CDD: 160

MULTIPLYING ENTITIES:
RESPONSE TO DIRK GREIMANN

OSWALDO CHATEAUBRIAND

Department of Philosophy
Pontifical Catholic University of Rio de Janeiro
Rua Marquês de São Vicente, 225, Gávea
22453-900 RIO DE JANEIRO, RJ
BRAZIL

oswaldo@puc-rio.br

Abstract: In my response to Dirk Greimann I maintain that whereas one can recognize some specific appeals to "parsimony" or "simplicity" in the sciences and in philosophy as correct and legitimate, there is no precise adequate formulation of Ockham's razor as a general methodological principle, and argue that the formulations he examines in his paper exemplify this imprecision.

Key-words: Ockham's razor. Simplicity. Reduction. Explanation.

MULTIPLICANDO ENTES:
RÉPLICA À DIRK GREIMANN

Resumo: Em minha réplica à Dirk Greimann mantenho que mesmo sendo possível reconhecer certos apelos à "parcimônia" e à "simplicidade" nas ciências e na filosofia como corretos e legítimos, não há uma formulação precisa e adequada da navalha de Occam como princípio metodológico geral, e argumento que as formulações examinadas em seu artigo exemplificam esta imprecisão.

Palavras chave: Navalha de Occam. Simplicidade. Redução. Explicação.

When I wrote the chapter on Ockham's razor I did not have a specific argument in mind but only a general "complaint" about the uses of Ockham's razor by some philosophers in the analytic tradition, and I directed my criticisms primarily to the works of Quine and Goodman. I find their appeals to Ockham's razor a manifestation of an almost cathartic reaction to abstractness, and I quite agree with Grice's (1986, p. 50) characterization of their views as part of "the American School of Latter-day Nominalists ... inspired by an unflinching (or *almost* unflinching) opposition to abstract entities".[1]

As I reflect upon Ockham's razor again, I think the main problem is that whereas one can recognize specific appeals to "parsimony" or "simplicity" in the sciences and in philosophy as correct and legitimate, there is no adequate formulation of Ockham's razor as a general principle. Since part of Dirk's purpose is to present several general principles I will make some comments about his formulations.

1. THE PRINCIPLES

Dirk lists the following four principles as variant formulations of Ockham's razor:

(1) Principle of *ontological caution*: Wherever possible, keep your theory neutral with regard to ontological questions. In particular, do not assume entities whose existence is questionable.

(2) Principle of *ontological simplicity*: Keep your ontology simple. Do not make your ontology unnecessarily complex. In particular, do not accept a redundant ontology.

---

[1] This "School" has grown considerably in recent decades, although now it goes under the heading of 'naturalism' as well.

(3) Principle of *ontological conservatism*: If you are committed to introduce some kind of *entia non grata* into your overall theory of the world, then do not introduce more entities of this kind than necessary. In particular, do not introduce *entia non grata* that are superfluous.

(4) Principle of *rational multiplication*: Do not multiply entities without having a good (sufficient) reason for doing so.

Dirk's principal aim is to defend principle (2), and I will discuss his arguments in the next section, but first I would like to make two general comments.

To begin with, it is interesting to note that strict adherence to principle (1) would seriously affect scientific practice. Much progress in science was the result of postulating entities whose existence was questionable: molecules, atoms, photons, cells, genes, planets, galaxies, black holes, infinitesimals, imaginary numbers, infinite cardinals, and so on. In fact, it is hard to think of any theoretical innovations in science (for better or worse) not involving the introduction of questionable entities. Similar considerations apply to principles (4) and (2), for scientists often disagree as to whether there is sufficient evidence to introduce new kinds of entities, and whether their introduction is redundant and leads to unnecessary complexity.

Principle (3), on the other hand, is particularly noticeable in the work of philosophers, who, on the basis of fundamental intuitions, theoretical considerations, or a specific philosophical outlook, declare certain entities to be *non grata*. These often include abstract entities, mental entities, non-extensional entities, etc. The main appeals to Ockham's razor I discussed in Chapter 23 are based on principle (3).

But let me turn now to Dirk's formulation and defense of Principle (2).

2. THE PRINCIPLE OF ONTOLOGICAL SIMPLICITY

One of the main problems I raised about this principle is the problem of characterizing which entities are necessary and which unnecessary. In defense of (2) as his main interpretation of Ockham's razor, Dirk argues that "[t]he key idea of the razor is to avoid redundancy," and suggests the following characterization of "unnecessary entities":

(5) The introduction of the Fs into a theory T is unnecessary (in the sense of "superfluous" or "redundant") if the Fs are reducible in T, that is, if in T the Fs can be substituted by other entities that can equally well play the role that the Fs are designed to play in T.

As a heuristic characterization of the notion of reduction of entities of a certain kind to entities of another kind, I might agree with this formulation, although it leaves quite open the crucial notion of what is it to play a role "equally well". Dirk uses Frege's reduction of numbers to extensions, and Carnap's reduction of impure numbers to pure numbers and predicates containing a unit of measurement, as his main illustrations to motivate (5), but these are very special examples. Besides, the problem of whether the introduction of some kind of entities is necessary or not is generally a problem of explanatory power, usefulness, etc., not a problem of some other entities playing a role equally well.

How would this notion of reduction apply to attempts to reduce mental entities to physical entities, for instance? What is it for a physical entity to play "equally well" the role of a pain, or a thought, or a craving for chocolate? It is not at all clear to me that an adequate explanatory reduction of the mental to the physical—even if possible—would bear any relation to the mathematical reductions used as illustration.

According to Quine they do, and there is no problem at all in specifying the physical entity that plays the role of a mental entity, for "the bodily state is specifiable as the state of accompanying a mind that is in that mental state" (Quine 1981, p. 19). Thus, if I pinch myself now and have a pain for the next 30 seconds, that spatio-temporal bodily segment of myself can equally well play the role of my pain. If during those 30 seconds I am also thinking about the words I am writing, and craving for a piece of chocolate, the spatio-temporal bodily segment also plays the role of my thought and of my craving. Therefore, that particular pain, that particular thought, and that particular craving are one and the same entity.[2]

After formulating (5), Dirk suggests a very broad interpretation for the notion of 'role' (p. 87):

> This role may be to enhance the expressive power of T in some way or another, or to enhance the elegance or the beauty or the simplicity of T, or to make T more natural, *etc.*

> Given the explication of necessity and reducibility in (5), the razor should be acceptable also for those ontologists who, like Oswaldo, have a strong taste for opulent landscapes. For, it allows us to posit whatever we want and for whatever end we want; the only restriction is that we do not posit more than necessary to realize our ends.

But now the gates are open to let in almost anything. If my ends involve an emotional need for populating the world with witches and wizards, angels and devils, and so on, I may do so as long as I don't posit more of them than necessary to realize my ends.

---

[2] Quine argues we can still distinguish that type of pain from that type of thought and that type of craving, because not every 30 seconds pinching pain is accompanied by a 30 seconds writing thought and a 30 seconds craving for chocolate. But if the mental states are the bodily states, how are the types of mental states characterized?

I think what may be involved in these remarks of Dirk's is a misinterpretation of some of my objections to Quine, which a little earlier in the paper he recapitulates as follows (p. 84-85):

> On Quine's standard, entities are unnecessary if they are reducible to other entities. To this solution Oswaldo objects that the mere reducibility of entities cannot be an adequate criterion for deciding which entities are necessary and which are not. We may, for instance, reduce music to scores, but, by doing this we will lose certain aspects of music that are very important, as for instance the content of music (cf. p. 375). It thus happens that we have good reasons to recognize entities even though they are in principle reducible. Moreover, we must take into account, as Oswaldo stresses, that there are many different types of reasons for accepting a given sort of entities, for instance aesthetic, practical, theoretical and emotional reasons (cf. pp. 376, 379). Ontological commitment is only one reason out of many. And what may seem to be an unnecessary multiplication of entities from a theoretical point of view may turn out to be a necessary multiplication from a practical or an aesthetic point of view. In order to decide which entities are necessary and which are not, we must hence do justice to the fact that the necessity in question depends on many different needs and reasons.

When I argued facetiously that music could be reduced to scores, respecting Goodman's nominalistic standards, I was not suggesting we might keep music around for aesthetic or emotional reasons even though it is ontologically reducible to scores; I was arguing that this very notion of ontological reduction is ridiculous.[3] What I was attacking was precisely a notion of "playing the same role as" interpreted as the simple-minded correlations by means of proxy-functions to which Quine appeals. It is well known, for example, that sign language is a language that can play the role of

---

[3] And, as I argue in Chapter 10 (pp. 361-362), Quine himself reduces it to absurdity when he suggests (1981, pp. 17-18) that physical objects can be ontologically reduced to pure sets.

speech, but it does not follow from this that we can ontologically reduce speech to sign language.

My view is that there is no satisfactory formulation of Ockham's razor as a reasonably precise methodological principle, and that the formulations suggested by Dirk exemplify this imprecision.

REFERENCES

GRANDY, R. E., WARNER, R. (eds.). *Philosophical Grounds of Rationality*. Oxford: Oxford University Press, 1986.

GRICE, H. P. "Reply to Richards". In: R. E. Grandy and R. Warner (eds.) (1986), pp. 45-106.

QUINE, W. V. *Theories and Things*. Cambridge, Mass.: Harvard University Press, 1981.