifoundationalism, fallibilism, contingency, social embeddedness, and pluralism. This article reviews three variants of Pragmatism that have been historically influential in philosophy—Charles Sanders Pierce’s scientifically oriented pragmatism, William James’s subjectivist practicalism, and John Dewey’s socially oriented instrumentalism—and indicates points of contact between them and KO theories propounded by Henry E. Bliss, Jesse H. Shera, and Birger Hjørland, respectively. KO applications of classical Pragmatism have tended to converge toward a socially pluralist model characteristic of Dewey. Recently, Richard Rorty’s post-modern brand of Neopragmatism has found adherents within KO: whether it provides a more advantageous metatheoretical framework than classical Pragmatism remains to be seen.

* I thank Birger Hjørland, Claudio Gnoli, and two anonymous reviewers for reading and commenting upon an earlier draft of this essay. I also wish to express my gratitude to the participants at the 2009 North American Symposium on Knowledge Organization for their feedback. Needless to say, I alone am responsible for any errors of fact, infelicities of interpretation, and obscurities in exposition lurking in this text.

1.0 Introduction

In recent years, researchers within library and information science (LIS) have increasingly come to reflect on the field’s metatheories—i.e., the sets of general philosophical assumptions underlying individual theories and practices—in the hope of identifying perspectives especially fruitful for guiding research and practice within the field (e.g., Hjørland 1998; Bates 2005). The LIS subfield of knowledge organization (KO), in particular, has witnessed a vigorous debate concerning metatheoretical issues, centering on the different epistemological positions informing the design of knowledge organization systems (KOSs) (e.g., Hjørland 2003, 105–107; Smiraglia 2002; Tennis 2008, 103–104). One metatheoretical perspective that has received considerable attention among KO researchers is Pragmatism (e.g., Gallagher 1991; Jacob 2000; Hjørland 2005– ), a philosophical tradition that originated in the United States in the late 19th century, enjoyed its heyday from the 1890s to the 1940s, and, after a period of relative neglect, has undergone a notable revival in a number of humanistic and social-scientific fields from the early 1980s to the present (Dickstein 1999). In light of its origins, philosophical Pragmatism can be considered to constitute a North
American contribution to the metatheory of KO, albeit one whose current vogue within the field owes much to impulses from Scandinavian scholarship (e.g., Hjørland 1997; Thellefsen and Thellefsen 2004).

The core defining feature of Pragmatism is the epistemological tenet that the meaning of a concept or the truth of a statement is to be evaluated with reference to “the experiential or practical consequences of its application” (Haack 2003, 774). Pragmatists seek to establish knowledge claims with reference to human action in, and experience of, the ambient world—that is to say, to determine which beliefs count as knowledge by considering how they work when put to the empirical test of practice. To put a concept or belief to the test is to inquire about its adequacy in the light of experience. Now the pragmatic test does not occur in an epistemic vacuum, for each belief forms part of a nexus of beliefs. Nor are these beliefs neutral: as a matter of course, they “guide [one’s] desires and shape [one’s] actions” (Peirce 1955, 9–12)—i.e., they betoken interests, goals, and values that inform one’s experiences and guide one’s judgment in assessing the adequacy of other beliefs. Such interests, goals, and values are not purely individual but shared within a larger social framework and so the pragmatic testing of beliefs has a social dimension. Those beliefs that are found to be adequate by one and by one’s fellows become part of what counts as knowledge within one’s social framework—at least until new experiences supervene that might call them into question and so require that they be put to the test again. In short, Pragmatism is antifoundationalist (i.e., it claims no absolute epistemic certainty vis-à-vis the validity of any single concept or belief), fallibilist (i.e., concepts and beliefs are always open to challenge, revision, and improvement), contingent (i.e., any new experience can trigger revision of one’s concepts and beliefs), socially embedded (i.e., all knowledge claims are evaluated within the framework of a community of inquirers), and pluralist (i.e., different individuals and (sub)communities within a single social framework may hold differing knowledge claims with respect to a given phenomenon) (Jacob 2000).

Within the literature of KO, Pragmatism is typically presented as a unitary philosophical approach (e.g., Hjørland 1997, 75–76; 2008, 97–98; Jacob 2000). Such a mode of presentation undoubtedly has the advantage of providing a compendious characterization of Pragmatism qua metatheoretical position. However, it leaves out of account the fact that, historically, Pragmatism has been marked by a wide variety of perspectives—so much so that one early adherent of the movement claimed that “there are as many pragmatisms as pragmatists” (F. C. S. Schiller, cited in Haack 2003, 775). Pragmatism, then, is an inherently pluralist metatheory, different versions of which emphasize different aspects of, and constraints upon, the core epistemological doctrine outlined above. Given the polyphonic nature of Pragmatism, a full appreciation of its implications for KO requires that one take note of its chief varieties and their points of difference.

In this paper, I shall briefly present the three historically influential classical formulations of Pragmatism, expounded by the North American philosophers Charles Sanders Peirce (1839–1914), William James (1842–1910), and John Dewey (1859–1952). Each of these philosophers elaborated his own distinctive version of Pragmatism over the course of a lifetime and a full exposition of their doctrines would thus require that one take into account the theoretical developments, revisions, and refinements that they introduced into their thought over time. Needless to say, such a task lies beyond the scope of this article, which has a more modest agenda. In the case of each version, I shall sketch out some basic features that distinguish it from the others and indicate some points of contact that it has with KO theory. In closing, I shall note current trends in the interpretation of Pragmatism within KO, such as the growing acceptance of the postmodern form of Neopragmatism expounded by Richard Rorty (1931–2007).

2.0 Peircean pragmaticism: towards a convergence of reality and scientific consensus

Trained as a mathematician and physical scientist, Charles Sanders Peirce (1955, 2) took the methods of physical science as a model for developing his philosophical position. In his view, the beliefs we hold about the world are habits of mind formed on the basis of our experience and regulating our actions vis-à-vis the world (10). Typically, we tend to persist in our beliefs without further ado: however, experiences that challenge them may throw us into a state of doubt, which Peirce characterized as “an uneasy and dissatisfied state” of mind (10). Once placed into this disagreeable state, the mind seeks to return to the equilibrium of belief by resolving the doubt afflicting it (26)—a process that Peirce called “inquiry” (10). A necessary condition for obtaining a satisfactory result to inquiry is the use of a correct method. This method, in Peirce’s opinion, is “the method of sci-
ence," whose cardinal feature is that through it, "our beliefs may be determined by nothing human, but by some external permanency—by something upon which our thinking has no effect" (18). Through a three-step process of abduction (i.e., hypothesis formation), deduction, and induction, Peirce argued, an inquirer can formulate a belief as a hypothesis and establish its truth not through empirical verification, but rather through lack of empirical falsification (Lachs 1999, 79; Copleston 1994, 306). Although truths, or knowledge claims, generated in this way are probabilistic in nature and open to dispute by different investigators, Peirce believed that, if inquiry were carried out over an indefinitely long period of time within an ideal community of rational inquirers committed to the methods of science, the opinions of all these inquirers would converge towards a consensus as to what constitutes truth, which, in turn, would be consonant with the external realities that form the objects of human experience and belief (Lachs 1999, 77, 82–83).

Peirce’s view that the results of inquiry, though provisional and revisable in the short term, are apt to lead to a convergence of scientific opinion with external reality over the long term, constitutes a form of “ideal-realism” that correlates reality with the consensus of a community of rational inquirers (Haack 2006, 27). In this regard, it finds an interesting analogue in the KO theory of Henry E. Bliss. Now Bliss espoused a form of realism—critical realism—founded on a doctrinal basis quite different from that of Peirce and his writings do not evince any sign of acquaintance with Peirce’s work (Bliss 1929, 127–131, 170–173; cf. Copleston 1994, 390–393 for a brief discussion of early 20th century critical realism). Nevertheless, the points of contact between his and Peirce’s views are striking and merit scrutiny. Bliss took the methods and results of the natural sciences as touchstones for knowledge towards which other fields of knowledge were to tend (189–198, 240–252), posited the existence of a unitary “scientific and educational consensus” derived from the results of scientific investigation (16, 300–301), and held that the classification of sciences that he had developed on the basis of his understanding of this consensus was consonant with “the order of nature” (219–222; cf., on this latter point, Richardson 1901). Bliss and Peirce thus both envisioned that the body of scientific beliefs ratified by scientific consensus could offer a true account of the way the external world is—a view born of a shared confidence in the efficacy of scientific method. Of course, one should add that Peirce and Bliss differed significantly as to their views of the temporal situation of this convergence: the former envisaged it as occurring far in the indefinite future (and possibly not at all) (Rescher 2000, 13–14), whereas the latter deemed it as already existent and, indeed, claimed that it was reflected in the classification that he was elaborating (Bliss 1929, 299–301). Nevertheless, the basic parallel between Peirce’s and Bliss’s views regarding the nexus between scientific consensus and external reality indicates the degree to which Peirce’s pragmatism was informed by objective, realist presuppositions.

### 3.0 Jamesian practicalism:
the importance of purpose

In contrast to Peirce’s austere, objectivist version of Pragmatism, William James developed a subjectivist one applicable to problems of life well beyond scientific inquiry. In his view, the pragmatic test was not, as it was for Peirce, largely restricted to clarifying our scientific understanding of the external world, but rather a way of generating beliefs that would prove practically beneficial for the individual holding them (Haack 2003, 779). James held that both human knowledge of, and activity in, the world are informed by the interests and purposes that different people bring to their encounter with their environment (McDermott 1977, xxxviii–xli; Stuhr 1999). These interests and purposes lead individuals to determine how they make sense of the objects of their experience and what those objects are for them. This view leads to what may be termed “relativistic essentialism”, according to which, in James’s words, “there is no property ABSOLUTELY essential to any one thing … The essence of a thing is that one of its properties which is so important for my interests that in comparison with it I may neglect the rest” (James 1950, II, 333, 335 emphasis original). On this account, one’s conception of a thing is true insofar as it proves satisfactory to believe in the light of one’s purposeful interaction with that thing in concrete situations: as James (1977, 448 emphasis original) pragmatically put it, “mind engenders truth upon reality”. This does not mean that one can assert a belief solely on the basis of the practical utility that flows from its use as a justification for action: it must also be assimilable to one’s other beliefs and, moreover, must not prove recalcitrant to one’s experience of reality (430, 434–435, 438, 448). Nevertheless, the efficacy of beliefs for practically coping with reality is a major theme for James, while the diversity of individual interests and purposes in different life situations ensures that Jamesian Pragmatism tends to take
a robustly pluralist stance regarding truth and, for that matter, reality (Stuhr 1999).

James’s subjective version of Pragmatism has sensibly influenced KO discourse about classification, as is apparent in the writings of Jesse Shera. Explicitly invoking James as his source, Shera (1965, 90–91) held that our conceptions of objects and their interrelations are conditioned by the purposes to which we want to put them, fully endorsing the argument that “[n]o one conception invariably represents its reality independent of a particular purpose”. Furthermore, he agreed with James that “[t]he pattern of organization, the classification of experience, differs from individual to individual; admitting, of course, that there are certain basic patterns, classifications, that are familiar to all” (119). Given the variation among individuals with regard to interest and person, Shera argued that classifications must be flexible and that such flexibility “will be achieved by providing “multiple approaches” to the concepts being related (91). Jamesian Pragmatism thus provided potent support for Shera’s call for the creation of “multi-dimensional” classifications capable of accommodating multiple perspectives, an ideal that continues to inform KO theory to this day. It also undergirt Shera’s argument that special classifications intended for specific communities should seek to capture those properties of the concepts being classified that were relevant to the habits of use of those communities (91). It was in his concern for communities, however, that Shera went beyond the Jamesian perspective and entered a Deweyan one.

4.0 Deweyan instrumentalism: inquiry as social action

John Dewey’s version of Pragmatism sought to strike a balance between Peirce’s scientific orientation and James’s more practically motivated one. Like Pierce, Dewey developed a theory of inquiry as a form of problem solving involving experimentation. On his account, a person faced with a problematic, or “indeterminate” state of affairs must apply thought to analyzing the underlying problem, formulate a course of action based on this analysis, and take concrete steps to alter the state of affairs according to his purpose: in this way, the original problem is transformed into a “determinate situation,” wherein the person co-exists in a new, improved equilibrium with his or her environment, having acquired new knowledge in the process (Dewey 1981, 226). Unlike Peirce, however, Dewey did not restrict his method of inquiry primarily to scientific matters; rather, he viewed it as a means of solving more general human problems, as James had done. Much like James, Dewey subscribed to a form of “objective relativism” regarding knowledge, holding that one’s conceptions of things in the world are colored by one’s experiential background, interests, and purposes, and actively shaped by one’s interactions with those things (Hickman 1998, 104–106). Likewise, he agreed with James that concepts and beliefs are tools, which, when applied to our experience in the world, are capable of generating new knowledge (Dewey 1981, 234–235; James 1977, 380) and that knowledge acquisition is an inherently creative act, since it is always actively engaged in altering the world in some way to further human ends (Čapek 1990, 33).

However, unlike James, Dewey stressed the communal dimensions of Pragmatic method, situating inquiry within the framework of community life (Hickman 1999). Dewey’s conception of community was not abstract and universal like Peirce’s ideal community of rational scientific inquirers, but rather encompassed the rich variety of communities that make up society hic et nunc (Campbell 1998; Horwitz 1972, 812–813). Such communities, in Dewey’s view, provided the pluralist underpinning for democratic life and served as the field for bringing about “positive and constructive changes in social arrangements” (Dewey, cited in Rescher 2000, 27, n. 41). In short, Dewey developed Pragmatism into a fully social—and socially engaged—philosophy.

Dewey’s thought has had a deep impact on the Pragmatist perspective for KO developed by Hjørland (1997; 2003, 105–107, 2008, 97–98) within his domain-analytic framework. To be sure, not all the elements in Hjørland’s version of Pragmatism are specifically Deweyan: for example, his characterization of the Pragmatist approach to classification as one requiring “an analysis of goals, values, and consequences” (Hjørland 2003, 105) could just as easily invoke James, while his affirmation of “scientific realism” as a philosophical position in LIS (Hjørland 2004) would find more unequivocal support in Peirce. Nevertheless, key planks in Hjørland’s thought bear an unmistakably Deweyan stamp. For example, Dewey’s account of inquiry provides the metatheoretical basis for Hjørland’s (1997, 168–169, 82) understanding of “the ecological and social nature of meaning,” as well as for his version of “pragmatic realism” (cf. “objective relativism”, as defined above). Likewise, the domain-analytic idea that the universe of knowledge consists of different domains correlated to different epistemic communities is consonant with Dewey’s pluralist vision of multiple communities. Fi-
nally, Hjørland’s (2005–; 2003, 105) claims that “[t]he pragmatic view of knowledge is of special importance to … LIS … because it is connected to the social role of LIS institutions … serving democracy and enlightenment” and that “[p]ragmatic classification” may be regarded as “critical or political classification” well reflect Dewey’s own engaged commitment to pluralism and social meliorism within a democratic form of life.

5.0 Concluding remarks: whither pragmatism in KO?

As we have seen, Peircean pragmaticism, Jamesian practicalism, and Deweyan instrumentalism constitute three classical forms of Pragmatism, differing in their respective views of the scope of application of the Pragmatic method, the level of communal association at which it is most efficacious, the degree to which human knowledge is objective vis-à-vis external realities, and the nature of the truth claims arising from human experience of the world. Within KO, researchers adopting Pragmatist perspectives have tended to incline towards the socially pluralist model articulated by Dewey and championed by Hjørland: even those who explicitly invoke Jamesian (Shera 1965) or Peircean (Thellefsen 2004; Thellefsen and Thellefsen 2004) theories and methods deem the (limited) knowledge domain as the most appropriate level toward which to orient KOSs. Such a tendency perhaps represents the confluence of certain KO traditions—cf. the production of special classifications, indexes, and subject bibliographies geared towards particular user communities—with a postmodern Zeitgeist that both endorses a view of knowledge as formed by active interaction between people and the world rather than as resulting from a human program of cognitively “mirroring” the world in thought and valorizes multiple perspectives on what counts as knowledge while rejecting notions of an absolute Truth (Miksa 1998, 84–87; Jacob 2000). Such a setting, it would seem, is particularly congenial to a Deweyan approach.

The postmodern spirit, however, has encouraged, within both philosophical Pragmatism and its KO derivatives, approaches that go well beyond the classical Pragmatist idea of “objective relativism” as an epistemological norm. This tendency has found its most visible form in the Neopragmatist viewpoint propounded by Richard Rorty. While Rorty accepts many elements of classical Pragmatism, such as its antifoundationalism, fallibilism, pluralism, and repudiation of the notion of knowledge as a neutral representation of the external world, he differs from it in two significant respects: (1) he views “language” rather than “experience” as constitutive of knowledge and (2) he rejects the notion that any method—especially scientific method—can serve as a privileged means for justifying individual and community beliefs (Rorty 1999, 35–36). For Rorty (1982, 165), “[t]here are no constraints on inquiry save conversational ones—no wholesale constraints derived from the nature of the objects, or of the mind, or of language but only those retail constraints provided by the remarks of our fellow-inquirers”. Inquiry thus becomes “a matter of continually reweaving a web of beliefs rather than the application of criteria to cases” (Rorty 1987, 44). Such an epistemological stance leads from Deweyan “objective relativism” grounded in shared human experience to an ungrounded “antirealistic” relativism that views knowledge claims as the result of languages game offering no strong cross-community standards for evaluating competing claims (cf. Hickman 2007, 14–19; Dousa 2010, in press). The radical antessentialism of Rorty’s Neopragmatism has increasingly found adherents within LIS in general (Sundin and Johannisson 2005) and KO in particular (Tennis 2007; 2008; Tennis and Sutton 2008): whether it offers greater metatheoretical “cash value” than the forms of classical Pragmatism reviewed here is an open question deserving further discussion within the KO community.

References


Treatment of Georeferencing in Knowledge Organization Systems: North American Contributions to Integrated Georeferencing

Olha Buchel* and Linda L. Hill**

*University of Western Ontario, Faculty of Information and Media Studies, Ontario, Canada <obuchel@yahoo.com>
**Goleta, California, USA <lladdhill@gmail.com>

ABSTRACT: Pioneering research projects in North America that have advanced the integration of formal mathematical georeferencing and informal placename georeferencing in knowledge organization systems are described and related to visualization applications.

1.0 Introduction

Georeferencing using placenames (e.g., Chicago, Ohio River) and place types (e.g., city, river) is used extensively in verbal and written communication and for knowledge organization because knowing the where and what of geographic locations is fundamental to understanding the meaning and relevance of information related to those locations. For knowledge organization (KO), geographic location is a component of the description and identification of various attributes of information resources (e.g., spatial coverage, geographic aboutness, and place of publication) for all types of media (e.g., maps, books, articles, data sets, photographs, images, and web sites), and all genres (e.g., novels, poems, musical compositions, biog-
raphies, movies, and research reports). Major classification schemes (e.g., Library of Congress, Dewey Decimal), subject heading authorities (e.g., Library of Congress Subject Headings), thesauri (e.g., Getty Thesaurus of Geographic Names, GeoRef Thesaurus), and metadata structures (e.g., MARC) are imbued with geographic terms, codes, and attributes of space. These are types of informal georeferencing that make use of placenames, administrative hierarchies (e.g., Syracuse is part of Onondaga County is part of New York state), and place types to designate geographic places.

In contrast to informal georeferencing is formal georeferencing, where the location of a place is identified mathematically by use of longitude and latitude coordinates or by use of another global referencing system (e.g., UTM coordinates). Formal georeferencing is fundamental to navigation, cartography, satellite imaging, aerial photography, and the analysis of spatially distributed data. In the last few decades, products and services based on formal georeferencing (e.g., GPS units in our cars, Google Earth, MapQuest, online mapping standards) have expanded greatly due to the emergence and rapid advancements in geospatial technologies.

Only recently, within the last decade, have research projects demonstrated that bridging between informal and formal georeferencing within KO systems adds powerful benefits in understanding the contents of collections and the relevance and relatedness of information. Advances in the fields of spatial cognition, geographic information science, and library-and-information science provided the basis of these innovations. This paper focuses on the North American research and development projects that have advanced the integration of formal georeferencing into KO systems that rely primarily on informal georeferencing.

2.0 Background

The merits of the use of coordinates in KO are linked to their intrinsic properties of being culturally and language-neutral, cross disciplinary, capable of spatial visualization, and applicable to all types of information resources (Hill 2006). Coordinates that represent the location of a place can be linked to its placenames in various spellings, languages, scripts, and transliterations, including historical placenames and cultural variants. Table 1 illustrates this with an abbreviated record from the U.S. Geological Survey’s gazetteer.

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</tr>
</thead>
<tbody>
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<td>Name</td>
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</tr>
<tr>
<td>Class</td>
<td>Populated place</td>
</tr>
<tr>
<td>Variant Names</td>
<td></td>
</tr>
<tr>
<td>Sy-kuse (citation)</td>
<td></td>
</tr>
<tr>
<td>Kah-ya-hoo-neh (citation)</td>
<td></td>
</tr>
<tr>
<td>Tu-na-ten-tonk (citation)</td>
<td></td>
</tr>
<tr>
<td>Na-ta-dunk (citation)</td>
<td></td>
</tr>
<tr>
<td>Bogradus Corners (citation)</td>
<td></td>
</tr>
<tr>
<td>Milan (citation)</td>
<td></td>
</tr>
<tr>
<td>South Salina (citation)</td>
<td></td>
</tr>
<tr>
<td>Cossitts Corners (citation)</td>
<td></td>
</tr>
<tr>
<td>Coordinates (latitude, longitude)</td>
<td></td>
</tr>
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<td>43.0481221, -76.147244</td>
<td></td>
</tr>
<tr>
<td>42.9922883, -76.1510356</td>
<td></td>
</tr>
<tr>
<td>43.0478444, -76.1146455</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Illustration of an entry in a gazetteer showing the preferred name, class/type, variant names (linked to sources), and coordinates for Syracuse from three USGS topographic maps (abbreviated record from the U.S. Geological Survey’s Geographic Names Information System (GNIS), http://geonames.usgs.gov).

Once the location of a place has been expressed in coordinates—even using a simple longitude and latitude point as in Table 1—it can be situated on a map and its spatial relationships to other places and physical features can be discovered, appreciated, and acted upon. When placenames are associated with information resources, then these resources can also be viewed in a spatial environment and related to resources that are spatially similar in content. Moreover, the use of geospatial coordinates can represent, for example, the location and progression of events such as weather phenomena and migrations (Cahill and Moore 2006) and vague areas, such as southeastern Illinois, and the resources associated with these events and areas.

Geographic places are listed by name and documented in gazetteers, which have typically been structured as dictionaries, encyclopedias, or indexes arranged in alphabetical order, often describing each place in terms of its name and location. An entry in the index of an atlas might look like this: “Nantong, Jiangsu, China Page 23, Grid J2 32.05N 120.51E.” An entry in an encyclopedia-type gazetteer might look like this abbreviated entry from the Columbia Gazetteer of the World Online (2005):
Name of place: Timbuktu
Type of place: city
Location: Mali

Timbuktu (tim-buhk-too), city (1987 pop. 31,925; 1998 pop. 31,973; estimated 2005 pop. 32,460), (cap.) Sixth Region, central Mali, near the Niger River; 16°46’N 03°01° W ... an important meeting place for the nomadic people of the Sahara ... was founded (11th century) .... Also spelled Tombouctou. (Note that entries in this gazetteer have since been changed to include separate data elements for Coordinates and Population)

Other structures for gazetteer data have been used. The authoritative gazetteers of government agencies (e.g., the U.S. Board on Geographic Names and the Geographical Names Board of Canada) use locally designed metadata-like models where there are fields that specify types of data (Table 1). The Getty Thesaurus of Geographic Names uses a thesaurus structure. Each gazetteer has been built as a stand-alone reference serving particular purposes with no expectation that the data could be networked to or shared with other applications or integrated with other datasets.

3.0 Early use of coordinates in text-based knowledge organization systems

Map librarians were the first to realize the need for fields within the MARC format for coordinate values to document the geospatial boundaries of the maps, aerial photographs, and related materials in their collections. Because of their close association with map users and the geographers who were beginning to develop GIS software, they were aware that the spatial locations associated with the contents of their collections were key parameters of description. The inclusion of coordinates and other parameters of spatial location in MARC in the 1970s preceded major developments in GIS, which began later in the 1980s. The Anglo American Cataloging Rules (AACR2) first included a section on coordinates in 1981. These advancements were promoted by map catalogers and have been most consistently used for the description of maps and geospatial data.

Some indexing and abstracting services realized the importance of formal georeferencing early on also. GeoRef (American Geological Institute 2009), the indexing and abstracting service that covers the Earth sciences, started adding coordinates for placenames to its thesaurus and to the metadata for documents in 1977 in order to support a geospatial query capability for its online searching service. The Getty Thesaurus of Geographic Names (TGN) (J. Paul Getty Trust - Research Institute 2009) began adding coordinates in 1987. TGN’s scope includes terminology needed to catalog and retrieve information about the visual arts and architecture.

With the emergence of GIS, Nancy Pruett (Pruett 1986) predicted that digital maps would enhance user tasks, interactions, and retrieval if the contents of collections were geospatially referenced. She foresaw graphical user interfaces for geoscience libraries and information services where a search for maps, journal articles, field trip guidebooks, dissertations, data, and even the names of experts would be carried out by drawing on a computer screen the outline of the area of interest while interacting with an online bibliographic-type database. Ten years later, Ray Larson (Larson 1996) introduced the concept of geographic information retrieval and explained the advantages of spatial browsing as a method of presenting and querying a variety of georeferenced information using digital maps. This thinking and research, as well as concurrent advances in GIS, prepared the foundation for the next stage of development: building geographically-based digital libraries that demonstrated empirically the advantages of integrating both informal and formal georeferencing into KO and online services, while working out the models and protocols required.

4.0 Geographically-based digital library projects

4.1 Geo-Referenced Information Network (GRIN)

The first project in North America to design a digital library system that included geospatially enhanced metadata and map-based information retrieval capabilities was called the Geo-Referenced Information Network (GRIN) funded by the Research Libraries Group (RLG). Its goal was to create a library and retrieval system to provide geographically-based access to item-level metadata characterized by geospatial location and then digital access to the actual electronic collection items. The GRIN design included a thesaurus linking placenames to geographic coordinates and map-based displays of information resources so that users could select resources based on their relationships to geographic areas of interest (“RLG enters new sphere with geoinformation project” 1989).
4.2 The Alexandria Digital Library Project and digital gazetteers

The first operating prototype of a georeferenced digital library that integrated informal and formal georeferencing was inspired by the GRIN project. The Alexandria Digital Library (ADL) project was developed at the University of California, Santa Barbara (UCSB) as one of the six National Science Foundation digital library projects in the first round of digital library funding, 1994-1998. ADL was designed as a geographically-based digital library (DL) in which the geospatial associations of all types of information resources (e.g., books, articles, maps, remote sensing images, photographs) can be represented by longitude and latitude coordinates and where a gazetteer is integrated as a reference source and to support the translation between placenames, coordinates, and place types (e.g., city, lake, airport) (Figure 1). In ADL, a map-based user interface can be used to display the geographical distribution of resources in a collection, to narrow a search for information to a specific region, and to display the geographic locations of individual resources in the retrieved set. A user can express the geographic location of interest either by placename or by marking an area on the map; that is, either informally or formally. Such a search can be directed to the gazetteer to find out, for example, what “schools” or “lakes” are in an area or to the collections to find resources related to the area as represented either by coordinates or placenames.

![Figure 1. Basic components of an entry in a digital gazetteer for a named geographic place: name, location (footprint), and type/category (Hill 2006, 92)](image)

The ADL architecture and supporting protocols are based on a distributed system model where collections can reside at distant sites with a shared agreement about methods of generating queries, receiving queries, and returning results. The ADL concept of DL architectures includes the tight integration of KO resources (e.g., gazetteers, thesauri, taxonomies) with collections and services, as presented in a paper presented at the 13th ASIS&T SIG/CR Classification Research Workshop in 2002 (Hill et al 2002).

Since digital gazetteers were recognized as key KO components of the ADL Project, a major effort was made to develop a formal data model for gazetteer data and a thesaurus of terms to categorize named places. Using the ADL Gazetteer Content Standard (GCS) (Hill 2004) and the Feature Type Thesaurus (FTT) (Hill 2002), a gazetteer of nearly 6 million entries, with worldwide coverage and assigned categories/types using the FTT, was created by combining the data from the two U.S. federal gazetteers and other smaller sets of data. This required mapping from dissimilar data structures and local typing schemes. A gazetteer protocol and a thesaurus protocol were created to operate in a networked environment and to support gazetteer and thesaurus query and response services; these protocols do not require that the gazetteer and thesaurus data be in any particular format.

The GCS contains a small set of required elements and an extensive set of optional elements to document aspects such as calendar dates (for names, relationships, footprints, population data, etc.), sources, language, confidence (certainty about the data), authority (e.g., official status of the name), and additional descriptive information. The FTT has six top terms, 210 preferred terms, and 1046 non-preferred terms.

Both the GCS and the FTT have been adopted and adapted for other implementations worldwide. Workshops on gazetteer research and development have been held as a result of the ADL project and the complexities and issues of gazetteer development and implementation have been reported in various publications to further support research in this area and the development of integrated georeferencing in KO (Beaman et al 2004; Buckland and Lancaster 2004; Crane 2004; e.g., Hill 1999; Hill 2006; Hill et al 1999; Janée et al 2004; Kornai and Sundheim 2003; Networked Knowledge Organization Systems/Services Group 2002; Smith and Crane 2001).

The importance of gazetteers in KO has been demonstrated and, as more implementations develop, the multiple roles for gazetteers in online information systems are being discovered as well. As a basic reference tool, gazetteers can provide information about a place, such as where it is; what the authorized names for the place are according to various authorities and what other names it has; how it is related to other places; what type of place it is, according to a structured set of place types; and how its names, boundaries, politi-
4.3 Other innovative georeferenced KO initiatives

There are operational information systems today that have implemented geospatial referencing for a plethora of information resources beyond maps and aerial imagery, including books, parts of books, learning objects, news articles, genealogical and archival records, historical records, and museum collection metadata. For example, the biodiversity community developed the Darwin Core metadata standard, based on the Dublin Core model, “to facilitate the exchange of information about the geographic occurrence of organisms and the physical existence of biotic specimens in collections” (Taxonomic Data Working Group 2007). The standard includes a set of georeferencing elements, including coordinate values. The worldwide community that uses the Darwin Core includes natural history museums, zoological and botanical gardens, and germplasm and genetic resource collections.

Significant work has been done for the visualization of library collections on digital maps. Several projects by the Electronic Cultural Atlas Initiative (ECAI) have experimented with the visualization of library collections on digital maps. One ECAI project used a digital map to facilitate searching a collection of 700 MARC records about, or published in, the Cebuano region of the Philippines (Buckland et al 2007). Another project, Going Places in the Catalog: Improved Geographic Access (Buckland et al 2002), has experimented with the translation of spatial queries drawn on a map in various graphical forms to text form, and time/space visualizations of library collections using the TimeMap software (Archaeological Computing Laboratory - University of Sydney 2004), developed in collaboration with ECAI. At the same time, efforts have been made to improve library placename authority records and make them similar to gazetteer records. Since the existing authority records and cataloging practices didn’t anticipate this migration to a gazetteer model and to map-based visualization of library collections and information resources, many conceptual and practical issues have to be dealt with in the process.

5.0 The future

Google Maps and other online applications are making it surprisingly easy to display data from one or more geospatially-referenced datasets on maps so that the distribution, patterns, and relationships of the data can be seen—or to display a single data point so that its location is shown in the context of its surroundings—or to find the best route between two places. The only requirement is that the places and information resources have coordinate values associated with them, either as recorded in the collection-level or resource-level metadata or because the information systems have placename lookup services that accesses gazetteers to find the coordinates associated with placenames.

Enabling map-based visualization of collection contents adds powerful exploration and discovery interfaces for all types of libraries, archives, data centers, museums, and other managers of knowledge content. Several projects are already underway experimenting with visualizations of resource collections and their contents using digital maps. 4W Vocabulary Mapping project (Buckland and Shaw 2008) visualizes personal biographies as a series of small georeferenced events and links the locations of those events to textual resources (bibliographies, bibliographical dictionaries, catalogs, and encyclopedias). Buchel (2008), as part of her dissertation, develops a prototypical interactive map-based visualization based on a set of MARC records, with links from the geographical locations of the places of publication to dynamic statistical graphics and abstract graphical representations of other attributes from the MARC fields. An example is shown in Figure 2. Here you see the map with icons for sets of books about geographic locations (the map in the center of Figure 2). The linked graphics include a scatter plot of book-size data (Figure 2.a) that allows users to view the distribution of the size of the books published about a particular geographical location; a language pie-chart (Figure 2.b) that visually depicts the languages of books and how many in each language; a Kohonen Map of subjects (Figure 2.c) that shows the distribution of subjects; a histogram of publication years (Figure 2.d) for each location; and another map that shows where the items about the geographic location were published (Figure 2.e).
Pioneering research and development projects in North America, as summarized here, have been important steps in bridging between the georeferencing practices of text-based KO practices and the geospatial practices of GIS. On both sides, the realization is growing that thinking spatially applies to all types of information, to all types of information exploration and use, to all types of knowledge organization.

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Figure 2. Map-based visualization of library collections, where each location is represented by: a) book-size scatter plot; b) language pie chart; c) Kohonen Map of subjects; d) histogram of the years of publication; e) map of places of publication.


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This book emerged from a semester-long faculty research study seminar at the University of California Humanities Research Institute and from a parallel, co-taught student seminar in the Science Studies Program at the University of California, San Diego. It is a graceful collage of essays, newspaper and magazine clippings, and other odds and ends all dealing with the question: “How have people dealt, in ordinary ways, with these millions of interlocking standards?” (p. 4).

We are surrounded by standards, from coffin sizes to food-portion supersizing, from red/green traffic lights to “flesh-colored” Band-aids, from ethnic profiles to emission standards—sometimes they work so well they become invisible, and sometimes they provide stumbling blocks. Many standards fit their purpose well, but many violate our rights and our dignity. They enable the smooth running of our technologies, but they frustrate, cause misery, and wreak havoc as well. In their introductory essay “Reckoning with Standards,” the editors consider the use, creation, disuse and abuse of standards and identify analytic commonalities. These are (pp. 4–5):

Standards are nested inside one another;
They are distributed unevenly across the sociocultural landscape; and,
Are relative to communities of practice; that is one person’s well-fitting standards may be another’s impossible nightmare;
They are increasingly linked to and integrated with one another across many organizations, nations, and technical systems; and,
They codify, embody, or prescribe ethics and values, often with great consequences for individuals.

The book is an orchestrated exploration, discussion, provocative probing and illustration of these observations. Ah, standards—you would think the eyes might glaze over, but this is not a traditional linear exposition, and so you are enveloped in the topic as in a well-told tale. It is a recursive and interlocking arrangement among the contributing authors and the auxiliary texts that are used to illuminate the main themes. Put another way, each episode is an exercise in cumulating consciousness-raising.

In “Beyond the Standard Human” Steven Epstein explores “attempts by what might be called an antistandardization resistance movement to displace the standard human.” We welcome standards that make life easier; we learn to get around standards that seem inevitable, but the notion of a “standard human” is distasteful to many of us. Even so, there are many instances in which this construct is invoked, and we barely notice. Epstein narrates the rise of statistics in the 1800s and the ability to measure and map the typical human characteristics—the notion of L’homme Moyen (pp. 38–9). He goes on to describe, among other instances, the use of the “new standardized object for biomedical research—the human subject (p. 41),” and the implications of doing so for those literally not measuring up to the standard—airbags that hit too low, dosages of medicines that are not suited to all, and so on. He illustrates how descriptive standards can become normative by implication, how what is considered “normal” gets accepted.

In “Age in Standards and Standards for Age: Institutionalizing Chronological Age as Biographical Necessity,” Judith Treas provides a historical overview of how chronological age “has supplanted other useful ways of thinking about age” (p. 66). She points out that there is often an imperfect match of our subjective and objective perception of age (p. 68), and that, “It does not really matter whether people know their chronological age unless they bump up against bureaucratic systems that demand chronological age (p. 81).” Even so, this construct has triumphed, and Treas provides many examples of how
today, chronological age determines the timing and progression of individual lives by invoking age norms and rules that link people to age-graded social institutions.

Martin Lengwiler revisits the notion of a standard for humans in “Double Standards: The History of Standardizing Humans in Modern Life Insurance.” He says, “the debate about insuring substandard lives serves as an exemplary revealing case to examine the ambivalent practical effects of modern human standards, between inclusive and exclusive, discriminating and privileging, and disabling and enabling practices (p. 97).” He posits the link between the cultural pessimism at the turn of the 20th Century with the notions of inherited and debilitating conditions that then define the substandard characteristics of a high-risk and, therefore, uninsurable individual. This essay also recounts the fascinating tension between the “art” of the insurance physician who made the decisions about standards based on physical examination, and the “science” of the actuarial theorist, who made these decisions based on statistical evidence.

Taking the perspective of class struggles, in “Classifying Laborers: Instinct, Property, and the Psychology of Productivity in Hungary (1920-1956), Martha Lampland explores the topic of work science and the tension among scientific engineering, standardizing, and social classificatory practices (pp. 123-24). The essay is an examination of the belief that people of different classes, gender and ethnic groups were seen to have specific work habits in their makeup—for example, sloth or diligence and the capacity for work (p. 124). She discusses “the nexus of psychology and social engineering” (p. 127), commenting that the Hungarians were not alone in this approach. In the pursuit of increased productivity such characteristics of “human nature” were considered crucial variables by many practitioners of work science (p. 133).

In “Metadata Standards: Trajectories and Enactment in the Life of an Ontology,” Florence Millerrand and Geoffrey C. Bowker use the Long-Term Ecological Research Community (LTER) and the Ecological Metadata Standard to conduct an ethnographic study of how a community enacts standards and coordinates different social worlds. They trace how distributed and disparate sites follow different trajectories in not only contributing to the metadata project but also in adjusting their infrastructure to accommodate the goal of sharing and preserving data after the paper or report is written. The challenge is “to analyze change at the scale of a continent and beyond the six-year funding cycle or the thirty-year career cycle of the scientist” (p.153). Thus, time and place become important factors in analyzing and, more importantly, evaluating the metadata standards. The authors argue that standards and ontologies should be socially and organizationally bundled and not considered merely as an afterthought to the work that produced them.

In “ASCII Imperialism,” Daniel Pargman and Jacob Palme use the development of the English-centric ASCII code to study the standardization of language and its intersection with the technical standards on the Internet (p. 181). We are quick to assume that technological imperatives guide the development of standards, but the authors argue that it is both a social and a technical issue, and while emergent consequences can’t always be anticipated, this does not absolve us of making an effort to remedy the situation. Who decides how we communicate on the Internet? Demonstrating the problem is easy—for example, the municipality of Hörby being forced to represent itself as “www.horby.se” (village of fornication) due to ASCII limitations—but analyzing the issue is not. It isn’t until something cannot be done that we realize there is a problem, and by then we feel we are restricted by decisions that were made long ago and by the resulting inertia (p.186).

These seven guiding essays are interlaced with several shorter ones, as well as articles and illustrations, and finally a sample syllabus in case you’d like to run a seminar of your own. Here’s a sampler: Ellis Island standards for immigration, clothing sizes, healthy-infant growth charts, increasing coffin dimensions, California’s Three Strike penal standard, arsenic content in water standards, Polish pork-farm infrastructure and cleanliness standards, train-track standards and the width of two horse’s behinds, and from the vault of apocryphal EU standardization stories: the case of the straight (not curved) bananas.

One way to view the overall subtle coloring of this book is to pay attention to the metaphors. For a topic that is seemingly dry, it’s interesting to note how standards seem to evoke rather earthy and heartfelt metaphors. The prominent one is mentioned by the editors in the introductory essay. This is the metaphor of imbrications: “an evocative picture of unconnected things producing a larger whole (p. 20).” They speak of standards as nested, and throughout the book there are other structural allusions. For example, in speaking of metadata standards for shared scientific data, Millerrand and Bowker point out that “[in] the traditional model of scientific research, data are wrapped into a paper that produces a generaliz-
able truth—after which the scaffolding can be kicked away and the timeless truth can stand on its own (p.149).” They argue that, instead, the metadata can continue to be that scaffolding. In the chapter on the standard of chronological age, Teas refers to age as part of the steps of life (p.69) thereby forming a structure of the life lived in a particular shape—up and then down.

Looking at it from a more social perspective, Lampland and Star speak of our relationship with standards as a romance (p.4), invoking an image of infatuation followed (one would hope) by commitment, and then (perhaps) disenchantment, or heaven forefend, heartbreak. The sense of standards acting as a communication medium is strong throughout. We invoke the standard when we want to say, “This defines it; this is the last word; this is the way it is.” Millerand and Bowker say (p.154) that, at the very least, standards “structure the conversation.”

There are also what might be called “biological” metaphors, suggesting that standards participate in life in a peculiar way. We perceive the processes of measurement used in standards as taming “wild” phenomena (p. 21) or transforming raw data (p. 150). We see how the notion of hereditary deterioration helped shaped the concept of a substandard human being (pp. 100-01). Finally, there are the metaphors of space: compression marginalization, being within or outside of boundaries, centrality, that imply standards define more than just the physical and technical world, but in fact, have consequences for the everyday lives and activities of the humans interacting with them.

Several themes run through all the essays, articles, and illustrations; the editors have done an admirable job of presenting a conceptual description of these themes by using the analytical commonalities outlined in the first essay. In their discussion they fill in that outline with other aspects of standards: their invisibility and the implication of the fact that standards often deal with “boring things”; the intersection of standards with “messy reality;” the question of who matters in the standard process; the role of infrastructure in conceptualizing standards; and the intellectual home of standards in Science Studies.

To these I’d like to add a few more threads taken from the perspective of standards as classificatory structures. This perspective is woven tightly into many of the essays. For example, Pargman and Palme explicitly cite Geoffrey Bowker’s and Susan Leigh Star’s (1999) observation that “Classification schemes and standards literally saturate our environment” (Bowker and Star 1999, 37). My contribution aims to add some additional thoughts.

Several of the authors point out that standards, like classifications, are born within a particular point of view, for a particular purpose and with observable outcomes. Furthermore, classifications, like standards, help define, communicate and negotiate contested spaces. Modern notions of classification take into account multiple perspectives, tangled structures, and prototypicality (Kwaśnik 2000). Thus, it seems natural to talk of standards and classifications as closely linked, and there are ways of talking about classification that might usefully be extended to standards. I’ll touch on a few examples.

The first of these is warrant. Clare Beghtol, writing in 1986 said “the warrant of a classification system can be thought of as the authority a classificationist invokes first to justify and subsequently to verify decisions about what class/concepts should appear in the schedules … Warrant covers conscious or unconscious assumptions and decisions about what kinds and what units of analysis are appropriate to embody …. The semantic warrant of a system thus provides the principal authorization for supposing that some class or concept or notational device will be helpful and meaningful to classifiers and ultimately to the users of documents (p. 110-11). Warrant can derive from the scope of the collection itself, from historical and scientific consensus, from educational and mission-specific goals, and from cultural influences. In many of the discussions of standards throughout the book the term “who matters?” is invoked to discuss not only what a standard defines as “the standard” but also why that choice was made. When warrant is made explicit it can illuminate such issues.

Another notion from classification is that of expressiveness. A classification is sufficiently expressive when it has the requisite number and specificity of classes to smoothly and gracefully accommodate the phenomena within its scope. Thus a selection of two or three very general musical genres for my eclectic collection will certainly not be expressive enough. Epstein discusses how women were not considered good human subjects for medical studies because they were “too complicated” (p. 44), with hormonal cycles and other such confounding attributes. The standard was simply not expressive enough to accommodate such complexity. Indeed, many standards are created specifically to avoid complexity or to reduce it. As Dunn points out in her discussion of standards and infrastructure (p. 118), standards
tend to "gloss over" the realities on the ground. The small, poor farmer operates in conditions that do not even fall under the basic categories of the standard. Those left on the margins are excluded from the standard not only because they don't matter, but also because it may seem to be too difficult to make the standard expressive enough.

A good classification can function as a theory (Kwaśnik 1992). That is, we can use it to describe, explain and predict (e.g., the Periodic Table of Elements). Even a flawed classification, though, has some theory or world view or set of assumptions behind it — and so it is for standards as well. It was interesting to note how many of the standards had behind them some formal set of assumptions, from the theory of deterioration (in insurance, p. 100), to human nature (in social engineering in Hungary, p. 123), to actuarial theory and reasoning with statistics. Functioning theoretically, a classification can serve as a lens into the domain it represents. Similarly, Millerand and Bowker state that metadata standards, for instance, are not neutral but can "condition access to data" (p. 154) and therefore function as a form of knowledge in themselves.

There are many other aspects of classification that seem pertinent to standards such as: flexibility, hospitality, parsimony and elegance. I think there is a connection between standards and classification because both can serve to represent, define, connect, smooth distinctions, make distinctions, and reduce to essentials. It might be fruitful, having read this book, to now examine classifications using the analytic commonalities outlined by the editors in the first essay.

Most of the time I personally appreciate standards, and am especially aware of them when they are missing. Being a cataloger (um, knowledge organizer) I do, after all, think fondly of the simultaneous ingenuity and nonsense of my AACR2. I wished, sometimes, while reading this book, to learn about some of the thorny problems that have been solved by standards—the beauty of the Pantone color chart and the clever color-numbering system on my L'Oreal hair rinse, the amusing but helpful alcohol-level indications on Finnish beer ... the list goes on. The book takes a mostly critical approach, but it is for a good purpose. I am now sensitized to the subtleties and intended and unintended consequences of not only the standards themselves, but also the standard-development process. Thus, another question that might well summarize this book, besides the one the authors posed of how people deal with standards, is what do the standards say about us? The contributing authors of this volume have illuminated a great deal but have also planted the seeds of many interesting investigations and discussions to come.

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Barbara H. Kwaśnik
Professor, School of Information Studies
Syracuse University
Syracuse NY USA
< bkwasnik@SYR.EDU>


1.0 Edition-work: digital critical editions and the digital humanities

The first volume of the Series “Digital Research in the Arts and Humanities,” Text Editing, Print, and the Digital World is a summative and reflective anthology concerning the inception and growth of several text-based digital collections projects. The essays express diverse viewpoints—contributions come from librarians, curators, textual scholars, historians and administrators from both public and educational institutions. The volume's focus is on the scholarly act of editing and the creation of editions as scholarship. It thoughtfully introduces the rigor and values of the
practice, while dealing with practical examples of how these factors are reconciled with those of digital "editing." Editing, and the edition, are discussed in broad context: for example, a discussion by contributors grappling with the gaps between text and code accompanies a comparison of the bounded print edition with the proposed “Open source critical edition” (one that, as the author suggests, is quite treacherously never finalized). Beyond the talk of scholarly process is an open questioning of what editions, editing, and scholarship are for, and who or what purposes they may serve. This critique is surprisingly original, and runs throughout the volume. It is significant not just to those involved in bibliographic study, but to anyone involved in producing cultural objects.

Digital humanities has become an umbrella term in the last decade, referring in many instances to the use of technology for humanists, but most notably, for engaging digital technologies for humanities scholarship. Many credit the inception of the discipline to literary study: the work of Roberto Busa (1974, 1980) an Aquinas scholar, integrated digital indexing technologies as early as 1949. Subsequent research in art history (in the 1980s), archeology (as early as 1976), classics (in the 1970s), and history (in the 1970s), integrated database technology, content analysis, and quantitative analysis into research practice and teaching methods. (Comprehensive histories this can be found in Hockey 2004, and Robinson 1997.)

The volume is ecumenical but directive, combining academic work in the humanistic disciplines with practice-centered writing. Its readings could be central to such an introductory graduate course, and in their reading, could spur discussion as to some of the central scholarly and practical questions of large scale digital projects. “Text Editing” will no doubt be useful in teaching courses in this arena. Editor Kathryn Sutherland has an impressive textual studies c.v., including the 2005 work *Jane Austen’s Textual Lives: From Aeschylus to Bollywood,* and an output in digital textual studies that includes 1997’s *Electronic text: investigations in method and theory,* and with coauthor Deegan, *Transferred Illusions: Digital Technology and the Forms of Print* (2009).

The work in this book can be contextualized historically in relation to two movements. First, in the work in the UK at the end of the 1970s, including the Oxford Text Archive and the Oxford Concorance Program, which exploited the capabilities of text processing in order to achieve unprecedented developments in indexing, referencing, and analyzing texts, and whose descendants have developed increasingly sophisticated scholarly editions and public programs. Second, the development and dissemination, stateside, of the Text Encoding Initiative, beginning in 1991, a language for document markup: supported by funded initiatives for TEI and in TEI instruction for Humanities scholars.

At the time of this writing, the UK, Canada, Australia, Egypt, and many countries in the European Union have rather robust national level infrastructure for the digitization of archival and manuscript materials in Libraries, Archives and Museums, and programs for integrating scholarship into the design and creation of online exhibits and editions. By contrast, the United States lacks in a central funding agency for such activities: the Library of Congress and National Archives are not “National” in the sense that they serve institutions across the country: they cannot serve the same infrastructural function. “Digital Humanities” has thus sprung forth in the U.S. as an entrepreneurial venture in which institutions and individual scholars seek funding and legitimacy for their own digitization and computing work in the neoliberal academic environment.

Without affiliations at the national level, scholars such as Johannah Drucker and Dan Cohen have emerged as hybrid scholar-managers, offering both experiential accounts of overseeing digitization programs, and academic vision for the present, if not future of digital. Despite the lack of clear work direction, U.S. institutions by the mid 2000s offer dedicated courses in digital humanities in both LIS programs and traditional humanities graduate departments. A market for suitable textbooks has emerged, in which the likely standard is Siemens, Scriebman and Unsworth’s *A Companion to Digital Humanities* (2005), a sizeable anthology integrating many major perspectives.

The book is divided into two sections, “In Theory” and “In Practice,” but concerns itself chiefly with the conceptual aspects of digital text projects. While there is not a chapter on, for instance, choosing and implementing metadata standards, there is thoughtful discussion as to how they may be conceived in terms of project planning. The editors have achieved an admirable balance in terms of practical concern and scholarly analysis.

In the first section, topics of bibliographic theory and textual criticism are discussed in the context of the contemporary online environment. The textual scholar (and volume editor) Kathryn Deegan’s essay
attempts to trace the trajectory of textual criticism up to the present, reconciling, if not reimaging the focus of textual criticism to the work of interface design. Swedish LIS scholar Mats Dahlström's essay, “The Compleat Edition,” addresses the economic and production factors of the electronic scholarly text while framing the questions of editioning within a user-oriented context. Paul Eggert, an English professor at New South Wales, takes inventory of the process of making a scholarly edition, weighing the process in the digital realm against that in a print publication sense. The essay from Gabriel Bodard and Juan Garces, (from Reading and the British Library, respectively), uses the experience of engineering a critical edition to argue for “Open Source Critical Editions”, a stance unsurprisingly zeitgeist, but one that is challenging, if not contradictory, to the traditions of scholarly process outlined in the volume.

In the second section of the book, case studies of digital projects are presented with mind to the pragmatic aspects of their execution. However, these essays are thoughtful and timely, not merely the “how we did it” stuff of professional publications. In many respects, the essays in this section of the volume provide a gateway to a more advanced critical understanding of digitization’s possibilities.

One key example of how this volume elegantly brings themes of practice into a scholarly perspective is the essay “Editions and Archives.” In the context of their work, James Mussel and Suzanne Paylor, literary scholars who held positions on the Nineteenth Century Serials Edition, provide a fascinating and thorough account of the challenges faced by the project. They ruminate on the changing and variable nature of serial printing during the latter half of the nineteenth century. As print genres emerged and evolved, (e.g. the daily newspaper and the “tabloid”) the discourse of these formats shaped readers notions of their importance and permanence. The authors survey scholars differing notions of “ephemeral” literature, and contemplate how to capture this online.

These essays mentioned each address a heart of the matter in digital humanities: a competing interest between access and authority, and a somewhat unifying effort to translate the erudition and process of the past few centuries of academic discourse, all the while discarding some of the more cumbersome aspects of scholarly communication. What’s hinted at, if not directly addressed is the more mundane problem of labor duplication between the scholars of the humanities and the custodians of cultural objects, i.e., librarians, archivists, and curators. The perspectives in the volume generally reflect on thoughtful collaboration, but also a reconciliation of these factors. As said previously, this is a conceptual working-through, not a program-setting book- solutions for funding collaborative work environments are not touched on.

Funding in general is not addressed in the volume. As the contributors hail largely from the UK and the European continent, it is noted that funding, along with standards and procedure, has come from governmental sources. For the U.S. based researcher, this raises questions of the feasibility of large-scale digital projects without central funding sources. Without central guidelines as to standards, and without much investment in cyberinfrastructure for humanities resources, how can a larger network of digital humanities form to serve present users and build collections for future ones? There are very real issues of digital preservation and migration posed by even the most well-planned digital project, and any long-term strategy has to involve a larger effort in this area.

The implicit elements in this volume are those that may be the most revealing to those interested in knowledge organization- institutionalization and infrastructure. Most, if not all of the contributions to the volume reflect the experience of government-funded projects carried out with strategic support of large scale initiatives. The summative effect of this volume is an argument towards this sort of structural planning, and is one that researchers in the US are largely without answers to, and ones to which Knowledge Organization scholars are keen to take interest.

2.0 Markup: libraries, collections, and bibliography

Espen Ore of the National Library of Norway begins his essay “They hid their books underground,” with an account of the Library of Alexandria.

In retracing this ancient relationship between textual scholarship and the organization of knowledge, Ore points to a key issue for the development of textual resources. As work goes forth in digital projects, how is “markup” developed and expounded upon? This is a central consideration of those exploring Web 2.0 tools in collection design: building an open record of archival research.

The relationship between scholarship and custody is a tendentious one in special collections. Archivists and librarians seek to “serve” their researchers, all the while governing access to materials. Directors of lar-


ge special collections libraries are in many cases PhDs in the humanities, and provide oversight in terms of collecting, scholarly value, and academic administration. They have not, historically, been involved in the description, arrangement, or organization of collections. They do not answer reference questions. For academics, with cursory training of the mechanics of digitization, without insight or experience into the maintenance of collections, to engage in and take ownership of collection curation, is to signal a massive shift in the labor structure of libraries and archives. And to state the obvious, librarians are largely female, archivists are less so, but women are still predominant in the profession. The ranks of institutional directors are largely male, as are those of the digital humanists.

It’s worth noting that rare book librarianship has occupied a unique niche in the scholarly tradition of library science, and one not instantly translated to the current streams of information science study. In the mid to late twentieth century, rare book scholarship drew upon a sort of literary scholarship concerned with the condition of the text, and a bibliographic method that sought to quantify the existence of artifacts. Unlike classification, rare book librarianship concerns itself with time and environment, rather than use and totality. The business of rare books and manuscripts is a key part of the practical handling of such materials, and is thus socially and intellectually rooted in the discipline. Rare book collecting is a gentlemanly hobby, and to tend to the collections of extraordinary monetary, as well as historical and cultural value, requires at least some adherence to norms of use and ownership.

The rare books and archival communities have respectively complex relationships with description and conceptions of classification. Longtime holdouts on standardization, MARC cataloging standards have been seen in the rare books community as inadequate, and to the archives community, completely inappropriate. Within factions of archivists, description standards are held with varying degrees of contempt. Until the 1980s, many collections of literary manuscripts eschewed the standard finding aids and catalog records for intricate in-house protocol for describing materials, often a page at a time. The National Union Catalog of Manuscript Collections, a decades-long effort to centralize collections listings, could be considered a failure by most current standards. By the turn of the millennium, leaders in the field issued grave warnings on “Hidden Collections,” an attempt to address that most repositories had anywhere from a quarter to a half of their holdings without comprehensive collection records and were basically hidden outside of institutional walls.

The situation as described could be read, especially by those outside these communities, as an indictment of how behind the times rare book librarians and archivists are. But an alternate reading can yield a potent critique of standards adaption, and perhaps one that can lend us a better understanding of how collections can be facilitated and audiences served in both physical and digital environments. For example, the emphasis on procedure in special collections is far stronger than that in other library environments, and in many ways, in-person service is seen as an integral part of access to the collection; in this situation, this guidance is seen as surpassing, if not altogether eclipsing the collection’s textual record. The complex semiotics of the special collections reading room can be endlessly unpacked, yielding a rich testament to the academic, social and public contexts of archival collections and rare books.

It is a common refrain amongst those in the special collections community that faculty and the public demand that collections be put online, without regard to the management and maintenance of digital collections, and without a clue towards this intricate history and the context. Without acknowledging the complex dynamics of the administration and access to materials, digital humanities forsakes addressing a large stumbling block to the sort of democratic digital future it proposes: creating it in a just, efficient, and thoughtful way.

What is necessary for the future of digital scholarship, and digital collections, is a new strain of institutional leadership. Scholars interested in curating digital collections must engage with not only the “tools” of the web, but the goals of maintaining the artifacts they create. Together with LAM professionals, faculty must strive to integrate not only the use of collections, but work of designing and maintaining them into their teaching. By making pathways towards holistic operations of building, maintaining, and supporting collections, those at the crossroads of digital collections have an opportunity to re-envision the process of description and access.

3.0 What is the role of knowledge organization?

As a final point, I would like to examine how the field of knowledge organization may engage with this juncture of activity. For the readers of this journal, the question resulting from this work seems to
be, “What is the significance of digital texts, and what role, if any, does knowledge organization play in their development?” Digital library, or digital humanities projects do not serve as straightforward examples of classification work, and the traditional practical effects of knowledge organization teaching-cataloging, indexing, and other descriptive activities, are rarely represented in digital projects in their traditional forms. In the case of such as EXAMPLE, the work is done not by librarians at all, but by academics in a new venture. But surely the intersection of knowledge resources with scholarly work is a natural entre for knowledge organization.

We may draw on the work of the digital humanities movement, and their contention that the experience of putting a collection online is one of individual scholarly engagement, and not exclusively the domain of institutional work. Such an assertion takes a radically different stance towards order and information design than the one we tend to use in knowledge organization. But by elevating the process of gathering and presenting materials, and by illuminating the decision-making behind making collections available online, we may be able to expand our knowledge of this aspect of KO practice.

This is not a huge tactical leap. Scholars such as Claire Beghtol and Barbara Kwasnik have worked on domain-specific knowledge organization, providing analyses of how those domain-cultivated perspectives, scholarly or otherwise, contributes in conceptualization of form and function in KO systems. Their research is invaluable in these situations, as the firsthand observations of digital humanists, as in this volume, as to the construction of online text environments can illustrate and validate many of their claims.

Digital humanities, as it stands, lacks the perspective lent by LIS’ development of “the user” as a design aspect and as a rhetorical entry. While much ink is spilled as to scholarly working standards in this volume, not much consideration is paid to ramifications of design for users without regard to presumptions of disciplinary mindset. This is not to say that disciplinary concerns are not user concerns, but rather that a scholarly perspective could critique and enhance our notions of user publics. A more thorough understanding of concepts such as authenticity from a user standpoint would, in fact, illuminate studies such as this. Conversely, facilities of search, retrieval, or user features are not explored in the tactical essays in this volume, and their implications are not considered in the critical essays. To this reader, this is a serious oversight, one to which leaves the community involved in such projects-without tools to engage with their environments.

In order to determine what may be the role for knowledge organization (and other) scholarship in this area, it is first necessary to examine the aims and means of digital projects such as those involved in this book. The cases detailed in the volume are efforts to do the work of libraries and universities in public online arenas. In another direction, these are first attempts to arrange infrastructure for literary scholarship, presumably for future iterations of it. In a sense, the questions raised by these essays are the questions which permeate much of the literature of information science realms, and questions by which knowledge organization specialists are especially qualified to discuss. Knowledge organization, with its critical mastery of form, representation, subject, and access, holds a range of nuanced perspectives especially relevant to the development of digital text environments.

Recent popular works such as David Weinberger’s Everything is Miscellaneous and Clay Shirky’s Here comes everybody, have engaged the KO community in recent years. But KO stands to gain more from engaging with humanities scholarship at the emerging digital crossroads. KO stands to fill a substantial role in this environment. The volume reviewed is not a pop-scholarship work on the grand textual revolution, but rather a careful gathering of what can be accounted for in the realm of textual interfaces, based on the experiences and proximity of the scholars to such projects. By analyzing relationships between documents, labor, and users, we stand to witness some substantial paradigm shifts. Drawing on our critiques, we may develop schemes for streamlining processes, integrating specific sorts of knowledge, and fully engaging the scholarly process. We may have a hand in reimagining the description and maintenance of unique materials, and in forging new partnerships for our work.

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Amelia Abreu  
The Information School  
Box 352840, Mary Gates Hall, Ste 370  
Seattle, WA 98195-2840  
<ameliacabreu@gmail.com>
German ISKO- Conference 2009
"Knowledge – Science – Organization" or:
Knowledge organization between modeling and self organization

The 12th German ISKO conference (Wissensorganisation’09) took place from 19th – 21st October 2009 in Bonn in the university club under the heading “Knowledge - Science – Organization”. It contained 50 lectures, with 2 international participations, and with approx. 90 participants. Beside the session topics ‘specialized knowledge’, ‘knowledge communities’, knowledge acquisition’, ‘semantic techniques’ and ‘value-enhancement’ in individual lectures also were treated: epistemological questions of the knowledge organization, empirical incorrect information, data theory, artificial systems, knowledge sustainability and research quality. The proceedings will appear at the beginning of 2010 in the Ergon publishing house. Abstracts are already available under: http://isko.gesis.org/isko2009/index.php?id=72. The presentations will follow.

Fruitfull was also a short conclusion panel (moderator: H. Peter Ohly, GESIS) with Professor Dr. Hans Czap (Univ. of Trier), Dr. Ingetraut Dahlberg (German and International ISKO), Professor Dr. Christian Swertz (Univ. of Vienna), Heiko Lietz, M.A. (iFQ, Bonn). Some demands herein were:

– stronger attention of term contents, resp. the concept level
– to look over the core of the knowledge organization
– to include semantic technologies
– to redefine 'Knowledge Organization'
– To reorganize knowledge organisation systems
– to enhance scientific indicators
– to consider sustainability

H. Peter Ohly, President German ISKO 1998-2009
Editorial Correction

In volume 36, no. 2-3, 2009, an illustration was printed without sufficient indentation. We regret the error.

In Mazzocchi, Fulvio, and Tiberi, Melissa. Knowledge Organization in the Philosophical Domain: Dealing with Polysemy in Thesaurus Building (pp. 103-112), Figure 2 should appear as follows:

<table>
<thead>
<tr>
<th>METAPHYSICS Categories (Philosophy)</th>
<th>LOGICS Categories (Philosophy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place (Philosophy)</td>
<td>Modality (Logic)</td>
</tr>
<tr>
<td>Quality (Philosophy)</td>
<td>Contingency (Philosophy)</td>
</tr>
<tr>
<td>Quantity (Philosophy)</td>
<td>Necessity (Philosophy)</td>
</tr>
<tr>
<td>Relation (Philosophy)</td>
<td>Possibility</td>
</tr>
<tr>
<td>&lt;NTs omitted&gt;</td>
<td></td>
</tr>
<tr>
<td>Situation (Philosophy)</td>
<td>Quality (Philosophy)</td>
</tr>
<tr>
<td>Substance (Philosophy)</td>
<td>Extension (Logic)</td>
</tr>
<tr>
<td>&lt;NTs omitted&gt;</td>
<td>Limit (Logic)</td>
</tr>
<tr>
<td>Time</td>
<td>Negation (Logic)</td>
</tr>
</tbody>
</table>

*Figure 2. The term Categories as it appears in the thesaurus arrangement by Nodes*
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- Axiomathes, vol. 18, no. 2. Special issue on facet analysis. Guest editor, Claudio Gnoli. Springer Netherlands, 2008, 144 p. ISSN 1122-1151 (Print); 1572-8390 (Online)

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E-mail: service@ergon-verlag.de; http://www.ergon-verlag.de

Editor-in-chief (Editorial office)
Dr. Richard P. SMIRAGLIA (Editor-in-Chief), Palmer School of Library and Information Science, Long Island University, 720 Northern Blvd., Brookville NY 11548 USA.
Email: Richard.Smiraglia@liu.edu

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A separate title page should include the article title and the author’s name, postal address, and E-mail address, if available. Only the title of the article should appear on the first page of the text. To protect anonymity, the author’s name should not appear on the manuscript, and all references in the body of the text and in footnotes that might identify the author to the reviewer should be removed and cited on a separate page. Articles that do not conform to these specifications will be returned to authors.

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Scope

The more scientific data is generated in the impetuous present times, the more ordering energy needs to be expended to control these data in a retrievable fashion. With the abundance of knowledge now available the questions of new solutions to the ordering problem and thus of improved classification systems, methods and procedures have acquired unforeseen significance. For many years now they have been the focus of interest of information scientists the world over.

Until recently, the special literature relevant to classification was published in piecemeal fashion, scattered over the numerous technical journals serving the experts of the various fields such as:

philosophy and science of science
science policy and science organization
mathematics, statistics and computer science
library and information science
archivistics and museology
journalism and communication science
industrial products and commodity science
terminology, lexicography and linguistics

Beginning in 1974, KNOWLEDGE ORGANIZATION (formerly INTERNATIONAL CLASSIFICATION) has been serving as a common platform for the discussion of both theoretical background questions and practical application problems in many areas of concern. In each issue experts from many countries comment on questions of an adequate structuring and construction of ordering systems and on the problems of their use in opening the information contents of new literature, of data collections and survey, of tabular works and of other objects of scientific interest. Their contributions have been concerned with

(1) clarifying the theoretical foundations (general ordering theory/science, theoretical bases of classification, data analysis and reduction)
(2) describing practical operations connected with indexing/classification, as well as applications of classification systems and thesauri, manual and machine indexing
(3) tracing the history of classification knowledge and methodology
(4) discussing questions of education and training in classification
(5) concerning themselves with the problems of terminology in general and with respect to special fields.

Aims

Thus, KNOWLEDGE ORGANIZATION is a forum for all those interested in the organization of knowledge on a universal or a domain-specific scale, using concept-analytical or concept-synthetic approaches, as well as quantitative and qualitative methodologies. KNOWLEDGE ORGANIZATION also addresses the intellectual and automatic compilation and use of classification systems and thesauri in all fields of knowledge, with special attention being given to the problems of terminology.

KNOWLEDGE ORGANIZATION publishes original articles, reports on conferences and similar communications, as well as book reviews, letters to the editor, and an extensive annotated bibliography of recent classification and indexing literature.

KNOWLEDGE ORGANIZATION should therefore be available at every university and research library of every country, at every information center, at colleges and schools of library and information science, in the hands of everybody interested in the fields mentioned above and thus also at every office for updating information on any topic related to the problems of order in our information-flooded times.

KNOWLEDGE ORGANIZATION was founded in 1973 by an international group of scholars with a consulting board of editors representing the world’s regions, the special classification fields, and the subject areas involved. From 1974-1980 it was published by K.G. Saur Verlag, München. Back issues of 1978-1992 are available from ERGON-Verlag, too.

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