Social Epistemology

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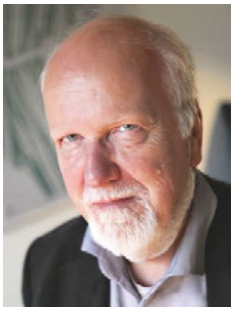

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Hjørland, Birger. 2024. "Social Epistemology". *Knowledge Organization* 51 (3): 187-202. 75 references. DOI:10.5771/0943-7444-2024-3-187.

Abstract: The term "social epistemology" (SE) was first used by the library and information scientist Jesse Shera in 1951, but soon the term became muddled, and it did not become influential at that time. Later, it became known as the name for two different traditions outside library and information science, one led by Alvin Goldman and based on analytic philosophy, and the other led by Steve Fuller and related to science policy. It seems, however, problematic just to associate the term with these two schools, which, in different ways, are found not to represent genuine approaches to SE. SE is an alternative to individualist epistemologies and, as such, has roots back to Georg Wilhelm Friedrich Hegel, Karl Marx, and Charles Peirce, among others. In the twentieth century, the concept became influential in the wake of Thomas Kuhn's historicist view and in pragmatic, hermeneutic, critical, and feminist views (but mostly not by using the term SE). In these contexts, it represents an alternative to "positivism."[1] Shera's 1951 use of the term SE is found to represent the best vision for SE, although it could not be properly concretized before alternatives to positivism were developed in 1962.

Received: 15 January 2024; Accepted 15 February 2024

Keywords: social epistemology; classification of knowledge; Jesse H. Shera; paradigms.

† This article is a revised and peer-reviewed version of a keynote presentation given at ISKO-France 13th International Conference, "Social Epistemology in the Organization of Knowledge" at the ISKO-France Thirteenth International Conference, October 19-20, 2023, organized jointly by the French Chapter of ISKO and the research unit ELICO. A Google translation to French is available here: https://www.isko.org/cyclo/se-fr.pdf

1.0 Introduction

Information science and knowledge organization (KO) can be proud that the term "social epistemology" (SE) was coined by library scientist Jesse H. Shera (1951, 82) in a paper about classification.[2] A year later Egan and Shera (1952) published another paper using the term SE, but this time in another meaning and in the context of a theory of bibliography. Because almost all subsequent researchers[3] cited both Egan and Shera's (1952) paper as the first occurrence of the term SE and for discussing its meaning,[4] the 1951 meaning has, unfortunately, been overlooked. Briefly explained the 1951 meaning is epistemological, while the 1952 meaning is sociological. This confusion between an epistemological versus a sociological meaning of SE is also made by some later researchers. The term SE was not at the time developed into a research program.

Section 2 presents two schools developed outside library and information science (LIS), which were founded by respectively Alvin Goldman and Steve Fuller in the 1980s. They became dominant in relation to the use of the term SE. During the discussion of these schools, arguments are put forward to conclusions made later in the article, including the claim that SE is opposed to individualistic epistemologies like empiricism and rationalism. It is argued that of these two schools, Goldman's is not properly social, and Fuller's is not properly epistemological, which points to the need for alternative understandings of SE.

In Section 3, it is argued that other alternatives to individualistic epistemologies exist outside Goldman's and

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Fuller's schools, which have roots in, for example, Georg Wilhelm Friedrich Hegel's historicism, Karl Marx's historical materialism, and Charles Peirce's pragmatism. In the 20th century, Kuhn's (1962) view on "scientific paradigms," versions of critical theory and various contributors to feminist epistemology, represent, among others, a broader view of SE, although the term SE is seldom associated with them.

Section 4 presents and discusses Shera's (1951) approach to classification and his introduction of the terms SE. It is argued that Shera's understanding of SE is more fruitful than both Goldman's and Fuller's and that its philosophical principles can be considered a forerunner of the domain-analytic view developed in information science and knowledge organization in the 1990s.

Section 5 considers SE in relation to other epistemological positions. Epistemology is one among other fields studying knowledge (others being, e.g., sociology of knowledge with the sociology of science, history of knowledge with the history of science,[5] and cognitive psychology). Epistemology is different from the other fields by being a normative field, meaning that it tries to establish criteria about how to obtain knowledge, its purpose is to suggest methodological prescriptions. This is important, as we have already stated that Shera's 1951 understanding was epistemological, but later understandings tended to be sociological and to ignore the epistemological dimension. This section classifies epistemological theories into four main groups: rationalism, empiricism, historicism, and pragmatism, of which rationalism and empiricism represent individualistic epistemologies, whereas historicism and pragmatism represent social epistemologies.

Section 6 provides the general conclusion. The word "social" itself has more senses, a broad meaning that includes the socio-cultural context and social norms of people, and a narrow meaning that just understands "social" as individuals in the plural. The narrow conception is associated with positivism and the attempt to study social phenomena by empiricist methods. These two meanings are also reflected in the literature about SE, and, as we shall see later, Shera (1951)'s and Fuller's positions reflect the broad view, while Goldman's position reflects the narrow view. Discussions about social knowledge involve several dichotomies, which are often confused, such as methodological individualism versus methodological collectivism, first-hand knowledge versus second-hand knowledge, private versus public, and subjective versus objective. A more detailed discussion of the word "social" and related dichotomies is Hjørland and Gnoli (2023).

2.0 Two contemporary schools of social epistemology

This section presents and discusses two contemporary schools. One of the contemporary schools of SE was, as already stated in the introduction, founded by Alvin Goldman. It is often called "analytic social epistemology", e.g., by Quinton (2004) and Collin (2020, 21). The other was founded by Steve Fuller and was referred to by Quinton and Collin as "critical social epistemology," but it has also, as we shall see, been termed "the science policy program." Collin (ibid.) described these two schools as "the twin roots and branches of social epistemology," and found that both positions were founded about the 1980s.

2.1 Goldman's school of SE

Goldman and O'Connor (2021, no pagination) emphasized that SE must be understood in opposition to individual/individualistic epistemology. As examples of individualist epistemologies, they presented René Descartes and John Locke, writing:

> According to the most influential tradition in (Western) epistemology, illustrated vividly by René Descartes (1637), standard epistemology has taken the form of individual epistemology, in which the object of study is how epistemic agents, using their personal cognitive devices, can soundly investigate assorted questions. Descartes contended that the most promising way to pursue truth is by one's own reasoning. The remaining question was how, exactly, truth was to be found by suitable individualistic maneuvers, starting from one's own introspected mental contents. Another major figure in the history of the field was John Locke (1690), who insisted that knowledge be acquired through intellectual self-reliance. As he put it, 'other men's opinions floating in one's brain' do not constitute genuine knowledge.

Goldman and O'Connor (2021) presented their alternative to individual epistemology this way:

> By contrast social epistemology is, in the first instance, an enterprise concerned with how people can best pursue the truth (whichever truth is in question) with the help of, or in the face of, others. It is also concerned with truth acquisition by groups, or collective agents.

As Goldman and O'Connor (2021) mentioned, Descartes and Locke may be understood as two main representatives of individualist epistemology, Descartes representing rationalism, while Locke represents empiricism. Rationalism emphasizes the individual's reason and the deductive method, whereas empiricism emphasizes the individual's sensory experience and the inductive method. These epistemological approaches are further addressed in Section 5.

Goldman and O'Connor (2021; emphasis in original) also wrote:

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> In contrast with the individualistic orientations of Descartes and Locke, social epistemology proceeds on the commonsensical idea that information can often be acquired from others. To be sure, this step cannot be taken unless the primary investigator has already determined that there *are* such people, a determination that presumably requires the use of individual resources (hearing, seeing, language, etc.) Social epistemology should thus not be understood as a wholly distinct and independent form of epistemology, but one that rests on individual epistemology.

This quote reveals an understanding of the difference between individual epistemology and SE that has been criticized by other researchers. Kusch (2001, 188), referring to Goldman (1999), emphasized that Goldman's and others' idea of individual knowledge as being primary and social knowledge as being secondary is a problematic assumption. Perhaps the reader is questioning Kusch's view and considering it to be nonsensical. If so, the following thought experiment may help understand Kusch's idea: Think of a person (e.g., yourself) in an isolated position (e.g., on the toilet). Whatever you are thinking about in that situation, you use concepts, acquired during your upbringing. It is, therefore, not a mad idea to consider individual knowledge as secondary to the social and cultural context in which you have been socialized.

The implication of Kusch's view is that SE cannot just be considered a supplement, itself based on individual epistemology, as claimed by Goldman and followers. Supporters of authors such as Kusch[6] (2002) will argue the contrary: that it is rather the individual epistemology that rests on SE.

To illustrate the social nature of knowledge we may consider a quote by Albert Einstein: "It is the theory which decides what we can observe" (cited from Heisenberg 1989, p. 40). This quote is a key to understanding SE. It is opposed to the empiricists' (incl. logical positivists) belief in the objectivity of knowledge derived from individual observational reports. In the positivist view, theory is derived from and tested by observations, and theory and knowledge are assumed to be free of cultural and social factors, and from the observers' theoretical assumptions. SE is different, as already Fleck ([1935] 1979, 38) realized:

> [C]ognition must not be construed as only a dual relationship between the knowing subject and the object to be known. The existing fund of knowledge must be a third partner in this relation as a basic factor of all new knowledge. [...]
> Cognition is therefore not an individual process of any theoretical 'particular consciousness.' Rather it is the result of a social activity, since the existing stock of knowledge exceeds the range available to any one individual.

What Fleck said here is extremely simple and trivial, and it is strange that it has not always laid the foundation of epistemology and that mainstream epistemology has ignored this important dimension. Therefore, one way to understand the contrast between individual epistemology and SE is:

- Individual epistemology: The individual's observations are pure and direct (i.e., representing reality free of social, cultural, and theoretical influences).
- Social epistemology: The individual's observations are influenced by social issues including the individual's orientations and views. In Fuller's (2017, 4197) words: "Accordingly, individual cognitive orientations can be understood as either normal or deviant expressions of preexistent culturally entrenched dispositions."

As emphasized by Kusch (2001, 188) Goldman and follower's approach to SE does not recognize this problem related to individual epistemology. According to the definitions above, Goldman's view represents an individualist rather than a social epistemology, but it is a research program focusing on second-hand knowledge (i.e., knowledge obtained from others, such as testimony). It is, of course, a legitimate area of research to study forms of biases in knowledge obtained from different kinds of testimony.[7]

As explained in Hjørland and Gnoli (2023) there exists an "impoverished," narrow understanding of the term "social," which corresponds to Goldman's approach, not very unlike the meaning it got in experimental social psychology, where "social" is the opposite of being an isolated individual (e.g., on the toilet). The word "social" has, in this tradition, been understood as being together with other human beings (either physically or imaginarily).

Goldman and O'Connor (2021) also wrote: "Surprisingly, social epistemology does not have a very long, or rich, history." Yes, it would indeed be surprising if this were the case,[8] and in Section 3 we document that this is wrong and a part of such a longer and richer history is presented.

Despite this criticism of Goldman's school, a valuable research program into the problems connected with "second-hand knowledge" is possible. However, this is not entirely a new field, as claimed by Goldman. Historians, for example, have since Leopold von Ranke developed "source criticism" as the methodology for prioritizing kinds of sources, and medical researchers have developed "evidence-based medicine" as a criterion for which second-hand reports should be considered most valid. In information science, a well-known problem has been to select books, documents and information resources based on their reliability (see, e.g., Hjørland 2012). These three examples are all related to problems discussed by SE, for example, "which experts should you trust?" (Goldman 2011 and 2021). The question is whether Goldman's SE has provided a new under-

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standing of such problems. There seem to be three problems in Goldberg's approach:

1. Goldman's articles are unrelated to research like that presented in these examples. Therefore, it seems not to build on previous knowledge done in different disciplines. It is also strange that Goldman does not consider issues like consensus and disagreements among experts and its importance for selecting experts, as a high degree of consensus should imply a higher degree of trust. What was expected of Goldman was an *epistemological* analysis of how researchers and practitioners in different disciplines have dealt with second-hand knowledge and his suggestion of methodological prescriptions on how to improve research and practice in different domains.
2. Goldman's articles seem to be less concrete and more common-sense prescriptions compared to, for example, studies of the reliability of peer-reviews in information science (and suggestions made in other disciplines such as history and medicine).
3. The articles' discussion of novices is a bit strange. An alternative strategy would be to say how, theoretically, expert claims can be evaluated,[9] and how they are evaluated in practice, and then discuss how (or if) such metaknowledge can be, or has been, transferred to and used by other groups, including novices. To put up normative criteria for being experts is an epistemological task. To investigate whether different groups know about these criteria is an empirical task.

Quinton (2004, 8) writes how metaknowledge about the authority of knowledge claims are something we learn about during our lifetime. Such metaknowledge should not just be based on common sense and individual experiences but, as far as possible, on research into what Wilson (1983) termed "second-hand knowledge" and "cognitive authority." This is a legitimate field for SE, but as said, such research has for a long time taken place outside Goldman's SE. In the eyes of the present author, Goldman's results in developing methodological prescriptions are disappointing.

2.2 Fuller's school of SE

Steven Fuller's SE (e.g., 2016, 2017) is somewhat difficult to describe, as Collin (2020, 27) wrote: "Fuller's work resists simple summary because of his somewhat unsystematic style of writing." Fuller (2002, 3) provided the following definition of SE:

> The fundamental question of the field of study I call 'social epistemology' is: How should the pursuit of knowledge be organized, given that under normal circumstances knowledge is pursued by many human beings, each working on a more or less well-defined body of knowledge and each equipped with roughly the same imperfect cognitive capacities, albeit with varying degrees of access to one another's activities?

This quote makes Fuller's SE closely related to LIS and knowledge organization, which aim at making documents with their knowledge claims accessible to humans (or computers) working with more or less defined problems. However, as we shall see, Fuller did not address specific epistemological issues in LIS, such as normative rules for how to provide optimal criteria for selection, description, indexing, and classification of documents.

Fuller (2017, 4197) also provided the following statement about his position:

> 'Social epistemology' literally means the social theory or social science of knowledge. That simple definition already says a lot. It implies that knowledge is not normally seen as intrinsically social; hence, 'social' needs to be added to specify the field of inquiry. This point is worth noting because the image of knowledge as primarily acquired by individuals through their mental faculties (as perceptions, beliefs), who then combine with other such individuals, to construct more elaborate and durable knowledge products (such as theories, sciences), rests on a particular reading of the history of philosophy that is dominant only in the English-speaking world. For philosophers more influenced by French and German developments, knowledge is 'always already' social in both its constitution and import. In the United States, this distinction is marked as 'analytic' versus 'continental' schools of philosophy.[10]

We see that in opposition to Goldman's position, Fuller expresses a view of knowledge that is genuine social: "knowledge is 'always already' social in both its constitution and import." This is an important insight, but it does not say what Fuller's epistemological position is. What are his normative guidelines for inquiry? In addition, it is a strange claim that the basis for constructing such normative guidelines is the same as "social science of knowledge." Social sciences are empirical sciences influenced by conflicting epistemologies. They need epistemological clarifications; they do not themselves constitute an epistemology.

2.2.1 Fuller on Popper and Kuhn

It seems difficult to find a clear answer about Fuller's epistemology, although the author (2016, 2) indicates an answer:

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> An important precursor of social epistemology is 'critical rationalism,' a philosophy associated with Karl Popper, in which the two words that constitute the name should be taken equally seriously.

However, Popper's "critical rationalism" is not a *social* epistemology. To demonstrate this point, we shall contrast it with the philosophy of Thomas Kuhn. Fuller (2003) expressed critical views about Kuhn, as he found to be conservative, while he found Popper to be critical. In the eyes of Fuller, the effect of Kuhn's (1962) *The Structure of Scientific Revolutions* was that philosophers of science gave up their critical attitudes towards science.[11] Popper, on the other hand, suggested that scientists should be free to suggest bold theories but should focus on falsifying all theories.[12] In one way, therefore, Fuller seems to be right. The motto "be critical" seems closer related to Popper's philosophy than to Kuhn's. However, the motto "be critical" is insufficient as a methodological prescription if not followed by further guidelines about *how* to be critical, which means how to examine the theories. Popper's well-known answer to this problem is "falsificationism:" Researchers shall try to falsify theories. By implication, a criterion for being scientific for Popper is that a theory is formulated in such a way that it is possible to deduce its implications and thereby test it. According to Popper, the theory that "all swans are white" can never be confirmed, no matter how many white swans have been observed. It can be falsified, however, if just on black swan is observed.

Popper's view, however, is based on some problematic assumptions. The most important one is that whereas Popper accepts that observations are theory-dependent and acknowledges that this makes confirmation of theories impossible, he ignores this when it comes to falsification—and therefore, he fails to see that falsification is also inconclusive.[13] Another problem is that research does not start with clear concepts, but concepts are typically made more precise as science progresses. Therefore, the demand for clearly formulated concepts is, in some instances, problematic and harmful. When claiming that one observation of a black swan falsifies the theory that all swans are black, it is assumed that "swan" is an unproblematic concept that can be identified with certainty. Recent research based on DNA analysis has, however, problematized many former definitions and classifications of species of birds (see Fjeldså 2013). Thus, concepts are not just "given", but are developed and modified by research, again implicating a *social* perspective, which is missing in Popper's philosophy. The last point to be taken up here is that Popper considered the Marxist theory of history and psychoanalysis as pseudo-sciences because he did not consider them falsifiable (which is a claim that has been denied by other philosophers). This makes Fuller's preference for Popper strange since Fuller himself is closer related to "critical" than to analytic and positivist schools but seems to prefer an epistemology that rejects "critical" theories. Despite Popper's argument for the opposite, most philosophers consider his philosophy to be related to logical positivism, which is not an epistemology, which can be characterized as "social."

Kuhn's philosophy, contrary to Popper's, is genuine "social." Scientists are trained under the influence of a paradigm, often in an indirect way, influenced not just by textbooks and theories but also by the apparatus used, the kind of research questions raised, etc. Theories are not just falsified, but they may be left when newer generations of researchers take over. It is widely recognized that Kuhn was a primary force in the historicist turn in the philosophy of science in the 20th century, and it is almost definitional that historicism implies a social point of view, as it implies the historicity of knowledge and cognition.

Thus, when Fuller claimed that Kuhn was not critical, the answer here is that, opposed to Popper's falsificationism, Kuhn's view implies that the evaluation of theories cannot be limited to issues of logic and observation but must consider the broader socio-historical context of the theories (as will be demonstrated in Section 4 about Shera's view on classification).

Fuller's SE developed comments on more traditional epistemological issues, such as the Popper-Kuhn controversy, but is not a position that he elaborated and clearly defended. If anything, Fuller's discussion of Popper and Kuhn seems to contradict his ambition of providing a social epistemology.

2.2.2 Fuller on science policy

Kusch (2002, 2) suggested naming Fuller's school "the science policy programme." Probably it is in this suggestion we should search for its core contributions. Kusch (ibid.) wrote:

> 'Social epistemology' has come to refer to two rather different programmes. I shall call them the 'science policy programme' [Fuller's] and the 'complementary programme' [Goldman's]. The science policy programme seeks to determine ways of making science more democratic and accountable to the public. It also hopes to increase our ability to choose between the development of different kinds of knowledge. This hope is based on the assumption that one can influence the collective production of scientific knowledge by manipulating the social organization of scientific communities. Changing social organization leads to a different type of knowledge [cf., Fuller 1988].

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The contents of Fuller (2002)[14] seem to justify Kusch's name, "the science policy program," for Fuller's version of SE. But does it represent an epistemology?

From the chapters, it is difficult to get an impression of how Fuller imagines SE can provide (or has provided) normative criteria for organizing science in ways that lead to the development of different (better) forms of knowledge. What seems most important is that the starting point is not an analysis of which problems in the present sciences should be solved, followed by suggestions for how SE might contribute to changing science in the right direction. The clearest example seems to be the appendix about a suggested graduate program in knowledge policy studies. Fuller (2002, 289) found:

> [G]iven their overarching administrative perspective, bureaucrats are potentially in a better position than any individual scientists to understand the collective product of epistemic pursuit. A goal of knowledge policy studies, then, would be to train bureaucrats in the kind of decision making that would instill confidence in scientists that government can have something epistemically interesting to say about how knowledge should be pursued.

Much in this quote can be discussed. For example, Goodall (2006) made a bibliometric study that showed that the best universities are led by the best researchers, which seems to conflict with Fuller's idea about the role of bureaucrats.[15] This leads to the question: What is Fuller's epistemological basis for his claims about research policy?[16] Clearly, such claims need to be research-based, and this research needs to be based on epistemology. In other words, science policy is a research field, but it is not epistemology, and therefore, it should not be confused with SE.

Another example is Fuller's (2017) article in *the Encyclopedia of Library and Information Sciences,* which is impressive for the knowledge about and interest in library and information science (LIS), including the interest in providing an important role for this field. However, the point here is again that, in the eyes of the present author, it does not contribute epistemologically to this field; it does not provide normative rules for how to provide, for example, optimal selection, description, indexing, classification, etc. of documents. It is, as Fuller defined (2017, 4197) a "social theory or social science of knowledge," which, although important, does not constitute an epistemology.

In the view of the present author, what is badly neglected by Fuller is the theoretical nature of knowledge, with conflicting theories and epistemologies. A better answer to Fuller's question: "How should the pursuit of knowledge be organized?" is that the theoretical and philosophical assumptions and tendencies in all knowledge claims should be made more visible, enabling enquirers to search and find information based on a more informed and conscious choice. This would also influence the social organization of knowledge, e.g. the disciplinary and interdisciplinary cooperation.

2.3. Conclusion of Section 2

In Section 2 it has been argued that, in the two positions mostly considered dominant in SE, Goldman's is not genuine social, and Fuller's is not genuine epistemological. In the view of the present author, neither of these two schools seems helpful for addressing the research problems related to classification, which was the problem that originally made Shera introduce this concept—and probably neither school provides useful methodological prescriptions for other areas of research either. (If they have contributed textbook relevant knowledge about research methodology, this has escaped the present author). SE is, however, more than these two schools, and alternatives are presented in the next section.

3.0 The broader view on SE

Social Epistemologies, understood as alternatives to individualistic epistemologies, are more than just the schools of Goldman and Fuller and are much older. Gelfert (2010) traced SE back to Kant and the German Enlightenment tradition, even in the sense as understood by Goldman's school. As formerly mentioned, SE is by the present author understood in the meaning that social issues—including the individual's orientations and views—influence the individual's observations and cognition. This view goes at least back to Hegel (1770–1831) and has been influential, for example, in pragmatism and critical theories, but it has not been considered in positions influenced by logical positivism and analytical philosophy (which may explain Goldman's view as he is considered part of analytical philosophy). Fuller (1987), from his perspective, also traced SE further back in time, and Kusch (2011, 873), in line with the understanding by the present author, wrote: "Many contributors to Pragmatism, Marxism, Critical Theory or Hermeneutics also qualify [as being parts of SE]. [In addition, Kuhn's (1962) theory of scientific paradigms and versions of feminist epistemologies and critical race theory may be added. Kuhn's theory has been associated with both SE (cf., Wray 2011) and with pragmatism (cf., Mladenović 2017).]"

We shall end this section considering feminist epistemology. How is feminist epistemology social? Again, there are different interpretations and versions of this position. Grasswick (2011, xiv) wrote:

> In most general terms, feminist epistemology is a form of social epistemology (Anderson 1995; Grasswick

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> 2008) in that it examines the relations between gender and knowledge, where gender is understood not as an attribute of individuals but rather as an axis of social relations. It is because society is structured significantly along the axis of gender that feminists take gender to be relevant to epistemology. Early on, feminists made a distinction between 'feminine epistemology' and 'feminist epistemology,' with the former capturing views that there exist specifically women's ways of knowing, and the latter representing views that examine the connection between the power relations of gender and knowledge.

According to Code (1998):

> The impact of feminism on epistemology has been to move the question 'Whose knowledge are we talking about?' to a central place in epistemological inquiry. Hence, feminist epistemologists are producing conceptions of knowledge that are quite specifically contextualized and situated, and of socially responsible epistemic agency.

Both Grasswick and Code discuss women's common experiences, which provide them with perspectives that, if taken into account, provide more objective knowledge than knowledge that ignores this perspective. Feminist epistemology says Code, "retains a realist commitment to empirical evidence while denying that facts or experiences 'speak for themselves.'"

Therefore, feminist epistemology is among the theories that, to a higher degree than both Goldman's and Fuller's schools, deserve the label SE.

4.0 Shera, social epistemology, and the classification of knowledge

Shera (1951) coined the term SE in the context of classification research. He found that formerly all theories of the organization of knowledge, from Plato to Henry Bliss have been founded on four basic assumptions (1951, 72-3; italics in original; bulleted listing added):

- "First that there exists a *universal* 'order of nature' that, when discovered, will reveal a *permanent* conceptual framework of the entirety of human knowledge;
- second, that the schematization of that order is a hierarchy of genus and species, class and sub-class, that progresses downward from general to specific, from terms of maximal extension to those of maximum intension;
- third, that the principle of *differentiation* that operates throughout the hierarchy is derived from the *likeness* or *unlikeness* of the properties or attributes of the component units of the classification; and
- fourth, that these properties or attributes partake of the *substantive nature* or physical properties of the units being classified: an intrinsic part of the unit itself, permanent and unchanging, an essence, an essence that resists alteration by the external environment, and denies all consideration of the fortuitous or accidental."

Shera provided a criticism of these assumptions and suggested alternatives. It was in this context, he introduced the term SE (1951, 82; italics added):

> Even a cursory examination of the history of classification of the sciences emphasized the extent to which any attempt to organize knowledge is conditioned by the *social epistemology* of the age in which it was produced. This dependency of classification theory upon the state of the sociology of knowledge will doubtless be even more strongly confirmed in the future. Here, then, is an implicit denial of Bliss' faith in the existence of a 'fundamental order of nature,' a rejection of the belief that there is a single, universal, logically divided classification of knowledge.

Shera's claims are, of course, in need of further investigations, e.g., how some specific classifications in specific ages were influenced by that age. Perhaps there is even a contradiction in claiming, on the one hand, that all prior classifications were based on the four basic assumptions and, on the other hand, claiming that all former classification "is conditioned by the social epistemology of its time." One could say that what Shera suggests is a "paradigm shift" in classification, introducing a new epistemology against all former ones. However, this contradiction may only be apparent in that former classifications were intended to follow these ideals, but that they in reality were conditioned by the social epistemology of the age in which they were produced (which also indicates that the former ideals did not work in practice, that they may have been falsified by history). The meaning of "social epistemology of the age" is, at least partly, revealed in the following quote (Shera 1951, 77):

> If one may learn anything from such a cursory examination of the history of classification it is that every scheme is conditioned by the intellectual environment of its age or time; that there is not, and can never be, a universal and permanent classification that will be all things to all men; and that each generation may build upon the work of its predecessors, but must cre-

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> ate its own classification from the materials that it has at hand and in accordance with its own peculiar needs.

This quote states:

> (1) That a classification cannot be universal, serving all purposes for everybody
> (2) That a classification cannot be permanent
> (3) That classificationists build on their predecessors, making classifications developmental and dynamic
> (4) Classifications are based on "the materials at hand," i.e., based on the knowledge and concepts of its time, and
> (5) That classifications are designed to serve specific needs.

Shera's expression "the intellectual environment of its age" may be translated to the dominant worldview, paradigm, epistemology, or metatheory. Probably, we should not take "generation" too literally. It may well be that some classifications have a longer and some have a shorter lifetime and that not all fields of knowledge necessarily develop in a synchronized way. What is important is that the classifier (and the resulting classification) is influenced by views represented in a broader social, cultural, and domain-specific context. This is a clear social epistemological position that denies the possibility of constructing classifications based on the isolated individual's observation and cognition.

The positions in library classification that Shera argues against include that of Henry Bliss, but although Shera does mention the Dewey Decimal Classification (DDC), he presents no specific criticism of it (just implicitly since he dissociates himself from universal and hierarchical classifications). However, the DDC largely deserves to be criticized.[17] Rather than dismiss the systems from consideration, which Shera (1951, 77) termed "purely utilitarian and without philosophical foundation," Shera should rather consider them as one among other approaches to classification and study the relative merits and demerits of this approach more closely. He should also consider Mill's (1872, 498-9) distinction between artificial and scientific classifications, where the first are narrowly utilitarian while the last suggests that scientific classifications should provide the basis for general conclusions.

Shera expressed the pragmatic approach clearly (citing the classical pragmatic philosopher William James), and thereby demonstrated the close connection between pragmatism and social epistemology (1951, 83-84; italics in original):

> The pragmatic approach to classification through meaningful units of knowledge must be based on recognition of the obvious truth that any single unit may be meaningful in any number of different relationships depending on the immediate purpose. *Thus, it is the external relations, the environment, of the concept that are all-important in the act of classifying*. A tree is an organism to the botanist, an esthetic entity to the landscape architect, a manifestation of Divine benevolence to the theologian, a source of potential income to the lumberman. Pragmatic classification, then, denies the existence of the "essence" of tree, for each of these relationships owes its existence to different properties of the tree. Relationship is not a universal, but a specific fact unique to the things related, and just as these relations reveal the nature of the relata, so the relata determine the character of the relationship.

Somebody might claim that Shera's position is more metaphysical than it is epistemological, and that it comes close to an idealist view according to which boundaries are without an objective basis. There is, however, a realist position according to which the complexity of reality allows different classifications, according to different needs, e.g., Dupré's (1993) "promiscuous realism". These issues are still debated, but naïve realism is probably an untenable position, which Shera opposed, and he also argued for the anti-essentialist viewpoint, which, although still discussed, has many supporters today.[18] Shera (1951) emphasized how different domains may consider the same term (e.g., tree) differently and thus describe different attributes and put it into different conceptual structures, thereby predating Hjørland's domain analytic point of view (cf. Hjørland, 2017) for about half a century. This is also clear in Shera's emphasis on the necessity of subject knowledge of the classifier, and by his priority of subject-specific classifications rather than universal ones.

Given this description of social epistemology, it seems not to be as unclear, as assumed by others, including Shera (1971, 79) himself. The position is epistemological in that it claims that different paradigmatic views (by the classifier) produce different classifications. The position is social in that different groups of people with differing perspectives and interests produce different classifications. Shera failed, however, in providing more specific methodological principles for classification based on SE. He realized that subject knowledge is important, but as Wilson (1973, 248) critically remarked: "This seems to imply an extensive knowledge of 'academic disciplines,' but Shera does not tell us how extensive". Wilson's question should probably rather have been: "What kind of subject knowledge is of special interest to the classifiers of a knowledge domain?" Shera's problem was that in 1951 the world had yet to encounter a revolution in philosophy best known from Kuhn (1962), which introduced the concepts "paradigm" and "paradigm shift."

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Shera – and the proposals he made – did outline important methodological prescriptions for classification (much better than the two schools presented in Section 2). He did not, however, concretize in the design of a domain-specific classification, or provide more specific guidelines for doing so. In relation to SE, this first came with the introduction of the domain-analytic approach, with the claim that different "paradigms" imply different classifications, which indicates that the design of a classification presupposes the decision of the "paradigm" on which it should be based. See Ørom (2003) as a model.[19]

5.0 SE among other epistemological theories

Today, there seems to be an unmanageable number of theoretical positions in epistemology, both in elementary textbooks and the research literature. Overall, the situation does not seem to be healthy.

Some of the many suggested positions in epistemology seem to this author to be sound but of a too narrow application. This is the case with, for example, the feminist "standpoint theory" and "critical race theory," which are probably fruitful for tackling problems related to equality in, respectively, gender and race/ethnicity. However, more general courses in research methodology need to be based on broader epistemological principles, which can be taught in courses and applied to a field (e.g., LIS) as a whole. We should ask ourselves: What are the main epistemologies in use (explicitly or implicitly), how should they be evaluated, and what is the general learning for us? As a first step it may be suggested that "standpoint theory" and "critical race theory" form parts of a more general "critical theory", which opposes individualist epistemologies like empiricism, rationalism, and positivism by denying the neutrality of research and knowledge. A general epistemological lesson from feminist epistemology has been, according to Code (1998, 597), to move the question "whose knowledge are we talking about?" to a central place in epistemological inquiry. A related lesson from critical theories is that engagement is important; "objectivity is not neutrality," as Haskell (1998) put it. Based on such a need for a generalized classification of epistemologies, the present author has suggested the following classification, in, for example, Hjørland (2021):

- Rationalism: emphasis on logical and rational principles, intuition, a priory knowledge, and the deductive method. Rationalism consider itself an ahistorical and neutral epistemology, not influenced by social issues. (This view is considered impossible by historicism and pragmatism, but nevertheless has a strong position in parts of the literature).
- Empiricism: emphasis on observations, which are not influenced by the observers' social-cultural or theoretical context or orientation. (This view is also considered impossible by historicism and pragmatism, but nevertheless also has a strong position in parts of the literature).
- Historicism: emphasis on the social, cultural, and paradigmatic context of the observers. Any knowledge claim must defend the broader theoretical basis on which it is based.
- Pragmatism: emphasis on the non-neutrality of knowledge claims. Any knowledge claim must be state which interests are served and provide arguments that the claim supports the stated interests. (See Hjørland 2020 and Omodeo 2019).

People with philosophical knowledge may provide arguments against this classification. It is well-known that the established contradiction between rationalism and empiricism is problematic, and that, for example, no philosopher has ever been 100% empiricist or rationalist. However, still this classification seems to work very well in classifying, for example, approaches to knowledge organization:

- Some approaches to KO are based on *rationalism*, for example, those described in the *Bliss Bibliographic Classification* (Mills and Broughton 1977), which emphasizes methods like logical division and a priori reasoning (in practice it also uses empirical materials, but the selection and use of this is not a part of the described methodology).
- Statistical approaches such as *numerical taxonomy* (Sokal and Sneath 1963) are examples of classifications that clearly are based on *empiricism*. (But as discussed by Richards 2016, 124ff, despite empiricism's declared avoidance of subjectivity, this nevertheless necessarily influences classifications based on numerical taxonomy)
- Examples of *historicism* are: (1) Darwin's (1859) approach to classification can be used because its criteria for which properties of organisms are important for classification are derived from evolutionary theory (see Richards 2016, 113ff); (2) Ørom's (2003) demonstration that classification of art (both in museums, in comprehensive works and in library classifications) reflects paradigms in art studies. Historicism also uses empirical data and rational methods but considers these to be based on background theories, which makes it a SE.
- Examples of *pragmatist* approaches to classification are those that emphasize the analysis of the purposes, functions, consequences, interests, and political goals that the classification is intended to support. Historicist and pragmatic approaches are often very related, but historicist approaches need not, as pragmatism, be based on explicit interests. Pragmatism also uses empirical data and rational methods but, like historicism, considers these based on background theories, which makes it a SE.

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As stated, the two last positions represent forms of SE. We shall not discuss this classification further, as it has been used in several publications already.

Rationalism and empiricism became most influential by their combination in logical positivism (or logical empiricism), a position that by most philosophers of science is claimed dead, but the death of which was discussed by Bentz and Shapiro (1998, 26-31) under the heading "the mysterious death and afterlife of positivism," stating "Post-positivism can become, like positivism did, an excuse for not reflecting on the grounds of one's beliefs and practices about knowledge and about one's social and historical context" (p. 30).

The central point of departure for alternatives to positivism is individualist versus social epistemology, as we defined it in Section 2.1. We take the point of departure in Kuhn (1962) and his introduction of the concept of "paradigm" and "paradigm shift." There are unclarities related to the term "paradigm," but it is now widely used in a wider sense than the one suggested by Kuhn. When a scientist is trained and works in a field, he or she learns about the theories of this field, often in an implicit and subtle way, e.g., in the kinds of instruments used and the kind of questions asked, that does not reveal itself as "theory." This socialization of scientists is an important determinant for how questions are put and approached, and how observations and experiments are interpreted. The paradigm provides the researcher with a set of glasses through which s/he sees and acts in the world. Individual characteristics of the researcher (such as his/her talents, motivations, and interests) are also important, but the social dimension is more important from an epistemological point of view. What here is written about researchers can be generalized to all kinds of human acts, as it is done in certain psychological approaches such as activity-theory (e.g., Engeström 2015).

Kuhn's theory is not flawless, and Fuller (1987, 150) rightfully opposed Kuhn's notion that normal science is controlled by a single paradigm at any given time. This is something that many critics have stressed: the historical incorrectness of Kuhn's notion that normal science is characterized by a period of the sole existence of one dominating paradigm. Biologist Ernst Mayr (1997, 98–99), for example, found that Kuhn's view "reflects the essentialistic-saltationistic thinking so widespread among physicists." This article cannot provide a deep discussion about the concept "paradigm," but it is assumed that paradigms often are contemporaneous and competing phenomena, which primarily are characterized by conflicting philosophical assumptions. It is obvious that researchers in different paradigms produce different theories and classifications. This does not imply total relativism, as different paradigms may not be equally fruitful, and, as Kuhn (1970, 263) wrote:

> [N]ature 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.

In other words: 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. Therefore, Kuhn's position, and also SE, may be interpreted as a realist philosophy.

6.0 Conclusion

Epistemology is important for all science because defending and arguing properly for any knowledge-claim involves arguments about epistemology. In this article, it has been argued, contrary to Goldman, that individualist epistemologies are not tenable. The realization of this is mainly due to the collapse of logical positivism and the flourishing of historically, socially, and pragmatically oriented epistemologies such as Kuhn's theory of scientific paradigms.

Our focus has been on the importance of SE for classification research, which was the context in which Shera (1951) first used this term. In many fields of knowledge, including biological taxonomy, SE principles seem to be justified. It is important that we examine whether Shera's principles are generally defensible. The periodic table of physics and chemistry is often hailed as the most successful of all classifications. It is important that we examine whether Shera's SE can be defended even here.

SE has also been used outside classification research. Kwon (2016, ii) argued that

> 'questions' are fundamental, for information "informs" relative to the question. But research focusing on questions as a central theoretical concept has been stymied by the paradox of the question, which observes that in order to ask one must know enough to know what one does not know (Flammer 1981). This dissertation proposes that this paradox results from the limitations of the cognitive approach to questions as indications of individual information need, and that the paradox can be resolved by reframing questions as social epistemological tools of inquiry within knowledge domains.

The field of scholarly communication is another example. It is a system of primary, secondary, and tertiary document types and information services, which form a chain from publishing in a journal to indexing the article in a database and aggregating knowledge from individual papers in re-

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view articles. Different agents informed by some epistemological views, which may be in conflict or in agreement, do all these activities. The identification and evaluation of these epistemological views are important because they influence the validity of (1) the knowledge claims in the primary literature, (2) the relevance of the documents retrieved by secondary services, and (3) the bias in the aggregation in the tertiary literature. This is a broader perspective for SE, which, for example, has been investigated by Andersen (2002).

SE is therefore extremely important for information science in general and for KO with classification research. Different schools of research use the term SE, and this paper has argued that the perspective introduced by Shera (1951) is the most fruitful one.

Acknowledgements

I thank Widad Mustafa El Hadi, who has served as editor and an anonymous peer-reviewer for valuable suggestions.

Endnotes

1. The term "positivism" is a polysemous term, which shall not be discussed in depth here, where it is used about the position that Kuhn (1962) attacked and to which he developed an alternative (although Kuhn has been criticized for not being well informed about this concept). A good introduction to positivism is Nickles (2005), but a full understanding of the concepts presupposes a comparison of the claims of positivism with other epistemologies, which is difficult because of its many different interpretations.
2. It is sometimes claimed that Egan, rather than Shera, originally introduced the term SE, but no earlier publication than Shera (1951) has been found. Zandonade (2004, 816) attributes the term to "(Egan & Shera, 1951, p. 82)", but the correct reference is Shera (1951), which is a paper authored by Shera in a volume edited by Shera and Egan. Furner (2004, 792) wrote: "With her colleague Jesse Shera, Egan wrote "Foundations of a Theory of Bibliography" for Library Quarterly Library Quarterly in 1952; this article marked the first appearance of the term "social epistemology." After Egan's death, Shera has often been credited for the idea of social epistemology. However, there is ample evidence to show that it was Egan who originated the concept—one that is commonly viewed as fundamental to the theoretical foundations of library and information science." However, the term was used already by Shera (1951), and we have to consider this the origin of the term SE, although Furner may be right that Shera was influenced by Egan. Martinez-Avila and Zandonade (2020, 11) also attributed the term to Egan: "... 'social epistemology' as suggested by Egan but sometimes attributed to Shera himself ..."
3. Researchers citing Egan and Shera (1952) as the first occurrence of the term SE include Budd (2002), Furner (2004, 792), Fuller (2017, 4198), and Fallis (2006).
4. Egan and Shera (1952, 133-4; italics in original) suggested a new discipline: "*Thus the focus of attention for the new area of study here described as social epistemology is the analysis of the production, distribution, and utilization of intellectual products in much the same fashion as that of which the production, distribution and utilization of material objects have long been investigated. Graphical communication provides objective evidence of the process*." However, such a discipline is not primarily an approach to epistemology, but rather to the sociology of knowledge. SE was in the 1952 article suggested as a "parent" discipline for the study of bibliography.
5. During history, the history of knowledge has mostly been considered synonymous with the history of science, but recent developments tend to establish the history of knowledge as a specific discipline (see, e.g., Renn 2015).
6. Kusch (2002, 2-3), calling his own position "communitarian epistemology" and Goldman's approach "the complementary program" (complementary to traditional, individual epistemology), wrote: "The complementary program in social epistemology tries to remedy the shortcomings of traditional individualistic epistemology. Advocates of the complementary programme [Goldman 1999] distinguish between individual and social aspects of knowledge. They believe that traditional individualistic epistemology was on the right track as far as the individual knower is concerned. But they criticize the tradition for its alleged blindness regarding social aspects of knowledge—regarding how much we learn from others, for example. Social epistemology [for Goldman] is the required additional field needed to remedy this blindness. Communitarian epistemology is more radical than the complementary program. It not only maintains that the tradition is negligent of social aspects of knowledge; it also insists that the tradition is also wrong regarding the category of the individual isolated knower itself. Put in a nutshell, for the communitarian, usually, there is no such knower."
7. Library and information scientist Patrick Wilson's book Second-Hand Knowledge (1983) is about how individuals utilize and evaluate knowledge produced by others. This book seems to be about the same subject as Goldman's version of SE but predates it.
8. It has *always* been a mark of scholarship to have read the relevant literature, and thereby to urge people to seek knowledge from what others know. The history of

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libraries goes at least back to the *Library of Alexandria* about 285- BC. Only certain epistemological theories have been unable to acknowledge this. See Hjørland (2005, 141-3): "Empiricism's relation to literature and libraries ('read nature not books')." What Goldman should rather do is realize this obvious problem in individualistic epistemologies and certainly not say that his SE constitutes a completely new perspective.

9. Laudan (1984, 5-6) wrote: "The Leibnizian ideal holds that all disputes about matters of fact can be impartially resolved by invoking appropriate rules of evidence. At least since Bacon, most philosophers have believed there to be an algorithm or set of algorithms which would permit any impartial observer to judge the degree to which a certain body of data rendered different explanations of those data true or false, probable or improbable [...] But whether optimists or pessimists, rationalists or empiricist, most logicians and philosophers of science from the 1930s through the 1950s believed, at least in principle, in the Leibnizian ideal." In the same book, Laudan also suggested the following levels in evaluating knowledge claims (here cited from Hoyningen-Huene 1985, 781): "Laudan distinguishes three levels of scientific commitment on which agreement or disagreement occurs: a 'factual level', concerning claims about the world; a 'methodological level', concerning claims about the correct way of doing science; and an 'axiological level', concerning the basic cognitive aims of science (that is, those properties of theories that are constitutive of good theories). Traditionally, the interaction between these levels is seen as follows: disagreement on the factual level can be rationally resolved by recourse to the methodological level, and disagreement on the methodological level by recourse to the axiological level. The second of these steps is possible since methodological rules are instruments for realizing cognitive goals. The obvious difficulty which this hierarchical dependence of levels leaves unresolved is that disagreement on the axiological level cannot be eliminated."
10. Remark that the American school of pragmatism generally falls outside this dichotomy.
11. Bird (2003) discussed three claims about Kuhn's conservatism, including Fuller's. He concluded (132): "While Fuller's treatment of Kuhn and his context is full of erudition, telling parallels, and insightful suggestions, ultimately his case against Kuhn rests on association rather than documentary proof; the evidence is circumstantial rather than concrete. And even if Fuller's account of the true nature of Kuhn's work were correct, that would not obviously impact on our assessment of his philosophy *as* philosophy or his history *as* history."
12. Rowbottom (2011) provided the interesting view that both Popper's critical attitude and Kuhn's conservatism regarding sticking to the prevailing paradigm are healthy for science as a whole. It is fruitful (or necessary) that some scientists are critical while others work to consolidate the paradigm.
13. Criticism of falsificationism is further presented in Shea (n.d.; Section 3): https://iep.utm.edu/pop-sci/#H3
14. Fuller's (2002) book is divided into four parts, of which two are of interest in this connection: part three: "Issues in the Social Organization of Knowledge," and part four: "Issues in Knowledge Policy-Making." Part three consists of four chapters + an appendix, discussing respectively the demarcation of science, disciplinary boundaries, consensus in science, the Forman thesis (i.e., the thesis that physicist adopted quantum indeterminism in response to the cultural milieu of Weimar Germany), and the appendix about policy simulations of objectivity. Part four consists of two chapters + an appendix, discussing respectively normativity on the sociology of knowledge, cognitive authoritarianism with the politicization and depoliticization of expertise and an appendix about the design of a core curriculum for a graduate program in knowledge policy studies.
15. Goodall (2006, 388) wrote: "This study documents a positive correlation between the lifetime citations of a university's president and the position of that university in the global ranking. Better universities are run by better researchers. The results are not driven by outliers. That the top universities in the world – who have the widest choice of candidates – systematically appoint top researchers as their vice-chancellors and presidents seems important to understand."
16. Fuller (2002, 291-2) described a course in "the art of transideological policymaking, where "students are trained to distinguish the essential from the nonessential features of policy, so that the essential policy features can be accommodated to whichever political ideology happens to come into power." Essentialism is today a hot topic in philosophy, and the present author lends to the view that what is considered essential is relative to the theoretical/paradigmatic/ideological context. If this is so, Fuller's view is not just undermined in the concrete, but is also problematic by its lack of epistemological basis (essentialism does not appear as a term in the index to Fuller (2002); that this concept is not properly discussed in the book before being used, seems a serious weakness in the author's argumentation.
17. Shera (1951, 77) wrote: "The early systems of library classification may here be dismissed briefly since, in most instances, they were purely utilitarian and without philosophical foundation." This is also the case with the DDC because Dewey explicitly warned against making

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library classifications 'scientifically accurate,' (which he equaled with being philosophically based, cf. Csiszar 2013, 444 and 445). In the DDC, and in its influence on library science, there has always been a problematic neglect of using updated scientific and scholarly knowledge. Blake (2011, 469-470), for example, provided a clear example of outdated bibliographical classification: "At present, many, perhaps most, current bibliographic classifications for mammals reflect quite outdated science. The latest edition of DDC, for example, arranges mammals essentially the same way as the second edition of 1885 [DDC2]. Revisions since DDC2 have mainly focused on adding detail and giving more guidance to users about where to place certain taxa."

18. Shera rejected essentialism, which is much in line with contemporary thinking. Hull (1965a+b) claimed that essentialism as a philosophy has produced "two thousand years of stasis" in taxonomy; which, however, is a view that is now generally considered a myth (see Richards 2016, 36-38: "The Essentialism Story"). It seems reasonable to accept that essentialism is relative to theory: what is essential in one perspective (theory, paradigm) does not need to be so from other perspectives. Therefore, only an absolutist essentialism should be rejected, not essentialism in relation to a given paradigm or theory.
19. Froehlich (1987, 1989a, 1989b) has argued for SE as the foundation for information science in a way that seems closely related to Shera's original view and that of Hjørland. Froehlich relates his view to an "anti-foundationalist, post-modernist philosophy." It is out of the scope of the present article to discuss the relation between postmodernism and Hjørland's position.

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