

## **Epistemic, Ontic, Axiologic, and Praxic Constructs in Knowledge Organization Research**

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### **Abstract**

#### **Introduction**

The work of knowledge organization requires a particular set of tools. For instance we need standards of content description like Anglo-American Cataloging Rules Edition 2, Resource Description and Access (RDA), Cataloging Cultural Objects, and Describing Archives: A Content Standard. When we intellectualize the process of knowledge organization – that is when we do basic theoretical research in knowledge organization we need another set of tools. For this latter exercise we need *constructs*. Constructs are ideas with many conceptual elements, largely considered subjective. They allow us to be inventive as well as allow us to see a particular point of view in knowledge organization. For example, Patrick Wilson's ideas of exploitative control and descriptive control, or S. R. Ranganathan's fundamental categories are constructs. They allow us to identify functional requirements or operationalizations of functional requirements, or at least come close to them for our systems and schemes. They also allow us to carry out meaningful evaluation.

What is even more interesting, from a research point of view, is that constructs once offered to the community can be contested and reinterpreted and this has an affect on how we view knowledge organization systems and processes. Fundamental categories are again a good example in that some members of the Classification Research Group (CRG) argued against Ranganathan's point of view. The CRG posited more fundamental categories than Ranganathan's five, Personality, Matter, Energy, Space, and Time (Ranganathan, 1967). The CRG needed significantly more fundamental categories for their work.<sup>1</sup> And these are just two voices in this space we can also consider the fundamental categories of Johannes Kaiser (1911), Shera and Egan, Barbara Kyle (Vickery, 1960), and Eric de Grolier (1962). We can also reference contemporary work that continues comparison and analysis of fundamental categories (e.g., Dousa, 2011).

In all these cases we are discussing a construct. The fundamental category is not discovered; it is constructed by a classificationist. This is done because it is useful in engaging in the act of classification. And while we are accustomed to using constructs or debating their merit in one knowledge organization activity or another, we have not analyzed their structure, nor have we created a typology. In an effort to probe the epistemological dimension of knowledge organization, we think it would be a fruitful exercise to do this. This is because we might benefit from clarity around not only our terminology, but the manner in which we talk about our terminology. We are all creative workers examining what is available to us, but doing so through particular lenses (constructs) identifying particular constructs. And by knowing these and being able to refer to these we would consider a core competency for knowledge organization researchers.

In the next section we lay out our preliminary typology of constructs and in so doing identify some attributes of the constructs under investigation. Of course we

cannot, in the space of this paper, describe all constructs used in knowledge organization. However, this is a start to a conversation that we hope improves our understanding of the philosophical commitments we make in the practice of knowledge organization research.

### **Constructs and their Kinds**

It is possible for us separate out constructs along a variety of axes. We can consider their philosophical nature, and ask whether they about things in knowledge organization or about how we know about some aspect of knowledge organization. The former is an *ontic construct* the latter is an *epistemic construct*. A third category of philosophical construct can be identified as well. *Axiologic constructs* are those that focus on worth – both aesthetic and ethical aspects of knowledge organization. One final construct we consider here is the *praxic construct*. These are constructs that deal with particular actions and activities in knowledge organization. In the following section we provide examples and describe further the attributes of these constructs.

#### *Ontic Constructs: What there is in the world of knowledge organization*

As mentioned above, fundamental categories are constructs we use in order to create analytico-synthetic classification (*vide* Ranganathan, 1967). Fundamental categories are *things* we construct in order to do the work at hand. What is interesting about ontic constructs is how researchers agree or disagree with their definitions and boundaries. One such ontic construct is the *subject*, which we have represented as a real-world object that can be faithfully represented in our systems. However the nature of subjects is, in the contemporary literature, often discussed from a pragmatic stance – that of an informed judgment, which has a sometimes-tense relationship to realist ontologies. For example, there is a fundamental disagreement in the literature about the nature of subjects (Kučerová, 2014). By acknowledging these characteristics, we can begin to refine our assumptions and our knowledge of subjects as mobilized in our information systems.

Ontic constructs form the largest set of constructs in knowledge organization literature. We have for the past one-hundred and fifty years or so, made *things* that exist in the universe of knowledge organization. The other constructs, while not immediately recognizable as things are just as valuable, because they make up a different kind of construct. The work of the remaining three constructs is not about what *is* in the universe of knowledge organization, but rather what in the universe of knowledge *has worth*, *allows us to know*, and *what we do*. We will first talk about what in the universe of knowledge organization has worth.

#### *Axiologic Constructs*

With the rising concern about the ethics of knowledge organization systems, we have seen a rise of axiologic constructs. These constructs about the value of knowledge organization systems, both ethical and aesthetic, interrogate the worth of our work in knowledge organization. If we are adding value, how do we assess that value? Classification as rhetorical device, a position advanced by Melanie Feinberg (Feinberg 2011), is one way to look at knowledge organization systems in an aesthetic way. The value presented here is in the classification scheme's ability to persuade me, the user (or perhaps reader) of the scheme of the author's position.

There are also ethical constructs that have surfaced in our contemplation about the potential harm our systems might cause to our users. This line of research is indebted to Sanford Berman (1971) and continues today with contemporary scholarship, with Melissa Adler (2013), Fabio Pino (2010), Melody Fox (2012) following on substantial contributions by Hope Olson (2002) Jonathan Furner (2008), and Clare Beghtol (2002).

Constructs in this space are a bit different than the ontic constructs above. In many cases we have to do some creative naming in order to isolate them from the texts. For example, Guimarães et al., identify ethical values and ethical problems in knowledge organization, while acknowledging a wider concern in ethical issues in contemporary global society (Guimarães et al., 2008). In order to make ethical values and ethical problems into constructs, we might need to compare these lists with others and squarely define what we mean by values and problems. Would Guimarães et al., agree with other thinkers in the field as to whether something is an ethical value or problem for knowledge organization? We would only know this if we had a definition and extension of the construct that can persist through time and across contexts. If there is disagreement among researchers in knowledge organization, then we again see the fruitfulness of constructs – by being explicit about what we are constructing we can come to clarity about the substance of our discussions and, by extension, the way we see knowledge organization systems can be improved.

The bottom line with regard to *axiologic constructs* is that we must be able to articulate value and its corollaries, ethics and aesthetics where appropriate in knowledge organization systems. We can do this by understanding of the ideas present in the practice and reflection of knowledge organization as ideas with conceptual elements – i.e., constructs.

### *Epistemic Constructs*

Ontic and axiologic constructs say what is and what has value in knowledge organization. However, a core concern in knowledge organization is epistemology and epistemological issues. These issues at their most basic ask *how do we know* some aspect of knowledge or knowledge organization. In an applied way, knowledge organization has also crafted epistemology and epistemic concerns, to be the purview of theories of knowledge. That is, it is not only concerned with how we know, but clarifying our assumptions versus our intentions with how we know. Further, investigating and manufacturing epistemic constructs can give rise other constructs, particularly ontic constructs

David Blair is one fundamental thinker in this space when he argues for a particular epistemic stance on language and information retrieval (Blair, 1990; 2005). In the case of Blair, we have the epistemic construct of *language as speech act* where we claim to know the ontic construct (language) in a particular way (as a speech act). This is a refinement of the assumption that we are dealing with the pragmatic view of the universe of language. The relationship between the universe of language and the universe of knowledge is a core concern for knowledge organization, and by making explicit what that relationship is, if they are indeed separate and separable constructs is the business of epistemic constructs we deploy in knowledge organization research.

For example in reference theory, we construct an epistemic construct of the concept triangle with its three parts: symbol, thought, referent (Ogden and Richards,

1923). This is an epistemic construct because it points to how we should know the relationship between language and knowledge.

Named different schools of thought can be seen as epistemic constructs too. So rationalist, empiricist (Hjørland, 2005), analogic (Lee, 2012), indigenous imagining (Duarte and Belarde-Lewis, 2015), are all constructs that allow us views into what ontic constructs are available to us, and informs our axiologic constructs. For example, the concept of harmony might not be important to rationalist or empiricist constructs, but that cannot be said of analogic or indigenous imagining – where what is known is couched in a deep relationship to a ethos of harmonious being in relation to the cosmos. Again we can mention Thomas Dousa because work fits here as well. He is very concerned with rendering clear the meaning behind labels. For example he has probed what it means to say one is taking a pragmatist's stance in relation to knowledge organization (Dousa, 2010).

The final example presented here is the concept of naïve classification and professional classification (Beghtol, 2003). What we know as classification and how we conceptualize its place in the universe of knowledge organization research is an epistemic construct. This is born out by the debate over what was actually under discussion in Beghtol's article (Nicholaisen and Hjørland, 2004; Jacob, 2010). We have a tradition of naming these after the authors, and that seems reasonable to continue if not further encourage.

### *Praxic Constructs*

The final constructs are those that deal with the act and action of knowledge organization. Indexing, classification, domain analysis, cataloguing are all actions and each of them can be defined and described in a variety of ways. This makes them constructs. Further, any subdivision of these acts can be considered constructs, named and therefore recognized as objects of investigation. Jens-Erik Mai has described a three step indexing process (Mai, 2003). He subdivided subject indexing into (1) document analysis, (2) subject description process, (3) subject analysis process (Mai, 2003 p. 595). Each of these is an action and he has offered them as praxic constructs whereby we can probe further (in agreement or disagreement with others) into how indexing occurs.

Interestingly we have thought tagging on social media websites to be similar to indexing (Tennis, 2006; Kip 2014). The assumption here seems to be a bit at the intersection between epistemic and praxic constructs because we are assuming one way of identifying indexing.

### *Next Steps*

If constructs are useful for knowledge organization research to consider we have a number of next steps we can take. The first is to identify the population of constructs that exist in the knowledge organization literature. The next is to figure out which are the same constructs under different names and which are different constructs under the same name. And finally we need to consider which are core to our present concerns in knowledge organization, which are orthogonal or corollary – which are not core, but play important roles at times in our discussions of knowledge organization research, and which are outmoded, perhaps too rooted to extinct technology or outdated functional requirements. An example of core constructs might be facets, ethical values, pragmatism,

and indexing all mentioned above. An orthogonal construct might be indigenous imagining where we are concerned with involving Native American people in designing knowledge organization systems or a separate construct for the action of tagging in the context of Twitter. Outmoded constructs could always come back based on their value or utility, but we do not as a matter of routine talk about *abstract classification* the way S. R. Ranganathan did in the 1960s (Ranganathan, 1967). It is possible that we might talk about abstract classification sometime in the future, but we are no longer actively working on this in this community.

### *Conclusion*

This paper has offered the idea of a family of constructs in knowledge organization research. I have done this in an effort to probe the epistemological dimension to knowledge organization. What we know and how we talk about what we know in knowledge organization is deeply rooted in two camps: philosophy and practice. We have, through the natural course of our work, naively created constructs to help us work with our universe of knowledge organization. Classes, facets, ethical problems, empiricism, the act of cataloguing are all constructs borrowed from philosophy or practice and bound together in a particular way we use language in knowledge organization. They are ours as much as they are anyone else's. However, we must appreciate our particular needs in naming these in our literature. We would argue that we need these to be constructs. We need to deploy these to create, maintain, and evaluate knowledge organization systems. We have a particular use for these ideas that we have seen in the literature of philosophy and the everyday life of practice.

Knowledge organization systems are the results of a deeply philosophical and imminently practical activity of making the world's recorded knowledge available to users. We have approached this problem by creating our systems out of our understanding of knowledge and users, which includes language, technology, context, and values. By probing deeper into constructs as part of the epistemological dimension we move toward a systematic understanding of how we have crafted the relationship between philosophy and practice and how we have created an inventory of our contributions to helping users access the universe of knowledge.

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<sup>1</sup> For example, in the classification of science Brian Vickery proposes: Substance (product), organ, constituent, structure, shape, property, object of action (patient, raw material), action, operation, process, agent, space, and time. See Vickery (1960) p. 23. And see also Austin (1968), Foskett (1974), Mills and Broughton (1977).