

Setting the Scene

The Copula, Aristotle, and the Ancients

A copula, like the little word “is,” seems to be responsible for turning a mere list of words, like “Socrates, wise,” into a sentence of which we can say that it is true or false. But when I say “Socrates is wise,” the copula plays an additional role. For it not only says that Socrates is wise, but also shows—if uttered in earnest—that I believe that what I say is true. The copula appears to have yet another more basic function. It relates two things in such a way that they first unite as an item that can be judged true or false. The insertion of “is” into a mere list of words thus has at least a threefold function. It relates two things so that they become an item. It expresses that this item is true. And it shows that the speaker believes it is true.

How is it, then, that some languages like Arabic do not have a copula? Can speakers of those languages not relate things and express true sentences or judgments? Of course they can. If you tell me, in Arabic and without using a copula, that Socrates is wise, I understand the exact same thing as I do from the English sentence. But how can this be? This is one of the puzzles that exercised medieval Arabic philosophers.

The problem of the semantic role of the copula cuts deeper, however. Even in the basic relating function, the copula is ambiguous. It would seem that “is” means different things in “Octavian is Augustus,” “Socrates is wise,” “There is a God,” and “A whale is a mammal.” Octavian and Augustus are related insofar as they are the *same* person. Socrates and wisdom are related insofar as Socrates *has* wisdom. God is strictly speaking not related to anything: God is simply said to *exist*. And whales are related to mammals insofar as they share characteristics with other animals, like humans, that allow them to be *classified* together as mammals. This ambiguity is problematic, because what appear to be formally similar statements are in fact not. And often, what looks like a valid inference is in fact not.

Relating two things and affirming their relation are operations of our mind. Expressing that relation is a function of our language. In any sentence "A is B" that I utter, it would seem that the copula "is" plays this multifaceted role. Because the relating function that is absolutely basic to our thought and language use is so hopelessly ambiguous, logicians have been trying to hold the ambiguity of the copula in check. In doing so, they often have had to venture into fundamental discussions about the nature of our thought, of truth, and of judgment. To give an account of that relating function does not actually require that one's language customarily uses a copula. The same mental operation is required to affirm a sentence in Arabic.

The philosophical construal of this basic relation function has a long history. In fact, it has two histories: one in the Latinate-European tradition, the other in the Arabic tradition. Both histories share the same beginning in the logical writings of Aristotle. Both underwent a translation process from Greek. But while the Latinate tradition comprised only Indo-European languages with largely similar grammatical structures, the Arabic tradition had to translate Aristotle's Greek logic into a language with a radically different structure. Among other things, Arabic simply does not use a copula in present-tense statements.

It is virtually impossible to understand the medieval Arabic discussions on the copula without considering the—sometimes-haphazard—transmission of ideas in the Aristotelian tradition. The Arabic reception of Aristotle was to a large extent mediated by the Greek commentators. What the early translator-philosophers in 2nd/8th-century Baghdad understood from Aristotle's texts was however not only prefigured by the commentators' interpretations. It was also shaped by the process of translation and acculturation. Chapter 2 provides the historical context for this process of translation and acculturation. This chapter makes brief reference to the problem of the semantic role of the copula in the Western tradition, specifically Geach's myth of Aristotle's fall. The proposal is to revisit the shared Aristotelian beginning of the two histories and then tell, for the first time, the Arabic history.

THE MYTH OF ADAM'S FALL

Geach's myth of Aristotle's fall has remained an influential position among historians of logic.¹ Why was the step from the Tree of Life in the *DI* to the Forbidden Tree in the *APr* so calamitous? According to Geach, the investiture of the copula led medieval Latin logicians first to construe its semantic role as a sign of identity, and later as a sign now signifying class-membership, now class-inclusion.

On this view, the terms had to denote classes, which ultimately led to the doctrine of distribution, according to which "some men" refers to some part of the class of men.² Such views wreak havoc on any semantic theory, for you never know which part of a class is being meant. Consider:

Some men are philosophers
 All philosophers can control their temper
 \therefore Some men can control their temper

And:

Some men smoke hashish
 Some men study logic
 \therefore Some men who study logic smoke hashish³

If “some men” denotes a part of the class of men, in the first example you need to establish a rule that “some men” refers to the same individuals in both cases for it to be formally valid.⁴ If you apply that rule to the second example, however, that will be formally valid, too, and this is better avoided.⁵ Chiefly responsible for this malaise was, in Geach’s view, the copula:

For the newer books tell us that “is” means different things in “Socrates is a philosopher” and “Every logician is a philosopher”; that the first “is” is a copula of class-membership and the second a copula of class-inclusion. Of course, this ambiguity is mere illusion; the predicable expression “is a philosopher” means exactly the same in both propositions, just as “errs sometimes” means exactly the same in “Socrates errs sometimes” and in “Every logician errs sometimes”; and here there is no copula to pin the ambiguity upon. The whole problem comes about because of the successive corruptions of logic that I have been describing.⁶

However, according to Geach, “thanks to Russell and Frege, most of the logical insights that were lost by Aristotle’s Fall have been recovered.”⁷ What Frege recovered was the insight that the simplest statements consist of two heterogeneous parts with no need for a copula. Frege’s revolutionary idea was that the form of a proposition is best captured by the mathematical notion of a function.

For Frege, “the fundamental logical relation [was] that of an object falling under a concept.”⁸ On that view, a proposition is a function of its constituents, which are of two types: objects and concepts. The sense of a proposition is the objective thought expressed by it. Its reference is its truth-value. APs are thus written as the function

$F(a)$

where “ $F()$ ” stands for an unsaturated concept-expression (*Begriffswort*) and “ a ” for a saturated object-expression (*Eigenname*) referring to an object. Its sense is that a is F , and its reference is the True, iff a falls under the concept F .⁹ Crucially, no *Eigenname* can be a *Begriffswort* and *vice versa*, because the *Begriffswort* is essentially unsaturated and is only completed by a *Eigenname*.

This analysis presupposes the Tree of Life, for concept-expressions will always be VPs acting as predicates, either containing a full verb or a grammatical copula. The logical copula is thus eliminated from logical analysis. Predication is

explained in terms of the unsaturatedness of concepts. The hopeless ambiguity of the Aristotelian copula could in Frege's system be neatly captured by the notations for identity, predication, existence, and class-membership ($=$, Fx , $\exists x$, $Fx \supset Gx$).¹⁰

One great advantage of Frege's account was that the heterogeneity view supposedly guaranteed the unity of the proposition. For on the homogeneity view, a copula is needed to glue together two terms. But what is gluing together the copula and the term? Once the copula is understood as signifying a real relation, an infinite regress will turn any such theory into a metaphysical Hydra.¹¹ However, Frege's account runs into difficulties, too. Since for Frege every expression that linguistically functions as a singular term refers to an object (in a true sentence), no concept can be referred to by a singular term. So, for example, "the concept horse" cannot refer to what it appears to refer to.¹² The fundamental logical distinction on which Frege's theory rests is one that cannot be stated from within Frege's theory without incurring a paradox.¹³

Frege thinks that you may give up on the concept-object distinction, but as soon as you give up heterogeneity, the unity of the proposition problem arises.¹⁴ But why should the predicate be unsaturated, and not the subject, or indeed the copula?¹⁵ Oscillating between heterogeneity and homogeneity, thinkers in the Arabic tradition developed innovative accounts of the semantic role of the copula to address the problem of the unity of the proposition.

For the Graeco-Arabic Tree Three is a hybrid of the Forbidden Tree and the Fregean Tree of Life.¹⁶ On the Arabic theory, derived names that include the signification of the nexus to a subject are essentially like unsaturated concept-expressions. If in Arabic there is no copula to pin the ambiguity upon, were Arabic logicians saved from the successive corruptions of logic Geach described? Yes and no. They had a clear sense that attributes and their expressions are distinct from substances and their expressions. But it is of course true that traditional logic East or West, at least until the wake of George Boole (1815–1864) the project of mathematizing logic began in earnest, never abandoned the Aristotelian syllogistic that presupposed homogeneity.¹⁷

It is however also true that the Aristotelian *Organon* on which traditional logic is based is "the ricketiest of constructions."¹⁸ While the *APr* certainly occupied a central position in it, the *DI* has likewise been an integral part. Yet we know next to nothing about the relative genesis and intended use of the short texts (lecture notes?) that came to make up the *Organon*.¹⁹ What is clear, however, is that they were never intended to be what they became.²⁰ The later traditional ordering of those texts under the unifying title of *Organon* (Tool) began with the *Categoriae* (*Cat*), *DI*, and *APr*, as dealing with terms, propositions, and syllogisms in an ascending order of complexity. These were followed by the *Analytica Posteriora* (*APo*), *Topica*, *Sophistici Elenchi*, as treating the different kinds of syllogisms. This ordering entirely obscured several important independencies between these texts. At no point do the syllogistic texts presuppose the *Cat* or the *DI* in such a way that

they could be systematically integrated. Nor does any other text presuppose the *Cat* in any way whatsoever.²¹

Traditional logic was the product of treating the chance survivals of Aristotle's logical writings as a coherent and systematically structured whole that was to serve as a pedagogically organized textbook for the budding philosopher to acquire the "tool" for correct reasoning.²² But there was no such whole intended for those texts. And, in fact, we may even question whether the parts of the respective texts were supposed to be composed in the way they have come down to us. For chapters 1–4 of the *DI*, the chapters we are primarily concerned with, Montanari has coined the sub-title "*sezione linguistica*" and suggested that they belong to a different textual stratum than the rest of the *DI*.²³

From what we know about the texts of the *Organon*, we may make here two observations. As far as Geach's accusation regarding Aristotle's fatal change of mind is concerned: it is at least conceivable that Aristotle wrote the *DI* after the *APr*, and there is no hard and fast evidence to tell one way or the other. Concerning the history of Aristotelian logic: if the homogeneity of the *APr* was part of Aristotelian logic, so was the heterogeneity of the *DI*. The medieval Latin logicians developed ways of accommodating the ambiguity of the copula. This story has been studied in detail by Nuchelmans.²⁴ I here propose to revisit Geach's *Paradise Lost* to reconstruct the emergence of the notion of the copula with the Greek commentators before embarking on the untold medieval Arabic story of the problem of predication.

"NAME" (ὄνομα), "VERB" (ῥῆμα), AND "TO BE" (εἶναι)
IN ARISTOTLE'S *DE INTERPRETATIONE*

Aristotle himself had no theory of the copula. It was the ancient commentators who began to theorize about the semantic role of the word "is." The seminal passages for Aristotle's ideas about APs and their constituting elements are the first four chapters of the *DI*. In this introductory section to the *DI*, Aristotle first presents a rudimentary theory of meaning (*DI* 1), and then defines the two constituting elements, the naming-word (*DI* 2) and the statement-word (*DI* 3), that uniquely make up an AP (*DI* 4). That there is no copula in Aristotle's account of APs should not come as a surprise. Even in languages that do employ a copula in some predicative sentences, the simplest truth-apt sentences are noun-verb combinations.

The *DI* itself is a peculiar work with a peculiar title. Its focus is not "interpretation" as the title would suggest, but the theory of contradiction.²⁵ However, to develop a theory of contradiction, Aristotle had to lay some preliminary groundwork. That groundwork consisted in clarifying what the items that contradict each other are, and what they are made up of. In other words, this groundwork is the analysis of APs.

Much of the story I am going to tell depends on the rich and difficult text of Aristotle's *DI*. Hence, I begin by offering new translations of pertinent passages, which I use to unpack what I think Aristotle's theoretical commitments are. More importantly, I want to show where important interpretative spaces open up that the later tradition could then fill in specific ways.

The Naming-Word

Following the introductory chapter on the relation between language, thought, and the world, the second chapter is dedicated to the name (*onoma*), or naming-word.²⁶ Aristotle seems to first give a definition, then presents examples to clarify the definition, and closes by pointing out two exceptions to the definition:²⁷

TEXT 1 (ARIST. *DI* 2): ARISTOTLE, *DE INT.* 2 (WEIDEMANN), 16A19–16B5

A naming-word then is a sound of the voice significant by convention, and without [reference to] time, no part of which is significant in isolation. For in [the naming-word] "Fairsteed," "steed" does not signify—like [it would] when saying "fair steed"—anything by itself. To be sure, with compound [naming-words] it is not [the same] as it is with simple ones; for in the case of the latter, the part is never significant, whereas in the case of the former, it wants to signify something, just not in isolation, as for example "ketch" in the [naming-word] "cutter-ketch."

"By convention" [I added], because none of the naming-words is [such] by nature, but only once it has become a token. For even the unwritable noises—of wild beasts, for example—indicate something, [yet] none of them is a naming-word. "Non-human" is not a naming-word. There is in fact no name that we can call it by; so, let it be an "indefinite naming-word." "Philo's" or "to-Philo" and the like are not naming-words, but inflections of a naming-word. The rationale (*logos*) of this is in other respects the same, except that [even together] with "is" or "was" or "will be" [an inflected naming-word] is not true or false (whereas a naming-word always is) like in the cases of "Philo's is or is not"; for nothing is so far either true or false.

Aristotle presents five criteria to determine what a name is: (a) a sound in the voice that is (b) significant, not by nature but (c) by convention, whose meaning (d) does not include time, and (e) no part of which is significant in isolation. Criteria (a)–(c) are properties that the name shares with both the statement-word and the sentence; (d) will be discussed in the following chapter on the statement-word, for which it is the pertinent criterion; (e) is presumably specifically clarified at this point since it is primarily names that can occur as compounds.

The point of the examples has mystified most readers.²⁸ The only thing that seems certain is that Aristotle uses them to clarify criterion (e). A plausible and minimally committal reading is this. The naming-word is defined as the smallest unit of spoken sound that has a meaning unconnected to time. Some strings of sound, however, may appear to have such a meaning when in fact they do not. A decision procedure for identifying naming-words is to check whether the meaning of a given string of sounds (no part of which has any further meaning) is not superseded by the meaning of the next-larger meaning unit in the string of

sounds. “Fairsteed” (*Kalippos*) is a proper name—one of Aristotle’s colleagues at the Lyceum was so called.²⁹ As such, none of the parts of which the name is made up (“fair” and “steed”) contributes anything to the meaning of “Fairsteed.”

“Cutter-ketch” is a compound in which “ketch” *wants* (*bouletai*) to mean something. What “ketch” (*kelēs*) means by itself contributes to the meaning of “cutter-ketch,” which refers to a ketch with headsails typical of the cutter.³⁰ “Ketch” appears in the exact same form as it would if encountered by itself. This is different from the case of proper names, for here the parts of the compound make up the compound meaning, but they still do not mean anything when they are separated: whereas “ketch” means something, “-ketch” does not.³¹

With his explication of (c), i.e., that a naming-word is significant only by convention, Aristotle makes explicit what was already implicitly stated in 16a4–9, alluding to the related debate in the *Cratylus*.³² To clarify what the conventional character of the naming-word’s semantic properties is, he contrasts such meaningful sounds with the sounds of beasts that also indicate something. Yet in this case the relation between an animal sound and what it indicates is not established by convention. It is, presumably, natural.

It is illuminating to point out what distinction Aristotle does not make: as the examples show, there is no attempt to distinguish between proper names and common nouns, or between proper names and proper nouns. But clearly the naming-words “Kalippos” (or “Alexander the Great” [*Alexandros ho megas*] as a proper name consisting of two proper nouns) and “cutter-ketch” are not only different in terms of whether or not their parts appear to be significant. Proper names denote specific objects whereas common nouns do not. Aristotle does not make this central logical distinction here.³³

The Statement-Word

The third chapter is dedicated to the statement-word. Aristotle begins by distinguishing the statement-word from the naming-word. Then, in parallel fashion to the preceding chapter, he excludes indefinite statement-words and their inflections from being statement-words *sensu strictu*, before he discusses the semantic function of isolated statement-words.

TEXT 2 (ARIST. *DI* 3): ARISTOTLE, *DE INT.* 3 (WEIDEMANN), 16B6–25

A statement-word is that [word] which co-signifies time, and no part of which signifies [anything] in isolation. And it is a sign of that which is said of something else. [When] I say that it co-signifies time, [I mean that] “recovery,” for example, is a name, whereas “recovers” is a statement-word; for it co-signifies that it applies now. And it always is a sign of that which applies [to something else], i.e., of that which is [said] of a subject. “Non-recovers” or “non-suffers” I do not call statement-word; for while it co-signifies time and always applies to something [else], [there is a difference between this and the statement-word] for which we have no ready name. But let it be an “indefinite statement-word,” since it applies equally to things that exist and that do not. Similarly, “recovered” or “will recover” are not statement-words, but inflections of

statement-words. They differ from statement-words in that while the latter co-signify the present time, the former [co-signify] a time outside [it]. These statement-words, then, when said by themselves, are names and signify something—for the speaker halts the thought, and the listener pauses—but it does not yet signify whether [that which it signifies] is or not; for it is not a sign for the being or not being of the thing [meant], nor is “being” if you say it in isolation. For in itself it is nothing, but it [only] co-signifies some combination, which is impossible to think without its components.

While both naming-words and statement-words share the property of having no parts that are significant in isolation, the statement-word is distinguished by two criteria. It co-signifies time, and it is such that it ascribes something to something else, instead of simply naming something.

As Aristotle intimates in 16b20, statement-words have this ascriptive force only in the context of a proposition, for when “said by themselves, [they] are names.” This has been seen as problematic, for Aristotle indiscriminately uses “white” (*leukon*) as a statement-word.³⁴ But you need a copula (*esti*) to turn it into a predicable.³⁵ To capture both options, I translate *rhēma* by “statement-word.” This particular issue will be important for the commentators.

There is a textual problem in 16b11 that was already discussed in antiquity and had far-reaching consequences. Weidemann is right to assume that some scholiast later added “or in a subject” (*ē en hypokeimenō*) thinking of *Cat* 5 2b3–5 and 2a34.³⁶ It is however unlikely that this is what Aristotle had in mind. In *Cat* 5 Aristotle distinguishes between two types of predication: universals are *said of* particulars, but accidents are said to be *in* their substances. Mentioning *being-in* predication at *DI* 3 16b11 would defeat the purpose of the passage, because Aristotle has just distinguished the statement-word “recovers” (*hygiainei*) from the naming-word “recovery” (*hygieia*) to bring out the difference between the *ascriptive* force of the former as opposed to the mere naming function of the latter. To say that statement-words may also predicate in the sense of *being-in* would introduce an entirely different distinction not apposite to the context.³⁷ This variant proved, however, momentous for the Arabic reception.

The last paragraph of the chapter Kahn called “full of difficulties”; that seems an understatement, given the amount of literature it has produced, and it will be important for the commentators’ understanding of the passage.³⁸ Aristotle states that “being” in itself is nothing, but only co-signifies a combination that is impossible to think without its components. We will return to this claim time and again to see what that could mean for the conception of a copula.

The Copula

Of the copula we have said nothing so far because Aristotle has said nothing explicit about it. In fact, Aristotle nowhere says anything explicit about the copula. Geach is right that Aristotle had no theory of it, nor did he need one—the technical term “copula” is a much later coinage.³⁹ (Though Aristotle likely did understand *desmos* as denoting a syntactically relevant expression.) The seminal passage in the *DI* on the copula for the Latinate tradition is this:⁴⁰

TEXT 3 (ARIST. *DI* 10): ARISTOTLE, *DE INT.* 10 (WEIDEMANN), 19B19–22

But when “is” is additionally predicated as a third item, there are already two [pairs] of contradictory statements. I mean, for example, [statements of the form] “[A] man is just.” I take “is” as a third item to be compounded with a naming-word, or [rather?] a statement-word, in an affirmation.

In this passage Aristotle distinguishes statements of the form “[A] man is just” from statements of the form “[A] man is [i.e., exists].” The latter treats “is” as a statement-word and there are exactly two possible contradictory statements. The former presumably treats “is” as a copula, and here both the predicate and the copula can be negated, so that there are exactly four possible contradictory statements. This distinction between *secundum adiacens* and *tertium adiacens* propositions is going to play an important part in the Arabic reception history.

The main interpretative problems in this passage revolve around the questions of what “as a third item” should be taken to be relative to (words, elements of the proposition, or something else altogether?), and of how to grammatically construe the last sentence. Does Aristotle here say that the copulative “is” is either a naming-word or a statement-word, or a statement-word rather than a naming-word, or just that it is compounded with either of them, or that it is compounded rather with the statement-word?⁴¹ A little later in *DI* 12 he states that “there is no difference between saying that a man walks and that a man is walking” (21b9–10), suggesting that all statement-words may be analyzed as consisting of a copulative expression and a participle. This is further illuminated by the following passage:

TEXT 4 (ARIST. *DI* 10): ARISTOTLE, *DE INT.* 10 (WEIDEMANN), 20A3–5

But for those [statement-words] with which “is” does not fit together, like with “recover” or “walk,” since they take the same place that “is” would take [in the sentence], they play the same role [as it].

It appears that verbs themselves have a copulative function. How then does the copula fit into the logical grammar of the *DI*? Is it a statement-word, a naming-word, both, or neither? Or perhaps some logical element common to the logical form of statement-words?

A little earlier in *DI* 10 it would appear that Aristotle counted not only *einai* but also other “copulative” expressions as statement-words on the grounds that they co-signify time.

TEXT 5 (ARIST. *DI* 10): ARISTOTLE, *DE INT.* 10 (WEIDEMANN), 19B12–14

Without a statement-word there is no affirmation or negation; for “is” or “will be” or “was,” or “becomes” or other such more, are, according to what was laid down, statement-words; for they co-signify time.

But here he refers to non-copulative uses of those verbs, as in sentences of the form “[A] man exists.” Given that *einai* is clearly different from other statement-words in some crucial respects, it does not follow that the same will apply to copulative uses. All will depend on the grammatically impenetrable *to esti triton phēmi*

synkeisthai onoma ē rhema en tē kataphasei (19b22).⁴² One respect in which the copulative *einai* seems to be crucially different from statement-words was especially influential for an interpretation of the copula as a logical element distinct from the parts of speech outlined in the *DI*. In the passage in *DI* 3, Aristotle said that “being” when uttered by itself not only had no truth-value, but also did not even function as a name in the way that other statement-words do when uttered in isolation. While, presumably, “walking” signifies walking, “being” “in itself [. . .] is nothing, but it [only] co-signifies some combination, which is impossible to think without its components” (17a4–6).⁴³

Another notorious passage shows that Aristotle distinguishes the semantic role of *einai* in copulative and existential uses.

TEXT 6 (ARIST. *DI* 11): ARISTOTLE, *DE INT.* 11 (WEIDEMANN), 21A25–28

Homer, for example, *is something*, let us say a poet. Does it then follow that he *is* (i.e., exists), or not? [Of course not.] For “is” is predicated accidentally of Homer—since he *is a poet*; but “is” is [here] not *per se* predicated of Homer.

Aristotle had previously dealt with multiple predication and here warns against the confusion arising from the assumption that you can infer from a statement in which two predicates are said of one subject that each of the predicates must hold individually. What makes the passage difficult to interpret is that it seems unfortunate that Aristotle uses “is” as an accidental predicate, and “poet” as another predicate. For example, when you say “Callias is a good cobbler,” you cannot infer that “Callias is good,” because he is only good inasmuch as he is a cobbler. Exactly what the example is supposed to bring out, however, remains a matter of debate, for it seems that “is” in many ways functions differently from “good” so that it is doubtful whether they can be treated alike as instances of multiple predication.⁴⁴

These passages raise several questions: Is the copula a part of the proposition? Does *einai* change its meaning or its role in the sentence, depending on where it appears? What are its syntactic properties? What are its semantic properties? What part of speech is it? A statement-word, a naming-word, or something else altogether? It is those questions and those passages that the commentators felt the need to clarify.

PROBLEMATIZING THE COPULA: THE GREEK COMMENTATORS

The *DI* was perceived as obscure already in antiquity, and even though it is in no way presupposed by the syllogistic of the *APr*, it kept being read and commented upon.⁴⁵ Aspasius’s is the first of the three early attested commentaries on the *DI*, compiled in the first half of the second century. Neither this commentary nor those attested for Herminus (*fl.* mid-2nd century), a teacher of Alexander of

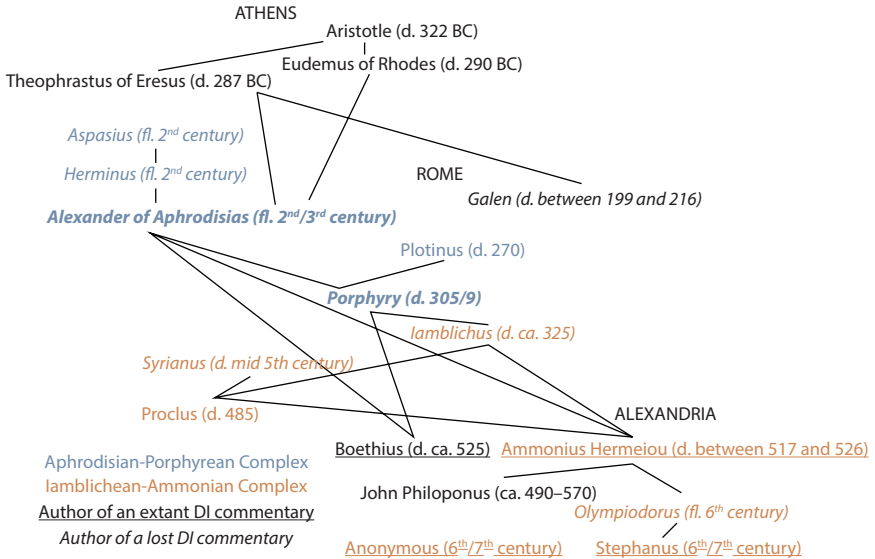


FIGURE 4. Hellenic Commentators on the *De interpretatione*.

Aphrodisias, and for Alexander himself, who held a chair of Peripatetic philosophy (at Athens?) at the bequest of Septimius Severus and Caracalla between 198 and 209, have survived.⁴⁶

After Alexander, of the attested *DI* commentators most are Neo-Platonists, beginning with Porphyry (234–305/9) and his student Iamblichus (ca. 240/5–325), and later followed by Syrianus (d. mid-5th century) and Olympiodorus (fl. 6th century). None of their commentaries is extant.⁴⁷ All we have are the four commentaries by (1) Ammonius Hermeiou (d. between 517 and 526), (2) Stephanus (6th/7th century), (3) an anonymous author, who was probably a contemporary of Stephanus, and (4) the two versions of Boethius's (ca. 480–525) commentary written in Latin.⁴⁸

From those four commentaries and some fragments and scholia we can reconstruct a fair amount of the reception history of the linguistic passage of the *DI* up to the end of late antiquity. The texts of the early Peripatetics were known and used by Alexander and later Porphyry. Porphyry, who studied with Longinus in Athens and then with Plotinus in Rome, largely incorporated Alexander's commentary into his own detailed (*polystichon*: “long-winded”) commentary on the *DI*.⁴⁹

Even though Alexander's contribution to the interpretation of the *DI* was immense, Porphyry's extensive use of it may have led to the commentary's eventual disappearance. Porphyry's lost commentary, in turn, served as the model for Boethius's *Second Commentary*, which preserves a good part of it. Ammonius's commentary came to be highly influential with the Alexandrian school, but it is unlikely that Boethius knew it. Figure 4 shows the relations between commentators

of the *DI*. The Stoics and Boethius would merit a study of their own, but they had a negligible direct influence on the Arabic tradition—or none at all.⁵⁰

*The Early Peripatos and the Aphrodisian-Porphyrean
Commentary Complex*

The first to critically engage with Aristotle's text were his immediate students. Of Theophrastus of Eresus (d. 287 BCE), who succeeded Aristotle at the helm of the Lyceum, and Eudemus of Rhodes (d. 290 BCE), a fellow student and co-author of Theophrastus in most logical works, only fragments survive.⁵¹ However, their writings certainly were an important source for Alexander, and we have evidence that he was acquainted with Eudemus's work.

We have a scholium that reads: "Eudemus in the first book of his *On Expression* [*Peri lexēōs*] shows at some length that the 'is' in simple propositions such as 'Socrates is,' 'Socrates is not' is predicated and is a term"; this appears to be mentioned by Alexander in his commentary on the *APr* (see Text 10).⁵² There it would however seem that Alexander read Eudemus arguing not for the position that in existential propositions "is" is a term, but for the position that "is" in propositions like "Socrates is pale" is in some sense predicated. Scanty though the evidence may be for the early Peripatos, it seems warranted to say that the role of *einai* in predication was problematized "at some length" by Aristotle's students.

Between Eudemus and Alexander of Aphrodisias, there lies of course almost half a millennium, in which not only Christendom appeared on the scene. Stoic logic rose to prominence, both Greek and Latin grammatical theory developed into full-fledged sciences,⁵³ and by the time of Alexander, Galen had codified a medical corpus—which included logic—which was to remain a point of reference well into early modern times.⁵⁴

We will have to skip most of this. But in many ways Alexander can be seen as continuing the tradition of the early Peripatos. His engagement with intermediate commentators was limited (although we have to assume a fair amount of influence from his teacher Herminus, whom he sometimes criticizes), and his attitude toward Stoic logic was on the whole dismissive.

For the ancient commentators, APs were linguistic items. But they are defined in quite different terms in the *DI* and the *APr*. Alexander was acutely aware of this:

TEXT 7 (ALEX. *APR* 1): ALEXANDER, *IN AN. PR.* (WALLIES), 10.13–11.27

One account of propositions will be the account Aristotle gave of statements in *On Interpretation*, namely: an utterance "in which there is truth and falsity." But here now, he gives a definition specific to propositions; for even if propositions and statements are the same in what underlies them, they differ in account: inasmuch as they are true or false, they are statements; inasmuch as they are expressed affirmatively or negatively, they are propositions. Or: the declarative statement is what it is simply in virtue of being true or false, whereas the proposition [is what it is] in virtue of *how* it is so [i.e., true or false]. Hence statements which are true or false, but not in the same

way, may be saying the same, but not be the same propositions. For when uttered, the proposition “justice is good” is the same as “injustice is bad” in terms of what is said [as a statement], i.e., they are both true and both are affirmations, but they are not the same propositions, for in them their subjects and predicates differ. But also: both a true affirmation and a true negation may in this respect be the same statement, yet not the same proposition, since the quality [affirmative/negative] of the statement is different in them.⁵⁵ While they are not the same proposition, they are the same declarative statement.

What is underlying both definitions, that of the statement in the *DI* and that of the proposition in the *APr*, must surely be the utterance token. Alexander’s synthesis was an original and lasting contribution to Aristotelian logic. For him, the *DI* and the *APr* do not differ in any fundamental logical assumptions about the analysis of language, but only in their respective perspectives on utterance tokens. A sentence has certain features if considered inasmuch as it has a truth-value, and others if considered inasmuch as it is part of a syllogism.

On this two-terminologies reading, Alexander must bring clarity to Aristotle’s remarks on the role of *einai*. In another passage from the commentary on *APr*, Alexander argues that *prima facie* it might seem that at least in existential propositions like “Socrates is,” “is” is the predicate term. However, this is misguided, he says:

TEXT 8 (ALEX. *APR* 1): ALEXANDER, IN *AN. PR.* (WALLIES), 15.15–22

For here “is” seems to be the predicate term. But in fact, if you consider the case precisely, “is” is not even here a term in its own right. For the proposition that says “Socrates is” is equivalent to “Socrates is a being,” in which not “is” but “being,” together with “is,” becomes the predicate term. Since “is” seems to be equivalent to “being” (for it is an inflected form of it), for the sake of brevity and in order not to say the same thing twice, it alone is connected to the subject. And when it is connected in this way it becomes a term and a part of the proposition.

Alexander distinguishes between copulative and predicative uses of *einai*—as Aristotle had done, though less clearly, perhaps. However, Alexander claims that “is” never is a term, not even in “Socrates is,” which Aristotle had treated as a statement of the form “S Φs.” But if “is” is not a term, what is it? Commenting on *DI* 3, Alexander says that since statement-words and naming-words are distinct, but statement-words can be called naming-words inasmuch as in their uninflected form they signify an object (e.g., “walking” designates the tenseless action of walking), then *einai* is a statement-word just as any other, so that it is correct to call “being” (*ōn*) a name:

TEXT 9 (ALEX. *DI* 3): AMMONIUS, IN *DE INT.* (BUSSE), 57.18–34

But if someone does not agree with this interpretation of “additionally signify,” let him be persuaded by Alexander when he says that in the words “for by itself it is nothing” etc., Aristotle is again speaking about the word “is” after having spoken

parenthetically about “being,” and saying that not even this, when it is said by itself, is capable of signifying anything true or false, and also that the word “is” or also “is not” (for the same story goes for each of them), when said just by itself, is not such that it signifies anything true or false. But being a name, just as are the other verbs too, it primarily has a power to signify (*dynamis semantikē*) participation in or deprivation of being, but also secondarily to signify the predicate’s joining with the subject, and when added to them it makes the sentence complete and significant of truth or falsity.

In fact, even if it is immediately predicated of the subject, even then the word “is” potentially signifies its joining with “being,” e.g., “Socrates is a being,” and “is not” potentially signifies its division, or actually both of them signify, for it was said in *On the Soul*: “even he who says that something is not pale has put together not being pale with the subject.”

So *einai* is, for Alexander, apparently a statement-word. As for its logical role, Alexander holds, as we have seen, that “is” is not really a term and he is said to have repeated a similar example (“Socrates is a being”) in his *DI* commentary. He also thinks that quantifiers are annexed to the subject, whereas “is” is annexed to the predicate. Taking the syntactical role of “is” to be on a par with that of quantifiers, Alexander can coherently claim that “is” is not a part of the proposition. And in fact, in the commentary on the *APr* he says as much explicitly:

TEXT 10 (ALEX. *APR* 1): ALEXANDER, *IN AN. PR.* (WALLIES), 16.7–17

Or else he adds “when you add or divide ‘is’ or ‘is not’” in order to indicate that these items, i.e., “is” and “is not,” are neither parts of the proposition nor terms, but that both “is” and “is not” are external to the terms, either being added externally to the predicate terms when propositions are divided into terms or else being separated from them. For the addition or subtraction of these items contributes nothing to the division of propositions into terms: the terms in “Socrates is white” seem to be “Socrates” and “white.” His expression would be more congruous if it were put this way: “when you add ‘is’ or ‘is not’ or divide them.” Or is it absurd to claim that the “is” in these propositions is not predicated in any sense? Eudemus, in the first book of his *On Expression*, shows this at some length.

His explanation for this is to be sought in his conception of the semantics of *einai*. According to his interpretation of the lemma “for by itself it [‘being’] is nothing” (16b24) as reported by Ammonius (Text 9), “*einai*” is a name and as such primarily signifies participation in or deprivation of being. It has semantic force (*dynamis semantikē*, Text 9) and in a secondary way it signifies the predicate’s joining with the subject. Additionally, and this seems to be his interpretation of the notorious word “*prossēmainei*” (16b10), it also makes the sentence complete and significant of truth and falsehood. Boethius, however, reports that Alexander’s view was that “is” by itself signifies nothing, but has its semantic function only activated when it occurs in its correct place in a proposition.

TEXT 11 (ALEX. DI 3): BOETHIUS, IN *DE INT.* (MEISER), II 77.1–12

As to the addition “nor if you say simply ‘this is’” or the alternative reading “nor if you simply say ‘being’” Alexander says “is” or “being” are equivocal. For all predicates which do not come under a common genus are equivocal and “being” is predicated of everything; for substance is, quality is, and quantity etc. Therefore, he now seems to be saying: “being” or “is,” from which is derived “to be,” signifies nothing in itself; for every equivocal [word] signifies nothing when on its own. Unless it is applied to specific things at the instigation of the one who signifies in itself it signifies none just because it signifies many.

The reason why it is not signifying on its own as other verbs are is that “being” is equivocal, and no equivocal word signifies anything in isolation; since being can be said of everything, by itself it means nothing. Whether Alexander had offered two different interpretations, or whether Ammonius and Boethius misreported his positions, is difficult to say. But having semantic force need not mean that it signifies *something*. He denies that “is” is a term and thus that it constitutes a part of a proposition. His response is that “is” is annexed to the predicate, effectively offering a parsing of the form NW+[cop+NW].

This semantic analysis of *einai* suggests that in a proposition it can function in two distinct ways: First, it can be a purely syntactical marker annexed to the predicate as an indicator of the predicate’s joining with the subject, thus making the sentence complete and significant of truth or falsity. Second, in its participial forms it can occur in the predicate place (“Socrates is a being”), which is also the correct analysis of existential propositions (“Socrates is”), in which case it signifies in the same way other equivocal verbs signify, i.e., its initially indeterminate meaning is defined by the subject of which it is predicated. “Socrates is a being” thus signifies something like “Socrates participates in the things-that-are as Socrates (as a rational animal).”⁵⁶

The Iamblichean-Ammonian Commentary Complex

Of Iamblichus’s writings we have very little connected to the *DI*, but Ammonius in his commentary on the *APr* reports how Iamblichus explained the difficult passage about the copula in *APr* 1. After giving Alexander’s interpretation of *APr* 24b12, Ammonius mentions an alternative reading by Iamblichus, “the great philosopher [who] having done a more profound and more careful exegesis says that ‘adding or dividing to be or not to be’ signifies the different forms of the propositions.”⁵⁷ What that means is the following:

TEXT 12 (IAMB. *APR* 1): AMMONIUS IN *AN. PR.* (WALLIES), 23.11–14

For of the propositions we are concerned with here, some have the predicate term taken together with the subject, some have “is” additionally predicated, and some are qualified by a modality; then again, some are simple, and others metathetic.

Iamblichus's point is that every proposition is analyzed as consisting of two terms: subject and predicate. "Adding or dividing to be or not to be" means to add "is" or "is not" to the subject and predicate terms in the sense that it is adjoined (*prosthesis*) to the predicate, analogous to the way in which modal or metathetic qualifications are adjoined to terms. Iamblichus appears to have conceived of APs like "Socrates is just" as having the form NW+[cop+NW].

Ammonius's father, Hermeias, studied with Syrianus and became the first professor of Platonic philosophy at Alexandria. Ammonius himself was educated in Athens under Proclus and upon his return succeeded his father, holding the chair of Platonic philosophy from about 470 until his death sometime between 517 and 526.⁵⁸ However, according to the last Athenian scholarch, Damascius, Ammonius lectured predominantly on Aristotle.⁵⁹ The only commentary we have from Ammonius's own hand (as opposed to *ex voce* notes that students took from his lectures) is the commentary on the *DI*. From it we may extract a view of the role of *einai* in predication that emphasizes heterogeneity in the logical analysis of simple sentences.

Ammonius, like Alexander, distinguishes statements from propositions. For him, "the proposition in itself is to be understood not inasmuch as it is a *logos apophantikos*, but inasmuch as it is a part of a syllogism."⁶⁰ Not surprising for a Platonist, in his comments on *DI* 3 he cites a passage from the *Sophist*.⁶¹ Ammonius understands the heterogeneity of naming-words and statement-words as some words fitting together whereas others do not. This is explained by the peculiar force of the verb:

TEXT 13 (AMM. *DI* 3): AMMONIUS, *IN DE INT.* (BUSSE), 49.7–14

The word "always" is also not added in vain in "and it is always a sign of things said of another." For this especially makes the particular property of verbs clear, since nothing prevents names too from being predicated, as "animal" is predicated of "man," but they neither belong to those which are only and always predicated nor, when they are predicated by themselves without some verb, e.g., "is" or "is not," are they such as to effect a complete sentence, while verbs, as long as they preserve their proper force, come to be predicated always and only by themselves.

This goes back to his initial clarification about the definition of the name in *DI* 2, where he marks the difference between NWs and SWs by saying that any vocal sound, including names like "pale," are called "verbs" (i.e., statement-words), when they occur in the predicate position.

TEXT 14 (AMM. *DI* 1): AMMONIUS *IN DE INT.* (BUSSE), 28.5–10

Thereby he decided to count "pale" among the verbs not according to the usual definition, but according to the definition which directs that any vocal sound which forms a predicate in a proposition be called a verb.

Ammonius thinks that any regular verb can be analyzed into (is+participle), so that (is+pale) is to be treated analogously to the analyzed structure of regular verbs. However, this does not force him to regard “is” as not being a verb itself. For “is” has a primary signification, namely “being so or not being so” (*hyparchein*), or, in other words, truth or falsity. But it also has a secondary signification of time, since it is tensed as any other verb. It just does not signify “being so” when said in isolation—but no other verb does! It is just a special case, because its primary signification is the same as that which nothing signifies in isolation, unless “is” is added.

This is perhaps not a good interpretation of Aristotle, but an original reading to which he gets by way of his explanation of the notorious *passus* in *DI* 3.⁶² He analyzes “For not even ‘to be’ or ‘not to be’ is a sign of the thing” as an *a fortiori* argument aimed at showing that since the verb that would be the most likely candidate to signify being so or not being so, i.e., “to be” and “not to be,” cannot be said to actually signify this when said in isolation, then—*a fortiori*—all those verbs that can be analyzed into “is” and a participle will not signify that either.

In a second step, even the most primitive form of “to be,” its participle, which is a name, does not signify anything being so or not. All grammatical forms of “to be” still signify something (here he mitigates the Aphrodisian-Porphyrean position), but not truth or falsity.

TEXT 15 (AMM. *DI* 3): AMMONIUS, *IN DE INT.* (BUSSE), 55.10–56.13

“But whether it is,” Aristotle says, “or is not” is not yet clear.⁶³ For him “it is” signifies affirmation, and “or is not” signifies negation, or rather “it is” signifies truth, “or is not” signifies falsity. For he who in accordance with nature says that what is “is” speaks the truth, and he who says that “it is not” speaks falsehood. So, verbs signify something, Aristotle says, a suffering or activity, but they do not yet signify truth or falsehood. And he adds this by way of a syllogism: “For not even ‘to be’ is a sign of the thing, nor is ‘not to be.’” This is an *a fortiori* argument that verbs do not admit the true and false. For, if the most primitive and general of verbs, those into which all the rest are analyzed, since they immediately signify being so or not being so itself, are not true or false when said by themselves, then clearly other verbs would accept these properties much less. And, in fact, the first is so; thus, so is the second.

He assumes that of all verbs “is” and “is not,” which he calls “to be” and “not to be,” are most primitive, since each verb could be analyzed into a participle and one of these, definite verbs into “is” and indefinite verbs into “is not”; for example: “he runs” = “he is running,” “he thrives” = “he is thriving”; “he runs not” = “he is not running,” “he thrives not” = “he is not thriving.” If, therefore, as these verbs are such and by themselves signify nothing true or false, how could it be reasonable for the verbs posterior to these, which would signify being so or not being so entirely by their participation in these, to indicate anything true or false?

And that “is” or “is not” by themselves signify nothing true or false is perhaps self-evident: for one who has said ten thousand times “is, is . . .” or “is not, is not

... ” has signified neither of these. But he establishes this too by a similar *a fortiori* argument, taking something more primitive than “is,” namely, “being,” from which “is” and “is not” are derived. For he says that not even this “being,” which is a name, is a sign of the thing, just like the verb derived from it, “is.” That is to say, it is not revelatory of the thing’s truly existing, when it is said by itself. For “is” signifies something when said by itself, and “being” likewise; but neither of these posits itself and says that it exists, even when said ten thousand times, will it signify something true or false. For, as has been said many times, only sentences, consisting of names and verbs, are such to accept either of these, and each of these, i.e., “being” and “is,” is simple and far from any such composition.

Syntactically, Ammonius understands the role of “is” to be best represented in a verbal phrase (is+noun/participle). Commenting on *DI* 10, which is the same passage that Bäck uses as evidence for Ammonius’s subscribing to the copulative theory,⁶⁴ he applies Iamblichus’s interpretation of *APr* 24b12 to the notorious passage in the *DI* (16b21f.):

TEXT 16 (AMM. *DI* 10): AMMONIUS, *IN DE INT.* (BUSSE), 162.17–35

[Aristotle] says “when ‘is’ is additionally predicated as a third” not to imply that among the predicates in the proposition “is” occupies the third place, but that “is” is third in the proposition relative to the two terms. In relation to the subject and the predicate it occupies second place as itself being predicated and, as it were, being additionally predicated. For when we say “man is just,” we predicated antecedently “just” of the subject “man,” since we proposed that this be asserted of that, but, because the former is not sufficient to interweave with the latter for making an assertion, “is” has been attached to them as binding them, as has been said before, and is supplementally predicated of the subject. In fact, we say the whole about it [“man”], i.e., that he “is just.”

It is clear from this quote that “is” is not an independent part, not even a part of the proposition at all, but that it rather always goes with the predicate and turns it into a verbal phrase. Ammonius thinks that the surface structure of language may not always exhibit this. Yet the distinctive force of “is” to make a predicate such that it goes together with a subject is shown by the possibility to analyze regular verbs into (is+participle).

This being so, for Ammonius the “is” of the predicative expression, which in analogy to the parts of names does not signify anything in isolation, has—as part of the statement-expression—two distinct semantic functions. Ammonius accepts, against Porphyry, the amplifying textual variant at 16b11, and thus the reference to *Cat* 5 distinguishing essential/homonymous and accidental/paronymous predication.⁶⁵

After Ammonius the *DI* continued to be taught and written on.⁶⁶ However, Ammonius’s commentary wielded such influence that the extant commentaries of

Stephanus and Anonymous—which in contrast to Ammonius’s written exposition are *ex voce* renderings from lectures—as well as the fragments of Olympiodorus’s commentary hardly contain anything on the copula that is not already in Ammonius.

Both Stephanus and Anonymous agree with Ammonius that “is” by itself signifies something—just not truth or falsity—and that there are only two parts of speech that are necessary to form a statement: NWs and SWs.⁶⁷ And just like Ammonius, both Stephanus and Anonymous agree that all verbs are in principle analyzable into (is+participle). But Stephanus introduced new terminology that will be important for understanding the Arabic reception: he calls the verb “*einai*,” which he takes to be an archetypal statement-word, a *hyparktikon rhēma* (*hyparctic verb*).⁶⁸ This technical term is formed from the verb (*hyparchein*) that Aristotle typically uses in the *APr* to express that a predicate holds of a subject.⁶⁹

Moreover, Stephanus has no reservations against verbs in the subject-position:

TEXT 17 (STEPH. *DI* 3): STEPHANUS, *IN DE INT.* (HAYDUCK), 13.15–18

[And Aristotle said] that [statement-words] are always said of something else: either of a *subject*, when it is synonymously predicated, like “To walk is to move” or “To philosophize is to eudaimonize,” or else as *in a subject*, like “Socrates thrives.”

Epitomizing Ammonius, Stephanus employs the distinction from *Cat* 5 to explain Ammonius’s infinitival predications with a verb in the subject-place. For Anonymous, this seems to have been a commonplace reading:

TEXT 18 (ANON. *DI* 3): ANONYMOUS, *IN DE INT.* (TARÁN), 7.11–8.4

And [Aristotle] said the statement-word is a sign of predicates, and as the form of the predicate is either such that it is predicated substantially and essentially of the substance of the subjects, or else accidentally, he says that it is a sign of both. “Animal” is predicated substantially of “man,” and “moving” of “walking” [...]. “Walking,” however, is accidentally predicated of “Socrates,” and so is “pale” and the like. Substantial predicates are said of *the subject*, and accidental ones *in the subject*.

Arabic commentators were puzzled by this and Fārābī took this idea as a point of departure for his own theory of propositions.

CONCLUSIONS

Even though the *DI* is a treatise on the theory of contradiction, in the linguistic section Aristotle presents his most thorough account of what a proposition—in the sense of an utterance token with a truth-value—is, what its elements are, and how it is that we can use such sentences to describe the world truly or falsely. He distinguishes two elements of speech, the naming-word and the statement-word, that uniquely make up a proposition. These two elements are heterogenous, not

merely because they have different definitions, but crucially because they play distinct roles in statements. The SW, and only it, is used to signify that whatever it means applies to what the NW names.

We cannot tell what the relation of the text of the *DI* was to any of the other texts we have of Aristotle. It was the jerry-building of the early editors and commentators that produced the *Organon* as a supposedly coherent logical corpus with a defined pedagogical structure and purpose. In such an environment, the linguistic section of the *DI* was perceived to be in tension with the core of the syllogistic, i.e., the requirement in the *APr* that the two terms of a proposition be homogenous and thus interchangeable.

The tension between the *DI* and the *APr* did not go unnoticed by the Greek commentators. They tried to make the two texts coherent. Any attempt to do so had to come to grips with the scattered remarks Aristotle makes about *einai*. It is the *DI* that forces the Aristotelian tradition to puzzle over the copula. In the *APr* itself the copula is hardly problematic. Instead of simply giving up the *DI* as an obscure text that adds nothing to the understanding of the syllogistic, the commentators tried not only to understand the text, but also to read it in a way that would further reinforce the cohesion of the *Organon*.

Alexander of Aphrodisias's commentary significantly shaped the reception history of the *DI*. He explained the apparent tension by a difference of perspective on the same object under scrutiny. Whereas the *DI* looks at utterances insofar as they have a truth-value, the *APr* looks at them with a view to how they have a truth-value. For Alexander, *einai* is a SW that functions pretty much like any other. In statements, however, its syntactical role is alike to that of a quantifier: just as a quantifier is attached to the subject, "is" is attached to the predicate, and hence not a part of the proposition. Only terms make up a proposition and "is" is not a term. In one sense there are clearly two heterogeneous elements. We may write: NW+[cop+NW]. Frege, too, considered the copula at times a part of the *Begriffswort* that could be substituted by the verbal ending.⁷⁰

Ammonius synthesized several strands of interpretation, arguing against the Aphrodisian-Porphyrean position that "is" or "being" when said in isolation does in fact signify something, just not truth or falsity. Taking the cue from Aristotle, Ammonius developed the idea that all verbs potentially contain "is," since every verb can be rephrased as "is" plus a participial form. His analysis, then, was also clearly of the form NW+[cop+NW].

The linguistic section of the *DI* had thus a peculiar fate in antiquity. Even though it never had the same importance as the *Cat* or the *APr*, it proved recalcitrant in the face of the seemingly contradicting logical analysis of propositions in the *APr*. You may want to condemn the *APr* (which we need not, at least not for Geach's reasons: the shortcomings of the syllogistic are not in principle due to a two-term theory and they can be and have been amended), but you may not, on historical grounds, charge Aristotle with a fatal change of mind.

The commentators were right to say that the *DI* had a different perspective on the sentence. This peculiar situation at the end of late antiquity explains some of the peculiar turns in the fate of the *DI* over the course of its Arabic reception. For Semitic languages do not naturally use a copula—yet the philosophers of the classical period insisted on an artificial copula to make conspicuous the logical form of a statement.