
Arguments for Philosophical Realism in Library and Information Science

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ABSTRACT

THE BASIC REALIST CLAIM IS THAT A MIND-INDEPENDENT reality exists. It should be common sense knowledge to accept this claim, just as any theories that try to deny it soon become inconsistent because reality strikes back. In spite of this, antirealist philosophies flourish, not only in philosophy but also in the behavioral and cognitive sciences and in information science. This is highly problematic because it removes the attention from reality to subjective phenomena with no real explanatory power. Realism should not be confused with the view that all scientific claims are true or with any other kind of naiveté concerning knowledge claims. The opposite of realism may be termed antirealism, idealism, or nominalism. Although many people confuse empiricism and positivism with realism, these traditions are by nature strongly antirealist, which is why a sharp distinction should be made between empiricism and realism. Empirical research should not be founded on assumptions about “the given” of observations, but should recognize the theory-laden nature of observations. Domain analysis represents an attempt to reintroduce a realist perspective in library and information science. A realist conception of relevance, information seeking, information retrieval, and knowledge organization is outlined. Information systems of all kinds, including research libraries and public libraries, should be informed by a realist philosophy and a realist information science.

INTRODUCTION

Several forms of philosophical realism exist, including scholastic realism, transcendental realism, scientific realism, critical realism, and naïve

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realism. The author of this paper subscribes to a view that may be termed “pragmatic realism.” This paper does not, however, contain a detailed philosophical defense for this view. It is a preliminary work aiming at contributing some important problems in information science, which to the author seem deeply related to philosophical problems, in general, and to problems related to realism, in particular.

The basic claim of realism is that a mind-independent reality exists: for examples the mountains existed before mankind, and they exist independently of whether or not people believe they exist or whether or what they think about them. This is a claim about what exists. Technically speaking this is an ontological or metaphysical claim, and the philosophical position is termed “metaphysical realism.”¹ It is shocking that one has to argue for the existence of a mind-independent reality. It is even more shocking that anti-realism seems to dominate the discourse today and that not many philosophers or scientists are defending realism in a really scholarly way. It is also shocking that antirealism seems to have brought about much confusion in information science, among other fields. Richard Boyd (2002) writes:

What requires explanation is why this [scientific realism] is a philosophical position rather than just a common sense one. Consider, for example, tropical fish realism—the doctrine that there really are tropical fish; that the little books you buy about them at pet stores tend to get it approximately right about their appearance, behavior, food and temperature requirements, etc.; and that the fish have these properties largely independently of our theories about them. That’s a pretty clear doctrine, but it’s so commonsensical that it doesn’t seem to have any particular philosophical import. Why is the analogous doctrine about science a philosophical doctrine? [Electronic version]

Yes, it is indeed difficult to see why philosophical realism is not common sense and thus the only legitimate philosophical position. However, I do not understand (accept) Boyd’s tropical fish example. As a realist, I agree that tropical fish exist.² To consider this example, we have to look at the philosophical positions that confront the realist ones.

The opposite of realism is today often termed “antirealism” (coined so by Michael Dummett); in older philosophy the opposite was often termed “idealism,” while Charles Sanders Peirce argued that realism is the opposite of nominalism. In the Marxist and materialist traditions, the opposing positions are termed “materialism” and “idealism,” respectively. Although important differences exist, these oppositions are closely related. They are all related to the same fundamental claim: The possibility of the existence of a mind-independent reality. So, the realist/materialist position is that tropical fish exist, while the antirealist/idealist/nominalist position would say that they only exist as ideas, concepts, social constructions or the like, not as mind-independent entities.

The difficulty in understanding the realist position is, in my opinion,

much worse than Boyd describes it. It is not limited to the understanding of scientific knowledge but is deeply involved with our everyday knowledge. Yes, it is really shocking that well-informed, serious, and hard-working people end up denying what seems to be the most obvious and fundamental lesson of human knowledge. Often this denial is not explicit but implied by other theoretical views.³ It is a real philosophical ocean to swim in, but I do hope that this paper will demonstrate that we have no choice. The problem simply is too important for the development of our field.

IS SCIENTIFIC KNOWLEDGE TRUE? (ABOUT EPISTEMOLOGICAL REALISM)

(Scientific) realism is often associated with the view that science provides a true or realistic picture of the world. As opposed to a metaphysical claim, this is an epistemological thesis, a thesis about human knowledge, not about the world as such. Philosophically this is termed “epistemological realism.” In the introduction to his article Boyd (2002) writes:

According to scientific realists, for example, if you obtain a good contemporary chemistry textbook you will have good reason to believe (because the scientists whose work the book reports had good scientific evidence for) the (approximate) truth of the claims it contains about the existence and properties of atoms, molecules, sub-atomic particles, energy levels, reaction mechanisms, etc. Moreover, you have good reason to think that such phenomena have the properties attributed to them in the textbook independently of our theoretical conceptions in chemistry. Scientific realism is thus the common sense (or common science) conception that, subject to a recognition that scientific methods are fallible and that most scientific knowledge is approximate, we are justified in accepting the most secure findings of scientists “at face value.”^{4, 5} [Electronic version]

A lesson of the history of science is, however, that scientific claims have at least sometimes been wrong. I find it dangerous to identify myself with a theory that encourages me to a naïve or uncritical view of scientific claims. Well, I also believe that a good contemporary chemistry textbook reports a realistic picture about chemical phenomena. Chemistry is a science with a relatively high level of consensus, and I am more inclined to believe that a chemistry book reports the truth, than, say, a book in the social sciences. In all sciences and fields of scholarship, however, debates and different theories and views exist. Often such debates involve ontological views about what really exists. It is not a fruitful position to presuppose a priori that knowledge claims are true. This is not so for the scientists themselves, and this is not so for teachers, librarians, information scientists, journalists, and others who mediate or intermediate between knowledge producers and users. The healthy attitude is to regard knowledge claims as just claims, not as facts. It is also important to differentiate between degrees of substantiation of knowledge claims. Some claims, e.g., mathematical proofs and some

results of physical experiments, may be extremely well founded.⁶ The practical implication of this view for information science has been formulated by Spang-Hanssen (2001):

Moreover, these terms are not seldom confused with a more or less obscure use of the word “information” to mean something *factual* or *real* as opposed to representations of such facts; what is found written in documents—or what is said in a lecture—are according to this view only disguises or at best surrogates of facts. This more or less vague conception seems to be the basis of the distinction sometimes made between “fact retrieval” and “document retrieval.”

This distinction I find philosophically unbased; we here touch upon the fundamental problem of the meaning of meaning and of the nature of signs and symbols. What is more essential to us, this distinction seems unfortunate in actual documentation work. There will, admittedly, be cases in which a document or information center is set up with the exclusive function of providing information concerning physical data, or statistical figures, or exchange rates of currencies, or stock market prices. But even in such cases, it applies that neither the person who requests such information nor the person who delivers it should ignore the reliability of data and forget about the general setting in which the data is acquired. Information about some physical property of a material is actually incomplete without information about the precision of the data and about the conditions under which these data were obtained. Moreover, various investigations of a property have often led to different results that cannot be compared and evaluated apart from information about their background. An empirical fact always has a history and a perhaps not too certain future. This history and future can be known only through information from particular documents, i.e., by document retrieval.

The so-called fact retrieval centers seem to me to be just information centers that keep their information sources—i.e., their documents—exclusively to themselves. (pp. 128–129)

We may conclude that a certain amount of skepticism is a healthy attitude, especially for information scientists (this was also the conclusion at which Patrick Wilson, 1983, arrived). Society provides (and should provide) a spectrum of information services that allows fast utilization of research results as well as critical examination of the knowledge claims in the information systems. Newspapers, for example, provide fast but rather unsubstantiated knowledge claims, while historical research provides slow but much better substantiated knowledge. In this way the substantiation of knowledge claims is divided among different professions in society. Information scientists should not subscribe to a kind of realism that just takes scientific knowledge claims for granted.⁷ We should distinguish between qualities of claims, what kinds of arguments and evidence they are supported by. We should not just provide “facts” but also data needed to contextualize and evaluate those “facts.” We should be open to different perspectives and we should be “socially and culturally aware and responsible” (cf. Hjørland, 2003). We should

not go to the extreme alternative of naïve realism and accept extreme versions of constructivism and relativism. While Thomas Kuhn emphasized how our ontologies are implied by our theories and paradigms, he nevertheless emphasized that we cannot freely invent arbitrary structures: “nature cannot be forced into an arbitrary set of conceptual boxes. On the contrary . . . the history of developed science shows that nature will not indefinitely be confined in any set which scientists have constructed so far” (Kuhn, 1970, p. 263). The world provides “resistance” to our conceptualizations in the form of anomalies, i.e., situations in which it becomes clear that something is wrong with the structures given to the world by our concepts. In this way Kuhn’s view may be interpreted as (pragmatic) realism, although he is often interpreted as antirealist (e.g., Niiniluoto, 1991).

SOME ROOTS OF ANTIREALISM IN EPISTEMOLOGY

According to Niiniluoto (1991), the roots of scientific realism go back to the critical, dynamic, empiricist, fallibilist, and evolutionary epistemologies of the nineteenth century, such as C. S. Peirce’s pragmatism and Friedrich Engel’s dialectical materialism. In the twentieth century, the demise of logical positivism was according to Niiniluoto followed in the 1950s by the rise of scientific realism,⁸ but the tide of neo-pragmatism in the 1970s has made antirealist views fashionable once more.^{9, 10}

Overall, I agree with Niiniluoto’s interpretation. Realism is thus connected with pragmatic and materialist traditions and is opposed by, for example, logical positivism (and its roots in empiricism). It is remarkable, however, that pragmatism is both related to realism and to antirealism. There are internal conflicts in pragmatism.¹¹

The development of antirealism is perhaps most clearly demonstrated by considering the development of empiricism. Most people may think of science as empirical and true (and thus as a realist endeavor). However, one of the strongest forces against realism may come from just empiricism. Few people outside the philosophy of science realize that empiricism and positivism are fundamentally antirealist positions. The development of empiricism as a school of thought implied still deeper degrees of subjective idealism and solipsism. On the basis of Newton’s demonstration that white light consists of all the colors in the rainbow, evidently, perception of color is dependent on our perceptual system and brain—we perceive a mixture of all colors as being white, though they are in reality not. To deal with this fact, Locke introduced a distinction between the primary or objective qualities of things (such as their mass and form) and their secondary or subjective qualities (such as color, smell, taste). This was the first step toward subjective idealism. The second step was taken by Bishop Berkeley, who pointed to the logical fact that the primary qualities of things also must be subjective. The only way we can learn about the primary qualities is through our senses. The nature of our senses must therefore influence

what we perceive. In the end, it is metaphysical nonsense to claim that a reality exists behind our observations. The only logical meaning of the phrase “to exist” is “to be possible to perceive.” Do our bodies exist? Do other people have minds? The logical answer is, Only if I can perceive them. Hume brought this subjectivism still a step further. Concepts such as “causes,” “laws,” “essences,” and “mechanisms” are not real, but only psychological. If we see a ball hit another ball, it looks like the first ball caused the second ball to move. But an experiment can be made using lights instead of balls. People who experience some specific patterns in the movement of light spots will believe that one light spot causes another to move. But this is purely psychological. In reality are causes, thus metaphysical constructs with no real function. We should describe our experiences, including temporal variations in our experiences. To talk about causes, underlying mechanisms, essential features, etc. is metaphysical and thus should form no part of the empiricist vocabulary. Empiricism is thus a deeply antirealist position, although related to naïve realism.

While empiricism represents an attempt to remove metaphysical and ideological questions from science by sticking strictly to observations, critics have pointed out that pure observation does not exist, that our observations are theory-laden. The American philosopher Wilfrid Sellars (1912–1989) maintained that classical empiricism is a myth based on the “doctrine of the given” (c.f. Vinci, 1999, p. 828). By not considering metaphysical, theoretical, and ideological questions openly, empiricism tends to hide the ideological commitments of its adherents. It has been demonstrated that empiricism does imply a metaphysical view. This way empiricism becomes just one ideology among others. Its belief in sensory information as “the given” is a faulty assumption. The deep and consequent claim of this mistaken assumption has brought empiricism into a strong antirealist position. Empiricism is a problematic philosophy, but this does not, of course, imply that empirical research is mistaken. It may imply, however, that empirical research should be based on a realist philosophy.

Many (post)modern epistemologists do not find that science should aim at objectivity. There is a tendency to associate positivist positions and ideals with attributes such as “hard” and “objective,” whereas ideals from the humanities and hermeneutics are associated with “softness” and “subjectivity.” This is a wrong and harmful confusion. First, it is important to realize that subjectivity is not the logical opposite of objectivity:

We shall not dwell at such length on the notion of subjectivity, insofar as it refers to the opinions, beliefs, and feelings of conviction of this or that individual. Let us mainly note that this is not in any way the logical opposite of objectivity. People said to be “reasonable” or “sensible” will often give their (subjective) agreement to a well-corroborated (objective) statement such as “when an apple becomes detached from a tree, it falls down and does not fly towards the stars.” In that sense,

obviously, any probabilistic statement, insofar as some individual expresses his support for it, can always be said to be subjective. But this does not exclude a priori its objectivity. An objective law, such as the law of universal attraction, insofar as I believe it to be "true" can also be said to be subjective, since it does, in fact, represent my personal opinion. (Matheron, 1989/1978, pp. 26–27)

Second, objectivity should be an ideal for all epistemologies. Best (1998) concludes his review of Harding (1998) as follows: "As Harding ably shows, the politicization and pluralization of knowledge is not necessarily a threat to (strong) objectivity, but one of its preconditions." This quotation is important. It says that what are often regarded as soft, subjective methods are in reality a precondition for "strong objectivity." Harding seeks to replace the "weak objectivity" of the male-dominated scientific world—a pseudo-objectivity riddled with value-laden theories, political biases, domineering interests, commodified research, and blinkered ethical vision—with the "strong objectivity" that comes only from a "robust reflexivity" attained through a rigorous self-scrutiny of one's socioepistemological starting point. Harding notes that the very concept of "value-free knowledge" is oxymoronic since the goal of being disinterested is an interest in itself, and it allows science to separate fact from value and abrogate responsibility for its actions. Since "value-free" theories are impossible, Harding argues, one might as well acknowledge the values that inform one's research—be it to make money or to improve the lives of the sick—debate their comparative validity, and struggle to have science informed by progressive interests.

The roots of antirealism have thus been connected to problematic epistemological assumptions in, for example, empiricism and postmodernism. The problem is thus to identify those mistaken assumptions and to correct them. For us in information science and other specialized fields, this does not imply the construction of our own philosophy, but to learn from the best articulated positions and those positions are forms of realism, pragmatism, and activity theory/historical cultural theory. But, of course, this can only be a postulate in this paper. Much more interdisciplinary work needs to be done in the philosophy of science.

ANTIREALIST TENDENCIES IN THE COGNITIVE SCIENCES

Antirealism is widespread in psychology, linguistics, artificial intelligence, and related disciplines. This family of disciplines is often termed "the cognitive sciences."¹² The antirealism of these disciplines is based on a representationist theory of perception and is connected with methodological individualism, i.e., the tendency to explain cognitive phenomena by studying individual cognition and to disregard the social, cultural, and historical implications of human cognition.¹³

In psychology, the Danish psychologist Erik Schultz (1988, pp. 65, 117) presents the following example:

Imagine a teller. What is she doing? Why does she now count the money? Why does she now speak with that customer? Why does she now turn to a colleague and give him a piece of paper?

How would different psychological approaches answer these questions? Psychoanalysis might try to explain the teller's behavior by her unconscious conflicts, which can be traced to early childhood experiences. Behaviorism might try to explain it by referring to reactions to stimuli and to learned behavior. Cognitivism might try to explain her behavior by analyzing what kind of information processing goes on in her brain, and so on. The "realistic" answer might be found in a detailed knowledge about the working organization of the bank. Leontyev points out that persons are not motivated by their biology but by "the structure of production" (Leontyev, 1981).

Behavioral and cognitive paradigms and sciences may appear to be rather materialistic and realistic. However, their tendency to disregard questions of meaning, cognitive implications of cultural-symbolic systems, and the organization of knowledge in social institutions makes them, in fact, deeply antirealist. Because of this tendency, those fields are often strongly criticized, as, for example, in this quotation:

[Behaviorism is] a *degenerating* research programme. That is, specific theories developed within the programme were continuously refuted and constantly replaced with weaker, more trivial, and more *ad hoc* ones; fundamental notions such as "stimulus" and "reinforcement" became vaguer and vaguer, until virtually anything could qualify; and awkward refuting results came to be explained in terms of assumptions which broke the internal constraints of the research programme itself. In other words, I want to suggest that the poverty of Behaviourism's achievements in helping us to understand behaviour was the result of its false theoretical assumptions. (Briskman, 1984, p. 110)

Many people think that cognitivism is not better founded, that if you change a few words the same criticism applies to what is often seen as the successor of behaviorism. Hamlyn (1995, p. 388) writes that a representationalist view of perception has become the vogue today, particularly among cognitive scientists (and information scientists), who hold that the mind's workings have to do with mental representations. Many philosophers and scientists have adopted the representationalist view of perception because it seems obvious. "In the end, the only positive argument for idealism of any form is to be found in the representative theory of perception, and that theory is false" (Hamlyn, 1995, p. 388).

From a social semiotic point of view, Paul Thibault criticizes the anti-realism of cognitivism:

Cognitive science retains the traditional model of the individual at the same time that it relocates essentially social semiotic patterns in the "mind" of the individual, so conceived. Cognitive science started out as a reaction against behaviourism. The metalanguage of cognitive sci-

entists is founded on notions such as “internal mental representations,” “mental models,” and “mind as symbolic system.” In actual fact, these notions really only amount to redescriptions of semantic patterns which are located in the domain of social meaning-making. Cognitive science posits an unnecessary level of “individual mind” between the biological and social semiotic levels of organization. In so doing, it effectively de-locates semantic patterns from the texts and social activity-structures in which these are made and re-locates them in the “mind” of the individual. More recently, cognitive scientists have increased their appeals to the neurophysiological processes in the brain, yet there is no convincing evidence that semantics is directly tied to or caused by such processes [see Maze, 1991, pp. 171–172, for a critique]. Neurophysiological and other bodily processes participate directly in social semiosis; they do not cause it, just as the latter is not explanatorily reducible to the former [Bhaskar, 1979, pp. 124–128; Prodi, 1977]. (Thibault, 1993)

While the cognitive view assumes that “in the beginning there is the individual” and focuses on individuals’ cognitions, the sociocognitive and domain analytic view assumes that “in the beginning there is a community” as well as a body of more or less substantiated knowledge claims; its distinguishing charge is to locate interactional processes in their social structural context as well as in their theoretical-substantial context. The relationship with realism is that unless the rootedness of cognition (the mind) in social structure and specific content is recognized, causal power is falsely accorded to cognition or mind. Cognitive scientists may recognize that cognition reflects experience, but experience does not enter theoretical formulations or research designs; for sociocognitivism, on the other hand, the sociological and philosophical perspectives are central: how experience is organized is central to both theory and research. The implication for cognitive views both in psychology and in information science may well be that they represent

a degenerating research programme. That is, specific theories developed within the programme were continuously refuted and constantly replaced with weaker, more trivial, and more ad hoc ones; fundamental notions such as “information,” “mental models,” and “interactivity”¹⁴ became vaguer and vaguer, until virtually anything could qualify; and awkward refuting results came to be explained in terms of assumptions which broke the internal constraints of the research programme itself. In other words, I want to suggest that the poverty of Cognitivism’s achievements in helping us to understand information behavior and information phenomena was the result of its false theoretical assumptions. (Modified version of Briskman, op. cit.)

These parallels between cognitive views in psychology and in library and information science (LIS) are examined further next.

REALISM AND ANTIREALISM IN LIS

Antirealism is widespread in LIS, not as an explicit position but as an underlying tendency in most research. We encounter, for example, this tendency in research on relevance and on knowledge organization (KO) and in the assumptions underlying much research in information seeking and information retrieval (IR).

The nature of this antirealism can be illustrated by an example. Our knowledge of reality is often produced by specialists in society.¹⁵ Our geographical knowledge is, for example, represented by maps, which are produced by geographers; our medical knowledge is often produced by biomedical researchers and our zoological knowledge by zoologists, etc. Whether Copenhagen is a part of Sweden or not should not be decided by the users of an information system but rather should be decided by consulting a cognitive authority in geography. Whether or not a certain substance is relevant as a cure for cancer is ultimately decided in medical research, not by asking patients or users of medical services.¹⁶ The validity—and thus the relevance—of a document claiming that a certain substance is relevant as a cure for cancer is also ultimately decided in medical research, not by asking users of information services.^{17, 18} Thus we have a central realist claim: A given document may be relevant to a given purpose, whether or not the user believes this to be so.¹⁹

Both a reality and beliefs about that reality exist. In information science, most research activities have in recent decades been directed toward user preferences and attitudes, not toward the basis for the knowledge claims represented in information systems. Most relevance research seems to assume that the relevance of given kinds of information can be established by studying the relevance criteria of the users. This is clearly an idealist position, although probably nobody would like to admit that. This is not to say that one should always trust experts—they may have their own interests or views.²⁰ It is rather to claim that relevance is not a subjective phenomenon but rather an objective one. To be engaged in how to identify what is relevant is to be engaged in scientific arguments, ultimately in epistemology (for a more detailed discussion of the realist position in relevance research, see Hjørland, 2000a and Hjørland & Sejer Christensen, 2002).

The field of information-seeking behavior has in a similar way been dominated by antirealist tendencies. When people seek information, they have given systems of information resources with given potentialities at their disposal.²¹ All available knowledge may turn out to be useless in relation to a given problem, or relevant knowledge may be misjudged. What users know about these given resources and potentialities, how they evaluate them, and how they utilize them are different matters compared with their objective possibilities. Users' information behavior should be interpreted on the basis of how they utilize these objective possibilities. This is the realist perspective on information behavior, while the antire-

alist or idealist perspective is to study the information-seeking behavior of users while neglecting to relate this behavior to the objective possibilities. While information science has largely neglected to study information behavior from this realist perspective, it has removed the attention from reality to subjective phenomena with no real explanatory power (for a more detailed discussion of the realist position in information-seeking research, see Hjørland, 2000b).

IR has also traditionally been antirealist. This is partly a consequence of the antirealist view of relevance, which understands relevance as users' criteria of relevance, not as relevance in an objective sense. Partly it is a consequence of views related to users' query formulations and to the system of information resources. From a realist position the users' questions and terminology may be more or less optimal in relation to given goals. They are not the given point of departure from which all IR theory must start. The users' questions and terminology reflect their subjective view, not necessarily insight in the subject matter. People subscribing to different theories or "paradigms" see things differently and formulate different questions. A question is not a thing that should be regarded as empirically "given," but a thing that must be interpreted in relation to accumulated human knowledge on the issue.

Also, the system of information resources is not something divided from the user in a dualistic way. The user and the system are more or less parts of, and influenced by, the same theoretical, conceptual, and linguistic environments. I would say that different semantic distances are at play. The information system may or may not contain relevant information. The user's expectations about what information exists, where it exists, and what terms have been used to describe it may be more or less realistic. Existing documents have given informative potentialities (Hjørland, 1992). Any theory of IR has to relate to the relative degree of realism in users' expectations, to the users' subject knowledge, and to the semantic distances between queries and documents: the basic elements in a realist theory of IR. Historical research methods, among others, may provide some help. Primary information sources are objectively more reliable compared to secondhand information sources. This is well known and taught in courses about historical source criticism. People learn this when they study history at a university. Primary recordings of, for example, parliamentary debates are more reliable than newspaper quotes of those debates. There are given qualities in information sources, whether or not the users realize this. Research libraries and information centers should facilitate the use of such primary information sources when this is appropriate, and the criteria for their collection and organization of information resources cannot be based on user surveys or similar methods based on antirealist philosophy. It is shocking that such elementary considerations seem to be almost totally absent from theories of IR and information seeking. Hjørland (1998) and

Hjørland and Kylesbech Nielsen (2001) provide more information about a realist approach to IR.

The field of KO in LIS has generally developed from a realist to an antirealist position during the twentieth century. Around 1900, Charles A. Cutter, W. C. Berwick Sayers, and Ernest Cushington Richardson strongly emphasized that the classification of books in libraries is basically informed by the organization of knowledge, which is represented in (new) documents. The origin of the phrase “knowledge organization” in LIS is clearly related to their works, according to which book classification is basically KO and the knowledge needed to classify books comes from knowledge production, of which the books are the tangible expression. Cutter, for example, wrote:

I believe . . . that the maker of a scheme for book arrangement is the most likely to produce a work of permanent value, if he keeps always before his mind a classification of knowledge. (Cutter, 1888)²²

Sayers expressed it in the following way:

A book classification must hold the minuteness of the knowledge classification as an ideal to which it must approximate as nearly as possible (p. 34). It must be clearly borne in mind, however, that the classification of knowledge should be the basis of the classification of books; that the latter obeys in general the same laws, follows the same sequence. (Sayers, 1915, p. 31).

And Richardson said:

In general the closer a classification can get to the true order of the sciences and the closer it can keep to it, the better the system will be and the longer it will last. (Richardson, 1964/1930, p. 33)

These quotations may sound very “positivist” compared with more recent views of science, but in my opinion they are more realistic than later views. Although they may underplay the question of how to cope with different scientific theories or “paradigms” in KO, they knew that this problem existed. They also knew that there were no shortcuts. They did not confuse reality with users’ beliefs or preferences. During the twentieth century, however, this view was sadly weakened. Especially user-oriented and cognitive views represent a strong idealist tendency by neglecting that principles of KO are based on knowledge as contained in the documents to be organized.

Today, library students in Denmark read a textbook that interprets the above mentioned founders of KO in LIS in the following way:

. . . today most philosophers would argue against them [Cutter, Sayers, and Richardson]. The relativist and pragmatic trend has caused that most people today would argue that knowledge is subjective and that different people in different times would perceive the world differently. The aim of bibliographical classification is thus to a large degree founded

in some practical considerations concerning the construction of the system, and not necessarily on particular philosophical movements. (Grauballe, Kaae, Lykke Nielsen, & Mai, 1998, p. 18; my translation)

Although the quoted compendium is otherwise excellent, this specific quotation is an example of a problematic antirealist position. The important thing in this conclusion is that it connects the basis of KO to the problem of epistemology in general and realism in particular. This underlines the needs for epistemological studies within LIS and KO. Cutter, Sayers, and Richardson knew and considered the problems related to realism versus idealism. This is not new but has been neglected for a long time. The question is, What kind of implications should be drawn from "relativist, pragmatist, and subjectivist views"?²³ Grauballe, Kaae, Lykke Nielsen, and Mai (1998) draw the conclusion that because scientific knowledge is subjective, we should not consider it, apparently implying that the librarian's own common sense should form the basis of systems of KO. However, I do not agree with this conclusion. The domain analytic view that I have proposed (Hjørland & Albrechtsen, 1995; Hjørland, 2002) does not disregard the scientific view. In this respect it may be more closely related to Cutter, Sayers, and Richardson than it is to the above-cited view, not to mention "user-oriented" and "cognitive" views. Domain analysis emphasizes, however, that scientific claims should not be confused with facts. It is important to consider different views and to remain skeptical toward knowledge claims and toward social and cultural biases (see Hjørland, 2003). LIS cannot ignore science and scholarship. It does not have its own private alternative (nor do the users). This is not to say that one should uncritically accept scientific knowledge claims. In fact, the most important function of libraries and information systems is to enable critical users to question established knowledge and investigate alternative views.

I find a connection between antirealist trends in IS, lack of domain-specific knowledge, and the critique that David Bade raises concerning KO in databases:

Virtually all of the literature on cataloging and on database quality is concerned with technologies or methods and standards. Acknowledgement that cataloging is an intellectual activity that requires an ability to understand what an item is about, and prior to that, an ability to read the specific language of the text, is so rare as to be disturbing. However librarians may have thought in the past, in the present climate of technological possibilities and the excitement they generate, librarians increasingly see themselves as information scientists, and their work as information handling, brokering, and management. What must not be forgotten is that information always has a specific content. Catalogers, bibliographers, and reference librarians in fact work not with abstract information devoid of content, but with *autopoiesis*, prosopography, logotherapy, *Rechtsextremismus*, *amparo*, *Ujamaa*, *sultawiyya*, *Babad Buleleng*, *Yuan chao pi shih*, *arianism*, Brownian motion, *Empfindungslosigkeit*,

chocolate chip cookies, and anti-semitism. Information science knows nothing of these matters, in any language. (Bade, 2002, p. 18, emphases in original)

This connection is related to the neglect of subject knowledge in LIS. The founders of KO recognized this need. Richardson/Bliss, for example, wrote:

“Again from the standpoint of the higher education of librarians, the teaching of systems of classification . . . would be perhaps better conducted by including courses in the systematic encyclopedia and methodology of all the sciences, that is to say, outlines which try to summarize the most recent results in the relation to one another in which they are now studied together. . . .” (Ernest Cushing Richardson, quoted from Bliss, 1935, p. 2)

This suggestion was in practice followed in schools of LIS. The Royal School of Library and Information Science in Denmark, for example, actually had departments for science and technology, social sciences, and humanities teaching subjects such as special bibliography, subject literature, subject encyclopedism, and the philosophy and communication of subject knowledge. These departments were gradually fused, and the last trace of them disappeared from the organizational structure of the school in February 1999. Students still have to take courses in KO and information seeking in specific domains, however, and the Domain Analytic approach to information science (especially Hjørland, 2002) was developed as a theoretical frame of reference of IS to cope with the core problem of how to tackle subject knowledge in the education of information specialists.

In this section, I have made a connection between interdisciplinarity and realism. The main thought is that if a piece of research is reflecting a reality, then this will be confirmed by other researchers (and practitioners), and knowledge will tend to grow in a cumulative way. On the other hand, if a field of research is isolated, it might well be an indication that the field is just construing some kind of pseudo-knowledge based on, for example, a professional ideology. Eugene Garfield wondered that psychiatry journals were very rarely cited by psychology journals, and he opined:

I would not go so far as to say that psychologists and behavioral scientists work in a closed tower, but very obviously they seem not to look too much at the research world elsewhere. If they do, they seem not to have found much that is helpful. If they have, they aren't admitting the fact in their citations. (Garfield, 1975, p. 9)

In this way, I believe, there are connections between interdisciplinary exchange and realist philosophy.²⁴ Some fields like psychology and LIS may isolate themselves too much. In seeking to avoid the hard work of coordinating their research efforts and also to avoid criticism of their basic assumptions, such fields may to some degree construe “knowledge” in a manner that fails to cumulate satisfactorily.²⁵ Some disciplines may try to “become

independent” by neglecting knowledge produced by other disciplines and thereby fail to confront their own knowledge claims with more generally accepted claims.

CONCLUSION

In this paper I have argued why I consider philosophical realism to be important to information science. My attitude has been that in fields of knowledge such as information science and cognitive science there may exist theoretical errors, which can be corrected. A philosophy is not something that you just choose, it is something you work out or construe to solve problems related to your field of study and your profession. I should hasten to add, however, that research carried out from antirealist perspectives will not always be fruitless. Some interesting research today in IS, for example, is done under the banner of social constructivism. Pragmatic realism and social constructivism share the view of the importance of socio-historical perspectives as an alternative to epistemological individualism. In the end, however, it is important to base a discipline on a proper philosophical framework.

NOTES

1. Closely related to the problem of realism is the problem of objectivity and subjectivity because objectivity implies that a representation is in accordance with its object, while subjectivity implies that it is in accordance with the subject that has produced it. Objectivity should not be confused with intersubjectivity. Indexing, for example, is not necessarily objective, even if all indexers agree. They may be consistently wrong. Measurement of indexing consistency is a typical empiricist/positivist strategy. If all members of a profession share the same fundamental ideas, their knowledge is intersubjective, but not necessarily objective. Social constructivists, for example, may be able to demonstrate that such knowledge just represents a dominating ideology. An alternative to the positivist measurement of indexing consistency could thus be to unravel how different theories/epistemological views imply different kinds of indexing. An underlying assumption in this approach might be that objectivity is more likely to occur if the indexer has a high degree of reflectivity based on knowledge of different views. Objectivity is thus connected with realism, while subjectivity may or may not be connected with antirealism (see more about subjectivity later in this article).
2. Although I would add that fish can be classified in different ways and that the concept of tropical fish may be a problematic one in some situations—or perhaps in all. “It is characteristic of many antirealists to take semantic issues pertaining to language as primary, whereas realists often give priority to ontology and view semantic theses as derivative of, or motivated by, ontological positions” (Mäki, 2001, p. 12818).
3. Boyd is, however, correct in stating that kinds of realism are difficult to identify as clearly demarcated philosophical doctrines. As Niiniluoto (1991, p. 762) writes, “the ontological position of scientific realism is opposed to all forms of subjective idealism (such as solipsism and phenomenalism). On the other hand, the minimal thesis that at least part of reality is independent of human minds can be combined with reductionist materialism or physicalism (Smart, Armstrong), emergent materialism (Engels, Popper, Bunge), mind-body dualism, or even objective idealism (Peirce, Bohm). It is compatible with nominalism (Sellars) as well as ‘scholastic’ realism about universals (Peirce, Armstrong), or with object ontology as well as process (Popper) or system ontology (Bunge). Further, it may, or may not assert the reality of potencies (Harré).”
4. Boyd’s demand that it should be a good textbook and not just a typical textbook or even any textbook is perhaps a curious reservation because it may move discussions about sci-

entific realism to a discussion about which books are representing a realist picture of scientific knowledge. Also his remark “you have good reason to think that such phenomena have the properties attributed to them in the textbook independently of our theoretical conceptions in chemistry” is strange, because the theoretical conceptions in chemistry cannot be independent of the knowledge claims in chemistry. The theoretical conceptions together with the specific knowledge claim represent a whole, although we may have different interpretations of some data. The question is, Does this whole represent a mind-independent reality or just an idea, a theory, a view, or a mental, or social construction? (e.g., a masculine construct). This is again related to the question, Do, for example, different cultures tend to develop different kinds of chemistry? If they do not, we may further ask if this is the case because there is only one possible way of developing chemistry or because there is a kind of cultural hegemony that suppresses possible alternatives?

5. “Realist theses about possible reference and possible truth in scientific theories are often complemented with claims about actual properties of actual science. One such claim—made by Richard Boyd, Michael Devitt, and others—is that the theoretical terms of most current (or the best of ‘mature’) scientific theories typically refer and that their lawlike statements are at least approximately true. Another related claim is the convergence thesis: as science develops, its theories get progressively closer to the truth. Both of these are empirical claims about actual science and should not be made part of the concept of scientific realism. Their truth is dependent on contingent matters such as the institutional structure and other resources of scientific research as these happen to be in any given society and time period.” (Mäki, 2001, p. 12818).
6. In general, it is the scientists’ job to produce trustable knowledge claims. The political sphere and the rest of society turn to scientists and to scholars to obtain knowledge they can rely on. To make their claims reliable, scientists follow certain standards, e.g., to communicate the basis of their claims, to apply the most respected research methods, to allow criticism, to maintain an open and transparent communication system, and to be independent of direct economic, moral, or political interests. No such norms can, however, guarantee the truth of scientific claims.
7. Indeed, that strong antirealist trends flourish in many fields of science and scholarship is in itself an indication that huge amounts of knowledge claims are wrong, or at least founded on problematic assumptions.
8. Niiniluoto (1991) mentions Karl Popper, J. J. C. Smart, Wilfrid Sellars, David Bohm, Hilary Putnam, Mario Bunge, and Rom Harré as scientific realists.
9. Niiniluoto mentions Thomas Kuhn, Paul Feyerabend, Larry Laudan, Nelson Goodman, Michael Dummett, Hilary Putnam, Richard Rorty, and Bas van Fraassen as antirealists.
10. The most recent trends in realism have been brought forward under the labels “critical realism” (Bhaskar, 1978, 1979, & 1989; Collier, 1998; Creaven, 2000), which also has been applied to information systems research (Dobson, 2001a and 2001b) and “activity theory” (Leontyev, 1981) and its application in library and information science (LIS) (Spasser, 2002) and in various works by Hjørland.
11. Rorty, for example, is clearly antirealist. According to Laudan (1977, 1996), however, Rorty is not even regarded as a pragmatist.
12. Earlier, under the influence of another theoretical trend, they were often termed “the behavioral sciences.”
13. Recently more social approaches have been introduced in the behavioral and cognitive sciences; most noteworthy is social constructionism. As discussed in Nightingale and Cromby (1999), such approaches also may be antirealist. A social perspective might thus be a necessary, but not a sufficient, attribute for realist theories.
14. Aarseth (2003) discusses the meaning of three core terms in electronic media: interactivity, hypertext, and virtuality. He writes: “Perhaps the most important reason for using these distinctive terms is to create an enthusiasm (‘Hype’) that will make a difference eventually where no difference of importance yet exists. Maybe this is the only way to innovate, to bring about something new” (p. 418).
15. Social constructivists and other idealists may argue that specialists do not produce knowledge of reality, but that they construct or claim a reality. It is still, however, the question of epistemology to determine if one kind of construction is as good as another. I think that Feyerabend’s position of methodological anarchism is untenable. In most cases, experts

- are simply in a better position to produce valid knowledge. There may be exceptions, e.g., connected to ideological bias, but such exceptions cannot in my opinion make the general rule invalid. My guess is that even people who are most critical of scientists make use of their findings, such as computers and medical treatments. In this way they indirectly confirm the principle of expertise in knowledge production. If somebody would defend the view that the opinions of experts are not generally better founded than those of lay people, this would have serious implications. Among those implications would be that we have to give up all education and research because people are just as well-informed without these processes. This is obviously absurd.
16. It is always legitimate to be skeptical about a knowledge claim. This will lead into a discussion about the basis for that claim and ultimately to epistemological discussions. Such discussions are, by principle, part of the discourse on a given subject. There is no privileged or neutral platform that can substitute for arguments.
 17. The experts may, of course, be wrong, as we have already discussed. This is no argument, however, why nonexperts should be right. They might be. The only way to settle disputes between different views is to examine the basis for the arguments raised in favor of them, as this is done in, for example, courts, scientific experiments, and epistemological arguments. To find the relevance criteria by empirical studies of users and their needs or by considering experimental studies in cognitive science is simply misplaced.
 18. In some domains, e.g., rock music, there may be a lack of researchers. Musicology seems to neglect nonclassical music. In such cases, the users may be "experts," at least until this field is properly represented in musicology. In other fields, such as child psychology, experienced mothers may have adequate competencies for which a degree in developmental psychology cannot be a substitute. This last example is related to different epistemologies, i.e., to different views of how to obtain knowledge. Developmental psychology has mainly been dominated by a "positivist" epistemology, while other epistemologies give a higher status to the kind of experiences that motherhood represents. In both cases, the realist view applies: A given document may or may not be relevant to a given purpose, whether or not the user believes this to be so.
 19. Of course, a document is not relevant in a situation if the user cannot understand it. In higher education, it is normally attempted to provide students with the knowledge necessary to study the documents that are deemed to be relevant. In the sciences, one learns mathematics and in theology one learns Greek, Latin, and Hebrew. The underlying philosophy is that the relevant texts presuppose these kinds of learning. Again, different opinions may exist. Different views of what is relevant may exist as different "paradigms" in all subjects.
 20. This was also emphasized by the pragmatic philosopher John Dewey, who saw one way to tackle this by the enlightening of people.
 21. The users confront in principle a given system of information resources. However, if they are researchers, they may of course also contribute to the system of information resources. Many research activities may be motivated by dissatisfaction with given resources.
 22. This quotation is cited from Grauballe, Kaae, Lykke Nielsen, and Mai (1998, p. 18). I have been unable to identify or verify it.
 23. It is wrong, however, to claim that Cutter, Sayers, and Richardson did not consider the practical considerations of systems of KO. They explicitly stated that this was their most important consideration. Richardson (1964, p. v) stated: "It seems to be worth repeating, therefore, that the attitude of this book is 'that in the case of conflict the practical always prevails over the theoretical'."
 24. Although I claim that there exists a mind-independent reality, I do not claim that our knowledge is or can be mind-independent. Although our knowledge is subjective, it may, however, also be objective, in accordance with its object, which is always an object for somebody. For the pragmatist, the criterion for the truth of a claim is connected to the consequences for action and the building of coherent knowledge. This is opposed to a dualistic view in which the mind is seen as separated from a reality and having knowledge that corresponds more or less with that reality.
 25. I am aware, of course, that other factors are also at play. Isolated fields may be isolated for other reasons, and even seemingly flowering fields may be based on problematic assumptions. As discussed in the philosophy of science it is difficult to decide which research pro-

grams are fruitful and which turn out to be degenerated. The history of science brings the lesson that it often takes a very long time before it can be decided whether a research program is fruitful or turns out to be a deadend, and even then ideas once given up may later be positively evaluated and reintroduced.

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