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Classifications: On Philosophers and Librarians

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ABSTRACT: Consider the following argument: (Premise 1) If a librarian is a classifier and (Premise 2) a librarian classifies (among the other things) the documents of a library, and (Premise 3) to classify documents is equivalent to classifying the objects of a knowledge base, but (Premise 4) to classify the objects of a knowledge base is equivalent to producing an ontology, or is equivalent to doing some ontological engineering, then (Conclusion) a classifier–i.e. a librarian–is an ontologist. The same train of thought can be followed for those disciplinary experts who support librarians in activities like classification. Thus, librarians and experts are classifiers, and if classifiers are ontologists, librarians and experts are ontologists. Here the problem arises: which specific kind of ontology is in the librarian's mind? Which one in the expert's mind? We argue that the librarians' ontology is completely different from the expert's. Experts' ontology is a thematic ontology, librarians' ontology is generalistic. This conclusion is particularly clear in the philosophical case.

1. Introduction

Librarians, in particular those who work in research libraries, such as those who work in the library of a department of philosophy, are often accompanied by disciplinary experts in activities like collection management and classification. It happens that librarians and experts can have different opinions on how to classify books in order, for example, to determine their arrangement on the library's open shelves. A philosophy library is not, in this respect, an exception. Why? In this introductory work we attempt to give a theoretical answer to this question.

2. Librarians as ontologists

Consider the following argument (A1):

(Premise 1) If a librarian is a classifier, and
(Premise 2) a librarian classifies (among the other things) the documents of a library, and

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(Premise 3) to classify documents is equivalent to classifying the objects of a knowledge base, but
(Premise 4) to classify the objects of a knowledge base is equivalent to producing an ontology, or equivalent to doing some ontological engineering, then

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(Conclusion) A classifier – i.e. a librarian – is an ontologist.

Let us first analyse the argument to try to prove that it is sound. We start from (Premise 1):

(Premise 1) If a librarian is a classifier

(Premise 1) seems to trivially follow from an argument like the following one (A2):

(P1) If a classifier classifies and
(P2) to classify is "to arrange, order/organize/sort out in classes" some specific object, and
(P3) a librarian (among the other things) "arranges, orders/organizes/sorts out documents in classes" the documents of a library

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(C) A librarian is a classifier.

If (A2) is sound, it seems there is not much to say about the truth of (Premise 1). Among other things, in the second argument (A2) we also used a premise of the first one (Premise 2, with substitution of equivalents), that is, we assumed that:

(P3) A librarian (among other things) "arranges orders/organizes/sorts out documents in classes."

Even for this second premise it seems there is not much to say. It is a matter of fact that one of the librarian's activities is to classify, order, organize, etc. In particular it is a librarian's specific activity to arrange, order, and sort out documents in classes.
Let us to concentrate on (Premise 3) and (Premise 4) of (A1):

(Premise 3) to classify documents is equivalent to classifying the objects of a knowledge base, but
(Premise 4) to classify the objects of a knowledge base is equivalent to producing an ontology, or it is the equivalent of doing some ontological engineering.

About (Premise 3): What does it mean that "to classify documents is equivalent to classify objects of a knowledge base?" Consider the following answer. If a knowledge base is a special kind of database for knowledge management giving the means for the computerized collection, organization, and retrieval of knowledge, then a catalogue seems to be a good example of a knowledge base. The objects of a knowledge base are, in the case of a catalogue, the items that concern documents. If the answer to the question formulated above is convincing, even this premise does not seem to present particular difficulties, once one has adopted/accepted the definition of "knowledge base" provided above.

Maybe it is worth staying a bit more on the last premise:

(Premise 4) to classify the objects of a knowledge base is equivalent to producing an ontology.

3. Ontology and knowledge bases

Ontology is, first of all, the part of philosophy designed to answer questions like:

(1) What is it? What exists?

A trivial response to (1) is:

(2) Everything

and by (2) you want to say: everything exists. Certainly, this is an acceptable answer; however, to respond to (1) and (2), even from a philosophical point of view, seems inappropriate to many, although obviously correct. What we want is to characterize this "everything." We want a list of ontological categories that do not exclude anything that is there. This is a sense in which you can produce an ontology.

Even in the context of the computer and information science, the term "ontology" is often used. In these fields of study it refers to (d):

1. an informal conceptual system
2. a formal semantic description
3. the specification of a "conceptualization"
4. the representation of a conceptual system via/by means of a logical theory:
   4a. characterized by a number of formal properties, or
   4b. characterized by a number of specific purposes

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5. the vocabulary used by a logical theory
6. the specification for/at a meta-level of a logical theory (the different meanings have been taken from Guarino and Giaretta 1995).

In the literature of computer and information science, ontologies—whatever the meaning assigned to them—are usually classified according to two dimensions: their level of detail and their level of dependence on a particular task (Uschold and Grüninger 1996). We can distinguish between top-level ontologies—less detailed and independent of a particular task— and domain ontologies—more detailed and specific, relating to a particular task. The first ones are descriptions of the most general concepts such as, for example, entity, material entity, space, time, matter, etc. The second ones deal with a more specific domain like medicine or engineering. An example of a top-level ontology is DOLCE (the Descriptive Ontology for Linguistic and Cognitive Engineering). DOLCE, for example, is a top-level or a foundational ontology of particulars with a clear cognitive bias. Its aim is to capture the ontological categories underlying natural language and human common sense, and the categories introduced in DOLCE are therefore thought of by its developers as "cognitive artefacts ultimately depending on human perception, cultural imprints and social conventions" (Masolo et al. 2003, 17). The categories in DOLCE are based on an analysis of the surface structure of language and cognition. Finally, it has generally become the thesis that the ontologies for computer and information science are special types of knowledge bases. Those who follow this characterization of "ontology" often mean a specification of a conceptualization (Gruber 1993). Even conceiving the ontology as a specification of a conceptualization, we can think of a conceptualization either as a top-level ontology or as a domain ontology.

If we accept the thesis that ontologies for computer and information science are special kinds of knowledge bases, then (A1) seems to be sound and our conclusion

(Conclusion) A classifier — a librarian — is an ontologist

is true.

4. Experts as ontologists

Now, it seems that a similar train of thought can also be followed for experts, because if:

(P1) An expert is someone who classifies.

(Conclusion) Given the conclusion of (A1), an expert is a classifier, then an expert is an ontologist.

Experts and librarians, in their work of classifying, are both ontologists. Why do their classifications differ? Why do they disagree? Answer: Because they refer to different ontologies. Better, because they understand in different ways the meaning of "producing an ontology." Let us see how in detail.

5. Two senses of "producing an ontology"

We have said that, philosophically speaking, to produce an ontology is to give an articulated answer to the question of "what exists?" or to characterize this "everything." We want a list of ontological categories that do not exclude anything that is there. This is a first sense in which one can produce an ontology. Let us say that generalist ontologists are those who produce ontologies in this way. It does not seem to be different, at least prima facie, from that definition used in computer and information science.

Now, however, if we look deeper into this way of producing ontologies, we notice that it may be specified in at least two ways. The first one is to produce a system of ontological categories that, in the simplest way, is hierarchically organized like a tree, for example in a Pyrrhonian style. See, for example, the one proposed by Chisholm (1996, 3) in Figure1.
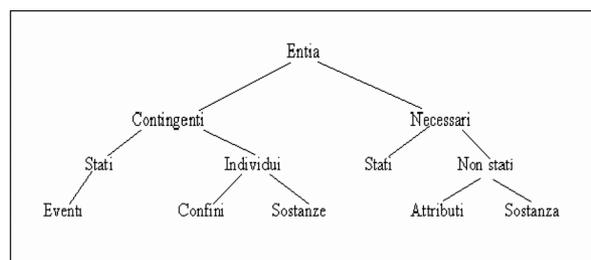

Figure 1.

Let us say that generalist ontologists are those who produce ontologies in this way. An alternative way to produce ontologies is to try to establish what there really is proceeding "on a one-by-one basis to argue for or against allowing certain kinds of things, be they numbers, universals, acts of consciousness, or fictional objects into our ontology" (Thomasson 1999, 115). This way of producing ontologies is very popular among philosophers. As the history of phi-

losophy has taught us, the more usual ontological disputes were, and still are, about whether certain categories are or are not exemplified. For example, philosophers ask:

Are there facts?/Do facts exist?

And even before they asked, and they still continue to ask:

Are there universals?/Do universals exist?

Take, for example, the case of facts. Some claim to possess good arguments to eliminate such entities from the inventory of the world or to reduce them to other entities, considered—for reasons of parsimony or theoretical simplicity—more ontologically basic, such as, for example, individuals, properties and relations; others dispute the same sense of the concept of fact.

Whoever is interested in ontology from this perspective does not want to produce a complete system, but to produce parts which are essential, or at least interesting from a philosophical point of view, or to analyze a particular kind of entity—numbers for example—looking for arguments pro and con the admission of that particular kind of entity in the inventory of the world. It can be said that this way of performing ontology proceeds from themes, and the ontologist who adopts it can be called a thematicist. The thematicist usually has a thrifty attitude toward the types of entities to be accepted.

These two different ways of producing ontologies—the generalist and the thematicist—seem at work also in the case of librarians and experts. Librarians are usually more interested in the first way to produce an ontology; they have a more systemic vision. Experts, for their own role, intend the production of an ontology formulated in the second way above. This brings us to think of the first ones in the catalogue of a library as a top-level ontology, while the second ones are (mostly) a domain ontology.

6. A conclusion

Librarians and experts are classifiers, and if classifiers are ontologists, librarians and experts are ontologists. Here the problem arises: which specific kind of ontology is in the classifier's mind? Which one is in the expert's mind? We have argued that the classifier's ontology is completely different from the expert's. The expert's ontology is a thematic ontology; the classifier's is a generalistic ontology. This conclusion seems to be particularly clear in the philosophical case.

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