Classification in Context:
Relativity, Reality, and Representation

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ABSTRACT: This paper surveys classification research literature, discusses various classification theories, and shows that the focus has traditionally been on establishing a scientific foundation for classification research. This paper argues that a shift has taken place, and suggests that contemporary classification research focus on contextual information as the guide for the design and construction of classification schemes.

Introduction

The quest for relativity on one hand and stability on the other hand has pulled traditional classification research in different directions. It is tempting to claim that classifications by nature are relative and subjective but, on the other hand, it is still hoped that classifications will exhibit some degree of stability and objectivity. Bibliographic classification research has historically searched for commonalities and generalities in two aspects: 1) it has searched for commonalities across different domains, and 2) it has searched for general laws and principles common to all classification systems (Svenonius, 1992). The underlying goal for classification research has traditionally been to create a single, best classification system that suits everyone, everywhere (Miksa, 1998, p. 81).

Beghtol (1998) and Hjørland & Albrechtsen (1999) recently suggested that a shift in classification research is needed and may indeed be developing. This shift is needed to allow classification research to be situated within specific contexts and still exhibit some stability. Mai (1999) discussed differences between modern classification theory and postmodern classification theory. While modern classification aims at representing the universe of knowledge, postmodern classification aims at providing a pragmatic tool for specific domains. Shera (1970) distinguished between closed systems and dynamic systems. Closed systems are built on the notion that "the relationships of various segments of knowledge are relatively permanent, that these relationships stand, more or less, for all times," (Shera, 1970, p. 90). Open systems, on the other hand, allow for "constant change, constant reinterpretation." (Shera, 1970, p. 92). These writers call for a couple of shifts in thinking and focus in classification research: 1) shifting from focusing on the systems and techniques, to the contexts and domains in which classifications function, and 2) shifting towards relativistic philosophies. Generally these and other writers propose approaches to classification research that seek to recognize the relativistic nature of classifications, while at the same time, preserving some degree of stability of the systems.

This paper shows that classification research has indeed gone through a significant shift in focus; this will be demonstrated by tracking paths classification researchers have followed in establishing a theoretical foundation for classification research. This paper will furthermore, show that a new research tradition, focusing on studies of users' information interactions and the structures of domains as the foundation for classification research, is emerging.

The Role of Theory in Classification Theory

The notion of "classification theory" or "theories for classification" is often referred to in the literature. Theories of classification in reality often mean "ideas" or "principles" of classification (Smiraglia, 2002; 2001). In scientific work, the term 'theory' means "quite precisely, statements, derived as a result of rigorous research and testing, that explain phenomena and relationships among them" (Smiraglia, 2002, p. 331). In this sense of the term, a theory is understood to be an analysis of a set of facts and their relationships to one another. Hypotheses may be drawn from theory, and the purpose of theory is to facilitate prediction so that the probability of success of specific strategies is known beforehand. A widespread understanding and acceptance of a given theory increases the profession's credibility and demonstrates its concern with integrating research and practice.

There have been a few attempts at developing scientific, deductive-nomological theories of classification that explain and predict how classification would act in given situations. Losee (1993) calls specifically for a scientific approach to classification on which optimal classification systems can be developed. A science of classification should uncover the true relationships, which in turn, would provide "information professionals with the capability to explain what is occurring" (Losee 1993, p. 65) and thereby move the state of classification "as an art and set of philosophical constructs," (Losee, 1993, p. 65) to a sort of classification theory that would allow "prediction and explanation to be made" (Losee, 1993, p. 65). The ultimate goal of a science of classification is to develop practices and theories "that allow us to *explain* what happens and to *predict* future performance" (Losee, 1993, p. 69) of any classification system.

The basis for a science of classification is "uniquely definable items of knowledge" (Farradane, 1952, p. 74) and the creation of relations between these items of knowledge. An item of knowledge is "an object or class of objects, a process or class of processes, or an abstract term or class of such terms, which is clearly and, *at its own level of complexity*, uniquely definable, as far as may be possible" (Farradane, 1950, p. 87). The truth of the items of knowledge must be verified empirically, and as such, the classification must be based on the scientific method, "e.g. objects are grouped in classes on the basis of their experimentally observed properties, and erroneous classifications are discovered and rejected when deductions to new examples reveal exceptions to the proposed rule" (Farradane, 1950, p. 85). The goal of a science of classification is to make sure that "classification is a representation of the true structure of knowledge" (Farradane, 1955, p. 188). Miller and Teitelbaum (2002) recently argued that post-coordinated indexing with thesauri allows for "a lexical-semantic model of a conceptual reality" (Miller & Teitelbaum, 2002, p. 91) and that the "presence of *real concepts* is the main reason for building a thesaurus" (Miller and Teitelbaum, 2002, p. 91). The representation of reality in the systems is of importance to this approach and the assumption is that a true structure will facilitate a correct representation of the material.

Where the deductive-nomological theoretical approach to classification aims at developing systems that reflect reality, a different line of thought argues that any classification is in fact only one particular view of the world and that "classifications are never innocent but streaked with arbitrariness and motivated by preconceptions and prejudices. Besides, they are constantly shifting, whether by design or in spite of our efforts to capture them" (Merrell, 1995, p. 92). This stresses the fact that a classification, in effect, presents one possible view, one possible structure of the knowledge; a point that Hjørland and Albrechtsen (1999) have discussed as well. They find that classifications are political in the sense that the creators have to choose to represent one particular view of the knowledge, therefore, "a classification of a knowledge field (or knowledge as a whole) is – in one way or the other – to support a given theoretical viewpoint at the expense of other views" (Hjørland & Albrechtsen, 1999, p. 134-135). The creators of the classification impose a particular view of the knowledge on the users simply by organizing the field and when librarians, information scientists, or information managers organize a field of knowledge they impose an interpretation on it and give the users a particular view of the knowledge (Cornelius 1996). Any field of knowledge may, in fact, be classified from different epistemologi-

cal approaches which, in turn, might result in quite different classifications, as shown by Hjørland (1998a). Hjørland's analysis indicates that the viewpoints expressed in the classification are formed at a meta-theoretical level and determined by the method employed in the collection of terms and relationships. It would be difficult to argue that only one of the classifications is a true representation of the knowledge and the others are *not* true – or that one is more true than the others. This contributes to the view that classifications are particular views of the knowledge field and implies that a representation of the true structure of knowledge cannot be determined.

The point stressed by the aforementioned writers is that any classification is relative in the sense that no classification can be argued to be a representation of the true structure of knowledge. It is my contention that a classification is merely one particular explanation of the relationships in a given field that satisfies a group of people at a certain point in time. Theory does play a role in classification, although scientific deductive-nomological theories that explain and predict how classification works would be of limited use. Classification research could more fruitfully be approached from a constructivist viewpoint, where theories are understood in continuity with the formation of knowledge about the users' interaction with information and the domain's structures. I will return to this later in this paper.

Science and Logic in Classification

One of the fields of study often associated with bibliographic classification is the study of logic. Logic can be regarded as the basic study for understanding classification, Sayers (1915), for instance, stated that, "classification is a department of logic, and every step in the construction of a classification scheme is referable to that science" (Sayers, 1915, p. 16). He went on to say that a student of classification should be acquainted with logic, and that, "some such book as Jevon's *Primer of Logic* should be the minimum preliminary reading; or, better still, the same author's *Elementary Lessons in Logic*" (Sayers, 1915, p. 17). Only after the student has learned the basics of logic will he/she be able to fully understand and appreciate bibliographic classification.

Two of the most commonly mentioned logical principles are those of exclusivity and exhaustivity. Exclusivity states that classes on the same level should be distinct, such that documents placed in one class could not also be placed in another class;

this is achieved by applying "only one characteristic of division . . . at the time" (Buchanan, 1979, p. 53). The other principle is that of exhaustivity, which states that the "division by a characteristic must be exhaustive – we must include all the classes produced by each characteristic, or our scheme will be incomplete" (Buchanan 1979, p. 55). This idea can be traced back to Porphyry (c.232-c.304) who is known for explicating Aristotle's categories and thereby developing what is known as the "Tree of Porphyry." The Tree of Porphyry is the principle that a given set of objects at the highest genus can be divided into mutually exclusive and collectively exhaustive subordinate genera. Each class is divided by adding differentiae, which are a set of opposites. This is continued until the lowest possible species are reached and the set of objects cannot be divided further.

The dependence on logic is related to another common argument, namely that bibliographic classification research is based on philosophical and scientific classification. Langridge (1976), for instance, finds that bibliographical classification is a secondary form of classification that depends on philosophical and scientific classification. Scientific classification is the act of classifying the phenomena studied by the (natural) sciences, such as plants, animals, and chemicals. Philosophical classification deals with the classification of knowledge and the sciences.

Scientific classification and logical division has worked fairly well in the classification of natural kinds, such as Linnaeus' classification of living things. The reason is that the characteristics chosen, such as the shape of a fruit, are easy to perceive and describe. Furthermore, all biologists and botanists would agree on the interpretation of the characteristics (Lakoff, 1987). Such taxonomies do not intend to analyze the meaning of the terms, but are merely classifications of kinds of things. The chosen characteristics by which the genus is divided into genera are properties of the things classified and the characteristics are subject to inspection. However, the users of such taxonomies know that the use of the classification requires some sort of interpretation. That is why a zoologist would not dispute a statement like 'this cat has three legs,' since he knows that there can be handicapped cats. He would still classify cats as four-legged mammals and he would still say that the property of being four-legged belongs to cats, but he would not say that cats are four-legged necessarily or analytically (Eco, 1984). In other words, nothing specific is said about individual cats in such a classification.

There have, however, been posited serious objections against the importance of logic in bibliographic classification. Broadfield (1946), for instance, argues that any creation of categories is based on the qualitative aspects of the categories. He gives the example of Plato's classification of forms of government as "the rule of one (monarchy or tyranny), of a few (aristocracy and oligarchy), and of the many (democracy)" (Broadfield, 1946, p. 13). The basis of this classification, he argued, is "really the quality of government, rather than the number of people exercising power" (Broadfield, 1946, p. 13). The difference between the categories must be based on some qualitative difference, since the quantitative difference only provides a series; yet, to divide the series into categories, a qualitative interpretation has to be exercised over the series.

Logical division provides no guidelines for creating categories, but merely states that "only one characteristic of division should be applied at a time" (Buchanan, 1979, p. 53) and that if the rules of logical division are followed, they will "ensure the efficient derivation of the species of a genus" (Buchanan, 1979, p. 53). Broadfield (1949, p. 14), however, argues that this is not the case,

> Classification of things according to their kinds does not result in a series, since every genus has under it co-ordinate species, and the arrangement of all these terms in a linear sequence would be meaningless. Genera and species lose all significance as kinds if they are forced indiscriminately into a series. Nor does logical division supply any principle upon which a serial arrangement of co-ordinate species can be effected. Such an arrangement often can and must be made, but this is done not according to the principles involved in the recognition of terms as kinds, but with some historical, causal, or other non-classificatory purpose.

The process of splitting up a whole into parts, which logical division suggests, is based on the assumption that the whole, the genus, is the sum of its parts, the species. But the "notion of species is of how, not of how much" (Broadfield, 1946, p. 35). The purpose of the construction of a classification is to determine where the genus is present and where it is absent. This has little to do with logic. When opinion is divided whether a feature is this or that it "reflects uncertainty not as to what [it is], but as to how this particular feature ... is to be thought of" (Broadfield,

1946, p. 20). The determination of categories in classification is related to the historical, social, and cultural context in which the classification system is created and used (cf. e.g. Bowker & Star, 1999).

A bibliographic classification represents one potential way of organizing the material and the universe of knowledge. Blair (1990, p. 163) has observed that,

> Since document indexing is often called document 'classification', we could speculate that indexing theorists may have confused the more objective processes of scientific classification/description with the description of documents. Scientific taxonomies are built around *observable* difference between members of categories. These differences, though often subtle, must be objectively verifiable (a zebra *must* have strips, a fish *must* have gills). But when we distinguish documents by subject categories, what objectively verifiable criteria can we use? None has been established.

The only methods that have been used to objectively construct bibliographic classification systems are automatic classification methods. In automatic classification, documents are classified according to different combinations and frequencies of word occurrences in their text. However, based on the last forty years of study in the philosophy of language, one would assume that it had been recognized that linguistic usage is too varied to be predictable in the manner assumed by automatic classification. There is nothing that suggests that automatic classification uncovers any already existing classificatory structures, just as there is nothing that suggests that manually constructed classification schemes uncover already existing classificatory structures. A classification scheme, no matter if it is constructed automatically or manually, represents just one potential way to organize the material.

It is my contention that scientific classification of natural objects, and the bibliographic classification of the content of a document, are distinct for two main reasons. The first has to do with when and how the items are classified, and the second has to do with the nature of the classified items.

Firstly, bibliographic classification schemes represent and organize thoughts and ideas about the world, whereas scientific classifications are concerned with the classification of physical things. Users of scientific classifications know that it require

some sort of interpretation to use the classification. That is why the aforementioned zoologist would not dispute a statement like 'this cat has three legs'; nothing specific is said about individual cats in such a classification. Bibliographic classification schemes, on the other hand, organize recorded thoughts and ideas about the world, and as such, each document is unique and unlike any other document, although each document relies on, and is related to, other documents. Bibliographic classification is, therefore, concerned with classification of particular documents, whereas scientific classification is concerned with classification of kinds of particulars. Each time a document is classified in a bibliographic classification system, something specific is said about that individual document. The content of the documents is being defined since the classifier states what that particular document is about. However, the structure of the classification shapes what can be said about the individual documents that are to be classified.

Secondly, the objects included in scientific classifications are, more or less, available when the classification scheme is constructed. When an object that is not included in the scheme appears, the object first goes through a definitional process in the sciences and is then included in the classification scheme based on the outcome of the scientific discourse. On the other hand, only a relative few items are available when a bibliographic classification is constructed. The classification needs to be constructed such that future bibliographic items can be included and the classification needs to be updated regularly. The classification of bibliographic items is based either on an anticipation of the future use of the items or on a prescribed method for classifying the items based on their objective characteristics.

The upshot is that the practice of classifying bibliographic material has much more to do with interpretation and judgments than with logic. Bibliographic classification research needs to be based on a theoretical and philosophical foundation that is quite distinct from any other act of classification. Furthermore, and perhaps most important, the construction of a bibliographic classification cannot take place without a close interaction with the domains and users that the classification will serve. It needs to be in close interaction with the domain to represent the qualitative distinctions that are made between classes and it needs to be in close interaction with the users to make sure that they understand the interpretative choices that are made. The classification "is intuited, not hacked out characteristic by charac-

teristic" (Broadfield, 1946, p. 5); the construction cannot, therefore, rely on logical principles.

Classification of Objects, Sciences, and Documents

It would not seem unreasonable to expect some kind of connection between scientific classification and bibliographic classification theory, as they are, after all, both concerned with the classification of scientific activities.

Miksa (1998), for instance, has explored the connections between the movements to classify knowledge and the sciences, and the bibliographical classification tradition. According to Miksa, the common assumption in the bibliographic classification research field is that the connection between scientific classification and bibliographic classification is firm and that this connection is generally not questioned. Miksa goes on to say that he himself has long accepted the idea of a firm connection between the movements to classify knowledge and the sciences and the library classification movement. He further states that he has "made it a point to state that modern library classification arose from the 'seedbed' of the movement to classify knowledge and the sciences that existed in the seventeenth to nineteenth centuries" (Miksa, 1998, p. 35). However, Miksa concludes that the assertion of the firm connection has "serious problems" (Miksa, 1998, p. 36); although Miksa does not doubt that there is a connection, the connection is, according to his analysis, very weak. This conclusion has serious ramifications for the understanding of classification history and research.

Miksa suggests that the movement to classify the sciences essentially died out just after the beginning of the twentieth century. He further suggests that bibliographic classification research, for the most part, was not an extension of the movement to classify the sciences but arose independently of that movement. Miksa gives two major circumstances for the rapid growth in bibliographic classification research in the early twentieth century. The first circumstance is the increase in information production and information use among scientists that began at the turn of the century, which provided the justification for experimentation with subject representation. The second circumstance was the appearance of a small number of researchers in bibliographic classification during the first half of the twentieth century (Miksa 1998, p. 51). Miksa discusses four[1] of these central classification researchers and notes that, "in many respects one will find the seeds of nearly all

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subsequent library classificatory principles embedded in the work of these four men" (Miksa 1998, p. 56).

Miksa's investigation is important since it makes clear that bibliographic classification research has a unique history that in many senses is independent of development in the bordering fields of study. Svenonius (2000) states that although classification and cataloging has been practiced since 2000 B.C., "the relevant historical background is the tradition of Anglo-American descriptive and subject cataloging during the last century and a half" (Svenonius, 2000, p. 2). Svenonius thereby excludes the historical and philosophical movements to classify the sciences that Miksa both discusses and considers to be of some importance to understanding modern bibliographic classification research. The importance of this background and the connection between bibliographic classification and other types of classification should be further explored, especially if the aim is to "consider knowledge organization activities in a broad socio-historical perspective" (Andersen, 2002, p. 37); since only by tying the social context to bibliographic classification will it be possible to demonstrate "that LIS knowledge organization makes a difference" (Andersen, 2002, p. 32).

Svenonius (2000, p. 10), however, excludes the movement to classify the sciences because the objects that bibliographic classification are concerned with are significantly different from the organization of objects. Svenonius makes clear that bibliographic classification is concerned with both the individual physical documents themselves, and the work; that is, the ideas that the documents represent. The fact that bibliographic classification deals with ideas and thoughts makes it a unique area of research that is distinguishable from classification activities in other fields. The core of the problem is how the subject matter of documents is determined and represented. Recent writers on this topic argue that the concept of subject and an understanding of the subject indexing process, is closely related to a particular view of language (c.f. e.g. Blair, 1990; Frohmann, 1990; Hjørland, 1992; Andersen & Christensen, 2001; Mai, 2001).

The major challenge for bibliographic classification and what makes it unique, is that the main involved task is classing documents that represent ideas and thoughts. The ideas and thoughts exist somewhat independent of the documents that represent them in the sense that the ideas and thoughts could have been expressed with other words and in other media. The classificationist's task is to con-

struct a scheme that lays out a view of the world that makes sense to the users; the classifier's task is to interpret the documents and represent them in the scheme in accordance with the users' potential use of the documents. Both the classifier's and the classificationist's work depends on their interpretation and understanding of the users' domains and work tasks. I therefore maintain that the core problem in bibliographic classification has to do with language and meaning.

Classification and Discourse Communities

Bibliographic classification organizes words and their meanings; it basically deals with the problem of language. Many modern philosophers do not separate the meaning of words from the people or the community in which the words are used. They argue that language is not a tool for pointing at the world, but "the very constitution of the world" (Introna 1998, p. 5). In this sense, words and their meanings are not separated, "there is no meaning and word; the word *is* the meaning" (Introna 1998, p. 5).

When meaning and words cannot be separated into two different kinds of phenomena, then the meaning of words cannot be defined by whatever words refer to. The meaning of words is the use of them. Language, therefore, is not a tool used to speak with, but the social and cultural context in which the language is situated, in other words, "I do not speak with language, as a tool, but *from* language" (Introna, 1998, p. 8). The community we belong to has a language; language is not something which is added on to the praxis. The praxis is the language.

The meaning of words and the correct use of language cannot be studied separately from the community in which the words and the language are used. Even though words come from an individual person and are perceived by an individual person, language is the product of these individual persons. Language belongs to the community in which it is used. It is the community and its activities that define and determine the meaning of the words used. Words, therefore, do not have objective and true meanings, but neither are words' meanings fluid and individual. Introna (1998, p. 8-9) gives the example that one needs to start with the community's "already there language," even if one wants to disagree with the community,

I cannot stand up in a conference on the philosophy of language and propose that the audience somehow entirely 'forget' – if this is possible at all – the already there tradition of philosophical discourse on language that emerged over thousands of years. Even if I want to disagree with it entirely, or use concepts in totally different ways, I will still have to draw on this tradition – of linguistic distinction – to say how, or in what way, my use of this language will be different.

Wittgenstein (1958) discussed the interdependence of language and activities and discussed the notion of 'forms of life,' which form the shared understanding of the praxis and reality. The meaning and correct use of words and discourses within these 'forms of life' are determined and established through 'language games.'

The idea that meaning is created and constituted in discourse communities is central to Hjørland and Albrechtsen's (1995) paper in which they introduce Domain Analysis as a framework for Information Science. The focus in domain analysis is to understand the activities of a particular domain (Hjørland & Albrechtsen, 1995, p. 400),

The domain-analytic paradigm in information science (IS) states that the best way to understand information in IS is to study the knowledge-domains as thought or discourse communities, which are parts of society's division of labor. Knowledge organization, structure, co-operation patterns, language and communication forms, information systems, and relevance criteria are reflections of the objects of the work of these communities and their role in society. The individual person's psychology, knowledge, information needs, and subjective relevance criteria should be seen in this perspective.

The core of the domain analytic approach is to study the activities and products of the domains to gain insights into the 'already there' structures of the domains. The assumption is that the domains produce artifacts that can be used to study the structures of the domains. Domain analysis represents a direction in classification research that attempts to tie the construction of classification schemes to the discourse and activities of the users of the documents.

Hjørland has discussed domain analysis (cf. e.g. Hjørland 1998a; 1998b; 1997) and he has recently discussed eleven approaches to domain analysis (Hjørland, 2002). Each of the approaches gives a unique picture of any given domain and could be used as a tool in understanding the structures of the domain. Many of the approaches are related and many will give different pictures of the domain. However, taken together they are a strong collection of tools for conducting domain analysis for scientific and scholarly domains. For any given domain analysis an appropriate mix of the approaches would be employed.

Domain Analysis is a promising framework for studying and understanding scientific and scholarly discourse and is potentially a useful tool for mapping the discourse to create classifications of the domain. Domain Analysis improves the traditions in bibliographic classification research that rely on already existing structures by providing a tool to map these structures. However, Domain Analysis seems to restrict itself to scientific and scholarly domains and usages.

Albrechtsen has sought a foundation for classification research that is based on analyses of the domains in which the classifications should rest. Albrechtsen and colleagues (Pejtersen & Albrechtsen, 2000; Albrechtsen, Pejtersen & Cleal, 2002) have recently used Cognitive Work Analysis (Vicente, 1999; Rasmussen, Pejtersen & Goodstein, 1994) as a foundation for creating ecological classification schemes based on field studies to solicit information about the context. The design of ecological classification schemes approaches classification from the perspective of structuring knowledge to suit actors' information needs during their decision making. Ecological schemes require field studies of search questions and need formulations as they occur in the actors' work situation (Pejtersen & Albrechtsen, 2000).

The goals of the ecological work domain analysis approach to classification research are to design classification schemes that reflect implicit and explicit invariant structures of the work domain and to respond to the information needs of the users of the systems. These invariant structures are identified through empirical analyses of the work domains and ecologies by interviews with key actors.

The key notion is that the classificatory structures in ecological classification schemes reflect the work habits of actors using the systems and that the classification schemes are not created by epistemic authorities; that is, central units produce and control the classification with little or no user involvement.

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Systems created by epistemic authorities "may not be in alignment with the needs of local communities of users" (Albrechtsen & Pejtersen, 2000, p. 1-2). To overcome this problem the design of classification schemes need to be based on close studies and analyses of the work in the given domain. The study and analysis needs to go beyond the activities that involve the classification scheme to understand the work domain in full.

In the domain analytic approach to classification, a classification is viewed as a social construction and it functions as a discursive area or public domain (Albrechtsen & Jacob, 1998). Albrechtsen (Albrechtsen, 2000; Albrechtsen & Pejtersen, 2000) has recently explored this notion further and argues that classification schemes should not be viewed as *objects* for carrying out work but "as *tools* that facilitate problem solving and cooperation in work domains" (Albrechtsen & Pejtersen, 2002, p. 5) and, as such, classification schemes can function "as a particular form of translation technology, articulating and constraining transformations in knowledge production and sharing, cognition etc within a particular workspace (localized or distributed)" (Albrechtsen, 2000, p. 1). Classification schemes function as a means for communication within and among domains by standardizing language and meanings in the domains.

Work by Hjørland, Albrechtsen, and others focuses on capturing the meanings and activities of particular domains or discourse communities; they argue that this is necessary to understand the eventual use of the classification schemes and documents. In other words, they see classification schemes as a part of the division of labor in any given domain and that the design and construction of classification schemes need to start with an analysis of the domain.

Conclusions

The theoretical foundation for classification research has evolved from establishing classification research in a scientific tradition where the goal is to replicate an objective reality as close as possible, to establishing classification research in a usage-centric tradition where the goals are to support the activities of a particular domain and to facilitate communication between documents, classifiers, and users.

At the beginning of this paper I quoted Langridge, who said that bibliographic classification is secondary to scientific and philosophic classification; the assumption is that bibliographic classification needs to reflect the orders that are established in these su-

perior classifications. However, I have shown that bibliographic classification is in fact "subordinate to a broader social organization of knowledge" (Andersen, 2002, p. 37) and that domain analytic approaches reveal and capture these orders and potentially produce classification schemes that are more useful.

A classification scheme is just one potential way to describe a particular domain or the universe of knowledge. To create a classification system for a particular company, organization, library, or any other information center, one needs to begin with a study of the discourse and the activities that take place in the organization or domain. One needs to learn the language used in the community, since the classification must reflect and respond to this particular discourse community. A classification is not something that can be created *for* an organization by an epistemic authority; a classification must *grow out* of the organization. The classification is a typification of the language in the organization.

By establishing classification research on a theoretical foundation that starts with activities of the people for which the classification is designed and constructed, three significant postulation are made:

1) The goal of the classification is to produce a usable tool and not to capture and represent an objective reality.
2) The methodology for construction of classification schemes needs to rest on studies of users' information interactions, work and habits, as well as, the structures of domains. One cannot solely rely on standardized procedures and guidelines.
3) The practice of classifiers and classificationists needs to be freed from attempts to be objective and neutral. The act of classification is inherently political and value-laden.

There is no doubt that classification research has in fact gone through a shift. Not only has it been realized that classifications are relative, but this relativism has been shifted to an advantage and a strength. It has been realized that only by basing the construction of classification on the interactions that already exist and take place will it be possible to produce a classification that is stable.

Note

1 Ernest Cushing Richardson, Henry Evelyn Bliss, William C. Berwick Sayers, and S.R. Ranganathan.

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