DEFINING 'ONTOLOGICAL CATEGORY'

by Jan Westerhoff

I

Introduction. Although a considerable degree of precision has been introduced both into the formulation and the discussion of ontological theories by the use of formal methods[1] there is still a remarkable indefiniteness about foundational issues. In particular it is not clear *what* an ontological category is and *why* we regard something as an ontological category. This is amazing given that the notion of ontological category is in fact the most basic of the whole of ontology: it is what this discipline is about.

There are two accounts which present the most promising attempts at tackling this problem. One, based on the notion of generality is due to Bryan Norton (1976), the other relying on intersubstitutability *salva significatione* was first presented by Gilbert Ryle (1938) and later developed by Fred Sommers in a number of papers (1963, 1959).

II

Generality. An intuitively attractive account of ontological categories tries to utilize the concept of generality. It is relatively uncontroversial to assume that the concepts ontology deals with (i.e. the ontological categories) are distinguished from those of other sciences by their greater generality. Ontology considers such notions as 'physical object', 'event' or 'property' but nothing as specific as 'pencil', 'explosion' or 'solubility'.

Norton therefore attempts to define the ontological categories as *the most general kinds of entities.* The problem then of course consists in giving a satisfactory account of generality. Norton's own account is this:

> A class **S** is more general than a class **T** iff the fact that there are objects in **T** implies that there are objects in **S**.[2]

1. See for example Meixner 1997, Fine 1991 and Zalta 1983.
2. Norton 1976: 106.

But this is obviously inadequate. Clearly, if there are bikes, there are wheels and if there are parties then there are guests. But this doesn't mean that the class of wheels is any more general than the class of bikes or that the class of guests is any more general than the class of parties.

So we need a better account of generality in order to see whether Norton's definition works. Here it is: we will say that a class **S** is more general than the class **T** iff **T** is contained in **S** and **T** ontologically depends on **S**. (By the latter we mean that necessarily, if **S** is empty, so is **T**.)

On this account it is evident why the class of mammals is more general than the class of cows. We can also see that the class of wheels is not more general than the class of bikes (since the former does not contain the latter) as well as why e.g. the class of material objects and the number 10 is not more general than the class of material objects (even though all members of the latter are members of the former) since the latter could exist even if the former did not exist (e.g. if there were no numbers).

Given that this seems to be a satisfactory account of generality, does this solve our problem of defining ontological categories? The short answer is no. This is due to the fact that some ontological categories can be more general than others.[3] Abstract objects are more general than mathematical structures, the category of temporally located objects is more general than that of events. Thus we obviously cannot define the ontological categories as the generality-maximal classes, since that would be too narrow. On the other hand we do not know how far we may go down the partial ordering by generality before the categories stop being ontological categories (we will call this the *cut-off point problem*). Therefore, attempts to define ontological categories in terms of generality must fail.

III

Intersubstitutability. This is the most detailed and systematic account which claims to give 'a formal theory of ontological categories and ontological features', where ontology is taken as 'the science of categories'.[4] Ryle's informal account of categories rests

3. See Lowe 2001: 179, Hoffman and Rosenkrantz 1997: 47.

4. Sommers 1963: 351.

on the idea that certain substitutions in a sentence just affect its truth-value (i.e. turn it from a true sentence into a false sentence or vice versa) while others affect its meaningfulness: they turn it from a meaningful sentence into an absurd one.

Sommers develops this idea by equating ontological categories with so-called α-types.[5] Two objects are supposed to be of the same α-type iff there is a predicate which can be truly or falsely predicated of both, i.e. the predicate-name combination is not nonsensical. An α-type or ontological category is then said to be *spanned* by the predicates truly or falsely applicable to its members. This is the same as saying that an ontological category is defined by an absolute predicate (if Px is an ordinary predicate, the corresponding absolute predicate $|Px|$ is the predicate which picks out all those objects of which it can be either truly or falsely asserted that they are P). Of course several absolute predicates will pick out the same category, as in the case of $|sad|$, $|alert|$ or $|angry|$. The ontologist is only interested in kinds of things, which are picked out by the absolute predicate, and not in their specific characteristics. In this sense, for him $|red|$ means the same as $|green|$.

Ryle's informal account of categories has been criticized by J. J. C. Smart in a short paper (1954). In essence the criticism also applies to Sommers, since he employs the same fundamental idea as Ryle. The central problem is that we get unintuitive categories. Take the predicate 'has a green back door'. The absolute predicate derived from it should determine an α-type of objects and thus an ontological category. But it seems as if the only expressions of which one could meaningfully affirm or deny that they have a green back door are buildings of some sort or another. But we will hardly want to say that 'building' is an ontological category. It is certainly some sort of category, but far too specific for qualifying as an *ontological* category.[6] Sommers's notion of meaningful and nonsensical expressions manages to pick out sortal categories of some kind, but not ontological categories.

IV

A Satisfactory Account. The failure of the above two attempts shows us that what we need is an account which is able to solve

5. Sommers 1963: 351.

6. See Hoffman and Rosenkrantz 1997: 46–47.

the cut-off point problem and which picks out a set of categories which turns out to be a proper subset of the Ryle-Sommers categories (thus leaving away all those categories which are too specific, like 'building' etc.).

The idea will be the following: We start from the collection of classes of objects ordered by generality. Now take some language L. We will define the set of ontological categories relative to L as the lowest classes in the ordering (together with all the classes above them) which *have to exist in order for the sentences of L to be meaningful.*

This definition depends on the difference between truth-makers of a sentence (which have to be there for the sentence to be *true*) and significance-makers (which have to be there for the sentence to be *significant* or meaningful). Significance-makers have a close connection with what Wittgenstein in the *Tractatus* calls the *form of an object.*[7] He argues that the form of an object is what makes it possible for it to combine with others to form complexes. Different objects have so to speak different 'logical shapes' which allow them to fit into other objects. We will want to say that what makes a sentence significant is the fact that the parts of its referent (i.e. the state of affairs it denotes) have the right logical shape, that they can fit together to form this and other states of affairs.

In general we will want to say that if **p** is a significant sentence, its significance-makers are the most general classes **S**, **T**, ... such that:

(1) The parts of the referent of **p** (if there are any such referents) belong to **S**, **T**, ...;
(2) If the **S**, **T**, ... were empty, **p** would not be significant; and
(3) Each selection **s** from **S**, **t** from **T**, ... 'fits together'.

The significance-makers of the sentences of a language then denote the cut-off point for the ontological categories relative to the language.

An example might make this clearer. Consider the sentence 'The knife is on the table'. We want to argue that its significance-makers are the classes of medium-sized material objects and

7. Wittgenstein 1921: 2–2.063.

dyadic spatial relations.[8] Clearly, 'knife' and 'being on top of' belong to these classes, so (1) is satisfied. Also, if we take any two medium-sized material objects and any dyadic spatial relation, we can put them together to form a state of affairs. So (3) is OK as well. And finally, if there were no medium-sized material objects and no dyadic spatial relations, the sentence would not be significant. In a world in which these classes didn't exist, the sentence wouldn't be something which could be either true or false. So condition (2) is satisfied as well.

Or consider the sentence 'The hopzik is on the table'. Clearly you cannot know whether the sentence is true unless you know what 'hopzik' refers to (that is, unless you know all constituents of the sentence's truth-maker). But you will also not be able to know whether it is significant unless you know what kind of thing hopzik was, *if* it existed. You require to know whether 'hopzik' referred to a kind of thing that could be on a table (that is, a medium-size physical object) and not another kind of thing (e.g. a material object which was too big or an object which was of a kind which could not form a complex with a table and the 'on top of' relation (for example an abstract object)).

Alternatively we could put the matter like this. We assume that there are different spheres of discourse (e.g. one for mathematics, one for physics, one for everyday language, one for psychology, one for economics and so forth). We will equate them with different, not necessarily exclusive languages $L_1 \ldots L_n$. Now take any such L_i and formalize it in a typed logic. The ontological categories of any ontology dealing with the subject-matter L_i talks about are the types occurring in the formalization together with all the classes which are more general than these.[9]

8. Note that we could not have selected *less* general classes (such as 'artifact' instead of 'medium-sized material object') since being an artifact doesn't make any difference to an object's being able to fit into the 'on top of relation' (a natural object would do just as well). Similarly, *more* general classes (such as 'individual' and 'first-order dyadic relation') wouldn't work (otherwise something like 'the number 4 is on the number 5' would come out as significant, while *these* individuals and *this* relation definitely do not fit together).

9. A couple of caveats should be added at this point. The most important is that the types used in formalizing the languages will presumably have to be able to contain one another, in opposition to the picture presented e.g. in Russell's simple theory of types. Thus the principle of homogeneity would have to be dropped. I think there are convincing reasons for an inclusive rather than exclusive theory of types. Unfortunately considerations of space forbid me to develop this point here any further.

Note that the ontological categories are not *just* the types of the formalization of L_i. The kinds of things a particular language about some subject-matter requires need not be all the *ontological categories* the ontological theory of the same subject-matter needs. Take an example. Suppose L_i is some language talking about certain kinds of actions (say, a part of economics) and that the only types the formalization of L_i needs are the type of agents and the type of events. This does not mean that the ontological theory of actions needs to involve only agents and events as categories. It will also have to talk about those more general than them (on which they depend, given the above account of generality). In this case this would e.g. be the category of moments of time (for if there were no moments of time there would not be any events).

This way of defining ontological categories has a couple of advantages. By using a language (encoding a particular sphere of discourse) to determine the cut-off point the set of ontological categories remains flexible. We would not want a definition of ontological category to result in a fixed list which determines what the ontological categories are. We would want it to tell us *why* we regard ontological categories as ontological categories i.e. by which criteria we pick them out. But then there will still be the problem whether this or that class fulfils the criterion. This, however, is a problem of ontology and not a problem of the metaontological account we are sketching here.

Furthermore the above account explains the diversity of the set of things which have been regarded as ontological categories during the history of ontology and which include items which have as little in common as events, numbers, facts, space-time points, material objects, properties or propositions. Our account is not implying that only a certain part of them are proper ontological categories while the others somehow do not qualify. It is able to account for this diversity by being able to relate it to the diversity of different languages, of different spheres of discourse the analysis of which gave rise to them. Numbers, sets and functions are natural categories of an ontology of mathematics, space-time points and material objects will occur in that of physics, events, individuals and properties in that of everyday talk and propositions in an ontology of language in general.

This account of ontological categories also opens up a number of interesting perspectives for further study. Probably the most

interesting of them is the relation of these 'regional' ontologies to naturalistic ontologies *à la* Quine. We do not have the space here to go into this in more detail, but it seems as if there needn't be a conflict between the two, depending on the view we have on the construction of ontological categories. For example, suppose we can construct all or most of the 'regional' categories in terms of four-dimensional space-time points, material particles and sets. This will then make this ontological theory rather attractive, given that it entails a great simplification in the system of ontological categories. This, however, wouldn't mean that the categories constructed in terms of them somehow weren't there. A naturalistic ontological theory would rather be the simplest way of systematizing the structure of ontological categories present in different spheres of discourse.[10]

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