

Volume 9 | Number 1 | Fall 2004

{ EPOCHÉ }

a journal for the history of philosophy

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Modern Paradoxes of Aristotle's Logic

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ABSTRACT: This paper intends to explain key differences between Aristotle's understanding of the relationships between *nous*, *epistêmê*, and the art of syllogistic reasoning (both analytic and dialectical) and the corresponding modern conceptions of intuition, knowledge, and reason. By uncovering *paradoxa* that Aristotle's understanding of syllogistic reasoning presents in relation to modern philosophical conceptions of logic and science, I highlight problems of a shift in modern philosophy—a shift that occurs most dramatically in the seventeenth century—toward a project of construction, a pervasive desire for rational certainty, and a general insistence on the reducibility of the sciences. The major motivation of this analysis is my intention to show that modern attempts to reduce science/*epistêmê* to a single science/method of inquiry occlude dialectical and ethico-political dimensions of “reason” and, hence, also impoverish philosophy's critical capacities.

INTRODUCTION

One striking feature of Nietzsche's philosophical personality is his deployment of genealogical readings of Greek philosophy against opinions cultivated in the context of the basic character of modern philosophy. Among various features of modern philosophical *ethê*, the sanctification of Reason is probably the one against which this polemical deployment of Greek thinking is Nietzsche's most important tool. He shows his hand in a gesture to one of his most important predecessors:

Heraclitus' regal possession is his extraordinary power to think intuitively. Toward the other type of thinking, the type that is accomplished in concepts and logical combinations, in other words toward reason, he shows himself cool, insensitive, in fact hostile, and seems to feel pleasure whenever he can

contradict it with an intuitively arrived-at truth. He does this in dicta like “Everything forever has its opposite along with it,” and in such unabashed fashion that Aristotle accused him of the highest crime before the tribunal of reason: to have sinned against the law of [*sic*] contradiction.¹

While it is fairly easy to see that Nietzsche’s appreciation of Heraclitus plays into the charges often leveled against him that his arguments lack logical rigor, what remains concealed in Nietzsche’s interpretation is the relative estimation in which other Greek thinkers—Aristotle, for instance—held laws of reason. Lest the intuitive insights of Nietzsche’s polemical attacks be overlooked, it is the task of this paper to clarify through a reading of Aristotle’s *Organon* what is at stake for modern philosophy in Aristotle’s estimation of the philosophical importance and function of logic.

To frame this discussion, I must first briefly clarify that the modern *ethos* with which I am concerned begins in seventeenth-century rationalism, the most distinguishing feature of which is the belief that knowledge of the world is constructed according to determinations of will and/or intellect (or mind, soul, or consciousness) of concepts, problems, or methods through which the world may be known clearly and distinctly, or, what is the same, with certainty.² Moreover, I am also convinced that, while this philosophical *ethos* begins with seventeenth-century rationalism and the construction of concepts, Kant’s Copernican revolution in metaphysics takes this project of construction even further: to the construction of the world itself (as knowable/phenomenal). In fact, despite Kant’s efforts to distance himself from the rationalists concerning epistemological issues, the Preface to the Second Edition of the *Critique of Pure Reason* contains perhaps the most obviously defining statement of this metaphysical character of modern philosophy:

Hitherto it has been assumed that all our knowledge must conform to objects. But all attempts . . . have ended in failure. We must therefore make trial whether we may not have more success in the tasks of metaphysics, if we should suppose that objects conform to our knowledge . . . to have knowledge of objects *a priori*, determining something in regard to them prior to their being given. We should then be proceeding precisely on the lines of Copernicus’ primary hypothesis.³

Thus, for my purposes here, I mean by “modern” an epoch in thinking that is gathered by this problem of construction in such a way that it also includes diverse projects of modern Western philosophy especially in the wake of Kant and Hegel—whether as phenomenology or logical positivism—as much as it does the more apparent proponents of seventeenth-century rationalism.

Accordingly, I will be discussing a number of differences between modern thinking and pre-modern or ancient thinking. However, I am concerned that my

drawing of such contrasts be regarded cautiously. As Jacob Klein has explained, contemporary historical investigations of mathematics and philosophy of science tend to advance two general lines of interpretation:

One—the prevailing view—sees in the history of science a continuous forward progress interrupted, at most, by periods of stagnation. On this view, forward progress takes place with “logical necessity.” . . . The second interpretation emphasizes that the different stages along this path are incomparable. For example, it sees in Greek mathematics a science totally distinct from modern mathematics. . . . *Both* interpretations, however, start from the present-day condition of sciences. . . . *Both* interpretations fail to do justice to the true state of the case.⁴

In showing that Aristotle's understanding of logic differs from modern conceptions of logic, I am not merely indicating an incommensurability between ancient and modern thinking. Modern conceptions of logic are, as Klein points out, based in the transformations ancient science underwent in the late-medieval period, the Renaissance, and, most especially, in the seventeenth century. Consequently, what is to be gained from clarifying Aristotle's understanding is not so much a reversal of these transformations or recovery of ancient philosophy, but is rather a way of opening possibilities of critical engagement with modern philosophy and its blindness to transformations in understandings of science that are constitutive of its metaphysics of construction. Or, in Klein's words, “Our modern ‘scientific consciousness’ . . . is to be understood not simply as a linear continuation of ancient *epistêmê*, but as the result of a fundamental conceptual shift which took place in the modern era, a shift we can nowadays scarcely grasp” (10).

Consequently, the first section of this paper will discuss the *paradoxa* Aristotle's understanding of science (*epistêmê*) poses in relation to modern conceptions of science and knowledge. In the second section, I will highlight the ramifications of this shift with respect to the neglect, especially subsequent to seventeenth century, of dialectical thinking as it is understood by Plato and Aristotle. Accordingly, I first will explain the central role of the *Topics* to Aristotle's understanding of scientific knowing and the fundamental role of dialectical inquiry in generating principles of the sciences. Second, in order to open possibilities of critical engagement with modern philosophy, I will show why, for Aristotle, philosophy is a political activity pursued dialectically.

PARADOXA OF ARISTOTLE'S UNDERSTANDING OF “SCIENCE”

Five major texts comprise Aristotle's *Organon*.⁵ The purpose of *Categories* and *On Propositions* is to define terms that are involved in constructing syllogisms. The subject of the *Prior Analytics* is the construction of syllogisms. The purpose of the *Posterior Analytics* is to discuss the uses of demonstrative syllogisms and

their scientific/philosophical status, especially in relation to the many-wayness of knowing. The purpose of the *Topics* is to “state what a syllogism is and what its different kinds are, so that the dialectical syllogism may be understood.”⁶ Moreover, throughout the Aristotelian corpus, many texts address the philosophical status of logic as it relates to both *epistêmê* and *nous* as well as to *technê*, *phronesis*, and *sophia*. In particular, *Rhetoric*, *Sophistici elenchi*, *Nicomachean Ethics Z*, and *Metaphysics A* and α shed much light on how Aristotle regards logic.

Aristotle describes three kinds of syllogisms: demonstrative, dialectical, and eristic. A demonstrative syllogism is an expression whereby something is demonstrated from “premises which are true and primary (i.e., indemonstrable), or whenever our knowledge of the premises comes originally from true and primary premises” (*Top.* 100a27–90). Hence, a demonstrative syllogism is specific to a science⁷ since it proceeds either from the primary principles of a science or from premises which follow from such principles. “A dialectical syllogism is a syllogism which reasons from generally accepted opinions as premises” (*Top.* 100a30–31), whereas an eristic syllogism reasons in some way from opinions that are false or superficial or is what appears to be a demonstrative syllogism but is not.⁸

Aristotle’s understanding of demonstrative syllogism appears to be the same as the modern understanding of logic as that which symbolically secures the formal validity of true ideas. His definition of syllogism appears to bear this out: “By ‘a demonstration’ I mean a scientific syllogism, and by ‘a scientific syllogism’ I mean a syllogism in virtue of which, by possessing, we *know*.”⁹ Thus Aristotle’s definition of demonstration appears to confirm Kant’s assessment:

Present-day logic has developed out of Aristotle’s *Analytic*. . . . Logic, by the way, has not gained much in *content* since Aristotle’s times and indeed it cannot, due to its nature. But it may well gain in *exactness*, *definiteness*, and *distinctness*. . . . Aristotle had omitted no moment of the understanding; we are herein only more exact, methodical, and orderly.¹⁰

However, while for Kant the only and proper criterion of understanding is that a truth can be verified through demonstration, for Aristotle, demonstration, i.e., the unfolding of a specific science, (1) is not a habit of true thinking, (2) is not, in itself, a path to the principles of understanding, and (3) does not provide formal criteria of understanding, but rather (4) each demonstrative syllogism is a way of knowing that proceeds from an indemonstrable principle.

These conclusions are all clearly implied by what Aristotle says about the relationship between science (*epistêmê*) and primary principles. Since “all teaching and all learning [*mathesis*] through discourse proceed from previous knowing [*gnôseôs*]” (*PoA* 71a1–10), in each case, a syllogism that produces science (*epistêmê*) must also begin from prior knowing, whether from other previously demonstrated propositions within a science or from a principle that founds and differentiates the science. However, a specific science cannot develop

its own primary principles. First, this can be understood from the definition of primary premises: "premises are true and primary if one is convinced of them because of themselves and not because of other premises" (*Top.* 100b1–2). But more obviously, because one cannot demonstrate conclusions from what is less known, it is not possible to demonstrate the primary principles of any distinct science.¹¹ Consequently, demonstrative syllogisms must proceed from a principle (a knowing) arrived at first through intuition (*nous*).

Concerning how intuition comes to grasp the principle of a science, interpreters are forced to confront one of the most notoriously difficult passages in Aristotle's corpus, *Posterior Analytics* B.19. In this famous passage, Aristotle says that, through induction (*epagôgê*), a universal is arrived at "like a reversal in battle brought about when one man makes a stand, then another, then a third till a principle is attained" because it is clear in each particular (*PoA* 100a12–14). However, as Aristotle points out elsewhere, induction does not itself provide understanding (*nous*) since it does not provide a "whatness."¹² Consequently, induction is a "starting point and leads to a universal" but does not itself grasp the principle of a science.¹³ Intuition (*nous*), on the other hand, is identified as one of five habits of thinking by which the soul possesses truth (the others are *epistêmê*, *technê*, *phronesis*, and *sophia*). Thus, induction provides intuition with a determinate possibility of grasping the universal from experience.

Because "it is impossible to learn by induction without having the power of sensation," "it is also evident that if a [power] of sensation is absent from the start, some corresponding science must be lacking."¹⁴ That is, while induction leads to a universal through many instances of the same in perceived individuals, such abstracted universals are not known *a priori*. Although sensation does not provide knowledge since it does not give a cause, intuition of a principle depends upon immediate apprehension of a cause from the instances provided to induction in sensation. Thus, "in some problems . . . reference may be made to lack of sensation, for we might not have made inquiries if we had the corresponding observations, not that we would have understood *by* observation, but that *from* observation we would have gained possession of the universal."¹⁵ As a consequence of this relationship between principles and sensation, Aristotle's understanding of demonstration implies, then, that any form of transcendental argument is, *at best*, eristic. That is, while Kant, for instance, believes that "logic is nothing but a canon of adjudication (of the formal rightness of our cognition)" (*Logic* 19), for Aristotle, logic is only useful for making distinctions concerning indemonstrable principles that are prior and "by nature clearer and more known"¹⁶ immediately through intuition.

While modern epistemologies develop reductive understandings of science on the basis of their conceptions of universals, for Aristotle the relation of induction to sensation and of science to indemonstrable principles necessitates

a non-reductive understanding of the relationships between sciences. Not even axioms from which all sciences demonstrate—common notions such as the “law” of non-contradiction—can reduce sciences to the same genera since they are not the principles *about which* a science demonstrates.¹⁷ Moreover, in grasping a universal, what is abstracted is time and respect, and so the principles that are grasped by intuition differ according to different sciences (e.g., the “round” wound and the “round” circle concern roundness in different respects just as “health,” “victory,” “a good horse,” and “virtue” are all “good” with respect to different arts or sciences¹⁸). Consequently, that principles—those *about which* demonstrations are made—of sciences are indemonstrable and immediate and that sciences do not demonstrate principles of other sciences show that (1) sciences are not reducible, (2) there can be no first principle of all sciences, and (3) there can be no science that investigates all things.¹⁹ Instead, because the order and connection of sciences cannot be given by a single principle, their order and connection must follow from “analogy” between their principles.

There is a long history of debate concerning whether Aristotle’s texts imply that there is a possible “analogy of being” that would organize sciences hierarchically under one fundamental principle of being *qua* being. The debate stems from these various textual factors concerning what Joseph Owens has termed Aristotle’s “doctrine of being.”²⁰

- (1) Aristotle states frequently that being is equivocal—that it is understood through diverse principles specific to different categories²¹ or through four-term proportionals that relate the categories.²²
- (2) *Metaphysics* purports to investigate “being *qua* being.”²³
- (3) Analogies (proportions) between categories are said to present “unities” in thinking about being²⁴ and offer assistance in addressing philosophical difficulties (*aporiai*)²⁵ that stem from the *pros hen* equivocity of being.

Although there are various interpretations of Aristotle’s texts regarding the second and third points above, as far as Aristotle’s understanding of analogy is concerned, it is true that, because knowing through demonstration grows by the addition of extreme terms and lateral predications (*PoA* 78a14–21), the ordering of the sciences by analogy may be useful insofar as it may help clarify or define such terms. Such analogies, though, are not demonstrations; they belong to intuition alone rather than to any specific science. Consequently, analogies help to address difficulties (*aporiai*) that arise for true thinking precisely because of the irreducibility of sciences. As Pierre Aubenque has pointed out, “Aristotle, who did not ignore the term ‘*analogia*,’” simply never uses it when speaking of being *qua* being and has no equivalent for what is later called “‘analogy of attribution’ (or ‘of proportion’).”²⁶

Moreover, there is no reason to assume that the attempt to investigate "being *qua* being" is possible except through investigations within sciences that are specific with respect to distinct categories or through inquiries concerning four-term proportionals between distinct categories. In other words, the investigation of being *qua* being does not occur through a single method of inquiry; rather the investigation of being *qua* being proceeds through investigation of the intrinsic relations that pertain to diverse categories. Or, as Aubenque explains:

Aristotle does not expect that analogy elevate us from knowledge of the derived to knowledge of the first, but only that it help us propound a common discourse over heterogeneous domains. One might easily verify that the Aristotelian usage of analogy is strictly horizontal, i.e., that it does not presuppose any hierarchy between the domains to be brought together, and that even when this hierarchy exists (as it does between essence [*ousia*] and the other categories) ... the relation of dependence is not "determined" enough to be able to see in the outcome a simple reduplication of the source, however attenuated the reduplication may be. (43)

What is more, Aristotle explicitly denies the possibility that proportions between categories can reduce diverse inquiries to one science of being *qua* being governed by an analogy of being since "there exists nothing common to but distinct from substances and the other categories" (*Meta.* 1070b1–2).

Regardless of whether one agrees with such an interpretation of the *Metaphysics*, the history of the debate concerning Aristotle's doctrine of being must be viewed as playing a key role in the emergence of modern metaphysics. Consequently, a brief account of this history will help to elaborate one aspect of the transformations in the understandings of science that take place prior to the seventeenth century. Because rivers of ink have been poured over the history of these debates, I will limit my following discussion of this history, for the sake of brevity, mostly to Owens's *Doctrine of Being in the Aristotelian "Metaphysics"* since it contains the most exhaustive and well-balanced review of the history of these debates of which I am aware.²⁷ However, my use of Owens for these purposes is not meant to imply agreement or disagreement with his interpretations of Aristotle, but only to establish a common point of reference with my readers.

Concerning possible early origins of these diverging interpretations of Aristotle in Greek commentaries, Owens notes that "on into the twelfth century, the apparently unanimous tradition of Greek thought [including interpreters such as Theophrastus and Alexander of Aphrodisias] seems to have equated the Aristotelian 'Being qua Being' with the Being of the separate Entities [*ousiai*], as the theme treated by the Primary Philosophy."²⁸ Since, according to Owens, these interpretations remain largely consistent with Aristotle's understanding, what would thus be crucial to the transformations of the Western understanding of science are the diverging interpretations of Aristotle's understanding of being

qua being subsequent to the new availability in the mid-twelfth century Latin West of Aristotle's works, especially the *Physics*, *Metaphysics*, and *Posterior Analytics*. Prior to availability of these texts, medieval discussions of Aristotle in Western Christian philosophy were limited to discussions of *Categories* and *On Interpretation* together with Porphyry's *Isagoge*,²⁹ but these texts posed no significant difficulties in relation to questions of theological doctrine. However, as Richard Lee has recently explained, for instance, only subsequent to the availability of the *Posterior Analytics* in the mid-twelfth century could "the question of the scientific nature of theology . . . be asked. . . . For the question of science is a question raised in Aristotle's *Posterior Analytics*, and this text does not make its appearance in the Latin West until [then]."³⁰

As Owens explains, what is so striking about the historical development of medieval discussions of Aristotle's doctrine of being is that interpreters of Aristotle, although having "learned their technique from Aristotle" and having "couched their theses in his formulae," developed metaphysics "radically divergent" both from each others' and from Aristotle's (1978: 8). Complicating the matter of uncovering the ways in which transformations in science were brought about through medieval interpretations of Aristotle, it is important to note that the medieval interpreters are themselves subject to divergent modern interpretations. Thus, Owens begins his *Doctrine of Being* with a survey of recent scholarship concerning whether a given medieval interpreter favors a Platonic or Aristotelian theory of Being. According to Owens, there have been two basic ways of construing any given medieval interpreter:

Accordingly, if a Christian metaphysician working in this milieu took for the subject of his science Being in general—in the sense of the "most abstract and empty of concepts," he was drawing the properly Aristotelian inspiration out of the texts from which he was learning his technique. But if—helped largely by the influence of traditional Augustinian thought—he equated the subject of metaphysics with the concept of God, he was interpreting the text according to the Stagirite's earlier and Platonic leanings. (1978: 3)

Owens has serious misgivings about this simple criterion as a way of analyzing the medieval discussions of Aristotle's *Metaphysics* and seems to believe that it stems not only from inadequate understanding of the medieval thinkers but from flawed interpretations of Aristotle's *Metaphysics*, as well. He writes: "Neither . . . of the opposite conceptions of the Primary Philosophy seems acceptable in the medieval world" (1978: 6); rather:

During the Christian middle ages . . . and down to the beginning of the modern era, the Aristotelian formula 'Being *qua* Being' was interpreted as *ens commune* in a sense opposed to the divine Being. It meant the Being with the widest possible extension, and included in some way the greatest possible

comprehension; but it was clearly and consciously distinguished from the Being of God. (1978: 15)

Nonetheless, it is this interpretation of being *qua* being as *ens commune* that forms the bases of new medieval formulations of metaphysics. "In a word, the Aristotelian doctrine of Being is thoroughly Greek. It is part of the ancient world. . . . To express Christian thought in the formulae of this philosophy was the tremendous task undertaken by the mediaeval metaphysicians. Their thought inevitably had to break through the formulae" (Owens 1949: 245). On the one hand, then, the medieval interpretation of being *qua* being as *ens commune* is primarily the consequence of an ambitious attempt to reconcile the Aristotelian understanding of science with medieval theology. On the other hand, as Owens explains: "There is no notion in Aristotle of a science of Being which is in any way different from the science of that definite type of Being. Being *qua* Being, in its primary instance, is the Being of the separate Entities" (1949: 245). In short, whereas Aristotle's understanding of *pros hen* "analogy" of being *qua* being entails diverse principles of specific sciences, the medieval doctrine of being as *ens commune* establishes a theological science that emphasizes a unity of being rather than its diversity according to *pros hen* "analogy."

Beyond the implications of the preceding claims for rethinking Aristotle's relationship to the Western philosophical canon, the medieval interpretation of being *qua* being as *ens commune* is of historical significance to my assertion that Aristotle's understanding of science differs radically from modern ways of thinking about science. It should be noted that the understanding of being *qua* being as *ens commune* does not *per se* entail a single methodology of scientific inquiry, for even while emphasizing the unity of a science of being *qua* being as theological science, it would remain necessary for methods of diverse scientific inquiries to be differentiated with respect to each category according to different noetic principles. However, as Aubenque explains, such interpretations emphasizing the unity of being *qua* being were "to break the Aristotelian text's last resistance to an onto-theological interpretation—which begins to be given to it in the epoch of Neo-platonist commentaries and which comes to dominate the history of metaphysics henceforth" (44).

More specifically, such interpretations of Aristotle's being *qua* being lay the foundations for a modern *ethos* of construction. At the risk of anachronism, it may perhaps be said that the interpretation of being *qua* being as *ens commune*, having established determinate epistemic grounds in relation to a single, unifying *arche*, makes attractive the possibility of a single methodology according to which all true propositions may be demonstrated from a single first principle. Consequently, as Klein points out "[with modernity] no longer is the thing intended by the concept an object of *immediate* insight."³¹ Rather, the long-held Aristotelian understanding of the relationships between intuition (*nous*),

science/knowledge (*epistêmê*), and induction (*epagôgê*) gives way to modern projects of the construction of knowledge according to a single methodology of analytic demonstration. Jacob Klein explains this in a passage that bears quoting at length:

Nothing but the internal connection of all the concepts, their mutual relatedness, their subordination to the total edifice of science, determines for each of them a *univocal* sense and makes accessible to the understanding their only relevant, specifically scientific, content. In evolving its own concepts in the course of combating school science, the new science ceases to interpret the concepts of Greek *epistêmê* preserved in the scholastic tradition from the point of view of their "natural" foundations; rather, it interprets them with reference to the function which each of these concepts has within the whole of science. Thus every one of the newly obtained concepts is determined by *reflection on the total context of that concept*. (121)

ARISTOTELIAN DIALECTICS AS CRITICAL PHILOSOPHY

At this juncture, despite what one thinks about the possibility of analogy of being, at least two points should be clear: (1) that Aristotle's understanding of demonstration and science differs radically from modern conceptions of reason and knowledge, but also (2) that these modern conceptions are themselves largely based upon pervasive "misinterpretations" of Aristotle. Yet, there is a third point that remains to be made concerning the strangeness presented by the radical difference between Aristotle's understanding of logic and modern conceptions of logic. Returning to the previous analysis concerning Aristotle's understanding of the relationships between intuition (*nous*), scientific knowing (*epistêmê*), and induction (*epagôgê*), a practical consideration arises that must dramatically alter our appreciation of Aristotle's logic; it is simply this: often the principles upon which analogies and the sciences themselves depend are not easily accessible to intuition. Partly this inaccessibility is due to lack of sensation, as in the case of those who would debate whether snow is white (*Top.* 105a6-7); in other cases, however, the inaccessibility of principles is due to the intrinsic difficulty of generating a principle either when a matter is not easily investigated on the basis of sensation alone or when customs or biases undermine thinking so that *doxa* determines how one receives peculiar or unfamiliar information. In such cases, dialectical inquiry provides assistance both in generating principles of sciences and in clarifying possible analogies between sciences.

Aristotle's understanding of dialectics, however, is so at odds with the modern *weltanschauung* that it is difficult to see how Aristotle's "dialectics" could even be called a part of logic. In the first place, the strangeness of Aristotle's "dialectics" is due in part simply to the fact that Western Christian philosophy did not have any

access to the *Topics* until mid-twelfth century³² and was subsequently at pains to incorporate Aristotelian dialectics into its already fully developed conception of logic. However, more important given the emphasis of my thesis, subsequent to seventeenth-century transformations of the notion of science, the strangeness of Aristotle's understanding of dialectics is utterly incomprehensible within the conceptual constraints of modern thinking's insistence on certain, demonstrable principles of knowledge. With respect to Aristotle's understanding of dialectics, Kant, for instance, claims that

If one wanted to use this merely theoretical and universal doctrine as a practical art, i.e., as an organon, it would become a *dialectic*, a *logic of semblance* . . . which springs from a mere abuse of the analytic. . . . In former times, dialectic was studied with great diligence. This art put forward false premises under the semblance of truth and sought, in accordance with them and by the same semblance, to pretend things. . . . Nothing, however, can be more unworthy of a philosopher than cultivating such an art. It must therefore be dropped altogether. (*Logic* 19)

If Kant were correct that all truths are such in virtue of their demonstrability, then his evaluation of Aristotelian dialectics would also be correct. However, it is clear that Kant does not understand analytics in the same way Aristotle does and, moreover, expects dialectics to conform to his modern understanding of analytics. But, for Aristotle, even demonstrative syllogisms constitute an *organon* in that they only assist sciences by proceeding from intuitively held principles. In the second place, dialectical inquiry, while not providing scientific knowledge, also assists thinking in being on the way to principles of sciences. Consequently, while Aristotle would not dispute that the tools of analytic logic serve to adjudicate what can be demonstrated (though *not* to adjudicate all that is intelligible), he nonetheless provides dialectics an important philosophical status that differs fundamentally from the way in which modern philosophy employs dialectics and that requires reevaluating the relative importance traditionally ascribed to both dialectics and analytics.

More recent debates concerning the status of the *Topics* serve to emphasize the same point as is made by addressing Kant's view here. Because the *Topics* makes absurd basic modern presuppositions about science and logic (not to mention the predominate readings of Aristotle's *Analytics*, which are also colored by these same presuppositions), the *Topics* is generally either (1) thought not to advance any aspect of logic but rather simply to name genera of scientific inquiry, (2) considered an immature work in Aristotle's development of logic, or (3) ignored altogether. I believe that the *Topics* is in fact the centerpiece of Aristotle's *Organon* and that appreciating its strangeness sheds much light on the Aristotle's philosophy more generally. In a similar vein, E. Weil makes this point emphatically:

[T]he *Topics* does not, as has often been claimed, constitute a 'primitive' or 'inferior' form of Aristotle's logic; on the contrary, it gives both the starting-point of all analytic thought and also the end-point at which such thought must stop if it is to bear any fruit. Without topics, there is no matter for the syllogism to work on. Taken in this way, the *Topics* is philosophically prior to the *Analytics*, and without it the syllogism is useless. In a word, the *Topics* contains reflections on discourse in general, one part of which is scientific discourse in the strict sense.³³

According to Aristotle, dialectics has three uses: "for intellectual training, for ordinary conversations, and for sciences considered philosophically" (*Top.* 101a26–28). In sciences considered philosophically, dialectics has two purposes. First, within a specific science, a dialectical syllogism may be of use in going over difficulties on both sides of a scientific issue by examining and clarifying the opinions stated on each side and "detect more easily what is true and false about each side" (*Top.* 101a35–36). Second, "dialectic, being exploratory, is the path to the principles of every inquiry" (*Top.* 101b3–4); or, to quote Plato, dialectical arguments "gently draw" the soul forth and lead it with the tools of thought "as assistants in the turning around."³⁴

As it turns out, the *Topics* is therefore the key to understanding the relationship between induction (*epagôgê*) and intuition (*nous*). Aristotle explains this in a passage that might otherwise seem incongruous: "We should distinguish the number of species of dialectical argument. One of them is induction [*epagôgê*], the other is a [dialectical] syllogism" (*Top.* 105a10–12). Since Aristotle is also explicit that induction is the "starting point" (*NE* 1139b28) that allows intuition to grasp the universal, it is also clear that taking seriously Aristotle's understanding of logic and science also demands that the *Topics* itself be taken seriously. This is also precisely consistent with what is said in the *Prior Analytics*: "to convey to us the principles connected with each particular science is the task of experience. . . . We have considered this subject with detailed accuracy in our treatise on dialectic."³⁵

However, if the *Topics* is to be taken seriously, then the modern interpretation of Aristotle's understanding of the relationship between science and induction must, in turn, face serious emendation in order properly to appreciate the importance of dialectical syllogisms. Induction is not the only path to principles of sciences. In fact, in most cases, it is not the most important path, for while "induction is more persuasive and clear and more known according to the senses and is common to most people" (*Top.* 105a16–9), the principles of things that are most difficult and not immediately present to induction through sensation such as "that for the sake of which each thing must be done," i.e., "the highest good in the whole of nature" (*Meta.* 982b5–7) must be sought through dialectical syllogisms. Moreover, as Plato must also have noticed, a dialectical syllogism "is

more forceful and more obvious to those who are contentious" (*Top.* 105a18–9). Accordingly, as Socrates asks Glaucon: "isn't this at last the song itself that dialectic performs? . . . when [one] tries by discussion—by means of argument without the uses of any of the senses—to attain to each thing itself that *is* and doesn't give up before he grasps by intellection [*nous*] itself" (*Republic* 532a–533b). But, to reiterate, dialectical syllogisms, as one of two paths to principles of sciences, do not themselves provide principles; rather, working from *aporiai*, a dialectical syllogism is a mode of reason (*logos*) that constitutes an inquiry on the way to such principles.³⁶

The syllogisms involved in such an inquiry present these *aporiai* as statements that are *paradoxa*—the contraries of commonly held opinions. Or, in other words, dialectical syllogisms operate according to *one sense* of Heraclitus' dictum "everything forever has its opposite along with it" in that they seek to generate principles from *paradoxa*.³⁷ If Aristotle's treatment of dialectics should seem too esoteric in the *Topics*, fortunately, his other texts, especially *Physics* and *Metaphysics*, are replete with illustrations and, indeed, explicit discussions of dialectical inquiry.³⁸ Because both *Physics* and *Metaphysics*, like all sciences, investigate being through diverse categories, their inquiries clearly cannot arrive at a single principle from which all sciences follow.³⁹ Dialectical inquiry, then, is necessary first because "concerning all these problems, not only is it difficult to arrive at truth, but it is not even easy to discuss the problems well" (*Meta.* 996a17–18). Consequently, when using dialectical syllogisms in order to come to principles of science, one is generally speaking of *aporiai* regarding which there can initially be only opinion since it is unlikely that there would be direct sensation by which induction (*epagôgê*) might assist intuition (*nous*) in grasping a principle.⁴⁰ Furthermore, also as a consequence of the equivocality of being, dialectical inquiry in philosophy is to be undergone eternally since it is neither possible to define a principle of all sciences nor to arrive at all the principles of all the sciences. Thus, "while each of us contributes nothing or little to the truth, a considerable amount of it results from all our contributions" (*Meta.* 993b2–4).

The importance Aristotle ascribes to dialectics as a method of inquiry, then, differs radically from both contemporary notions of dialectics (e.g., as it presents itself in Hegel⁴¹) and contemporary assumptions about what Aristotle understands by "dialectics." Put briefly, from an Aristotelian perspective, modern philosophy attempts to use dialectics analytically; that is, within the framework of a modern epistemology, modern philosophical dialectics *constructs* nature and history as phenomenal. For example, in the *Phenomenology of Spirit*, Hegel writes that:

Of course, the *triadic form* must not be regarded as scientific when it is reduced to a lifeless schema, a mere shadow, and when scientific organization is degraded into a table of terms. Kant rediscovered this triadic form by instinct, but in his work it was still lifeless and uncomprehended; since then

it has, however, been raised to its absolute significance, and with it the true form in its true content has been presented so that the Notion of Science has emerged. (§53)⁴²

Science dare only organize itself by the life of the Notion itself. The determinateness, which is taken from the schema and externally attached to an existent thing, is, in Science, the self-moving soul of the realized content. The movement of a being that immediately is, consists partly in becoming an other than itself, and thus becoming its own immanent content; partly taking back into itself this unfolding of this existence of it, i.e., in making *itself* into a moment, and simplifying itself into something determinate. (§53)

Self-identity, however, is pure abstraction; but this is *thinking*. (§54)

And while Hegel claims that his notion of dialectics is of greater significance than Kant's—a claim that I do not know how to evaluate—the statement above indicates that Hegel believes that their notions of dialectics are similar at least to the extent that they employ dialectics constructively. Kant's *Critique of Pure Reason* and *Critique of Judgment* bear this out:

Since, properly, this transcendental analytic should be used only as a canon for [adjudicating] the empirical employment of the understanding, it is misapplied if appealed to as an organon of its general and unlimited application, and if consequently we venture, with the pure understanding alone, to judge synthetically, to affirm, and to decide regarding objects in general. The employment of the pure understanding then becomes dialectical. (*CPR*, B 88)

If a power of judgment is to be dialectical, then it must first of all engage in reasoning, i.e., its judgments must claim universality and must do so *a priori*.⁴³

Aristotle clearly does not intend the same thing by dialectics; for him, attempting to generate *a priori* principles of science from dialectical theses would be the height of absurdity. For Aristotle, dialectical syllogisms, in relation to principles of science, serve strictly as a way of investigating matters that are not easily accessible through sensation alone, not for investigating matters that are in principle inaccessible to sensation. In other words, like induction (*epagôgê*), a dialectical syllogism assists *nous* in generating a principle of science. Moreover, for Aristotle, dialectics is the discourse of communal inquiry. Thus, unlike modern logical methodologies for which, in the legacy of Descartes, knowledge concerns a subject's relation to a world of objects that is discursively knowable or representable, for Aristotle dialectics is a mode of reason (*logos*) that is on the way to principles by beginning with eminent opinions that are contrary to each other or to commonly held opinions.

Of course, Aristotle recognizes that dialectics is often used in eristic syllogisms.⁴⁴ “Dialectical inquiry,” on the other hand, is specific to being on the way to

principles of sciences. This distinction is made, to borrow a phrase from Aristotle, "not for the sake of introducing names but in order that their differences will not escape us" (*Top.* 104b36–105a2). The distinction between dialectical and eristic syllogisms hinges most importantly on the status of "commonly accepted opinions,"⁴⁵ which are defined as "opinions which are accepted by all people, or by most, or by the wise, and if by the wise, then by all of them, or by most, or by those who are most known and held in esteem" (*Top.* 100b21–23). This definition seems ambiguous because dialectics has many uses, and so the *endoxa* with which it deals are specific with respect to each distinct habit of thinking. Although there can be no more precise definition of *endoxa*, the meaning of specific *endoxa* should be clear within a given inquiry, and, as Aristotle frequently warns, one should not be petty in the demand for certainty "for it is the mark of an educated man to seek as much precision in things of a given genus as their nature allows, for to accept persuasive arguments from a mathematician appears to be to demand demonstrations from a rhetorician."⁴⁶

However, while rhetorical or sophistical uses of dialectics are appropriations of dialectics that may hinder inquiry, they indicate one "legitimate"—I use the word cautiously—feature of dialectical syllogisms that directly challenges the role of logic in modern philosophy and assigns it a critical status in relation to all habits of thinking. In the first place, Aristotle's understanding of dialectical syllogisms implies that logic must be concerned with the transmissibility of both opinions and knowledge. He makes explicit one way in which this is true when he claims that "It is just to be grateful not only to those with whose opinions we might agree but also to those who have expressed rather superficial opinions; for the latter, too, have contributed something, namely, they have handed down the habit of thinking" (*Meta.* 993b13–15). Moreover, this also explains the seemingly (to modern ears) bizarre statement in the *Topics* that dialectics has proper non-scientific uses that include "imparting opinion" (*Top.* 105b31). However, in the second place, Aristotle affords dialectics a critical status with respect to philosophical activity in that it is able to interrupt customs and opinions that hinder thinking. This pedagogic or propaedeutic function of dialectics—i.e., its value for "intellectual training"—also indicates the critical juncture of philosophical, scientific, and ethico-political concerns.

Perhaps, then, the most powerful hindrance to learning is custom—both in the opinions that we hold to be true knowledge and in the customs of whose influence we are not even aware. As Aristotle notes, "The way we receive a lecture depends on our custom; for we expect a lecturer to use the language we are accustomed to. . . . The power of custom is clearly seen in the laws, in which the mythical and childish beliefs prevail over knowledge about them, because of custom" (*Meta.* 995a1–5). Dialectics is able to interrupt such customs precisely because it begins with a paradoxical thesis that is able to set the habit of thinking (an aspect of the

ethos of one who holds a contrary opinion) against a habit that hinders it. However, this is not merely a matter of pedagogy; for, while it certainly performs this function of preparing a listener for a philosophical conversation—and there is no greater example of this than the emendations performed by Socrates in Plato's dialogues—dialectics also performs this function because it estranges listeners from their customs and thereby encourages further inquiry. In short, understood in this way, dialectics is philosophy as political activity.

A sign of this may be gathered from the very trajectory of this paper. It is difficult to understand dialectical inquiry as logic precisely because of the way in which the modern *ethos* of a metaphysics of construction is accustomed to consider logic as value-neutral, reductive, and unconcerned with the concrete historical causes of specific habits of thinking. Thus, the modern *ethos* with which I am concerned shows itself to be uneducated in that it demands expressions only in ways that fit comfortably with a custom of metaphysics and epistemology whose "logic" (i.e., rigid formalization of reason/*logos*) hinders thinking. In this way, this modern *ethos* is similar to the *ethe* of those whom Aristotle describes as follows: "Some people do not accept statements unless they are expressed mathematically; others, unless they are expressed by way of examples; and there are some who demand that a poet be quoted as a witness" (*Meta.* 995a5–8). Thus, to examine this issue in light of modern philosophy, perhaps it would be enough to quote a modern witness:

Those who suffer most and are poorest in life would need above all mildness, peacefulness, and goodness in thought as well as deed—if possible, also a god who would be truly a god for the sick, a healer and savior; also logic, the conceptual understandability of existence—for logic calms and gives confidence—in short, a certain warm narrowness that keeps away fear and encloses one in optimistic horizons.⁴⁷

NOTES

I would like to express my thanks to Gregg Horowitz, whose criticisms of an early draft of this paper encouraged me to develop it in ways that I would not otherwise have considered. Because I greatly appreciate his insight, I must also mention that I make no assumption that he agrees with all of my conclusions. Second, I must indicate my extreme gratitude to Idit Dobbs-Weinstein who, responding to my perplexities, has taught me to approach difficult matters in a more orderly manner, and to whom my debt is greater than I can express.

1. *Philosophy in the Tragic Age of the Greeks*, trans. Marianne Cowan (Washington, D.C.: Regnery Publishing, Inc., 1962), 52. If this were in fact Aristotle's criticism, it would be pedagogical, not philosophical. However, the actual "accusation" of Heraclitus to which Nietzsche refers is probably what occurs in *Metaphysics* 1005b24–5 and is qualified as follows: "as some think Heraclitus says" (trans. Hippocrates Apostle [Grin-

- nell, Iowa: The Peripatetic Press, 1966], hereafter abbreviated as *Meta*. for purposes of in-text citations)—see note 37 for full quotation.
2. David Lachterman suggests that the modern philosophical *ethos* is largely the legacy of Descartes, for whom “Method . . . not only codifies rules of procedure; it constrains those ‘objects’ to which it is applied to such an extent that their very intelligibility becomes identical with their susceptibility to methodical treatment. In other words, all and only those beings apt for inclusion in the one comprehensive *mathesis* fall under the sway of method and vice versa” (*The Ethics of Geometry: a Genealogy of Modernity* [New York: Routledge, 1989], 175). For Lachterman’s “genealogy of symbolic, i.e., modern, logic” see also his essay “Hegel and the Formalization of Logic,” *Graduate Faculty Philosophy Journal* 12: 1–2 (1987): 153–235.
 3. *Critique of Pure Reason*, trans. Norman Kemp Smith (New York: St. Martin’s Press, 1965), B xvi. Hereafter abbreviated as *CPR* for purposes of in-text citation.
 4. “The World of Physics and the ‘Natural’ World,” trans. David Lachterman, in *Lectures and Essays*, ed. Robert B. Williamson and Elliott Zuckerman (Annapolis: St. John’s College Press, 1985), 1–34, at 9.
 5. There is some debate as to whether *Rhetoric* and *Poetics* should be considered part of the *Organon*. For a discussion of the dramatic philosophical implications of differences between medieval and modern assumptions about the composition of the *Organon* see, for instance, Deborah Black, *Logic and Aristotle’s “Rhetoric” and “Poetics” in Medieval Arabic Philosophy* (Leiden: E. J. Brill, 1990).
 6. *Topics*, in *Aristotle: Selected Works*, 3rd edition, trans. and ed. Hippocrates Apostle and Lloyd Gerson (Grinnell, Iowa: The Peripatetic Press, 1991), 100a18–24. Hereafter abbreviated *Top*. for purposes of in-text citation.
 7. Apostle translates *epistēmē* with “knowledge,” which, though he uses italics when he does so, can make difficult distinguishing *epistēmē* from other forms of knowledge (e.g., “*gnōseōs*” in *Posterior Analytics* 71a1–10). In general in this paper I will use “science” rather than *epistēmē*. Although *epistēmē* would be preferred *ceteris paribus*, because part of the task of the paper is to set *epistēmē* against modern understandings of science, using “science” in this context should show precisely why it is difficult to hear “science” as *epistēmē*—that is, why modern understandings of science are restrictive and reductive.
 8. See *Topics* 100b24–101a4.
 9. *Posterior Analytics*, trans. Hippocrates Apostle (Grinnell, Iowa: The Peripatetic Press, 1981), 71b17–19. Hereafter abbreviated *PoA* for purposes of in-text citation.
 10. *Logic*, trans. Robert Hartman and Wolfgang Schwarz (New York: Dover Publications, Inc., 1974), 23. Perhaps it is fair to say that, in this respect, one of Kant’s failures is to demand more certainty than is proper to demand of logic—or, in other words, Kant seems to demand that logic be a science rather than an *organon*.
 11. See especially *Posterior Analytics* A.9 and B.19 and *Nicomachean Ethics* Z.3.
 12. *Posterior Analytics* 92a39–92b1. The “whatness” of a thing is, in the primary sense, its substance (*ousia*). However, in another sense (as a consequence of the equivocality of being), it may pertain to one of the other genera of predicates of a thing—i.e., a

“whatness” may also state a predicate pertaining to one of the other categories of being. See *Topics* I.9.

13. *Nicomachean Ethics*, trans. Hippocrates Apostle (Grinnell, Iowa: The Peripatetic Press, 1975), 1139b28–9. Hereafter abbreviated *NE* for purposes of in-text citation.
14. *Posterior Analytics* 81a38–b9. However, since reasoning and induction are both activities that belong to *nous*, it is also apparent that *nous* may generate principles from something other than *epagôgê* alone (e.g., through a dialectical syllogism). I shall return to this possibility later in this paper.
15. *Posterior Analytics* 88a12–14. See also *Posterior Analytics* A.18.
16. See *Physics* 184a17–184b14.
17. See *Posterior Analytics* 77a26–28 and 88b1–3.
18. See *Posterior Analytics* 79a12–16 and *Nicomachean Ethics* A.1–5.
19. See *Metaphysics* 992b24–32.
20. *Doctrine of Being in the Aristotelian “Metaphysics,”* 3rd ed. rev. (Toronto: Pontifical Institute of Medieval Studies, 1978).
21. See especially *Metaphysics* 1003a33–35 and 1028a10–13.
22. “Of [principles] used in demonstrative sciences, some are proper to each science but others are common to many sciences, and the latter are common by analogy” (*Posterior Analytics* 76a37–39). The most frequently cited definition of proportion (in the form A:B::C:D) is in *Nicomachean Ethics*: “a proportion is a property not merely of numbers with units as elements, but of all kinds of numbers; for it is an equality of ratios, and it exists in at least four terms. Clearly, then, a discrete proportion exists in four terms” (1131a31–33). See also *Metaphysics* 1048b5–8: “Things which are said to be in *actuality* are not all called so in the same manner but by analogy, that is, as A is in B or is related to B, so C is in D or is related to D.” Frequently cited examples of four-term proportionals are: *Nicomachean Ethics* 1096b28 and *Physics* 191a7–10.
23. See *Metaphysics* Γ.1–2.
24. *Metaphysics*, 1016b31–35: “some things are one according to number, others are one according to species, others are one according to genus, and others are one according to analogy. They are one numerically if the matter is one, they are one in species if the formula is one, they are one in genus if they are under the same category, and they are one according to analogy if they are related as a third to a fourth.” However, there is no reason to assume that the unities offered by analogy are ontologically *real*, nor is there reason to assume that such unities are possible through an analogy of being. In short, the assumption that Aristotle’s texts support a doctrine of analogy of being rest on interpretation of the second point above concerning what Aristotle means by a science of “being *qua* being.”
25. The example that is usually chosen is in the *Nicomachean Ethics* A.4: “Further since the term ‘good’ has as many senses as the term ‘being’ . . . The good, then cannot be something common in virtue of one idea. But then, in what manner are these things called ‘good’? They do not seem to be like those which have the same name by chance. Are they called good by coming from one thing, or by contributing to one end, or rather by analogy?”

26. "The Origin of the Doctrine of Analogy of Being," *Graduate Faculty Philosophy Journal* 11:1 (1986): 35–46, at 35. Aubenque adds: "We believe we have shown that this doctrine [of analogy of being] is to be found neither explicitly nor even implicitly in any part of Aristotle's work and that its retrospective attribution to the Greek philosopher did not only constitute a terminological anachronism, but a blatant misunderstanding. . . . Was it therefore justifiable, in translating the Aristotelian doctrine, to speak of analogy where Aristotle does not do so and yet could have done so if he had deemed it possible, since he was acquainted with the notion of analogy and what it designates?" (35–36). Regardless of disagreements concerning other specifics, Owens agrees with Aubenque to this extent: "Being in the *Metaphysics* is not analogous. Analogies run through every category, but they presuppose the Beings as already constituted. No four-term relations are possible in the constitution of Being as set forth in the Primary Philosophy. Form, by the very fact of being form, denoted difference and limitation. It was limited by its own nature. It could exercise its actuality without any dependence upon a further act" ("Report of a Recent Thesis Defended at the Pontifical Institute of Mediaeval Studies: 'The Doctrine of Being in the Aristotelian *Metaphysics*: A Study in the Greek Background of Mediaeval Thought,'" *Mediaeval Studies* 11 [1949]: 239–45, at 245).
27. For a detailed history of debates about the status of analogy and equivocation as they relate to the development of medieval logic, see E. J. Ashworth, "Analogical Concepts: The Fourteenth-Century Background to Cajetan," *Dialogue: Canadian Philosophical Review* 31:3 (1992): 399–413; E. J. Ashworth, "Analogy and Equivocation in Thirteenth-Century Logic: Aquinas in Context," *Mediaeval Studies* 54 (1992): 94–135; E. J. Ashworth, "Signification and Modes of Signifying in Thirteenth-Century Logic: A Preface to Aquinas on Analogy," *Medieval Philosophy and Theology* 1 (1991): 39–67; E. J. Ashworth, "Suarez on the Analogy of Being: Some Historical Background," *Vivarium* 33:1 (1995): 50–75; and E. J. Ashworth, "A Thirteenth-Century Interpretation of Aristotle on Equivocation and Analogy," *Canadian Journal of Philosophy* supp. vol. 17 (1991): 85–101.
28. *Doctrine of Being in the Aristotelian "Metaphysics,"* 15. Aubenque, whose interpretation of Aristotle differs slightly from Owens's, considers the early Greek commentaries on Aristotle to be the origin of later medieval misinterpretations of Aristotle. Aubenque writes: "That Aristotle refused this association between analogy and dependence is probably the result of an astonishing capacity at resisting Platonic influence. For the Platonic theme reappears with the first of Aristotle's disciples, Theophrastes. In his *Metaphysics* the latter wonders how we get to know the primary Essence, if it is not 'in accordance with analogy or some other resemblance'" (44).
29. For a discussion of the translation and reception of the Aristotelian corpus in the Latin West, see Bernard G. Dod, "Aristoteles latinus," in *The Cambridge History of Later Medieval Philosophy* (Cambridge: Cambridge University Press, 1982), 45–79.
30. *Science, the Singular, and the Question of Theology* (New York: Palgrave, 2002), 7.
31. *Greek Mathematical Thought and the Origin of Algebra*, trans. Eva Brann (Cambridge, Mass. M.I.T. Press, 1968; reprint edition, New York: Dover Publications, Inc., 1992), 121.

32. I am indebted to Idit Dobbs-Weinstein for this observation. Although Boethius is known to have translated all of the *Organon*—except the *Posterior Analytics*—*Prior Analytics*, *Topics*, and *Sophistici elenchi* were not recovered in the Latin West until after 1120. See Dod, “Aristoteles latinus.”
33. “The Place of Logic in Aristotle’s Thought,” reprinted in *Articles on Aristotle*, vol. 1, Science (London: Gerald Duckworth & Company Limited, 1975), 88–112, at 92.
34. *Republic*, trans. Allan Bloom (New York: Basic Books, 1968), 533d. Largely as a consequence of our having received Plato and Aristotle through divergent traditions of interpretation, Plato and Aristotle are often thought to disagree about the status of dialectics. However, it is clearly unjust to read them in this way simply in virtue of the different ways each were appropriated by a tradition whose fundamental orthodoxy “justified” such misinterpretations.
35. Aristotle, *Prior Analytics*, in *Loeb Classical Library*, Aristotle vol. I, trans. H. P. Cooke and Hugh Tredennick (Cambridge, Mass.: Harvard University Press, 1938), I.30, 46a19–30.
36. To be sure, dialectics, as a mode of reason (*logos*), cannot in itself guarantee that a principle will be generated. For this to occur, one must already be trained in how to accept statements. See *Metaphysics* α.3.
37. It should be clear that the English term “paradox” has come to mean something very different from its Greek ancestor “*paradoxos*.” For contemporary thinkers, a paradox implies two *contradictory* propositions—e.g., “All humans are mortal” and “All humans are not mortal”—and generally indicates either faulty assumptions or faulty reasoning. For Aristotle, however, *paradoxos* simply refers to a thesis that is *contrary* to commonly held opinions. Although a dialectical syllogisms rest on *paradoxa*, it would be absurd to suggest that dialectics provides logical expression for concepts which, violating the axiom of non-contradiction, imply contradictory statements concerning natural/historical phenomena, “for it is impossible for anyone to believe the same thing to be and not to be, as some think Heraclitus says” (*Metaphysics* 1005b24–25).
38. *Physics* and *Metaphysics* show by example how dialectical syllogisms work by continually going over prior opinions concerning what is specific to these sciences. A similar strategy is employed in *Nicomachean Ethics*.
39. As a consequence of Aristotle’s reception in the Western philosophical canon (especially because of debates about “analogy of being”), this itself has become a paradoxical thesis of sorts. It has often been noted that *Metaphysics* was named such because an early editor placed it after the *Physics*. However, Owens disputes this claim in *Doctrine of Being in the Aristotelian “Metaphysics”*: “[The title *Metaphysics*] has wrongly been thought to originate in the fact that the treatises on the Primary Philosophy were placed *after* the physical treatises—[*meta ta physica*]—by Andronicus of Rhodes in the first century before Christ, or possibly in a somewhat earlier edition. But the title seems to have been coined to signify that the metaphysical considerations came in doctrinal sequence *after* the physical treatises and went *beyond* the physical order. In any case, the name cannot be held to date from Aristotle” (74). At any rate, and

in agreement with Owens, *Metaphysics* cannot be said to be concerned with laying down a foundational science.

40. See *Posterior Analytics* A.33.
41. See Lachterman's "Hegel and the Formalization of Logic" concerning the exemplarity of Hegel's logic with respect to the modern *ethos*.
42. Trans. A. V. Miller (Oxford: Oxford University Press, 1977).
43. *Critique of Judgment*, trans. Werner S. Pluhar (Indianapolis: Hackett Publishing Company, 1987), §55, 337.
44. See *Topics* 105b29–31 and 108a30–36; also see Aristotle, *Rhetorics* 1355a21–1355b21 in *Aristotle: Selected Works*, 3rd edition, trans. and ed. Hippocrates Apostle and Lloyd Gerson (Grinnell, Iowa: The Peripatetic Press, 1991), in which Aristotle discusses dialectic and rhetoric with respect to moral purpose and also refers to the *Topics*.
45. The Greek term "*endoxos*" ("generally accepted opinion") is obviously related to the term "*doxa*" ("opinion," "doctrine," or "custom"). In discussing dialectical theses in *Topics*, 1.11, Aristotle explains that dialectical theses are *paradoxa*, i.e., contrary to *endoxa*.
46. *Nicomachean Ethics* 1094b24–25. On "pettiness," see also *Metaphysics* α, 995a10–12.
47. Friedrich Nietzsche, *The Gay Science*, trans. Walter Kaufmann (New York: Vintage Books, 1974), §370.