

Introduction

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One might raise the question whether the science of being qua being is to be regarded as universal or not. Each of the mathematical sciences deals with some one determinate class of things, but universal mathematics applies alike to all. Now if natural substances are the first of existing things, natural science must be the first of sciences; but if there is another entity and substance, separable and unmovable, the science of it must be different and prior to natural science, and universal because it is prior.

(Aristotle, *Metaphysics* 1064b6–13)

The expression ‘Aristotelian metaphysics’ suggests a commitment to the view that there is a study that is different and prior to natural science. Metaphysics is ‘first philosophy’, the core and beginning of any and all philosophical and rational inquiry into the world. The task of metaphysics is not to serve science or to clear conceptual muddles, but to study being and the fundamental structure of reality at the most general level. This view competes with recent deflationary conception about the methods and aims of metaphysics. One approach that has a strong foothold in this field could be called ‘Quinean’. According to a Quinean, ‘naturalized’ conception, metaphysics is continuous with science in its methods and aims. Questions about the nature of reality are to be answered by application of ‘regimented theory’. Philosophers such as the contributors to this volume, who in various respects may be described as ‘neo-Aristotelian’, continue to regard metaphysics as an inquiry distinct from natural science. They deploy what they regard as distinctly philosophical, often a priori, methods to discuss metaphysical concepts like essence, substance, dependence, potential, ground, and other categories of being and relations among beings described by language that is not purely extensional. We may also contrast Aristotelian metaphysics with Kantian metaphysics: categories are central to both, but in Aristotelian metaphysics they are categories of being whereas in Kantian metaphysics they are categories of understanding.

There has recently arisen a discussion of 'metametaphysics', a discussion of the methods and foundations of metaphysical inquiry. The best example is the anthology edited by Chalmers, Manley, and Wasserman (2009), but James Ladyman and Don Ross (2007) as well as Timothy Williamson (2007) have also made influential contributions to the topic. One important theme in this recent literature, highlighted especially in Ladyman and Ross (2007), is the relationship between science and metaphysics. There is a growing concern that metaphysics fails to take into account recent developments in science or does so in a misguided manner. Understandably, this is something that philosophers sympathetic to the Quinean conception of metaphysics will find alarming. I think that Aristotelian metaphysicians should also be concerned, but the underlying assumption that is sometimes found in this approach is equally troubling, namely, that metaphysics needs to be naturalized, and that metaphysical inquiry is secondary to empirical inquiry. One effect of some contributions to this volume is to question that assumption and to suggest an alternative methodology inspired by Aristotle. Only some of the contributions deal with methodological matters explicitly, but the volume as a whole exemplifies the work of philosophers whose approach to metaphysics is broadly Aristotelian.

The chapters have been organized in a loosely thematic manner, beginning with a general methodological discussion preceding more specific topics. Chapters I to 3 serve to contrast how the methodological approach endorsed by many contributors to this volume differs from a Quinean or deflationary understanding of metaphysics. Topics that are relevant here include the theory of quantification, ontological commitment, and the relationship between metaphysics and science. Chapter 4 examines some applications emerging from the theories of quantification and identity, after which follow five chapters dealing with questions deriving from the important topic of ontological categories. These are discussed both in general and in terms of specific accounts of categories. Chapters 10 and 11 discuss the notions of potential and life, both of which were extremely important for Aristotle, and the remaining three chapters concern essence, powers, and substance, respectively. In what follows, I provide a brief summary of each chapter.

Kit Fine's chapter 'What is metaphysics?' attempts to characterize the discipline of metaphysics. He suggests that five key elements distinguish traditional metaphysics from other disciplines: the apriority of its methods; the generality of its subject-matter; the transparency or 'non-opacity' of its concepts; its eidicity or concern with the nature of things; and its

role as a foundation for how things are. Fine examines each of these elements and their role in metaphysics as well as how they come together in metaphysical inquiry.

The present writer's 'In defence of Aristotelian metaphysics' is also concerned with the methodology of metaphysics and specifically with how 'Aristotelian metaphysics' differs from 'Quinean metaphysics'. I discuss two challenges to Aristotelian metaphysics: one which suggests that its methods are esoteric and inaccessible, and one which calls for naturalized metaphysics. The first is due to Thomas Hofweber and concerns especially the interpretation of the existential quantifier; the second is familiar from the work of James Ladyman and Don Ross. I argue that both of these challenges can be met. This can be done by giving up the Quinean understanding of ontological commitment and by explicating the relationship between science and metaphysics. Finally, a methodological account which addresses the two challenges is sketched.

Tim Crane continues the topic of existence and quantification in his chapter 'Existence and quantification reconsidered'. Crane is dissatisfied with the usual way of understanding the connection between the notion of existence, the natural language quantifiers, and the logical formalization of these things. He contrasts two approaches to formalization, a 'descriptive' and a 'revisionary' approach. The first takes formalization to be concerned with the actual workings of natural language, whereas the second is the approach familiar from Quine; it is not concerned with the actual semantics of the way we speak, but rather with creating a precise language for scientific purposes. Crane is interested in the descriptive approach and specifically the problems that emerge with regard to the representation of the non-existent: how do we make sense of claims and thoughts about things which do not exist? The solution, Crane suggests, requires us to change our conception of a domain of quantification: it should be thought of as a universe of discourse considered as a collection of objects of thought. However, he argues that this gives us no reason to change the standard way of understanding the semantics of quantifiers.

Eric T. Olson's 'Identity, quantification, and number' deals with quantification from a slightly different point of view. Olson considers a group of principles, which he calls the quantification principle, the identity principles and the uncountability thesis. The first can be expressed as follows: 'Something is *F* if and only if at least one thing is *F*.' The identity principles state that for this and that to be identical is for them to be one, and that for them to be distinct or non-identical is for them to be two. Finally, according to the uncountability thesis there are things that we

cannot even begin to count – things to which the concept of number does not apply. Olson explains that the uncountability thesis is not compatible with the other principles and defends the others against the objections of those who advocate the uncountability thesis. He considers a number of examples, such as ‘gunk’, and through them attempts to clarify what it would mean if the uncountability thesis were true or false.

Gary Rosenkrantz opens a series of chapters on the important topic of categories with his ‘Ontological categories’. As Rosenkrantz points out, an ‘ontological category’ is a much narrower notion than ‘category’ in general. The first refers to categories of being as identified by Aristotle. Typical examples include *substance, event, time, place, absence, boundary, property, relation, proposition, set*, and *number*. Rather than discussing any of the numerous taxonomies that have been suggested in the literature or focusing on the details of any specific category, Rosenkrantz pursues the logically necessary conditions that a predicate must adhere to if it is properly to express an ontological category. He identifies ten such necessary conditions that together offer an illuminating analysis of an ontological category in terms of logical, modal, semantic, and epistemic notions.

Alexander Bird’s chapter ‘Are any kinds ontologically fundamental?’ examines the ontological basis of kinds and categories, and specifically whether the category of kinds is a fundamental category of being. Bird examines E. J. Lowe’s four-category ontology in this regard. For Lowe, the category of kinds is one of the four fundamental categories, but Bird argues that, in addition to particulars, all we need is universals: kinds are not ontologically fundamental. Bird’s case is based on an analysis of the laws of nature in Lowe’s ontology, which may appear to require the existence of kinds. Lowe claims an advantage over David Armstrong’s account of the laws of nature, but Bird is not convinced: Lowe’s account of laws does not avoid the problems that Armstrong’s account faces and hence does not constitute a reason to adopt the category of natural kinds. Bird concludes that although Lowe’s four-category ontology is appealing, it can do without the category of natural kinds.

John Heil is also interested in the fundamentality of ontological categories. In his ‘Are four categories two too many?’ Heil investigates Lowe’s four-category ontology, according to which there are four fundamental ontological categories, and suggests that there may be a reading of Lowe’s work according to which two of those four categories can be abandoned. Heil is especially suspicious of universals, but less so about modes (or tropes) and substances. He considers a number of ways to understand what universals are, but is ultimately dissatisfied. However, Heil finds

reasons to think that Lowe's account bears some similarity to that of D. C. Williams, who is best known as a proponent of one-category trope ontology. According to Heil, this is not quite correct, for Williams does have an account of universals comparable to John Locke's. If Heil is correct in his suggestion that Lowe's account of universals can be regarded as a Williams-type trope-kind theory, the upshot is that universals and kinds would not constitute fundamental ontological categories, and we would be back to two-category ontology.

Peter Simons moves in the other direction with his 'Four categories – and more', arguing that the four categories familiar from Lowe's work may not be enough. Simons begins with a brief historical study of disputes concerning categories and clarifies that he is interested in *ontic* categories in Aristotle's sense rather than Kantian categories. A detailed study of the grounds for making categorial distinctions follows. We learn that from the Aristotelian point of view there are eighty-one categories of object emerging from Kant's scheme, and that Kant's twelve categories do not concern kinds of object but the factors that are used to differentiate categories. Simons goes on to examine what kind of 'factor families' may be legitimately used to make categorial distinctions and concludes with some methodological remarks about the study of ontology.

Joshua Hoffman's chapter 'Neo-Aristotelianism and substance' wraps up the discussion of ontological categories. As the title suggests, Hoffman's primary interest is the category of substance, and he provides a systematic case study of this particular category of being. Hoffman begins with an analysis of Aristotle's two accounts of individual substance and goes on to list three necessary conditions for a neo-Aristotelian theory of substance. Next, he examines three contemporary accounts of substance that could be called neo-Aristotelian; these are familiar from the work of Roderick Chisholm, Lowe, and Hoffman and Rosenkrantz. The upshot is that all three of these accounts satisfy the three necessary conditions for a neo-Aristotelian theory of substance, even though each account differs with regard to certain inessential conditions.

Louis M. Guenin's 'Developmental potential' harkens to Aristotle as it tackles the elucidation of an organism's potential to develop into an individual of its kind. Guenin introduces developmental potential as a probabilistic disposition consisting in a *capacity to develop a capacity*. Construing 'dispositional' as a type of predicate for purposes of the construction, he shows how one may individuate an organism's situation-dependent potentials and then construct a probabilistic model of manifestation of all the potentials. By reference to a probability distribution,

the set of such potentials may be said to be bounded. The analysis defends this account against a Quinean attack on *de re* modality and referential opacity of the dispositional idiom. The account is presented as countenanceable not only within ontological views that recognize potentials, but also within views that regard references to potentials as grammatical devices for describing regularities in events. The analysis ends by posing the question whether developmental potential is irreducibly probabilistic.

Storrs McCall also deals with biology in his chapter 'The origin of life and the definition of life'. Aristotle had a clear idea about the origin of life, according to which it emerged in a piecemeal fashion proceeding from lifeless nature to animal life in such a way that the boundary between the two remains vague. Modern biology and especially the discovery of DNA may seem to go against this view. McCall takes this as a starting point, but argues that although the conditions imposed by DNA may be necessary for the development of an organism, they may not be sufficient. He speculates that there may be a different kind of information that is not DNA-based and which plays a role in this process, in which case a definition of life strictly in terms of the genetic code would not be correct. With the help of examples, McCall proposes a combination of digital genetic information and analog pattern information in the regeneration and development of organisms, concluding that digital genetic information on its own, although necessary, is not sufficient to define life without an analog component in the form of pattern control.

Kathrin Koslicki's chapter 'Essence, necessity, and explanation' discusses Aristotelian essentialism. Koslicki examines the view according to which essence does not reduce to modality but rather the other way around. This, she suggests, is how Aristotle views essence, although nowadays the view is perhaps more familiar from the work of Fine and Lowe. Koslicki compares the views of Aristotle and Fine on essence and especially the distinction between what is part of the essence of an object and what merely follows from it. She suggests that we should follow Aristotle in tracing the explanatory power of definitions to the causal powers of essences, as this may help to explain how the necessary features of an object are related to its essential features.

David S. Oderberg's 'No Potency without Actuality: The case of graph theory' concerns dispositional essentialism. A good example of a dispositional property is solubility; in Oderberg's words: 'any solid, liquid or gas that has the disposition of solubility in a liquid L will, when inserted into L, dissolve to form a homogeneous solution with L'. Dispositions are a hotly debated topic in contemporary metaphysics and Oderberg is

interested in Alexander Bird's influential account of them, according to which all properties have dispositional essences. This view is motivated by the idea that the fundamental level is that of properties with 'non-redundant causal powers', a world of pure powers. There is a well-known regress-circularity objection to this account, developed for instance by Lowe. Bird has replied to this objection with the help of the formalism of mathematical graph theory. Oderberg argues that this reply does not help to save a world of pure powers and that the regress-circularity objection can be maintained.

E. J. Lowe concludes the volume with his chapter 'A neo-Aristotelian substance ontology: neither relational nor constituent'. Lowe discusses a topic that has recently gained considerable attention in contemporary metaphysics, namely, the distinction between relational and constituent ontologies. The distinction is already present in Aristotle, but the terminology derives from Wolterstoff. Here is how Michael Loux (2006: 208) puts it:

Those who endorse what Wolterstoff calls the constituent approach tell us that the items from which familiar particulars derive their character are constituents or components of sensible things; they are something like ingredients or parts of those things. On what Wolterstoff calls the relational approach, by contrast, the items from which familiar sensibles derive their character are not 'immanent in' those sensibles.

Now, Aristotle's substance ontology is generally thought to be a constituent ontology, whereas for instance Plato's ontology is of the relational kind. Accordingly, one would think that any neo-Aristotelian substance ontology will be constituent as well. Lowe however argues that, based on his own four-category ontology, we can have a neo-Aristotelian substance ontology that is not constituent. Further, Lowe argues that the four-category ontology is not relational either, and hence cannot be classified in terms of the constituent-relational distinction.