

## Aristotle on Universal Subjects

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Aristotle's *Categories* has profound implications for his ontology and his logic. He argues that not everything exists in the same way, and that not every predicate is used in the same way. He distinguishes ten categories of being, nine of which depend upon the first, substance, for their being. Furthermore, Aristotle distinguishes primary substances (particulars) from secondary substances (universals). As with non-substantial categories, secondary substances depend on primary substances for their existence: "everything except primary substances is either predicated of primary substances, or is present in them, and if these last did not exist, it would be impossible for anything else to exist" (*Cat.* 2b4–6). Things of non-substantial categories (accidents), such as qualities, quantities, or relations, derive their being from their "presence in" substances. Given that accidents have only a secondary existence deriving from their presence in substance, what does it mean to talk about them? For example, when we talk about "red," are we talking about a color, or are we merely talking about the substances in which redness is present? If reality is fundamentally primary substance, it would appear that in speaking of the color we are merely speaking of red substances, but when we speak of redness we intuitively feel that we are referring primarily to redness itself, as a universal, and only secondarily to red objects. To frame this question, I will take a detour to establish a relationship between language, logic, and ontology, both in Aristotle and in modern logic.

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## Language, Logic, and Ontology

Aristotle adapted language to match his ontology. Already in the *Categories*, and still further in his later logical treatises (see below), Aristotle ties his ontological distinction of substance and accident to language: “substance, in the truest and primary and most definite sense of the word, is that which is neither predicable of a subject nor present in a subject” (*Cat.* 2a11–13). Here Aristotle describes substance in terms of its linguistic role. Primary substance is never a predicate. It may seem here that Aristotle is taking ontological cues from language. However, as a definition of substance, this statement from the *Categories* is inadequate. Consider for example the linguistically well-formed sentence “The white thing is a man.” Here “man” is the predicate, and “white thing” is the subject; yet “man” is the substance and “white” is the accident. Aristotle refers to this kind of predication, in which linguistic roles appear ontologically reversed, as “accidental” predication. In saying that substances are never predicated of anything, Aristotle is not defining substance in terms of linguistic use. Just the opposite—he is establishing a proper way of speaking, a sort of logic to match ontology.

Aristotle appeals to other linguistic distinctions to separate substance from accident. For example, he distinguishes between synonymous and homonymous predication. Secondary substances are synonymously predicated of primary substances because wherever a secondary substance is predicated of a primary substance, the definition of that secondary substance may also be predicated of primary substance. The same is not true of accidents, which are homonymously predicated of substances: “when a thing is present in a subject [an accident], though the name may quite well be applied to that in which it is present, the definition cannot be applied” (*Cat.* 3a15–17). For example, a log is white in a different sense than a log is wood. If we substitute a definition of “white,” “a color with  $x$  properties,” into the sentence, “That log is white,” we get a false sentence: “That log is a color with  $x$  properties.” A log is not a color, it *has* a color. However, if we substitute a definition of “wood” into the sentence, “That log is wood,” we get a true sentence: “That log is dead tree matter.” Aristotle says that the second substitution succeeds where the first fails because in the first, an accident is said to be IN a substance (predicated homonymously), whereas in the second, a substance is SAID-OF a substance (that is, predicated synonymously) (*Cat.* 3a15–17). Yet, as Frank Lewis points out in a detailed and technical analysis of synonymous predication, synonymy cannot distinguish accident from substance because it “*presupposes* the distinction between the IN and SAID-OF relations” (63). Aristotle’s notion of definition is, after all, built on his notion of categories, and furthermore, to say,

“A log is not a color, it *has* a color,” is already to distinguish between being and having, a distinction that Plato, for whom being is having, would disagree with (Lewis 61).

In short, Aristotle’s doctrine of predication cannot be understood as a derivation of metaphysics from grammar. Rather, Aristotle is doing just the opposite. He is developing a more scientific, logical language to reflect his metaphysics. As Allan Bäck describes it, “Aristotle distinguishes substance and accident, universal and singular, but has forced the same structure onto his technical protocol Greek. The language reflects the ontology” (173). This process of restructuring language to match ontology is part of Aristotle’s development of logic.

A similar connection between ontology and logic is evident in modern logic. Predicate logic translates natural language into symbols that capture the meaning of a sentence in a precise way so that it can be traced to its implications. The way we reduce natural language to symbols has ontological implications. Writing “is red” as the upper-case predicate letter “R,” for example, shows that redness is a universal. But because “R” is a predicate letter, it cannot be the subject of another predicate letter. A question then arises: how do we talk about the color red? Perhaps we choose the lower-case “r” for the subject “red,” but in that case, we seem to commit ourselves to realism, the notion that red, a universal, exists. Furthermore, how then do we show the relationship between “r” and “R,” between “red” and “is red?” If, on the other hand, we want to restrict universals to being predicates and particulars to being subjects, then we seem to be affirming that only particulars exist. For that matter, while some philosophers have asserted existence to be a predicate (e.g., anyone who takes the ontological argument for God’s existence seriously), note that in modern logic, existence is not a predicate but a quantifier. This implies that being red, owning a dog, and laughing all have something in common that distinguishes them from existing (namely, that the former are predicates). Whether or not we are satisfied with the ontology our logic implies, our logic and our ontology reflect each other.

The same was true for Aristotle’s refinement of language, and in his case, logic was consciously designed to reflect ontology. Although the Aristotelian language I am investigating was not as technically precise as symbolic logic, both exhibit a strong connection between ontology and syntax. Aristotle pared down the many ways of expressing propositions to one scientific form that most accurately reflects reality. Because substance is ultimate reality in Aristotle’s ontology, it makes sense for substance to occupy a unique position in scientific syntax.

One final example of the relationship between language and ontology will be important in figuring out whether we talk about red or red

things. Aristotle used the copula (in English, the verb “to be” when used to express a link between subject and predicate) very differently from the way we now use it. Whereas now the copula is not understood to imply existence, the Aristotelian copula always implied existence. As Allan Bäck argues, “a standard Aristotelian subject-predicate sentence (one of *tertium adiacens*) of the form, ‘S is P’, is to be read as ‘S is existent as a P’. So, for example, ‘Socrates is (a) man’ is to be read as ‘Socrates is existent as a man’” (2). Because the Aristotelian copula is always at the same time an assertion of existence, it always insinuates an ontological thesis. The sentence “Unicorns are animals” is false in Aristotelian logic because unicorns do not exist. If the subject of the Aristotelian copula is always asserted to exist, then it is natural that primary substance, that substance whose being is most independent and original, should be the ontological subject of any logical statement.

### Gyekye’s Thesis

Whether we talk about red or red things is a question of how we understand universal and particular subjects. Traditional logic allows for universal subjects, whereas modern logic does not. For example, in modern predicate logic, “Socrates is pale” might be symbolized  $P_s$ , while “Englishmen are pale” would be symbolized  $(x)(Ex \supset Px)$ . The former expression is simple predication, while the latter is a conditional that makes both subject and object universal predicates. The syntax of predicate logic implies that universals are always predicates. Ostensibly, this is because universals are not ultimate reality. Ultimate reality consists of particulars. As proponents of modern logic have it, ancient logicians were fooled by the parallel structure of singular and plural predication into thinking that they were of one form. In reality, modern logicians would say, universals are not predicated of universals.

Kwame Gyekye has argued that although this criticism of ancient logic may be correct, Aristotle’s views on this issue are actually closer to the modern conception than to so-called ancient logic: “according to Aristotle’s doctrine of categories . . . a universal term, like piety, does not exist independently but inheres in a primary substance (i.e., an individual) and is ontologically dependent upon it; such a term is thus, in a Fregean-Russellian language, an incomplete symbol” (“Modern” 615). Aristotle recognized that universals are dependent for their existence on individuals. In this ontology, Gyekye argues, Aristotle implies what predicate logic makes explicit: predicating universals of universals is really just shorthand for predicating universals of particulars. “Englishmen are pale” is shorthand for “There exist particular Englishmen, and they are pale.”

Gyekye supports his argument with lines from the *Metaphysics* in which Aristotle expresses doubt as to whether accidents can properly be said to exist:

One might even raise the question whether the words “to walk,” “to be healthy,” “to sit” imply that each of these things is existent, and similarly in any other case of this sort; for none of them is either self-subsistent or capable of being separated from substance, but rather, if anything, it is that which walks or sits or is healthy that is an existent thing. (1028a20–25)

Here, Aristotle is flirting with the idea that only substances exist. Recalling what Bäck showed about the Aristotelian copula, we see that if accidents don’t exist, then sentences whose subjects are accidents are ill-formed because they assert that accidents exist. Therefore, to speak of accidents is more properly to speak of the substances in which accidents are present. Aristotle goes on:

Now these are seen to be more real because there is something definite which underlies them (i.e., the substance or individual), which is implied in such a predicate; for we never use the word “good” or “sitting” without implying this. (1028a25–29)

Here, Aristotle seems to spell out Gyekye’s case explicitly. Any use of a universal implies a more real substance or individual that underlies it. If our language is to precisely reflect reality, then, it is individuals, not universals, that ought to serve as subjects. Thus, while Aristotle did not invent predicate logic, his ontology implies modern logic’s treatment of “universal subjects.”

Gyekye points out that Aristotle’s doctrine of predication is based on his ontology. *Ousia*, used synonymously with *hypokeimenon*, refers both to the ontological notion of substance and to the logical subject. Given that primary substances are particulars, particulars ought to serve as the subjects of sentences: “the real subject of a proposition must always be a substrate, that is, an individual, a complete symbol” (“Modern” 616). Gyekye compares Aristotle to Strawson, who points out that even though predicates like “generosity” and “prudence” seem to be subjects of sentences, they are predicates, and therefore cannot be the subjects of other predicates (“Modern” 616). Rather, they require a particular subject. Ontologically speaking, this is precisely how Aristotle views universals. Therefore, Gyekye concludes, the modern criticism of ancient logic does not apply to Aristotle.

Gyekye's analysis of Aristotle's logic can be summed up in the following argument:

- (1) In Aristotle's ontology, particulars are primary reality, upon which all universals depend for existence.
  - (2) Modern predicate logic analyzes all propositions about universals into propositions about particulars.
- ∴ (3) Predicate logic provides a good model for Aristotle's ontology.

If we add to this summation of Gyekye's argument our previously defended thesis that Aristotle's logic was designed to match his ontology, it seems reasonable to conclude that Aristotle would have agreed with the predicate logic analysis of universal subjects. Predicate logic, far from making a distinction that Aristotle failed to notice, merely found a way to express symbolically what Aristotle had always affirmed, that statements about universals are shorthand for more ontologically accurate statements about particulars.

### Metaphysical Complications

George Englebretsen responded with a harsh critique of Gyekye's thesis: "it was an unwarranted dogma of contemporary logic that all predications must be to a singular subject . . . Now K. Gyekye has attempted to foist this dogma upon Aristotle himself" (614). The problem, Englebretsen asserts, is that Gyekye confuses a sentence's meaning with its truth conditions.

Gyekye argues that Aristotle's analysis of the statement "Piety is a virtue" is best symbolized  $(\exists x)(Px \ \& \ Vx)$  ("Modern" 616).<sup>1</sup> But this symbolic sentence really says either "There is something that is pious and virtuous," or "There is something that is piety and a virtue" (Englebretsen 614). Gyekye seems to think the former is the correct reading, given that the latter

<sup>1</sup> Gyekye considers using a universal quantifier, but rejects it because a universally quantified conditional doesn't imply the existence of any individuals that satisfy either the antecedent or the consequent ("Modern" 617). However, Gyekye fails to notice a flaw in his proposed existential quantifier: the existence of one individual satisfying both predicates does not show that piety is a virtue on any account of universals. Gyekye's " $(\exists x)(Px \ \& \ Vx)$ " merely asserts that at least one person who is pious is virtuous. I take it that what Gyekye intended to say was both that all pious beings are virtuous and that at least one pious being exists, which he might have written as  $(x)(Px \rightarrow Vx) \ \& \ (\exists x)(Px)$ .

reading implies that piety is a particular, contra Gyekye's thesis. Presumably, the "something" that is pious and virtuous is a particular human. In that case, Englebretsen affirms, Gyekye is confusing "pious" with "piety": "pious" is a predicate; "piety" is a universal subject. Gyekye equates "Piety is a virtue" with "Something pious is virtuous." But when we say that piety is a virtue, we are not speaking about things that are pious; we are speaking about piety itself.

For Aristotle, for piety to exist there must be something that is pious. That is, piety must adhere in some substance. Our assertion about piety certainly has ontological implications, Englebretsen admits, but these implications are truth conditions, not the meaning itself (615). Gyekye is right to assert that "something pious is virtuous" is a truth condition of the sentence, but he is wrong to assert that it is the *meaning* of the sentence.

To see this more clearly consider the following necessary implication. If I say, "My grandmother's funeral is on Wednesday," I imply that she died. It is necessary that she died in order for the event on Wednesday to be her funeral, but that doesn't mean that "My grandmother died" is any part of the *meaning* of "My grandmother's funeral is on Wednesday." Rather, the former is a truth condition for the latter. Of course, the distinction between truth condition and meaning is far more subtle in the case of "Piety is a virtue" because the distinction between talking about piety and pious people is an ontological distinction we seldom fuss about in quotidian language. Nevertheless, Englebretsen claims, there is a distinction.

The confusion arises from thinking that when we speak of "piety" we are speaking of "pious beings." "The basic problem here is that in ordinary discourse we wish sometimes to talk about things, individuals in terms of their properties and other times we want to talk of those properties themselves" (Englebretsen 615). Speaking of piety and speaking of pious people are connected by ontological implication, according to Aristotle, but they are not semantically equivalent: "while we may be committed to whatever our sentences imply, we do not *mean* those implications by our sentences" (Englebretsen 615).

As another illustration, Englebretsen considers the sentence "American Indians are disappearing." This sentence implies that individual American Indians exist, but if we try to logically reduce it to a sentence about individuals, we exchange the meaning of the sentence for inappropriate truth conditions. That the American Indians are disappearing "does not mean (contra Gyekye) that some American Indian is disappearing" (Englebretsen 615). By parity with Gyekye's analysis of "Piety is a virtue" as  $(\exists x)(Px \ \& \ Vx)$ , Gyekye's analysis of "American Indians are disappearing" would be  $(\exists x)(Ax \ \& \ Dx)$ : there is an American Indian, and he is disappearing. But to say that the group is disappearing is certainly not to say that each individual is disappearing! This sentence does not even seem to admit of a

faithful ontological reduction in terms of particulars because the verb “disappearing” cannot have the same meaning when applied to individuals.

Englebretsen makes a compelling case against logical reduction to individuals. He points out critical flaws in a logical reduction of universal subjects to individual subjects. However, he makes almost no appeals to Aristotle’s writings themselves. The one appeal Englebretsen makes to Aristotle is to identify a discrepancy between the Aristotelian and modern interpretations of particulars, not universals: “there is no such class as the class of just things (cf. *An. Post.* 92b14ff). Every individual is some sort of thing” (Englebretsen 615). In other words, the problem with modern predicate logic is that in “ $(\exists x)(Px \ \& \ Vx)$ ,” the particular is simply “ $x$ ,” a thing. Aristotle’s particular is not a thing, but always a sort of thing: a man, a tree, or a dog. This argument points out a discrepancy that Gyekye hasn’t mentioned, but it doesn’t get at the heart of Gyekye’s argument. It is merely a tangential argument against a conflation of Aristotelian ontology and modern logic, separate from Englebretsen’s main attack on making all universals into predicates. Thus, though Englebretsen admirably distinguishes meaning from implications, he doesn’t ever show that Aristotle would have agreed with him. Englebretsen’s argument involves a suppressed premise, that Aristotle was too smart to have succumbed to this “dogma.”

### Support for Gyekye

Contra Englebretsen’s suppressed premise, interpretations of modern Aristotle scholars and further passages from Aristotle seem to confirm Gyekye’s thesis. For example, D. W. Hamlyn, in his article “Aristotle on Predication,” points out a relevant passage from the *Posterior Analytics*:

I assume first that predication implies a single subject and a single attribute, and secondly that predicates which are not substantial are not predicated of one another. We assume this because such predicates are all coincidents, and though some are essential coincidents, others of a different type, yet we maintain that all of them alike are predicated of some substratum and that a coincident is never a substratum—since we do not class as a coincident anything which does not owe its designation to its being something other than itself, but always hold that any coincident is predicated of some substratum other than itself. (83b17–24)

About this passage Hamlyn writes, “it would follow also, although Aristotle does not draw the consequence, that it is impossible to give definitions of qualities . . . a view which would also demand drastic amendments to

the account of synonymous and homonymous predication” (122). Hamlyn does not mention Gyekye (his article predates Gyekye’s), but his position supports Gyekye’s thesis. Aristotle explicitly says that accidents are never predicated of one another (presumably he speaks of scientific language, for counterexamples abound in casual language). Thus, to use ontologically accurate language, in logic, just as Gyekye argued, accidents are never subjects. Hamlyn points out that with this doctrine Aristotle undermines an important aspect of his own philosophy, namely, that without formulating propositions about accidents, Aristotle can’t define accidents. Nevertheless, Hamlyn acknowledges that Aristotle is taking a position in conformity with Gyekye’s thesis. Aristotle seems to unwittingly make universals indefinable by saying that universals are not the proper subjects of predication.<sup>2</sup>

Of course, one might still think it was possible to define accidents in scientific language by translating casual language definitions into scientific language. We could define piety in casual language as the virtue of being loved by the gods, but to express the same thought with particulars as the subject we would have to say something like “Pious beings are virtuous and are loved by the gods.” But that statement may be true whether or not there is a necessary connection between piety and virtue or between piety and being loved by the gods. Perhaps by chance in 2010 all pious beings are virtuous, but next year an impious, virtuous being will come into existence. Thus, the scientific expression of our casual definition of piety fails to define piety. Furthermore, adding “necessarily” to this sentence won’t solve the problem either, because for Aristotle, definitions are a question not just of necessity, but of essence. It may be a necessary property of heat that it can boil water, but heat is not defined in terms of the power to boil water. Thus, Gyekye’s thesis seems to make all accidents indefinable because statements about particulars, even statements of necessity, don’t suffice to define accidents. That, in turn, makes Aristotle’s distinction between synonymous and homonymous predication impossible because the distinction depends on definitions, and definitions of accidents are impossible.

Similarly, Frank Lewis, who makes no mention of Englebretsen or Gyekye in his book *Substance and Predication in Aristotle*, interprets Aristotle’s *Categories* in Gyekye’s favor. Lewis elucidates 2a36–2b1 as follows:

In general, I take it, he is offering a *reductive* account of certain kinds of (metaphysical) predication, such that the various (metaphysical) predications his scheme allows that do not obviously have an individual substance as subject are to be analysed in terms of (metaphysical) predications

<sup>2</sup> Thus, when Aristotle defines virtue as “a state of character concerned with choice, lying in a mean” (*Eth. Nic.* 1106b36–1107a1), he violates his own rule against using accidents as subjects.

that do. Accordingly, animal is predicated of man *only because* there is some individual substance of which both animal and man are predicated. (65-66)

Lewis's "metaphysical predication" refers to Aristotle's ontologically proper language. Lewis's words could not be more explicit in defense of Gyekye without citing Gyekye: universal predications can be analyzed down to the level of individual substance. Thus, both Hamlyn and Lewis support Gyekye's reading.

### Harmonizing Aristotle with Aristotle

It now seems that the debate is less a battle between Englebretsen and Gyekye over Aristotle, and more a battle between Englebretsen and Aristotle over metaphysics and logic. Englebretsen insists that we are able to speak about universals, but Aristotle seems to exclude universal subjects from scientific speech. To further complicate the matter, Aristotle's position contradicts itself by making it impossible to define universals, undermining his own distinction between synonymous and homonymous predication.

Of course, in his early works, Aristotle makes explicit allowance for universals to fall as species under group classifications. For example, he writes in the *Categories* that "other things, again, are both predicable of a subject and present in a subject. Thus while knowledge is present in the human mind, it is predicable of grammar" (1a30-1b2). Here grammar is allowed to be the subject for a predicate even though grammar is not a substance, but something that is present in many subjects. But in the *Posterior Analytics*, Aristotle seems to retract that provision by forbidding universals to serve as subjects: "predicates which are not substantial are not predicated of one another" (83b17-18). In the statement "Grammar is knowledge," neither grammar nor knowledge is substantial, and therefore neither should be the subject of a scientific proposition. This is a contradiction within Aristotle. Of course, we could excuse Aristotle from this contradiction by saying that in the *Categories* he was not speaking scientifically, a likely hypothesis given that it was a very early work, but we still have to deal with Englebretsen's argument for the meaning-implication distinction and with the impossibility of scientifically defining universals.

What prompted Aristotle to make this assertion in the *Posterior Analytics*? He needed it to eliminate infinite chains of predication: "subject to these assumptions then, neither the ascending nor the descending series of predication in which a single attribute is predicated of a single subject is infinite" (*An. Post.* 83b24-26). In other words, if a predicate can be predicated of a predicate, there's nothing to stop the chain from going on infinitely.

“If it does not terminate, and beyond any predicate taken as higher than another there remains another still higher, then every predicate is demonstrable. Consequently, since these demonstrable predicates are infinite in number and therefore cannot be traversed, we shall *not* know them by demonstration” (*An. Post.* 84a1–6). An infinite chain of predication is thus an epistemological problem rather than an ontological problem. Aristotle sees disallowing accidents to be proper subjects as the most reasonable way to prevent an infinite chain of predication.

If Aristotle allows predication, or more specifically definition, to go on infinitely, then he must abandon his foundationalist epistemology. Aristotle wants universal accidents to be incapable of serving as subjects because he wants there to be some indefinable, primitive terms. These terms do not need definition because they are given by the *nous*. The universals constitute what is most knowable without qualification, while the particulars are only most knowable to man (*An. Post.* 72a1–3). To get true knowledge, then, one must define particulars in terms of what is most knowable, universals. But if definitions keep going backward infinitely, the gap between particular and universal will never be bridged. Certain indefinable universals must serve as first principles or there will be an infinite regress of explanation, which is no explanation at all. In this passage of the *Posterior Analytics*, Aristotle makes the sweeping claim, supported by his ontology, that no accidents can be subjects so as to forestall epistemological disaster. Thus, not only Aristotle’s ontology, but also Aristotle’s epistemology, seems committed to substances as logical subjects.

Note that Aristotle would not deny that one can say “Literacy is knowledge of letters.” In fact, at some points he seems to imply such definitions of universals. But in the *Posterior Analytics* (83b17–24), Aristotle seems to say that this is not a scientific definition. There are two problems with this definition for scientific language: an ontological problem and an epistemological problem. The ontological problem is that the subject, “literacy,” is an accident, not a substance. Therefore, the subject does not exist in the fullest sense. Accidents like literacy, walking, sitting, or being healthy are not “self-subsistent or capable of being separated from substance, but rather, if anything, it is that which walks or sits or is healthy that is an existent thing” (*Met.* 1028a23–25). As Bäck pointed out, the subject of the sentence must exist. Therefore, it would be more appropriate to reword this sentence so that the subject is a substance, a real “existent thing.” The scientific form of this definition would reflect the ontology in the proposition “Literate men have knowledge of letters.” Literacy’s existence is questionable, says Aristotle, but literate men certainly exist. But “Literate men have knowledge of letters” is no longer a *definition*. Therefore, Aristotle’s ontology seems to militate against the scientific definitions of universals.

The second problem with this definition is epistemological. If we allow every universal to be defined, the definitions will continue infinitely. If you don't know what at least *some* words mean, then definitions won't provide you with any knowledge. Unless you know what "rational" and "animal" mean, "man is the rational animal" will tell you nothing. You will now have to seek definitions of "rational" and "animal," and unless there are some first principles you know without definition, those definitions will send you searching for still more definitions, and so on infinitely. Aristotle reasons that the easiest way to cut off the infinite chain of definitions is to make accidents indefinable. We know what they mean not by finding their definition, but by intuition, *nous*. This epistemological cutoff matches the ontological cutoff elegantly.

### Harmonizing Aristotle with Englebretsen

To sum up the argument, we will either need to tweak Aristotle's epistemology and ontology or reject Englebretsen's meaning-implication distinction and make it impossible to define universals. In the face of these strong arguments, I can only tentatively offer the solution that I believe most truly matches Aristotle's philosophy: allow accidents to be subjects of propositions by modifying Aristotle's ontological and epistemological claims. This solution reconciles the opposing sides with minimal changes to Aristotle's philosophy.

To resolve the epistemological problem, we need merely to give up Aristotle's insistence that the chain of predication ends with the first accident. It is true that the chain cannot go on infinitely if we are to have a foundationalist epistemology, but that doesn't mean that we need to stop with accidents. First principles will make themselves known as they are discovered. Some accidents may turn out to be first principles, while others may not. For example, weight seems not to be a most knowable universal, but a universal definable in terms of other universals, the force of gravity and mass. In this case, science has found a suitable definition for "weight." Quantity, however, seems to have resisted further definition: "four" seems to be a primitive accident. Aristotle doesn't need to arbitrarily cut off definition at the accidental level to prevent an infinite regress. The proper cut-off point will be determined by the explanatory needs of the relevant science. Therefore, his epistemology can survive a change in his doctrine of predication.

The ontological claim is more tenacious. Aristotle is stuck between a Platonic realism that he detests and a nominalism he seems equally wary of. This conflict comes out in *Metaphysics* VII–VIII. Because Aristotle

recognizes universals as most knowable, his attempt to reduce all universals to particulars has the uncomfortable consequence of reducing what is absolutely most knowable to what is least knowable: “if then demonstration is of necessary truths and definition is a scientific process . . . clearly there can neither be definition of nor demonstration about sensible individuals” (*Met.* 1039b31–1040a2). To substitute particulars for universal terms is, in a sense, to substitute what is unknowable for what is knowable.<sup>3</sup> If we can only speak about particulars, no demonstration, definition, or knowledge is possible at all, for individual substances “have matter whose nature is such that they are capable both of being and of not being; for which reason all the individual instances of them are destructible” (*Met.* 1039b29–31). There can be no knowledge of what can either be or not be. Here epistemology seems to dictate that universals exist in some sense. Otherwise, there can be no knowledge.

Knowledge of universals constitutes true knowledge. Universals depend on particulars for their existence, but that doesn’t mean that they are nothing but a substitute name for the particulars; if they were, they would be no more knowable than the particulars they comprise. That the universal depends for its being upon the being of particulars does not deprive it of its own being. Therefore, statements about universals are not to be understood as statements about particulars, but as statements about universals with certain implications for particulars (e.g., implications for the truth values of statements about particulars). The dependent being of universals is still a sort of being, and therefore a logic that acknowledges their being without reducing it to the being of particulars is compatible with Aristotle’s ontology.

My guess about the resolution Aristotle would favor can only be as conclusive as Aristotle’s ontology, epistemology, and metaphysics. Unfortunately, Aristotle’s metaphysics is notoriously inconsistent, or at the very least, notoriously difficult to interpret as consistent. However, this modification and interpretation of Aristotle’s views seems to do the least violence to his philosophy. It maintains his foundationalist epistemology and his particular-oriented ontology while accommodating Englebretsen’s meaning-implication distinction.

<sup>3</sup> The sciences try to generalize as much as possible. Theories and laws are valuable because they apply to many situations. Knowledge that only applies to one particular, say, knowledge that only explains how one ball rolls, is extremely limited and contingent. Thus, it seems that knowledge ought to concern universals, not particulars.

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