ON THE SUPPOSED CONNECTION BETWEEN ARISTOTLE'S METAPHYSICS AND LOGIC*

John Ian K. Boongaling
Department of Humanities
College of Arts and Sciences
University of the Philippines Los Baños
College, Laguna 4031 Philippines
E-mail: jkboongaling@up.edu.ph

Abstract. *This paper investigates a particular strategy for establishing the deep connection between metaphysics and logic using Aristotle's principle of non-contradiction and the theory of predication. The decisive move, according to this strategy, is to formulate and interpret the said principle as a metaphysical (or ontological) principle. In this paper, it is argued that: (1) despite the strategy's initial appeal, a successful argument still needs to be made in order to fully establish that metaphysics and logic are deeply connected, and (2) the theory of predication is more fundamental than the principle of non-contradiction. The main reason for (1) above is that the strategy is prone to a very powerful objection that Aristotle's criterion of primary substance is inconsistent. The main reason for (2) above is that the principle of non-contradiction itself is best explained using the theory of predication. In addition, it is the theory of predication that does all the important explanatory work in the context of Aristotle's philosophical theory.*

Keywords: *Aristotle, logic, metaphysics, principle of non-contradiction, theory of predication*

Most of us will agree that, for Aristotle, metaphysics and logic are deeply connected. One may suspect, however, that such an agreement is only possible because of the statement's generality. To be sure, disagreements will soon become evident once we start delving into the details as to how we can properly describe, explain, and understand the precise connection between metaphysics and logic in Aristotle's works.

In this paper, I will investigate the plausibility of two theses within the context of Aristotle's philosophical theory. According to the first thesis, metaphysics and logic are deeply connected. According to the second thesis, Aristotle's theory of predication (TOP) is more fundamental than the principle of non-contradiction (PNC). For brevity, and so that we can easily refer to the said theses in our discussions later on, we can simply use the following abbreviations for them:

(UT) Metaphysics and logic are deeply connected. (Unity Thesis)
(FT) The TOP is more fundamental than the PNC. (Fundamentality Thesis)

In relation to UT and FT above, I will try to achieve three things in this paper. First, I will offer a particular strategy for

establishing UT (the details of which will be explained shortly). Second, I will show that despite the strategy's initial appeal, it is prone to a very powerful objection, namely:

(IO) Aristotle's criterion of primary substance is inconsistent. (Inconsistency Objection)

Finally, I will argue that it is the TOP and not the PNC which lies at the heart of Aristotle's metaphysics and logic. This means that the TOP is, in an important and usually neglected sense, more fundamental than the PNC. In a very general way, the main reasons that lend support to this claim are as follows: (1) the different formulations and interpretations of the PNC can best be explained by appealing to the TOP, and not the other way around; and (2) it is primarily the TOP, and not the PNC, that does all the important explanatory work in the context of Aristotle's philosophical theory.

Preliminaries: Aristotle's Theory of Predication

Whether or not we accept UT, there is something that we cannot really deny: the TOP performs a crucial role in Aristotle's metaphysics and logic. For instance, in the formulations of the PNC (which will be discussed in detail later on), we can maintain that Aristotle is clearly referring to a certain kind of principle that governs, for instance, things (or objects) in the world and what can be predicated of (or if we like, what can be attributed to) them (e.g., their properties). Given the crucial role that the TOP performs even in the explication of the PNC itself, which, according to Aristotle, is the most certain principle of all, let us begin by discussing the TOP to bring to the fore

the kind of predication that is relevant for the purposes of this paper. Let us start by saying some uncontroversial things about Aristotle:

(1) Aristotle is a human being.
(2) Aristotle is a mammal.
(3) Aristotle is a philosopher.
(4) Aristotle is a systematic thinker.

That I chose to begin this discussion by saying some uncontroversial things about Aristotle is both intentional and significant for the purposes of this paper. As is well known, Aristotle's views in the *Categories* involve different ways by which we can say something: (a) *of* a subject, or (b) *in* a subject.[1] In a very general way, we can therefore say that what we have in (1)-(4) above are different predicates that we can correctly attach to a subject like *Aristotle*. Using the distinction above, we usually say that examples (1) and (2) fall under (a), whereas, examples (3) and (4) fall under (b).[2] This leads us to the view that, for Aristotle, the categories are predicates (Wisnewski 2009: 268) and/or classes of predicates (Barnes 2000: 66).

Predication, however, is not a simple notion, especially in the context of Aristotle's works. For instance, there are at least two

---

[1] It is clear that (a) and (b) above are both predication relations according to Aristotle. To substantiate this, consider, for instance, what Aristotle says in *Categories*, 2a19-2a21. On the same point see also Bäck (2000: 60).

[2] While there are other possible combinations (e.g., things that are said of a subject and in a subject, things that are said of a subject but not in a subject), it is important to note that these other combinations ultimately rest on the more fundamental distinction between (a) and (b) above. Take note that while all substances can be subjects, not all subjects are substances for Aristotle (Hood 2004: 4). The distinction being mentioned at this early part of the paper therefore only seeks to highlight the important role of predication in setting up Aristotle's notion of substance.

main kinds of predication that are relevant for our current discussion: (a) linguistic predication (LP) and (b) metaphysical predication (MP). To illustrate the difference between LP and MP, consider, once again, examples (1)-(4) above. In these examples, we can say that the subject position is occupied by *Aristotle* and the predicate positions are occupied by *human being*, *mammal*, *philosopher*, and *systematic thinker*, respectively. In other words, in LP, what we are dealing with are certain relations between linguistic items (Lewis 2013: 11). MP differs from LP in the sense that what we are dealing with in examples (1)-(4) above are certain relations, not between linguistic items but "between items in the ontology" (Lewis 2013: 11). Thus, in MP, we can correctly say that what we are talking about are not really the usual subjects and predicates of the sentences of a particular language, but the *entities* referred to by these linguistic items (e.g., the man we call *Aristotle*).

At this juncture, we have to mention another important aspect of the TOP that proves to be helpful in explaining an important difference in examples (1)-(4) above. Earlier we said that examples (1) and (2) fall under (a) and examples (3) and (4) fall under (b). It is important to note that (a) involves essential predication (EP), i.e., *human being* and *mammal* are essential to Aristotle in the sense that the former define the latter as a *substance* (e.g., *what it is* or, if we like, *what Aristotle is*). On the other hand, (b) involves accidental predication (AP). For example, we can say that while the predicates in (b) are true of Aristotle, in the sense that they are *in* him, we can easily see that these predicates are true only accidentally (i.e., we can imagine a scenario where Aristotle did not have any interest

in philosophy, and so he did not become a philosopher, or a scenario where he is not a systematic thinker).

The distinction between EP and AP above also turns on another important aspect of the TOP that is relevant to our current discussion. Take note that while examples (1)-(4) above are all true, a careful study of these examples reveals an important difference between their ways of being true. For instance, the truth of examples (1) and (2) are characterized by *necessity*, whereas, the truth of examples (3) and (4) are characterized by *contingency*. The distinction between EP and AP is therefore crucial in understanding Aristotle's epistemology (or theory of knowledge), especially in the *Metaphysics*. As we will discuss later on, Aristotle is interested in a particular conception of knowledge, and if this kind of knowledge is possible at all, one may say that, for Aristotle, the only route that can lead us to it can only be provided to us by EP. Of course, this observation has significant implications to the strategy that we are considering in this paper. In the final analysis, if the strategy is successful, we can plausibly maintain that it is not only metaphysics and logic that are deeply connected for Aristotle. Through the TOP and EP, the strategy would have also established the connection of Aristotle's epistemology to his metaphysics and logic.

A Strategy for Establishing the Unity Thesis: First Stage

In this part of the paper, I will discuss a particular strategy for establishing UT. According to this strategy, we can establish UT by making use of Aristotle's PNC and the TOP. The decisive move, according to

this strategy, is to formulate and interpret the PNC as a metaphysical (or an ontological) principle.

It is important to note that the strategy described above involves at least two stages. The first stage involves a demonstration of the connection between Aristotle's physics[3] and his metaphysics, or, if we want to be more accurate, a demonstration of how his views on physics ultimately lead him to the main problem of metaphysics (i.e., the problem of being). The second stage involves a demonstration as to how Aristotle's PNC, in conjunction with the TOP, can help reveal the deep connection between metaphysics and logic. In the remainder of this part of the paper, we will focus on the first stage and describe exactly how this move may be undertaken.

As is well known, one of the most important purposes of Aristotle's *Physics* is to explain motion and change. For the most part, this is accomplished through his doctrine of the four causes (e.g., the material, formal, efficient, and final causes). Indeed, one may say that what is brilliant in Aristotle is that he recognized that his work on physics is not sufficient, and that he still needs a more fundamental principle which deals with the first causes. To further explain this, two points are in order. First, Aristotle recognized that, ultimately, the justification of his theoretical claims in *Physics* lies outside *Physics*. Second, for Aristotle, the notion of *being* is more fundamental than the notions of change and motion in the

sense that the latter notions cannot really be explained without positing the former. In the following passage, Seth Bernadete provides us with some important points to consider regarding Aristotle's four causes and their relation to notion of *being*:

> The knowledge of cause, however, does not establish first philosophy; it merely discloses what still must be known, being. Being emerges as the problem of first philosophy through the nonproblematic status of the four causes. The emergence of being as the problem is not adventitious to the four causes. There lurks within the four causes one cause that is not an answer but a question, and the question is, What is? (Bernadete 2000: 3)

At this juncture, let us expound on some of the important points from the passage above. First, Bernadete is correct in maintaining that, in general, the four causes have a nonproblematic status. As evidence for this, Aristotle himself very easily provides us with very simple examples to explain these causes in Book V (Δ) of the *Metaphysics* as well as in Book II of the *Physics*. Second, I agree with Bernadete that the emergence of being is not adventitious to the four causes. In fact, it is plausible to maintain that the doctrine of the four causes inevitably leads Aristotle to the problem of *being*. This is made possible by at least one of his four causes (i.e., the formal cause). It is important to note that, for Aristotle, the formal cause refers to the "form or pattern, i.e., the formula of the essence, and the classes" (*Metaphysics* Book V (Δ), 1013a24-1013b3). The key term here is *essence* and it can be conceived of as *substance*. Recall that in discussing what substances are, Aristotle includes *essence* as one of his examples: "The essence, the formula of which is a definition, is also called

---

[3] One may see the significance of Aristotle's works on physics to the task of establishing UT if we take into careful consideration that Aristotle made use of nature, as well as the teleological categories of physical process (e.g., potentiality, actuality) as well as causes in order to explain logic (Hartman 1995: 23).

the substance of each thing" (*Metaphysics* Book V (Δ), 1013a24-1013b3).

At this point, we were able to link together three important notions to establish how Aristotle's views on physics leads him to metaphysics: (1) the formal cause, (2) essence, and (3) substance. To fully establish the claim above, and to complete the overall picture, we still need to add: (4) *being*. Fortunately, linking (3) and (4) above is not difficult. Consider what Aristotle says in the following:

> There are several senses in which a thing may be said to be […] in one sense it means what a thing is or a 'this', and in another sense it means that a thing is of a certain quality or quantity or has some such predicate asserted of it. While 'being' has all these senses, obviously that which is primarily is the 'what', which indicates the substance of the thing […]. Therefore that which is primarily and *is* simply (not is something) must be substance (*Metaphysics* Book VII (Z), 1028a9-1028a31).

The foregoing passage clearly captures the sense by which we might say that *being*, understood as *what a thing is*, may be said to be primary for Aristotle (i.e., it is implied by any predicate, quality, or quantity). In other words, within the four causes, the formal cause inevitably leads us to think about *being* in the sense that what is required from us when we think about the formal cause is *what a thing is* in its most primary sense.

At this point, we may ask ourselves as to *why* Aristotle would concern himself with the notion of *being* as understood in the sense above. This brings us to the third point: The reason for this has something to do with Aristotle's view of *theoretical wisdom* (i.e., what it means to truly know something). Consider, for instance, what Aristotle says in the following:

> We have said in the *Ethics* what the difference is between art and science and the other kindred faculties; but the point of our present discussion is this, that all men suppose what is called wisdom to deal with the first causes and the principles of things. This is why, as has been said before, the man of experience is thought to be wiser than the possessors of any perception whatever, the artist wiser than the men of experience, the master-worker than the mechanic, and the theoretical kinds of knowledge to be more of the nature of wisdom than the productive. Clearly then wisdom is knowledge about certain causes and principles (*Metaphysics* Book I (A), 981b25-982a3).

To further substantiate the claim that Aristotle's view of theoretical wisdom is significant in the move from physics to metaphysics, it is important to note that the four causes are conceived of by Aristotle as answers to *why* questions. The four causes are, therefore, to be understood as various attempts to arrive at an *explanation* of things. Take note that this idea perfectly agrees with common sense: In a way, we might say that if someone truly knows something, then he (or she) should be able to provide us with an explanation for that which he (or she) claims to know. In Aristotle's case, the preferred method of explanation is by way of being able to identify and recognize what he refers to as "the original causes" of things: "Evidently we have to acquire knowledge of the original causes (for we say we know each thing only when we think we recognize its first cause), and causes are spoken of in four senses" (*Metaphysics* Book I (A), 983a24-983b5).

From what has been said above, we can therefore maintain that theoretical wisdom, for Aristotle, requires a certain kind of knowledge that ultimately deals with the first causes and principles of things. In con-

junction with the points presented earlier, that this is the case is explained by the fact that, for Aristotle, the kind of knowledge that we are seeking ultimately involves *what a thing is* in its most primary sense (e.g., as substance). Consider what Aristotle says in the following:

> Now there are several senses in which a thing is said to be primary; but substance is primary in every sense–in formula, in order of knowledge, in time. For of the other categories none can exist independently, but only substance. And in formula also this is primary; for in the formula of each term the formula of its substance must be present. And we think we know each thing most fully, when we know what it is, e.g., what man is or what fire is, rather than we know its quality, its quantity, or where it is; since we know each of these things also, only when we know what the quantity or the quality is (*Metaphysics*, Book VII (Z), 1028a32-1028b2).

From the foregoing passage, we can clearly see that Aristotle's view of theoretical wisdom is significant as to why his views on physics ultimately lead him to the problem of *being*. This can be stated in another way: Aristotle's view of theoretical wisdom is significant as to why there is a felt need to move from physics to metaphysics, from the identification of causes to the first principles of things. It is important to note that this interpretation is consistent with the idea that, for Aristotle, there is a need for a *first philosophy*. Consider what he says in the following:

> One might indeed raise the question whether first philosophy is universal. […] We answer that if there is no substance other than those which are formed by nature, natural science will be the first science; but if there is an immovable substance, the science of this must be prior and must be first philosophy, and universal in this way, because it is first.

And it will belong to this to consider being *qua* being–both what it is and the attributes which belong to it *qua* being (*Metaphysics* Book VI (E), 1025b19-1026a33).

The foregoing passage does not only explain the universality and priority of first philosophy in relation to the other sciences (e.g., natural science) for Aristotle. It also shows that natural science alone is not sufficient for the kind of knowledge that Aristotle seeks to achieve, e.g., theoretical wisdom. If the strategy being offered above is plausible, then we can say that it is not only physics and metaphysics that are deeply connected for Aristotle. The same thing can also be said about his epistemology, given the important role that Aristotle's view of theoretical wisdom in the explanation as to why there is a felt need for him to move from physics to the problem of metaphysics (i.e., *being*).

A Strategy for Establishing the Unity Thesis: Second Stage

After the demonstration of how Aristotle's physics ultimately leads him to metaphysics and the discussion of the important role of theoretical wisdom in the process, the first stage for establishing UT is finally complete. For the second stage, what we need to do is to demonstrate that Aristotle's PNC, in conjunction with the TOP, can help reveal the deep connection between metaphysics and logic (or can help establish UT). As mentioned earlier, the decisive move is to formulate and interpret the PNC as a metaphysical principle. For maximum clarity and to avoid confusion, let us consider how Aristotle himself describes the said principle in the following:

> But he who knows best about each genus must be able to state the most certain princi-

ples of his subject, so that he whose subject is being *qua* being must be able to state the most certain principles of all things […] and the most certain principle of all is that regarding which it is impossible to be mistaken; for such a principle must be both the best known […] and non-hypothetical. […] Evidently then such a principle is the most certain of all. […] It is, that the same attribute cannot at the same time belong and not belong to the same subject in the same respect. […] This, then, is the most certain of all principles […] for this is naturally the starting-point even for all the other axioms (*Metaphysics* Book IV (Γ), 1005b9-1005b33).

Two salient points need to be mentioned in relation to the passage above. First, as can easily be seen in the quoted passage, the TOP is crucial in the formulation of the PNC, in the sense that the PNC itself is explained using the TOP. Second, the formulation of the PNC above is just one of the formulations of the PNC that we can find in Aristotle's works. For instance, another formulation of the PNC may be found in the following:

> Let this, then, suffice to show that the most indisputable of all beliefs is that contradictory statements are not at the same time true, and what consequences follow from the denial of this belief, and why people deny it. Now since it is impossible that contradictories should be at the same time true of the same thing, obviously contraries also cannot belong at the same time to the same thing (*Metaphysics* Book IV (Γ), 1011b13-1011b17).

Scholars usually refer to the above as the *logical* (or *semantic*) formulation of the PNC. Let us begin with this formulation of the PNC. When we speak of the PNC as a logical principle within the context of formal (or symbolic) logic (e.g., propositional logic), we usually express it using the concepts of *truth* and *proposition*, especially

when we are discussing the concept of *truth-functions*. Thus, we usually say that in propositional logic, the PNC holds: It is not possible for a proposition to be true and not true at the same time and in the same respect. This principle can be stated in another way: "The *principle of non-contradiction* says that two propositions, mutually contradictory, cannot both be true" (Ziembiński 1976: 95). The important point to consider regarding the aforementioned formulation of the PNC is that it is usually expressed using the concepts of truth and proposition. On the other hand, the PNC can also be thought of (or be understood) as a *metaphysical* principle. To substantiate this claim, consider what Robert Boyd says regarding the logical and metaphysical formulations of the PNC in the following:

> The principle of noncontradiction can be expressed in both its logical and ontological forms. The logical principle applies to propositions, and states that a proposition cannot be both true and nontrue (false). The ontological principle applies to states of affairs (viz., anything that is or is not the case) and maintains that something cannot simultaneously be and not be in the same respect (Boyd 2017: 54).

As we can see from the passage above, the PNC, as a metaphysical principle, applies to *states of affairs* instead of propositions. Of course, these ways of viewing the PNC (i.e., as a logical or a metaphysical principle) are closely related but there is a subtle difference that we might not easily notice if we are not careful. In the following passage, Tuomas Tahko also distinguishes between these two formulations of the PNC and provides an interesting example (note that in his paper, Tahko refers to the PNC as the law of non-contradiction (LNC).):

Before we can advance any further, it must be settled which formulation of LNC we wish to use […] the typical formulation 'not both P and not-P', is unsatisfactory. […] At its simplest, the metaphysical interpretation of LNC amounts to this: the entities of the mind-independent reality are plausibly governed by some sort of principles […] that is, there are some constraints as to what kind of properties a certain kind of entity can and cannot have, and further, some of these properties are mutually exclusive. For instance, a particle cannot both have and not have a charge at the same time, or an object cannot be both green and red all over at the same time. It seems that reality just *is* such that it conforms to the law of non-contradiction (Tahko 2009: 33).

At this juncture, several points are in order. First, for Tahko, the Aristotelian notion of the PNC is to be understood as a metaphysical principle. Second, this principle provides certain *constraints* as to the properties (or attributes) that entities in the world (or reality) can and cannot have. Third, unlike the logical interpretation of the PNC (i.e., as *not both P and not-P*), the metaphysical interpretation of the PNC "appears considerably deeper, as it clearly states a restriction that concerns things rather than just propositions" (Tahko 2009: 33). Fourth, it is important to note that Tahko's discussion in the passage above makes use of *entities* as well as *properties*. Tahko therefore conceives of Aristotle's PNC as a principle that governs entities and their properties in the sense that it provides certain restrictions to them. This is clearly very different from the logical interpretation of the PNC which Tahko describes in the following:

The semantic or logical interpretation of LNC, which we aim to undermine, considers LNC to be a principle that governs our thoughts and perhaps our language, or even more weakly, simply a principle which is true

in certain models (i.e., logical systems) and has no bearing on (mind-independent) reality (Tahko 2009: 33).

Let us revert to the specific task that this part of the paper seeks to accomplish (i.e., the completion of the second stage of the strategy that we are considering to establish UT). Recall that this task involves showing how the deep connection between metaphysics and logic can be made *explicit* by making use of Aristotle's PNC in conjunction with his TOP. Recall as well that the decisive move to achieve such a goal is to formulate and interpret the PNC as a metaphysical principle and not as a logical principle.

To accomplish the task of this part of the paper, it is instructive to begin with what Aristotle himself says about the PNC. In the passage that I quoted earlier (from *Metaphysics* Book IV (Γ)), we can clearly see that Aristotle's formulation of the PNC makes use of two important items that are central to his TOP: (1) *subject* and (2) *attribute*. It is important to note that (1) and (2) above are similar to what we earlier referred to as *entities* and *properties* (in our discussion of Tahko's view that the PNC should be construed as a metaphysical principle). Recall that according to Aristotle's formulation of the PNC, the same attribute cannot at the same time belong and not belong to the same subject in the same respect. From this, we can plausibly infer that in his formulation of the PNC, Aristotle is clearly referring to a certain kind of principle that governs, for instance, things or entities in the world (or reality) and their attributes or properties. In particular, the PNC provides certain constraints as to the properties (or attributes) that entities in the world (or reality) can and cannot have.

To substantiate the interpretation offered above (i.e., that the PNC in the quoted passage should be construed as a metaphysical principle *à la* Tahko) consider the following examples. The first example has something to do with particular entities (or individuals) and what we can (correctly) predicate of them. It can correctly be said that there are many properties that can be predicated of particular entities (or individuals) like Socrates. Take for instance, the property of *being short*, or *being fat*, or *being snubnosed*. Using the PNC as a metaphysical principle, it is difficult to maintain that *being fat* and *not being fat* are both *predicable* (or properties) of Socrates (again, at the same time and in the same respect). The upshot of the foregoing point is really something very straightforward: if we are dealing with particular entities or individuals like Socrates, we cannot correctly predicate *fat* and *not fat* to Socrates (at the same time and in the same respect). In these discussions, it is important to note that the kind of predication that is involved is what we referred to earlier as metaphysical predication (MP). What this means is that when we use terms such as *Socrates* and *fat*, what we are talking about are not really the usual subjects and predicates of the sentences of a particular language, but the *entities* referred to by these linguistic items. At the same time, we also have to take note that in the examples that we are considering, all of them fall under accidental predication (AP). From the foregoing discussion, if we generalize the idea and borrow the notational convention of quantified modal logic, then we can symbolize the metaphysical formulation of the PNC this way:

(PNC): $\neg \Diamond \, (\exists x)(Px \wedge \neg Px)$.

The second example that we can provide makes even more explicit the intended connection between Aristotle's metaphysics and logic *via* the employment of Aristotle's TOP in conjunction with the PNC viewed as a metaphysical principle. Unlike the first example, however, the kind of predication involved in the second example is essential predication (EP). Let us discuss the second example. Using the TOP, *Socrates* falls under the class (or genus) of *humans*. The class of *humans* falls under a broader class: the class of *animals*. Construed as a metaphysical principle, the PNC therefore *demands* (or *requires*) that if something is human, then it is an animal. This means that it is not possible for *humans* to belong and not to belong (at the same time and in the same respect) to the class of *animals* since the latter is the superior and the former is the inferior class (or genus). If this is correct, we can maintain that the PNC, viewed as a metaphysical principle, lends support to the idea that Aristotle's TOP reveals a certain kind of *hierarchy* between and among the different categories in his system. Anthony Kenny provides us with a general idea as to how this is done in his discussion of Porphyry's theory of predicables in the following:

> If we take the category of substance as basic, we can derive two genera from it, body and spirit, by adding the *differentia* 'material' or 'immaterial' respectively. From the genus body, we can then derive two further genera, living beings and minerals, by adding the *differentia* 'animate' or 'inanimate'. The genus of living beings will, by a similar fission, generate the genera of vegetable and animal, and the genus animal will, with the *differentia* 'rational', produce the final species human, which includes the individuals Peter, Paul, and John (Kenny 2010: 348).

From the discussions above, it is clear that the TOP plays a crucial role in establishing the deep connection between metaphysics and logic in Aristotle's philosophical theory. As the strategy that we are currently considering shows, this deep connection can best be explained by making use of Aristotle's TOP in conjunction with the PNC viewed as a metaphysical principle. In fact, and as we have seen in the discussions earlier, even Aristotle's PNC itself is best explained by the kind of predication that Aristotle employs in his works. It is in this sense that we can truly say, as Aristotle once did, that the PNC is the most certain principle of all. Interpreted this way, we can easily see how metaphysics and logic are deeply connected in the context of Aristotle's philosophical theory. At this point, we have completed the second stage of the strategy that we are currently considering for establishing UT.

The Inconsistency Objection

From our earlier discussions, we have seen how the TOP, in conjunction with the PNC, can help establish UT. In this part of the paper, I will attempt to do two things. First, I will argue that even if we can explicitly link together Aristotle's metaphysics and logic, as the strategy above shows, a successful argument still needs to be made in order to fully establish UT. The main reason for this, as stated in the introductory portion of this paper, is as follows – the strategy offered above is prone to a very powerful objection, namely:

(IO)   Aristotle's criterion of primary substance is inconsistent. (Inconsistency Objection)

Second, I will argue that it is the TOP, and not the PNC, which lies at the heart of Aristotle's metaphysics and logic. This means that while I consider UT to be problematic, the current investigation nevertheless yields a positive result for FT. In particular, I maintain that it is the TOP that does all the important explanatory work for Aristotle's philosophical theory and not the PNC. In fact, the PNC itself is explained by the TOP and thus, the latter may be considered as more fundamental than the former.

Let us start with the first task. At the beginning of this paper, I mentioned that most of us will agree that for Aristotle, metaphysics and logic are deeply connected. In addition, I also expressed the suspicion that such an agreement is only possible because of the statement's generality. At this juncture, I will articulate the main reason why the strategy that we are currently considering for establishing UT fails: it is prone to the charge of *inconsistency* as specified in IO above.

Let me explain the kind of inconsistency involved in IO. With the advent of the *Metaphysics*, some scholars point out that "the criterion of primary substance" has become unclear for Aristotle (Lear 1988: 276). Take note that in the *Categories*, it is the concrete individual (e.g., Socrates), that is considered to be "the paradigm primary substance" (Lear 1988: 280). Consider, for instance, one of Aristotle's definitions for the notion of substance in the following:

> A *substance* – that which is called a substance most strictly, primarily, and most of all – is that which is neither said of a subject nor in a subject, e.g., the individual man or the individual horse. The species in which the things primarily called substances are, are called *secondary substances*, as also are the genera of these species. For example, the individual man belongs in a species, man, and animal is a genus of the species; so these – both man animal – are called secondary substances (*Categories*, 2a13-2a18).

The crucial point in the foregoing passage is the idea that substance, in its strictest and most primary sense, is defined as that which is neither said *of* a subject nor *in* a subject. This means that primary substance, for Aristotle, signifies a certain *this* (e.g., an individual) and thus, is numerically one. On the other hand, secondary substances, such as *man* and *animal*, signify a certain qualification, since they are said of many things (e.g., of Socrates, of an individual horse, respectively). In other words, the quoted passage above from the *Categories* reveals an important *commitment* on Aristotle's part: he is philosophically committed to the idea that primary being (or primary substance or particular objects) are most real as opposed to the other possible candidates that we can think of (e.g., the Platonic Forms).

The same commitment, however, cannot be applied *without* reservations to the criterion of primary substance in the *Metaphysics*. Recall that in the first stage of the strategy that we were considering for establishing UT, we were able to link together: (1) formal cause, (2) essence, (3) substance, and (4) *being*. Recall as well that, for Aristotle "the essence, the formula of which is a definition, is also called the substance of each thing" (*Metaphysics* Book V (Δ), 1013a24-1013b3). These points show that one may, in fact, take the problem even further: The criterion of primary substance did not only become unclear in the *Metaphysics*, it has become something that stands in diametrical opposition to the concrete individual of the *Categories* (e.g., form). To substantiate this claim, consider, for instance, what Aristotle says in the following:

> For those who adopt this point of view, then, it follows that matter is substance. But this is impossible; for both separability and

individuality are thought to belong chiefly to substance. And so form and the compound of form and matter would be thought to be substance, rather than matter. The substance compounded of both, i.e., of matter and shape, may be dismissed; for it is posterior and its nature is obvious. And matter also is in a sense manifest. But we must inquire into the third kind of substance; for this is the most difficult (*Metaphysics* Book VII (Z), 1029a127-1029a33).

In the passage above, Aristotle considers three options for primary substance in the *Metaphysics*: (1) matter, (2) form, and (3) the compound of matter and form. Take note that Aristotle easily dismisses (1) and considers (2) and (3) above as better candidates for primary substance. In other places in the *Metaphysics*, we can say that between candidates (2) and (3) for primary substance, Aristotle would eventually choose (2) over (3). In the following passage, Aristotle provides us with a helpful clue for such a choice:

> Since at the start we distinguished the various marks by which we determine substance, and one of these was thought to be the essence, we must investigate this. And first let us say something about it in the abstract. The essence of each thing is what it is said to be in virtue of itself. For being you is not being musical; for you are not musical in virtue of yourself. What, then you are in virtue of yourself is your essence (*Metaphysics* Book VII (Z), 1029b10-1029b16).

To explain the significance of the passage above in our discussion of IO, several points are in order. First, from the passage above, we can say that Aristotle hints at the idea that even particular individuals (e.g., Socrates) may have some sort of *essence* and this essence has something to do with what can be said of the individual *in virtue of itself*. For example, Socrates is an indi-

vidual thing but what makes Socrates the individual that he is cannot simply be the matter that constitutes him for the same matter constitutes other human beings (e.g., Plato). Second, if we compare the passage above with what Aristotle says in the *Categories*, we will find that the introduction of essence in the sense explained earlier may be conceived of as inimical to his commitment to individual substances as the paradigm of primary substance. After all, in the *Categories*, Aristotle treats "individual substances as unanalyzable" (Des Chene 1996: 148). This means that all other things, "all being depends upon unanalyzable atomic individual things" (Long 2004: 21). Third, it is by treating individual substances as unanalyzable that we can easily reveal the kind of relationship between primary substance and the other categories (e.g., that the former enjoys *ontological priority* over the latter). To substantiate this claim, consider what Aristotle says in the following:

> All the other things are either said of the primary substances as subjects or in them as subjects. This is clear from an examination of cases. For example, animal is predicated of man and therefore also of the individual man; for were it predicated of none of the individual men it would not be predicated of man at all. Again, colour is in body and therefore also in an individual body; for were it not in some individual body it would not be in body at all. Thus all the other things are either said of the primary substances as subjects or in them as subjects. So if the primary substances did not exist it would be impossible for any of the other things to exist (*Categories*, 2a35-2b7).

The crucial point is that, for Aristotle, the other categories (e.g., quality, quantity, relation) are ontologically dependent on that which is primary (e.g., substance) in the sense that they (i.e., the other categories)

are all predicated *of* them or are *in* them as subjects. This is what he means when he said that it would be impossible for any of the other things to exist if the primary substances did not exist. In an important sense, therefore, in order of explanation, primary substance also enjoys some sort of *logical priority* over the secondary substances.

At this juncture, one may therefore suspect, and reasonably so, that the sneaky introduction of essence in 1029b10-1029b16 of the *Metaphysics* as quoted above, will have an impact, not only the chief problem that IO presents (i.e. the inconsistency of the criterion of primary substance) to the strategy that we are considering for establishing UT, but also to the main *explanatory tool* at Aristotle's disposal: the TOP. Take note that in the foregoing discussion, it is the TOP and not the PNC that does all the important explanatory work not only in the *Categories* but also in the *Metaphysics*. For example, the metaphysical formulation of the PNC that we have offered earlier very easily accommodates the TOP in the *Categories* since, in the first place, what we are dealing with are concrete individuals. Given the introduction of essence in the *Metaphysics*, would we now therefore allow our variables to range not over individuals but over essences? Clearly, problems such as this one will begin to emerge because of the problems posed by IO.

It seems that the problems for the strategy that we are considering in this paper for establishing UT are far from being over. If, in 1029b10-1029b16 of the *Metaphysics*, we find Aristotle providing us with some clue as to which candidate is best qualified for primary substance *via* the introduction of essence, in the following passage, we find Aristotle explicitly linking together *essence* and *form* (the second candidate):

The object of the inquiry is most overlooked when one term is not expressly predicated of another (e.g., when we inquire why man is). [...] Since we must know the existence of the thing [...] clearly the question is *why* the matter is some individual thing, e.g., why are these materials a house? Because that which was the essence of a house is present. And why is this individual thing, or this body in this state, a man? Therefore what we seek is the cause, i.e., the form, by reason of which the matter is some definite thing; and this is the substance of the thing (*Metaphysics* Book VII (Z), 1041a33-1041b10).

Take note that even in the quoted passage above, Aristotle still employs the TOP in order to explain why some individual thing is *a house* or *a man*. The answer that Aristotle provides may be summarized this way: It is because of the essence or form that some individual thing is *a house* or *a man*. Viewed this way, the essence or form appears to enjoy the kind of priority (i.e., ontological) that we initially ascribe to the individual substances of the *Categories*. In addition, this passage shows that essence or form can also be conceived of as a *cause*, and therefore, can constitute an *answer* to a *why* question. If this is correct, then essence or form also enjoys some sort of logical priority in terms of explanation. As some scholars point out, this appears to be "a complete reversal" of Aristotle's position in the *Categories* (Lear 1988: 280). It is for this reason that some scholars, particularly those who work on the so called *developmental* studies of Aristotle's works, suggest that the alleged inconsistency involved in the *Categories* and the *Metaphysics* may best be explained by the fact that Aristotle changed his mind when he wrote the latter (Lear 1988: 276; Werhle 2000: xiii; Politis 2004: 113; Lewis 2013: 228).

At this point, the first task of this part of the paper is complete. We have shown that

even if we can explicitly link together Aristotle's metaphysics and logic, as the strategy that we are currently considering tries to do, a successful argument still needs to be made in order to fully establish UT because of the problem posed by IO. In effect, to fully establish UT, any strategy should be able to successfully address IO. In this sense, IO may be understood as a necessary condition that any strategy must be able to fulfill if it is to count as a satisfactory strategy for establishing UT.

Let us move on to the second task of this part of the paper. However, a quick review of what we have done so far will tell us that this task is almost complete. As I have stated earlier, this task involves showing that it is the TOP, and not the PNC, which lies at the heart of Aristotle's metaphysics and logic. The main reason for this is as follows (and we have already shown this to be the case in our discussions earlier): it is the TOP and not the PNC that does all the important explanatory work for Aristotle's philosophical theory. In fact, in our discussion of the metaphysical formulation of the PNC earlier, we have seen that the principle itself is explained by the TOP. Thus, it would only be reasonable to say that the TOP is more fundamental than the metaphysical formulation of the PNC.

The only remaining question at this point is whether or not the same thing can be said about the logical formulation of the PNC. The answer to this question is something really obvious. Recall that in 1011b13-1011b17 of the *Metaphysics* Book IV (Γ), Aristotle is explaining the *indisputability* of the belief that contradictory statements are not at the same time true. At face value, the logical formulation of the PNC therefore appears to be truly distinct from the metaphysical formulation. While I

will not exert this issue further in this paper due to space considerations, I only wish to state, for the record, that even in the actual passage that we usually cite for the logical formulation of the PNC, we can easily see that in that passage, Aristotle makes use of terms such as *contraries* in order to explain the indisputability of one's belief in the PNC. The crucial point is that *contraries* refer to attributes that cannot belong at the same time to the same subject (*Metaphysics*, Book V (Δ), 1018a25-1018a26). We can therefore say that just like the metaphysical formulation, the logical formulation of the PNC can also be explained by the TOP. In fact, Aristotle himself, as we have shown, employs the TOP in order to explain the PNC. This result confirms what we said earlier: the TOP is more fundamental than the PNC as FT states.

Conclusion

When we think of the supposed connection between Aristotle's metaphysics and logic, a suggestion that naturally comes to mind is to link them together using the most obvious candidate that is readily available to us – the PNC. While there is nothing immediately objectionable to the idea, we hope, to have shown in this paper that the task is not as simple as it seems. To begin with, while it is true that the PNC plays an important role in Aristotle's metaphysics and logic, the principle is open to several possible formulations and interpretations. Take note that even if we simply limit ourselves to the confines of Aristotle's works, we can still observe that the PNC "is not one but many" and this makes "the correct exegesis" of Aristotle's views to continue to be "an issue among historians" (Beall 2004: 3). Another possible source of difficulty has something

to do with the TOP that Aristotle employs in his works, most notably in the *Categories* and the *Metaphysics*. These disagreements focus on important issues regarding the TOP: (a) its proper interpretation and (b) its role in Aristotle's philosophical theory. Regarding (a), the issue usually revolves around the kind of predication involved in Aristotle's TOP (e.g., linguistic predication, metaphysical predication). Some scholars, for instance, point out that Aristotle seems to "switch back and forth, from speaking about words to speaking about real things" (Bäck 2000: 133). As might be expected, this situation naturally leads to important *interpretative* issues in relation to the TOP given its crucial role in Aristotle's metaphysics and logic. Regarding (b), the issues involved are more complex. This is because, for some scholars, there is good reason to believe that significant aspects of the TOP in the *Categories* appear to be inconsistent with those in the *Metaphysics*.

In this paper, we considered a particular strategy for establishing UT which uses Aristotle's PNC and TOP. The decisive move, according to this strategy, is to formulate and interpret the said principle as a metaphysical principle. From our discussions, it has been shown that despite the strategy's initial appeal, a successful argument still needs to be made in order to fully establish UT because of the difficult problems posed by IO. While UT has been shown to be problematic, the current investigation nevertheless yields a positive result for FT. This is done by showing how the TOP does all the important explanatory work in Aristotle's philosophical theory. In fact, the PNC itself is explained by the TOP and thus, the latter may be considered as more fundamental than the former.

REFERENCES

Aristotle, 1991. *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. J. Barnes. 2 Vols. Bollingen Series. Princeton, NJ: Princeton University Press.

Bäck, A., 2000. *Aristotle's Theory of Predication*. Leiden: Brill.

Barnes, J., 2000. *Aristotle: A Very Short Introduction*. New York: Oxford University Press.

Beall, J. C., 2004. Introduction: At the Intersection of Truth and Falsity. In: *The Law of Non-contradiction: New Philosophical Essays*, eds. G. Priest, J. C. Beall, B. Armour-Garb. New York: Oxford University Press, 1–19.

Bernadete, S., 2000. *The Argument of the Action: Essays on Greek Poetry and Philosophy*. Chicago: The University of Chicago Press.

Boyd, R., 2017. *Approaching the World's Religions*. Oregon: Cascade Books.

Des Chene, D., 1996. *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought*. New York: Cornell University Press.

Hartman, R., 1995. Axiology as a Science: Reply to Hector Neri Castañeda, 1961. In: *Formal Axiology and its Critics*, ed. R. Edwards. Amsterdam: Rodopi, B. V., 11–40.

Hood, P. M., 2004. *Aristotle on the Category Relation*. New York: University Press of America, Inc.

Lear, J., 1988. *Aristotle: The Desire to Understand*. Cambridge: Cambridge University Press.

Lewis, F., 2013. *How Aristotle Gets by in Metaphysics Zeta*. Oxford: Oxford University Press.

Long, C., 2004. *The Ethics of Ontology: Rethinking an Aristotelian Legacy*. New York: State University of New York Press.

Politis, V., 2004. *Routledge Philosophy Guidebook to Aristotle and the Metaphysics*. New York: Routledge.

Tahko, T., 2009. The Law of Non-contradiction as a Metaphysical Principle. *Australasian Journal of Logic* 7: 32–47.

Werhle, W., 2000. *The Myth of Aristotle's Development and the Betrayal of Metaphysics*. New York: Rowman & Littlefield Publishers, Inc.

Wisnewski, J. J., 2009. The Case for Anti-Antirealism: Wittgenstein, Heidegger, and Aristotle on Language and Essence. In: *Philosophical Frontiers: Essays and Emerging Thoughts*, eds. R. H. Corrigan, M. E. Farrell. Gloucester: Progressive Frontiers Press, 255–274.

Ziembiński, Z., 1976. *Practical Logic*. Dordrecht: Springer Science + Business Media, B. V.

APIE TARIAMĄ RYŠĮ TARP ARISTOTELIO METAFIZIKOS IR LOGIKOS

John Ian K. Boongaling

Santrauka. Straipsnyje analizuojama konkreti strategija, naudojama pagrįsti giluminį ryšį tarp metafizikos ir logikos, pasitelkiant Aristotelio neprieštaravimo principą ir predikavimo teoriją. Kertinis judesys, pagal šią strategiją, yra formuluoti ir interpretuoti minėtą principą kaip metafizinį (ar ontologinį) principą. Šiame straipsnyje argumentuojama, kad 1) nepaisant pradinio tokios strategijos patrauklumo, vis dar trūksta sėkmingo argumento, kad būtų galutinai pagrįstas ryšys tarp metafizikos ir logikos, ir 2) predikavimo teorija yra fundamentalesnė nei neprieštaravimo principas.

Teiginys (1) grindžiamas tuo, kad analizuojama strategija neatlaiko stipraus priekaišto, jog Aristotelio pirminės substancijos kriterijus yra prieštaringas. Teiginys (2) grindžiamas tuo, kad patį neprieštaravimo principą geriausia aiškinti pasitelkiant predikavimo teoriją. Be to, Aristotelio filosofinės teorijos kontekste būtent predikavimo teorija ir atlieka visą svarbų aiškinamąjį darbą.

Pagrindiniai žodžiai: Aristotelis, logika, metafizika, neprieštaravimo principas, predikavimo teorija