# The Aristotelian Method and Aristotelian Metaphysics

TUOMAS E. TAHKO (www.ttahko.net)

Published in Patricia Hanna (Ed.), *An Anthology of Philosophical Studies* (Athens: ATINER), pp. 53-63, 2008.

ABSTRACT

In this paper I examine what exactly is 'Aristotelian metaphysics'. My inquiry into Aristotelian metaphysics should not be understood to be so much concerned with the details of Aristotle's metaphysics. I am are rather concerned with his methodology of metaphysics, although a lot of the details of his metaphysics survive in contemporary discussion as well.

This warrants an investigation into the methodological aspects of Aristotle's metaphysics. The key works that we will be looking at are his *Physics, Metaphysics, Categories* and *De Interpretatione*. Perhaps the most crucial features of the Aristotelian method of philosophising are the relationship between science and metaphysics, and his defence of the principle of non-contradiction (PNC). For Aristotle, natural science is the second philosophy, but this is so only because there is something more fundamental in the world, something that natural science – a science of movement – cannot study. Furthermore, Aristotle demonstrates that metaphysics enters the picture at a fundamental level, as he argues that PNC is a metaphysical rather than a logical principle.

The upshot of all this is that the Aristotelian method and his metaphysics are not threatened by modern science, quite the opposite. Moreover, we have in our hands a methodology which is very rigorous indeed and worthwhile for any metaphysician to have a closer look at.

My conception of metaphysics is what could be called ‘Aristotelian’, as opposed to Kantian. In this paper I will examine what Aristotelian metaphysics amounts to and what is its relationship with contemporary metaphysics. The first thing that should be noted is that we are not so much dealing with the details of Aristotle's metaphysical theory – although these as well are relevant at times – but rather with the method that Aristotle used to pursue metaphysical topics. The most important aspect of the Aristotelian method is that metaphysics lies at its heart, i.e. the metaphysical considerations that Aristotle makes affect all other aspects of his philosophy. The idea that metaphysics is necessary for all other philosophical activities is indeed the key point in my conception of metaphysics as well. Quite generally it could be said that this is the upshot of Aristotelian metaphysics: metaphysics is the first philosophy, the starting point for all our philosophical and scientific projects. In what follows we will see how the idea emerges in his work. Aristotle's key works in this regard are *Categories*, *De Interpretatione*, *Physics* and *Metaphysics*.

The way Aristotle approaches his topics is evidently very closely tied to the basic features of his metaphysics. This can be seen for example in the very beginning of his *Physics* (1984a: 184a10-184b14), where Aristotle notes that the best way to reach information about the ‘science of nature’ is to advance from universals to particulars, because universals are easier for us to grasp with the help of our senses.[1] Universals and particulars he introduces in *De Interpretatione* (1963: 17a38). Whether or not Aristotle is right about the role of universals and particulars in our inquiries about reality, it is clear that his account is based on prior considerations about the governing features of reality, namely that our objects of inquiry include both particulars and universals. Many of these prior considerations are laid out in *Categories* (Aristotle 1963), which is the precursor of category-theory in modern ontology, discussing notions like ‘substance’ (2a13f), ‘quantity’ (4b20f) and ‘relation’ (6a37f). Notions like these are unavoidable in any scientific or philosophical activities[2] and it seems to be quite uncontentious that philosophers ought to give some kind of an account of them. The manner by which Aristotle handles them is, however, nothing like how Kant does. Unfortunately, Kant's conception of these notions as a part of *us* rather than the reality continues to burden contemporary metaphysics. The problem is that when this route is taken, we are conceding to the idea of an unbreachable barrier between us and the reality – an idea which effectively leads to relativism. So, what we are faced with now is to consider how the Aristotelian method might be applied to the modern debate and whether the kind of realism that we see in Aristotle is able to cope with the anti-realist tendencies in metaphysics which emerged after Kant.

Aristotle starts *De Interpretatione* with an observation that might be of interest to us. In the following passage he seems to put forward a version of direct correspondence:

---

1 For discussion about Aristotle's method in *Physics* see Bolton (1991).

2 In fact, concepts like these are usually presupposed, at least in scientific contexts.

> *[S]poken sounds are symbols of affections in the soul, and written marks symbols of spoken sounds. And just as written marks are not the same for all men, neither are spoken sounds. But what these are in the first place signs of – affections of the soul – are the same for all; and what these affections are likenesses of – actual things – are also the same*. (Aristotle 1963: 16a1.)

We must not let the rather mystical sounding phrasing 'affections of the soul' confuse us. Quite simply, 'affections of the soul' are thoughts, or, if you like, propositions, whether or not they have been uttered. So, Aristotle suggests that while these propositions can be uttered in a number of ways, say in different languages, the correspondence relation from 'affections of the soul' to the actual things always holds between the same terms.[3] Direct correspondence like this surely has its problems, but I think that Aristotle's account is no less tenable than any of its modern alternatives. It is not our task here to argue for this, nor do we need to look at all the details of Aristotle's account, but we ought to keep this background in mind when we examine the Aristotelian method.

Aristotle seems to be foremost interested in the organisation of actual things, and what he presents in *De Interpretatione* (1963) is the method by which we discuss them and some restrictions that apply, for example, to the introduction of modalities. Actual things, according to Aristotle, include particulars and universals (17a38f). It is clear that in Aristotle's ontology, particulars and universals are mind-independent categories in the world, and we refer to them whenever we make affirmations such as 'every man is white' (ibid.). This would be an example of stating something universally of a universal (i.e. 'man'), as Aristotle puts it. This is, very roughly, the connection between his ontology and our language. The importance of *De Interpretatione* to us is just this: whenever Aristotle mentions a problem in the terms that he introduces in *De Interpretatione*, we know that he wants to say something about the actual things in the world. This is especially important if one wants to make any sense of his *Physics*.

As we noted above, Aristotle starts *Physics* by reminding us about the universal/particular distinction and suggests that we should approach the problems at hand from universals to particulars (contrary to what Plato suggested). It should be quite uncontentious that *Physics* is deeply involved in what we would certainly call metaphysics. For instance, one of Aristotle's initial concerns is the number of basic principles that govern different kinds of objects (1984a: 184b15 ff.). He dismisses the possibility of there being only one and concludes that there must be three of them (191a20-21). The fact that Aristotle's predecessors thought that the principal elements could include water, fire, air and earth, should not mislead us, although it might render parts of the

3 However, Aristotle (1963: 16a10) notes that not every affection of the soul is true or false. Later (17a8f) he specifies that a statement-making sentence, i.e. a sentence that has a truth-value must contain a verb. Aristotle introduces some other restrictions as well, but the main line of thought is very clear: certain 'affections of the soul' have truth-values and they express propositions.

discussion obsolete. The importance of this passage lies in the attempt to find common grounds for all (material) existence. The suggested explanations might not be correct, but they are logically sound.

So, already on the opening pages of Aristotle's *Physics* we are very deeply involved with metaphysical questions of the most fundamental sort. There is an obvious explanation for this metaphysical tendency in Aristotle's discussion of natural science. As Aristotle puts it in his *Metaphysics* (1984b: 1026a13f), natural science is not the first philosophy. There is something prior, an immovable substance, which has to be examined before natural science, which is concerned with movable things, can be pursued. However, natural science would be the first philosophy without the immovable substance. The motive behind this is of course Aristotle's account of tracking movement into the immovable first mover – a view that might be logically sound, but which perhaps seems problematic in the light of modern physics.

Aristotle's *Metaphysics* is especially interesting for us because there he considers a number of fundamental questions about the nature of metaphysics as a discipline: what are its tasks, method and basis. For Aristotle, metaphysics is the study of the essence of being, being as it is in itself. This is strongly contrasted with something like the Quinean idea that metaphysics should make a complete list of what there is. Rather, Aristotle is interested in what grounds the existence of different kinds of entities, why are they what they are? Furthermore, as Vasilis Politis notes, we must be careful to correctly appreciate what kind of questions Aristotle considers to be relevant for metaphysics:

> *In general, we must not confuse questions of the type, (1) 'Why are there things that are F?', with questions of the type (2) 'Why are the things that are F F?' The basic question in the Metaphysics, 'What is it for something, anything, to be?', is associated with questions of type 2, not type 1.* (Politis 2004: 4.)

Aristotle's view is that natural science is concerned with material, moveable entities. Mathematics, on the other hand, concerns abstract objects. However, neither of these disciplines can be said to be universal, as they are restricted to certain categories of being. It will then be the task of metaphysics to pursue being *qua* being, to examine what kinds of metaphysical constraints govern different kinds of entities. Aristotle proceeds to investigate what being *qua* being might involve and is convinced that the most important category in this investigation is that of substance (1028a30-35). Of the possible ways of how substance relates to entities, Aristotle notes four: essence, the related universal, genus and substartum (1028b33-35). What follows is a detailed account of these features of being. Perhaps of the greatest interest to the modern reader is Aristotle's account of essence, which is clearly the predecessor of the contemporary essentialist views: 'The essence of each thing is what it is said to be in virtue of itself' (1029b13-14). It is through the essences of things, and only them, that we can acquire further knowledge about the reality. To be able to determine, for instance, how many objects there are, we must first know what

the essences of the objects in question are. It is no surprise then, that essence is what Aristotle calls 'the primary being' (*ousia*) (cf. Politis 2004: ch. 7, Loux 1991). It must be noted here though that Aristotle's account, that of metaphysics as the science of essence, is itself a metaphysical answer to the question about the nature of metaphysics. He does consider other possible answers to the question as well, namely that the primary being is either the particular or the universal (and indeed, in the *Categories*, he proposed a different answer). But even if one disagrees with Aristotle about essences being at the centre of metaphysics (which I do not), his method is still very much worth attention. Furthermore, it should be made clear that there are a number of different ways to understand essences. Aristotle's conception is no doubt what could be called 'metaphysical' as opposed to 'semantic' essentialism: essences are not analytic; they are 'what is expressed by a complete account of what it is to be for a certain kind of thing' (Loux 1991: 75; see also Politis 2004: 16 ff.).

So much about the object of inquiry of the first philosophy. This quick overview hardly does justice to Aristotle, but an exhaustive account of Aristotelian essentialism is not necessary for our purposes. We will now turn to the relationship between Aristotelian metaphysics and other disciplines, most notably natural science. Before the inquiry into the second philosophy, i.e. natural science, can start, we must already have done some work in metaphysics. Nevertheless, the topics discussed in *Physics* are of great importance for Aristotle and it is only because natural science is dependent on some more fundamental principles that we have to focus on metaphysics first. We certainly do not have to agree with Aristotle on the details of these principles, although it seems that much of what he contributed to the discussion about essences and universals still survives in contemporary metaphysics. In terms of the relationship between the first philosophy and special sciences we have the following situation:

> *There is a science which investigates being as being and the attributes which belong to this in virtue of its own nature. Now this is not the same as any of the so-called special sciences; for none of these others deals generally with being as being. They cut off a part of being and investigate the attributes of this part – this is what mathematical sciences for instance do. Now since we are seeking the first principles and the highest causes, clearly there must be some thing to which these belong in virtue of its own nature.* (Aristotle 1984b: 1003a22-28.)

The above passage is perhaps even more accurate now than it was when Aristotle wrote it. Special sciences in Aristotle's time were certainly fewer and a lot closer to what Aristotle himself was doing than special sciences and philosophy are now. However, it is not that the special sciences would be entirely separate from the first philosophy; rather, they concentrate on parts of being that have been cut off from the complete list of entities. Aristotle's example is mathematics – certainly a part of the science of being, but only concentrating on a small section of it.

Once the limitations of special sciences are admitted and it is acknowledged

that even sciences like physics lack the ability to deal 'generally with being as being', we then have the possibility to effectively combine our results in metaphysics and special sciences. But how should this be done? Well, in the lines of the Aristotelian method, we should first focus on the most general principles that govern all being and proceed into the details of these principles, such as particular essences and universal attributes of different kinds of entities. After these ontological matters have been settled, we have the tools to interpret the perceptible reality accordingly, i.e. to make sense of the results that we reach in special sciences.

Note that something very important is being said about the basis of metaphysics itself here as well. The way that Aristotle approaches metaphysical topics is in the form of *aporiai*, philosophical puzzles.[4] While metaphysics is about the question 'What is being *qua* being', it is also about the very nature of this question, the possibility of metaphysics. As Politis (2004: 80) notes, it would be a mistake to think that these questions are genuinely separate in Aristotle. For if they were, this would seem to suggest that one can somehow step outside metaphysics, which is not what Aristotle thinks. The importance of this cannot be stressed excessively: Aristotle sees metaphysics as an unavoidable, primary discipline; the questions about the nature of metaphysics are metaphysical themselves and should be treated accordingly. No other discipline – physics, semantics, or even logic – can accommodate the most fundamental questions about the nature of metaphysics, as this would imply going outside the framework of metaphysics. This has numerous important ramifications, for instance, Aristotle's defence of the principle of non-contradiction (PNC) respects this framework, as it is his claim that PNC is the most secure statement about how things are *in the world*. In other words, it is not a statement about how we think about things or how we talk about them, that is, it is not a logical principle, but a metaphysical one. The upshot of this is that according to Aristotle, logic is grounded in metaphysics, in the ways that things are in the world. Indeed, Aristotle's line of thought suggests that the link that is often taken to be between language or grammar, and logic, is really between reality and our thoughts[5]:

> *Aristotle argues* [*in Metaphysics IV.4*] *that if PNC were not true of things, then we could not use thoughts and words to signify things, and in general we could not think and speak about things. He concludes that if PNC were not true of things, then thought and language about things would be impossible.* (Politis 2004: 135.)

Metaphysics, then, is indeed the *first* science or the universal science. Yet it is worth emphasising that although metaphysics concerns all that is and is universal in this sense, it does not mean that its goal is to reach complete descriptions about all things. The universality of metaphysics is based on the fundamental nature of it, it examines being *qua* being, the preconditions of all being

4 See Politis 2004: ch. 3 for an extensive account on *aporiai*.

5 But see Bolton (1994: 350-351) for an important clarification.

and the governing principles, such as PNC, which affect *all* being. It is the task of special sciences to complete the descriptions, each in their respective field – metaphysics is the study about the common features that range across all disciplines. The question at hand here concerns 'the metaphysics of metaphysics'; it is about the nature of the question 'what is being'. Only after this question has been settled can Aristotle offer his answer to the original question of metaphysics, 'what is being'. His answer to the latter question is of course that metaphysics is the science of essences. This is the distinction between the Aristotelian method and Aristotelian metaphysics – often we are referring to the previous although we talk about Aristotelian metaphysics. For my purposes this does not have very serious implications, as I happen to agree both with the Aristotelian method and with the particular answer to the question 'what is being' that Aristotelian metaphysics proposes.

But it is fair to ask, what kind of a bearing does the method described above have on contemporary metaphysics? And what about the level of detail that modern physics has reached, could it not be said that all that is left to do is perhaps to establish the complete, final theory of physics, which would arguably reach the general level of being *qua* being? I think not. For one thing, I believe that a final theory of any kind is an impossibility. That is not how science – or metaphysics, for that matter – works. In fact, the whole concept of a final *theory* is contradictory. A theory is never final, as it should always be open for revision. I should not need to add that in the history of science we have seen plenty of 'final' theories which proved out not to be quite so final. Secondly, even if the best approximation of a final theory in physics would be reached, it would in no way render metaphysics redundant. There are two reasons for this: on one hand metaphysics is necessary for interpreting any results reached in special sciences, as some kind of categorisation of the results is needed. On the other hand, metaphysics is and must also be the starting point of any such theory, because surely a theory that claims the title 'final' must deal with being *qua* being on the most general level possible, i.e. on the level of the essences of entities rather than on the level of their observable features.

A more serious problem in any attempt to reconcile Aristotelian metaphysics with contemporary metaphysics is perhaps his idea of the immovable substance. Other details of his ontology and organisation of categories that we might not like can easily be dismissed in favour of something else, but the immovable substance seems to be Aristotle's motivation to pursue these topics in the first place and abandoning it would appear to introduce some problems. Perhaps a quick look into the reasons of why Aristotle postulates the immovable substance will help. Clearly, Aristotle is puzzled by motion and one of his basic principles is that there must be a cause for all motion: 'Everything that is in motion must be moved by something' (Aristotle 1984a:241b34). Now, this is a very problematic assumption and very hard to establish in terms of modern physics. Nevertheless, this assumption combined with the assumption that we cannot have an infinite line of movers, which Aristotle (1984a: 241b34 ff.) argues for in some length, produces the conclusion that there must be an immobile first mover. Perhaps this line of thought seems quite untenable now, but I

do not think that we can blame Aristotle, for as far off as his line of thought appears to be, modern physics might not do much better. For consider: how does motion emerge according to modern physics?

Well, surely, all kinds of motion can be tracked to material entities. Our current knowledge of all material entities is based on quantum particles: quarks and leptons. Motion enters the picture via forces which are manifested by certain exchange particles. There are four fundamental forces: nuclear strong force, electromagnetic force, nuclear weak force and gravity. For example, the electromagnetic force is manifested through the exchange of photons. A thorough introduction to quantum motion is not required here, but quite generally, all the fundamental forces are exchange forces, as they are manifested through the exchange of one or more particles. And this of course implies motion. But what exactly is the *cause* of motion according to this theory? There does not seem to be a very straight-forward answer. If we were to look into the details we would find out that there are some dubious cover-ups in effect here. For instance, the exchange particles are 'virtual', as they only exist in the exchange process, and in the case of gravity the exchange particle, called 'graviton', has not even been directly observed (and it has a rest mass of zero!).[6]

Curiously, as sophisticated and accurate as our current understanding of motion might be, it is blatantly incapable of answering the question that Aristotle asked: how does motion originate? Modern physics provides a number of interesting observations; in the case of motion originating from the electromagnetic force, the motion occurs because there are electrically charged particles present; in the case of motion originating from gravity, the cause of movement is the presence of a body of matter which attracts other bodies of matter nearby. But these are not explanations; they are descriptive accounts about our perceptible surroundings. As far as physics is concerned, there might very well be an immovable first mover which is the one common cause for all motion. What I am saying is that physics does not even try to answer the kind of questions that Aristotle puts forward. And this is as it should be, because natural science is, after all, only the second philosophy. There are at least two reasons why one might be unable to grasp this. Firstly, the Kantian tradition has made us too sceptical about the possibility of ever answering these kinds of questions. Secondly, modern science has a peculiar tendency of avoiding questions – it is not the *why* that scientists are concerned with, but rather what can be observed and what sort of applications it has. However, I think that there cannot be any doubt as to whether we should ask fundamental questions or not. Answering them is the task of metaphysics.

This sidestep to modern physics demonstrates the gap between metaphysics and the special sciences and should help us to see what motivated Aristotle in his judgement that metaphysics deserves a primary status. His method, based on the *aporiai*, philosophical puzzles, is revealing in this regard: special sciences do not raise general questions about being as such; instead they presuppose that there are different kinds of things ordered in a certain manner. A sci-

6 See for example C.R. Nave (2006) *Hyperphysics* for details.

entist makes inductive inferences based on perceptual evidence, but by doing so she relies on the orderly nature of reality, she assumes that by certain methods she can come up with veridical judgements about the world. But a metaphysician starts with an abstract puzzle, not an observation – a metaphysician is puzzled about how the scientist can reach knowledge in the first place, how can we know anything about being *qua* being? This is one of the key questions of metaphysics, and we have seen Aristotle's solution above; his defence of the principle of non-contradiction is especially important in this regard. So, the type of the questions raised in special sciences and metaphysics are radically different. But this is not strictly a difference in their status in regard to the a priori/a posteriori distinction, as one might think. In fact, it would be a mistake to think either that metaphysics is fully in the realm of a priori knowledge or that special sciences are thoroughly a posteriori.[7] Aristotle seems to think that metaphysics and special sciences are fundamentally linked, for metaphysics is the study about the a priori principles that special sciences presuppose. Furthermore, although metaphysics as a discipline is 'furthest from the senses' (Aristotle 1984b: 982a25), it is nevertheless continuous with special sciences, and could not operate exclusively in the realm of a priori knowledge.

We are now in the position to see how the Aristotelian method and Aristotelian metaphysics copes with the contemporary challenges to metaphysical realism. Aristotle's central concern is the relativist challenge to fundamental metaphysical principles, such as the principle of non-contradiction. As we saw above, Aristotle thinks that PNC is indeed a metaphysical principle, not a logical principle. What this means is that PNC is one of the constraints that govern the mind-independent reality. For Aristotle, reality is unitary, yet there are different kinds of entities with different essences in the world. PNC is perhaps the most general constraint for the organisation of these different kinds of entities. Plausibly, PNC rules out certain combinations of properties that an entity might have, for instance, no entity can be both green and red all over at the same time, or solid and liquid. The relativist challenges this essentialist, unitary view of the reality by questioning PNC. The modern roots of the relativist challenge can be found in Kant, but Aristotle was well aware of the possibility of such a challenge (cf. Politis 2004: ch. 6).

Aristotle's defence of PNC against the relativist is, as he puts it, a 'negative' one: he demonstrates that the opponent's view is inconsistent (Aristotle 1984b: 1006a12). In fact, he goes on to show that the opponent must be committed to PNC at least in the sense that it is true of our thoughts and language (1008b3-1008b32). This is, of course, not enough as such. What needs to be added is that if PNC is true of our thoughts and language, it is also true about the world. Furthermore, the opponent can challenge PNC by pointing out that it often appears, appears to the senses, that is, that the orderly nature of the world required by PNC is violated. To these concerns Aristotle replies as follows:

> [*I*]*f only the sensible exists, there would be nothing if animate things*

7 See Tahko (2008) for a discussion about related matters.

> *were not; for these would be no faculty of sense. The view that neither the objects of sensation nor the sensations would exist is doubtless true (for they are affections of the perceiver), but that the substrata which cause the sensation should not exist even apart from sensation is impossible. For sensation is surely not the sensation of itself, but there is something beyond the sensation, which must be prior to the sensation; for that which moves is prior in nature to that which is moved, and if they are correlative terms, this is no less the case.* (Aristotle 1984b: 1010b30-1011a2.)

This is a very dense passage and it is impossible to analyse it thoroughly here. But, clearly, Aristotle is here advocating a realist, causal theory of perception (cf. Politis 2004: 183). He also adds that in fact we never observe a direct violation of PNC in the senses (1010b34-1011a1). This is a crucial qualification, for Aristotle can now justifiably ask, even if the opponent denies the theory of perception that he proposed: how does the relativist explain the orderliness in the world, that is, the observed validity of PNC, which is experienced and apparently true? We must appreciate the weight of this challenge given the context in which Aristotle raises it, for he has argued in length that metaphysics, the science of being *qua* being, is first and foremost concerned with this very question. Now, if the relativist is to give any kind of a response to Aristotle's challenge, as he must do if he is to avoid being compared to plants [sic] (1006a15), then he is already involved in metaphysics. This is indeed a master argument, for Aristotle has shown here that the only way for the relativist to be involved in a philosophical discussion of any kind is to accept the Aristotelian method and engage in metaphysics. Regardless of what we might think about his particular answers to some metaphysical questions, the Aristotelian method certainly prevails.

*References*

Aristotle (1963). *Categories and De Interpretatione*, trans. J. L. Ackrill. Oxford: Clarendon Press, Bekker page numbers used.

Aristotle (1984a). *Physics*, trans. R. P. Hardie and R. K. Gaye, revised by J. Barnes. Princeton, NJ: Princeton University Press, Bekker page numbers used.

Aristotle (1984b). *Metaphysics*, trans. W. D. Ross, revised by J. Barnes. Princeton, NJ: Princeton University Press, Bekker page numbers used.

Bolton, R. (1991). ‘Aristotle's Method in Natural Science: *Physics* I’. In: L. Judson (ed.) *Aristotle's Physics: A Collection of Essays*, 1-29. Oxford: Oxford University Press.

Bolton, R. (1994). ‘Aristotle's Conception of Metaphysics as a Science’. In T. Scaltsas, D. Charles and M. L. Gill (eds.), *Unity, Identity, and Explanation in Aristotle's Metaphysics*, 321-354. Oxford: Clarendon Press.

Loux, M. J. (1991). *Primary Ousia*. Ithaca and London: Cornell University

Press.
Nave, C. R. (2006). *Hyperphysics*, hosted by the Department of Physics and Astronomy, Georgia State University. Available at http://hyperphysics.phy-astr.gsu.edu/hbase/hph.html [10 June 2007].
Politis, V. (2004). *Routledge Philosophy GuideBook to Aristotle and the Metaphysics*. London and New York: Routledge.
Tahko, T. E. (2008). 'A New Definition of A Priori Knowledge: In Search of a Modal Basis'. *Metaphysica*,Vol. 9, No. 2, pp. 57-68.