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Jaakko Hintikka

THE UNAMBIGUITY OF ARISTOTELIAN BEING

1. Aristotle does not recognize the Frege-Russell ambiguity of "is."

In this paper, I shall try to enhance our understanding of Aristotle's thought by relating it to certain contemporary problems and insights of philosophical logicians. Now one of the most central current issues in philosophical logic is a challenge to a hundred-year old dogma. Almost all twentieth-century philosophers in English-speaking countries have followed Frege and Russell and claimed that the words for being in natural languages -- "is," "ist," 'εστι etc.-- are ambiguous between the is of predication, the is of existence, the is of identity, and the generic is. The significance of this ambiguity thesis has not been limited to topical discussions but has extended to historical studies, including studies of ancient Greek philosophy. A generation or two of scholars working in this area used the Frege-Russell ambiguity thesis as an important ingredient of their interpretational framework. Cases in point are Cornford, Ross, Guthrie, Cherniss, Vlastos, Ryle, and (from the German-language area) Heinrich Maier. Indeed, the Frege-Russell distinction is still being invoked occasionally by Aristotelian scholars; see e.g. Moravcsik (1967, p. 127), Kirwan (pp. 100-101, 141), Weidemann (1980, p. 78) and Gomez-Lobo (1980-81, p. 79).

However, many of us have by this time come to suspect that the Frege-Russell ambiguity claim is completely anachronistic when applied to Aristotle. The sources of this dark professional secret are various, ranging from G. E. L. Owen's brilliant studies of Aristotle on being to Charles Kahn's patient examination of the Greek verb τὸ εἶναι. Most of us good Aristotelians have nevertheless remained in the closet. As was illustrated by the fate that befell the first major study in which Plato's failure to draw the Frege-Russell distinction was noted, most of the unliberated Aristotelians seem to have thought that to note Aristotle's failure to draw the distinction is to accuse him of an abject logical mistake. (See, e.g., Neal's introduction to Bluck.) Accordingly, we have shied away from such impiety. It is time for some consciousness-raising, however. It is not convincing enough merely to
register the inapplicability of the modern distinction to Aristotle. (Cf. Benardete 1976-77.) We need a deeper understanding of the whole situation. In an earlier paper, I have shown that there need not be anything logically or semantically wrong with a theory which treats the verbs of being as not exhibiting the Frege-Russell ambiguity. (See Hintikka 1979.) More than that: not only can we now say that Aristotle's procedure is free from any taint of fallacy; he may have been a better semanticist of natural languages than Frege and Russell in this particular respect.

Hence I can without any impiety level at Aristotelian scholars the same criticisms as Benson Mates recently (1979) directed at Platonic scholars, viz. that they have been seduced by the modern myth that there is a distinction between the is of identity, the is of predication, the is of existence, and the is of generic implication; and to proceed to argue that the distinction is not there in the Aristotelian Corpus. Very little argument is in fact needed here. Not only is it the case that Aristotle, one of whose main philosophical methods was to make conceptual distinctions, never draws the distinction. Not only does he fail to resort to the Frege-Russell distinction in dealing with problems which we would deal with routinely in terms of the distinction.

An example is offered by De Soph. El. 5, 166 b 28-36, where Aristotle is considering inter alia the fallacious inference form "Coriscus is different from Socrates" (i.e. "Coriscus is not Socrates") and "Socrates is a man" to "Coriscus is different from a man" (i.e. "Coriscus is not a man"). Here we would expect Aristotle to make a distinction between the "is" of identity (used in the first premise) and the "is" of predication (used in the second premise). His point has been so understood by Maier (vol. 2, p. 280), and there is some prima facie evidence for doing so. For instance, the terminological distinction Aristotle uses to expose the fallacy, viz. between essential and accidental predication, will in Aristotle's later writings in fact assume (we shall see) the force of a contrast between those predications which have an element of identity and those which do not. However, drawing the predication vs. identity distinction is not what Aristotle is doing here. What he actually does is to draw a distinction between transitive and nontransitive predications: "It does not necessarily follow that all the same attributes belong to all the predicates of a thing and to that of which they are predicated." Applied to the example, this presumably means that "a man" in the second premise is an accident of Socrates and that therefore the predicable "Coriscus is different from x," even though it is true of Socrates, does not have to apply to "a man" since this is only
an accident of Socrates. This is not a distinction between two senses of "is," identity vs. predication, even though it is perhaps not too hard to see how the latter distinction should have developed out of what Aristotle does here. (I have followed here Dancy 1975, Appendix II.)

What is even more important, Aristotle comes as close as one can ever hope to denying the ambiguity thesis himself. In Met. Γ 2, 1003 b 22-32, he writes (the translation is Kirwan's):

εἰ δὲ τὸ ὅν καὶ τὸ ἑν ταῦτα καὶ μία φύσις τῷ ἀκολουθεῖν ἀλλὰ λοιπὸς ἑστερὰ ἀρχὴ καὶ αἴτιον, ἀλλ' οὐχ ὡς ἐνι λόγῳ ἡπολούμενα (διαφέρει δὲ οὐθὲν οὗτ' ἓν ὁμοίως ὑπολαβόμεν, ἀλλὰ καὶ πρὸ ἔργου μᾶλλον)· ταῦτα γὰρ ἐν ξυνέργων καὶ ἓν ξυνέργων καὶ ξυνέργων, καὶ οὐχ ἑτερόν τι ἡλοί κατὰ τὴν λέξιν ἐπαναξιλούμενον τὸ εἶν ἐστὶν ξυνέργων καὶ ἓστιν εἰς ξυνέργων· ἡλοι δ' ἑτι οὐ χωρίζεται οὕτ' ἐπὶ γενέσεως ὤτι ἐπὶ θορᾶς, ὁμοίως δὲ καὶ ἐπὶ τοῦ ἐνός· ἑώτερον ἑτι ή πρόσθεσις ἐν τούτοις ταῦτα ἡλοί, καὶ οὐθὲν ἑτερόν τὸ 'έν παρὰ τὸ ὅν, ...

Suppose it true, then, that that which is and that which is one are the same thing—i.e. one nature—in that each follows from the other as origin and cause do, not as being indicated by the same formula (though it makes no difference even if we believe them to be like that—indeed it helps). For one man and a man that is and a man are the same thing; and nothing different is indicated by the reduplication in wording 'he is one man' and 'he is one man that is' (it is plain that there is no distinction in [the processes of] coming to be or destruction); equally in the case of that which is one. It follows obviously that the addition indicates the same thing in those cases, and that which is one is nothing different apart from that which is.
It is important to note that at 1003 b 28 Aristotle is employing τὸ ἔστιν (sc. in the phrase ἔστιν ἵππον) in what I shall later in this paper argue to be a purely existential use. Nonetheless he is emphatically assuring us that this use is not different from what in effect are the first two (allegedly separate) Fregean meanings of is.

An even blander assertion to the same effect is found in De Soph. El. 6, 169 a 8-10: "For the same definition (horos) applies to 'one single thing' and to 'the thing' haplos; the definition e.g., of 'man' and 'one single man' is the same, and so, too, with other instances."

This pretty much confounds the first three members of the four-fold distinction of Frege's and Russell's. As to the fourth it is amply clear that there is no Frege-Russell type difference in meaning for Aristotle between the different occurrences of is in "Socrates is a man" and "a man is an animal." If further evidence is needed for the total absence of the Frege-Russell ambiguity thesis in Aristotle, it is easily forthcoming.

In maintaining the unambiguity of τὸ ἔστιν vis-à-vis the Frege-Russell distinction, Aristotle apparently is not just a faithful Whorfian following blindly the Weltanschauung implicit in the language of the tribe, as might be suspected among other things on the basis of the absence of any separate verb for existence in the ancient Greek. Aristotle was cognizant of the controversies that had raged as to whether τὸ ἔν and τὸ ἔν mean the same or whether they have several different meanings. (See De Soph. El. 33, 182 b 22 ff.) Nor is Aristotle unaware of the dangers of uncritically assuming that what is, always is what it is, and not another thing, as is illustrated among other things by his criticisms of Parmenides in Phys. A 3. Nevertheless, his failure to acknowledge the Frege-Russell ambiguity is deeper than a conscious choice between competing conceptual schemes. Not only does he refuse to countenance the Frege-Russell distinction as a homonymy between several different meanings. He does not always recognize the distinction as a separation between different uses of the Greek words for being. More accurately speaking, he does acknowledge some differences between the relevant uses, as we shall see, but he does not co-ordinate them into a three-part or four-part distinction.

Even though these observations do not automatically solve any hard interpretational problems concerning Aristotle, they help to clear away misunderstandings. For instance, we can now see that Aristotle's formulas for what has later come to be known as essence, τὸ τι ἐστὶ (what [it] is) and τὸ τι ἔν ἐστι (what it is [for a thing] to be) exhibit for a true Fregean an irredeemable ambiguity between
predication and identity. For Aristotle they express ipso facto something's being such-and-such and its being identical with some one entity. This is vividly shown by the fact that Aristotle frequently used the very formula as a name for his first category, substance, in spite of considering particularity ("separability and 'thisness'") as the main characteristic of substances. No wonder Aristotle could thus raise the question, which in our anachronistic ears may first sound paradoxical (Ross confesses that it is for him "difficult to see the point of this question"), whether or not a substance is identical with its essence. (See Met. Z 6.)

2. The nonambiguity of esti does not preclude purely existential uses

Here and in many other contexts it is important to realize precisely what is involved in Aristotle's failure — or perhaps rather refusal — to make the Frege-Russell distinction. What is denied in denying the Frege-Russell ambiguity claim is not that the force of "is" or ἔστι is different in different contexts. Rather, what is ruled out is one particular explanation of these differences, viz. that they are occasioned by different meanings of the verb "is". In other words, what is asserted is that such differences are always traceable to the context and due to it. Indeed, it is an integral part of my position that ἔστι can have on different occasions in Aristotle different Fregean uses. For instance, Aristotle can—and does—use ἔστι with a purely existential force. When one says "Homer is" (Ὁ ὤμηρος ἔστι), what is at issue is obviously the existence of a particular individual. (Cf. De Int. 11, 21 a 25-27.) In general, when one asks εἴ ἔστιν, one is asking whether an entity or entities of a certain kind exist. (See Post. An. B 1-2.) Further examples of unmistakably existential uses of ἔστι in Aristotle are easily found; see e.g. Cat. 10, 13 b 27-33.

In this respect, my thesis differs sharply from what seems to be the most popular reaction to the data that can be adduced against the presence of the Frege-Russell ambiguity in Aristotle. According to this competing view, ἔστι is unambiguous because it basically always has the predicative sense. Where it apparently does not, e.g. in the existential uses listed above, we must understand the usage as being elliptical: "Socrates is" on this view basically means "Socrates is something or else." (There may be important restrictions as to what this "something or else" can be, but they need not detain us here.)
This view seems to have been suggested by G. E. L. Owen, and it has recently kept cropping up in slightly different variants. There is a sense in which it probably comes close to being a true representation of what things are like according to Aristotle's last and final conclusions. Roughly, for any entity to exist is for it to be what it is, i.e. what it essentially is.

However, admitting this does not mean that in the force of the term 'έστι in Aristotle's actual argumentation is tacitly predicative. For one thing, the identification just offered is probably only an approximate one, anyway. It is not clear that for Socrates to exist is (apud Aristotle) for him to be a man. Rather, on a closer look it seems (as Balme has shown) very much as if for Socrates to exist is not so much for him to exemplify (more generally, to develop towards exemplifying) the species-characteristic form of man, but rather to exemplify (more accurately, develop towards exemplifying) the particular nature which consists in his likeness to his parents. And it is not clear at all that Socrates' exemplifying this particular form is a predicative relation rather than an identity.

Be this as it may, even if the elliptical character of 'έστι απλώς is perhaps a conclusion of Aristotle's arguments for his metaphysical theory, it cannot for this very reason be a part of what he assumes in them. When I reject the ellipsis theories, it is thus as a claim of what the basic semantical force of 'έστι and its cognates are for Aristotle, and not as a possible feature of his ultimate metaphysical doctrine. However, in the former sense I do reject it tout court, and hence also reject the mistaken idea that it is somehow implied by the absence of the Frege-Russell ambiguity assumption from Aristotle.

This puts on me the onus of commenting on the recent denials of any purely existential uses of verbs for being in Aristotle. Suffice it here to deal with one of the most recent putative arguments for the absence of the existential uses in Aristotle or in certain parts of the Aristotelian Corpus.

The ellipsis hypothesis has not been defended by its reputed originator at any greater length. It has recently been discussed by A. Gomez-Lobo (1980-1981). The part of the Corpus which Gomez-Lobo and his ilk have to worry about most is clearly Post. An. B 1-2, where Aristotle in so many words recognizes questions of simple being (έι έστι) besides the three other kinds of questions which figure in an Aristotelian science, viz. τό έστι, τό διάστημα, and τί έστι.

Actually, strictly speaking Gomez-Lobo does not deny that a sentence of the form 'έστι + a noun phrase can express mere existence in Aristotle. He admits that e.g. Met. A 7, 1072 a 25 is a case in point. But he strives to reduce greatly the
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The scope of this way of reading Aristotle by removing Post. An. B 1-2 (in fact, it seems, all of Post. An.) from its scope. Hence a brief discussion of Gomez-Lobo's arguments are in order, for if they were valid, much of the plausibility of my point would be lost.

The είστι questions used to be taken without any further ado as questions of existence. Gomez-Lobo is entirely right in recognizing that the situation has changed. The insight that Aristotle did not believe in the Frege-Russell ambiguity and that the basic semantical meaning of είστι in Aristotle is hence neutral with respect to the different Fregean senses of being certainly makes a fresh look at Post. An. B 1-2 necessary. Unfortunately, Gomez-Lobo fails to give the new look a run for its money, for his arguments are inadequate in several respects. For one thing, most of his discussion is predicated on a failure to understand in what sense Aristotle thinks that είστι questions, like all four questions, amount to looking for a middle term. "How can there be a middle term between a single term and the predicate 'exists'? he asks rhetorically. A straightforward answer would be embarrassingly obvious even if I had not pointed it out ten years ago (in Hintikka 1972a). Aristotle is thinking of as it were abbreviated syllogisms of the form

\begin{align*}
\text{(*) Every B is } & \text{ simpliciter} \\
\text{Every C is B} & \underline{} \\
\text{Hence: Every C is } & \text{ simpliciter}
\end{align*}

which result from a regular barbara syllogism by omitting the major term.

It is obvious that (*) requires a treatment of existence somewhat different from what contemporary philosophers have been used to. However, this is no argument against what I am saying. Even without discussing any details here, it is patently clear on other grounds that we have to shake our complacency concerning the adequacy of the received Frege-Russell treatment of existence in logic.

It may be objected that quasi-syllogisms of the displayed form are never actually put forward by Aristotle. The explanation is that he does not need to do so. In the syllogistic structure of a science, the existence of the B's is always a consequence of the existence of a wider term, say A. Hence Aristotle accomplishes the same effects by means of a regular barbara syllogism as he accomplishes by means of (*), as long as a proviso is explicitly or tacitly added to the effect that it is only the widest term that carries any existential force. This may perhaps be illustrated by the following quasi-syllogism:
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(**) Every B is an A (and exists)

Every C is a B (no existential force)

Hence: Every C is an A (and hence exists)

I shall not discuss here what kind of treatment of existence is presupposed in (*) and (**).

My interpretation gains some further credence from the fact that according to Aristotle necessity is "carried downwards" in a syllogistic chain in the same way as I have argued existence does. (Cf. Aristotle's theory of apodeictic syllogisms in Pr. An. A 8-12, especially 9.) In the same way as in (**) it is only the major premise that has to carry an existential force in order for the conclusion to do so, in the same way we can obtain a necessary conclusion from a barbarara type syllogism if and only if the major premise is a necessary one. I believe Aristotle's treatment of existence and necessity in the context of a syllogism are related to each other very closely, but I cannot try to find their greatest common denominator here.

There is plenty of collateral evidence that this is what Aristotle in fact meant. Since the whole argumentative structure of Gomez-Lobo's paper is thus mistaken, there is little that apparently needs to be said of the rest of his paper.

What I also find surprising is that there is conclusive evidence against Gomez-Lobo in the very passages he is addressing himself to.

I mean if one is or is not simpliciter and not if [one is] white or not (89 b 33).

τὸ δὲ εἰ ἐστὶν ἤ μὴ ἀπλῶς λέγω, ἀλλ' οὐκ εἰ λευκὸς ἢ μὴ.

How could Aristotle possibly have explained more clearly by the means he had at his disposal that he was presupposing a purely existential use of εἰ ἐστι;? It seems to me that we have to realize that Aristotle, like J. L. Austin, ordinarily means what he says.

Ironically, Aristotle's very usage in Post. An. B 1-2 provides us with further counter-examples to the ellipsis thesis. When Aristotle there asks whether a middle term is (εἰ ἐστι μέσον, cf. 89 b 37-38, 90 a 6), he cannot but mean whether the middle exists, for he contrasts this question in so many words with the question as to what it is.

There is elsewhere, too, excellent direct evidence against the ellipsis-hypothesis. In discussing in De Soph. El. 5 the importance of distinguishing the
absolute and the relative uses of a term from each other Aristotle writes (167 a 4-6):

\begin{quote}
\begin{center}
οὐ γὰρ ταῦτα τὸ μὴ
eἰναι τί καὶ ἀπλῶς μὴ
eἰναι. φανεται δὲ
διὰ τὸ πάρεγγυς τὴς
λέξεως καὶ μικρὸν διαφέρειν
tὸ εἶναι τί τοῦ ἑκναί,
kai τὸ μὴ εἶναι τι
tοῦ μὴ εἰναι.
\end{center}
\end{quote}

For it is not the same thing not to be something and not to be simpliciter, though owing to the similarity of language to be something appears to differ only a little from to be, and not to be something from not to be.

On can scarcely ask for more direct evidence. At the same time the passage shows that in spite of their differences, the predicative and the absolute (existential) uses of έστιν are not unrelated, for they are the relative and absolute uses of the same notion. The quoted passage hence also offers evidence against ascribing the Frege-Russell ambiguity to Aristotle.

3. Essential predication involves identification

Thus realizing Aristotle's failure to make the Frege-Russell distinction does not necessitate throwing overboard all earlier views concerning Aristotle's treatment of being, even though it does necessitate a fresh look at the evidence. (There seems to me to be far too much of a fashion in the current literature to disparage earlier interpretations just because they did not take into account some important aspects of Aristotle's treatment of "is". Such a failure may be regrettable, but it does not automatically invalidate all the interpretations of a scholar.) Nevertheless, dispensing with the Frege-Russell dogma opens the door to certain further lines of thought. In the same way as the Aristotelian έστι sometimes has existential force and sometimes does not, in the same way it sometimes has the force of identity and sometimes does not. The unmistakable upshot of such passages as Met. Γ 4, 1007 a 20-33, Met. Δ 18, 1022 a 25-26, or Post An. A 22, 83 a 24-32; A 4, 73 b 5-8 is that the former cases are of the nature of what is in the misleading twentieth-century terminology known as "essential" predications and the latter as "accidental" predications. The misleading character of these labels is due to the fact that they are easily taken to refer to a purely modal distinction. Indeed, they have
been so taken in recent discussion, where the term "Aristotelian essentialism" is used as a label for a position vis-à-vis the foundations of modal logic and modal metaphysics. What we have discovered is a prima facie nonmodal element in Aristotle's essential-accidental distinctions, an element that seems to have been largely overlooked in twentieth-century philosophy.

Of course, even if we try to start from a prima facie completely nonmodal distinction between identity and predication, we will end up linking the distinction with various modal considerations. I cannot discuss this matter here beyond pointing out that in this way Aristotle's distinction gets linked up much more with recent discussions of the nature of the individuals presupposed in our use of modal concepts and of the nature of the identities which may hold between them than with discussions of so-called "Aristotelian essentialism."

The non-modal character of Aristotle's distinction is heightened by the fact that the whole possible-worlds treatment of modalities, so popular and so pervasive in our days, was completely foreign to Aristotle for whom the only reality was this sequence of potential nows each of which will momentarily be actualized. Hence even Aristotelian potentialities had to prove their mettle within this one actual world history of ours, and so had his notions of form, essence, and one-ness.

In spite of what I said of the mistakes of twentieth-century philosophers, my point here is not entirely new. M. J. Woods has argued "that Aristotle held that a statement like 'Socrates is a man' was, despite appearances, to be construed as a statement of identity." In defense of his view, Woods refers to such Aristotelian passages as Met, Δ 18, 1022 a 26-27; Z 4, 1029 b 28; Z 7, 1032 b 1-2; Z 7, 1032 b 1-2; Z 8, 1034 a 8. This is not the place to evaluate his evidence. It seems to me that Woods could have strengthened his argument by a more general examination of the status of the "is" in Aristotle's "Socrates is a man" vis-à-vis the failure of the Frege-Russell ambiguity thesis and of the resulting freedom for Aristotle to pick and choose between different uses (not senses) of 'έστιν.

Moreover, Woods' diagnosis, rightly understood, pertains to Aristotle's problem rather than to his solution. For what it is that follows from saying that in an essential predication like "Socrates is a man" the "is" has the force of identity? Very little, for we are then faced with the next question: What is it about certain predicates that enable them to individuate their bearers in such a way that the "is" of predication assumes the force of "is" of identity? And which predicates are of such a kind, anyway? Clearly, these are among the main questions Aristotle
discusses in Met. Z and Γ, but unfortunately understanding his problem does not automatically enable us to understand his attempted solution equally fully.

We do receive, however, some instant help in appreciating Aristotle's discussion. For instance, clearly not any old universal predicate individuates its bearers in the required way. Understandably, Aristotle is quick to point this out. This gives rise to passages which have been taken to imply that for Aristotle what to us look like predications cannot have an element of an identity judgment. One such passage is Met. Z 13, 1038 b 34 – a 1. It is not clear, however, which way this notoriously difficult passage cuts. One major problem with it is that it apparently contradicts what Aristotle says earlier in Met. Z 6. Here at 1038 b 34 – a 3 he says that none of the things presents universally is a substance (ἐκ τε δὴ τῶν θεωροῦσι φανερῶν ὅτι οὐδὲν τῶν καθόλου ὑπάρχων σύμφωνον ὄντα ἐστίν, καὶ ὅτι οὐδὲν σημαίνει τῶν κοινῆς καταγοροευμένων τόδε τι, ἀλλὰ τοιοῦτον). But earlier in Met. Z 6, 1032 a 4 ff. Aristotle had identified the substance of a thing with its essence, which presumably can be shared, and later he likewise comes to identify it with the thing's form. (See e.g. Met. Z 17, 1041 b 4-9.) Without being able to discuss the problem at the length it deserves--and requires--surely an important part of the explanation of these apparently contrasting passages in that they are part and parcel of the dialectical process of teasing out the difference between those predicates in connection with which 'ὅστιν is used as what we would call the "is" of identity and those in which the predicate is a mere universal. In fact, much of the earlier discussion in Z 13 can be understood as sketching out this very contrast.

Other apparent counter-evidence to my suggestions in this section can likewise be disposed of easily. For instance, in De Soph. El. 22, 178 b 39 – a 10 Aristotle says that what is predicated of a τὸ δὲ τι is not itself a particular, but a quality or quantity or a relation "or something of that sort." These statements don't represent his considered later opinion, however, which is that a predication which is not of the nature of an identification is precisely an accidental predication. That this is indeed Aristotle's doctrine is recognized by Kirwan (pp. 100-101) on the basis of Met. Γ 4, 1007 a 20-33, even though he goes on to accuse Aristotle of committing a logical mistake in maintaining this view: "...even if it is possible to make sense of the distinction between essential and coincidental predication, the former are no more statements of identity than the latter are." Kirwan is here relying precisely on the Frege-Russell ambiguity thesis, which we have found totally inapplicable to Aristotle.

4. Instantiation in natural languages: a systematic view
Suffice this as an indication of one line of thought opened by our observations. To return to the main theme of this paper, notice that from the absence of the Frege-Russell ambiguity it does not follow that there might not be other ambiguities about ἐστίν, over and above the non-ambiguous differences in use which Frege and Russell mistakenly raised to the level of ambiguities. Further light can be thrown on this question, too, by means of recent topical insights. There is in fact another major way in which recent logical and semantical work on the concept of being puts Aristotle in an interesting new perspective. In order to see what it is, we have to stray temporarily away from Aristotle and discuss certain topical problems in the logic of natural languages. I shall discuss them in the case of English, even though similar things can be said of other languages, including ancient Greek.

These problems are as close to the heart of all Sprachlogik as we can hope to get. Any logician knows that the lifeblood of virtually all interesting logical techniques in that basic part of logic which is variously known as first-order logic, quantification theory, or lower predicate calculus are the rules of instantiation (i.e. rules for substituting names or name-like terms for quantified variables). Now suppose we want to deal with the logic of natural languages directly, without first attempting the dubious and by this time largely discredited translation to formal languages. Then our first task is to formulate, likewise directly for natural languages, rules of instantiation for the quantifier phrases which take over the role of quantified variables in natural languages. How can we do that? How are we to deal with, say, a quantifier phrase like "every white horse which Alexander rode" or "some small town where Socrates lived," occurring in a context X - W? (We take here the general form of these quantifier phrases to be

\[
\begin{aligned}
& \text{every} \ \ \ \ {Y + \text{wh-word} + Z} \\
& \text{some} 
\end{aligned}
\]

where Z contains a "trace" to indicate where the wh-word was "moved away from." )

Now the obvious way of formulating instantiation rules for such phrases is to legitimize a move from the sentence in which they occur to sentences like
(1) \( X - b - W \) if \( b \) is a white horse
and Alexander rode \( b \)
or, respectively,
(2) \( X - d - W \) and \( d \) is a small town and
Socrates lived in \( d \),

where "\( b \)" and "\( d \)" are the respective instantiating terms. In general, the output of
an instantiation step is of the form

\[
(3) \ X - b - W \begin{cases} \text{if} \\ \text{and} \end{cases} b \text{ is a Y and } Z'
\]

where \( b \) is the instantiating term and \( Z' \) is like \( Z \) except that the trace has been
replaced by "\( b \)" with the appropriate preposition. (We have been assuming that \( Y \)
and \( Z \) are here singular.)

The details need not detain us here. What is of interest to us here is an
important difference between the situation in formal first-order languages and
natural languages. In the former, a single domain of values for the substituting
terms (e.g. my "\( b \)" and "\( d \)"") is given. In the latter, the entities referred to by the
substitution-values have to be chosen from different sub domains in different cases.
For instance, in (1) \( b \) has to be a living creature, whereas in (2) \( d \) has to be a
location in space.

It lies close at hand for a logician to say that the only novelty here is that
natural languages employ many-sorted quantification theory (more generally,
many-sorted logic). And this need not by itself introduce any complications
(contrary to what is e.g. implied in J. M. E. Moravcsik 1976). Indeed, many-sorted
logics do not involve any serious new difficulties over and above one-sorted ones.

Yet there is a new question present here. In many-sorted formal logics, the
sortal differences are indicated by notational conventions. How are these differences
marked in natural languages? How can one tell what subdomain \( b \) or \( d \) must belong
to?

Some clues are obvious, and the most obvious is the relative pronoun which
disappears in the process of instantiation. (These relative pronouns can be taken to
be question words in a new role, except that "what" is replaced by "that.") If the
operative word is "who," the relevant subdomain consists of persons, if "where," of
locations in space, if "when," of moments (and/or periods) of time, etc. Further
subdomains are introduced by prepositional phrases containing similar words, for instance "like which" introducing a realm of qualities ("some color like which you have never seen"). Clearly there is not a sharp one-to-one correspondence between the ranges of natural-language quantifiers (my "subdomains") and different relative pronouns (or other wh-words, with or without prepositions or similar qualifiers), but a rough-and-ready correspondence certainly obtains.

However, this cannot be the only clue to the choice of the subdomain. For one thing, the whole relative clause can be missing from the quantifier phrase in question, and hence be unavailable to supply any leads. Hence it is the meaning of $Y$ in (3) which must supply the main information as to which subdomain (sort) we are dealing with. Presumably we must assume some kind of semantical categorization of the terms (phrases) that can serve as the $Y$ in (3). In the case of simple terms these must be part of their lexical meaning. Since the $Y$'s in (3) are basically predicate terms, we end up in this way postulating a classification of all simple predicates of English into certain equivalence classes. These classes will be correlated one-to-one with those subdomains of quantification, which we are dealing with, when using quantifiers in English, i.e. the largest classes of entities we can quantify over, and also correlated in a loose way with certain wh-words and phrases.

The need of relying on $Y$ for our choice of the subdomain is vividly seen from the fact that if we try to eliminate $Y$ (in the way in which we could dispense with the relative clause), we would end up with an ungrammatical expression. In order to preserve grammatically, we must amplify the quantifier word itself so as to make it capable of conveying the crucial information: some becomes someone, something, somewhere, sometime, somehow, etc. where the added handle serves to betray the relevant sort (subdomain).

Furthermore, since each instantiation step (witness (3)) introduces an occurrence of "is", these correlated classifications are likewise correlated with a distinction between different uses of "is", viz. those that could have originated from an application of the instantiation rules, plus of course those that are logically on par with them.

Thus we are led to recognize four correlated multiple distinctions. They distinguish from each other

(i) Certain wh-words (and phrases with wh-words).
(ii) Different kinds of simple predicates.

(iii) The largest classes of entities we have to recognize in the logic of our language as domains of quantification.

(iv) Certain semantically different cases of "is". (In them we of course cannot distinguish from each other the is of identity, existence, and predication.)

5. What do Aristotelian categories categorize?

At this point you are supposed to have a deja vu experience. For what I have arrived at by means of purely systematic (logical and semantical) considerations is to all practical purposes tantamount to Aristotle's theory of categories. One of the most fundamental and most perplexing questions concerning Aristotle's distinction between different categories is: What is being distinguished from each other? What is Aristotle classifying in separating the different categories from each other? He uses different Greek question words or question phrases (τις, ποσόν, ποιόν, πότε, ποτό) as names for six of the categories, and the other labels likewise go naturally with certain types of questions in Greek. This is pretty much how he in fact presents his categories in Top. I, 9. He envisages different kinds of entities "put before one" and classifies the different things that can be said (and by implication asked) of it.

But when Aristotle introduces his categories in Cat. 4, they appear as classes of simple predicates or "things that can be said" of an entity. Which are they?

The plot is thickened further by Aristotle's deeply ingrained habit of considering categories as the widest genera of entities that can be logically considered together. This is seen for instance from Met. Γ1, 1003 b 19 ff. or from Post. An. Α 22, 83 b 10-17.

Furthermore, Aristotle indicates repeatedly that the distinction between the different categories goes together with a correlated distinction between different uses of ἔστιν. What is more, occasionally he seems to run the two distinctions together. For instance in Met. Z 1, 1028 a 10 ff. "that which is" is said to signify the different categories. See also Met. Δ 7, 1017 a 23-30.

Scholars have debated intensively which of these different things Aristotle "really" meant. For instance, one persuasion maintains that the categories represent
the different kinds of questions one can (according to Aristotle) ask of a given entity. This view is in different variants held by among others Ockham, Charles Kahn, Benveniste, and Ackrill. Other scholars hold that Aristotelian categories are what he says they are, predicables. Others, led by the formidable Hermann Bonitz, have held that categories were for Aristotle first and foremost the widest genera of entities. "Sie bezeichnen die obersten Geschlechter, deren einem jedes Seiende sich muss unterordnen lassen," he proclaims (p. 623 of the original).

Still others have held that Aristotle's category distinction is primarily a differentiation between several senses of \( \varepsilon \sigma \tau \iota \), a reminder of the "systematic ambiguity" of words for being in Aristotle. This view was represented by Heinrich Maier, and in a sense it can be maintained that G.E.L Owen is another case in point. He has certainly been followed by a host of younger scholars.

If we had not seen that Aristotle is completely free from the Frege-Russell ambiguity assumption, we might also be puzzled by the fact that the distinction between the different uses of \( \varepsilon \sigma \tau \iota \) in the different categories sometimes appears prima facie as a distinction between different kinds of existential is (cf. e.g. the Topics discussion whether \( \tau \delta \ ' \omicron \nu \) is a genus), sometimes as a distinction between different kinds of predicative is (cf. e.g. Pr. An. A 37, 49 a 6-9, read in conjunction with the preceding chapter), and sometimes as one between different kinds of identity. These different emphases in Aristotle have found their fans. For instance, as Ross reports, "Apelt regards the categories as primarily a classification of the meaning of the copula 'is'" whereas Bonitz stresses the existential and identity senses.

Some of the shrewder scholars have responded to this problem situation by suggesting that Aristotle was led to his distinction between the different categories by several convergent routes. For instance, Ackrill suggests that in Aristotle's classification there are two elements, first the idea that different kinds of questions will have "categorically" different answers, and second the idea of categories as the highest genera. This is undoubtably a step in the right direction. However, philosophers taking such a line will nevertheless face the almost equally perplexing problem as to why the different distinctions Aristotle had in mind should coincide -- or at least why Aristotle should have thought that they coincide. By and large, they have not solved this problem. Ackrill says merely that, "It is not surprising that these two ways of grouping things together should produce the same results." This opinion simply will not stand up to scrutiny when viewed in the cold light of contemporary analyses of questions and answers. (Cf. Hintikka 1976.) Contrary to
what Ackrill suggests, it is not at all clear that answers to different questions fall into mutually exclusive classes which correspond to the widest classes of entities. For instance, it is perfectly legitimate to reply to the question "Who is the head of the Academy?" not only by saying "Plato" or "a man", but alternatively "a blond", "the youngest brother of Potone", or even "he is sitting there", all of which have to be pigeonholed in different categories. Only by means of a further analysis can one perhaps hope to eliminate some of these replies as amounting only to partial answers (or as supplying collateral information to back up the conclusiveness of an answer). Worse still, Ackrill's account is intrinsically inconsistent. For if the appropriate answers to different questions belong to different categories, it is impossible to construe Aristotle's categories as answers to one and the same question "What is it?" as Ackrill also suggests. Even if what he says can somehow be salvaged in the last analysis, it does not help us to understand what Aristotle's categories really were in the least. Prima facie, it is far from obvious that the four correlated distinctions we find in Aristotle should go together, and Aristotelian scholars certainly have not supplied valid reasons why they should do so.

6. Aristotle reconstructed

Now the brief analysis of the conditions of the conditions of instantiation which I carried out above, puts both Aristotle's theory and discussions thereof into a new perspective. Led by purely topical (logical and semantical) arguments, we have arrived at a remarkable reconstruction of Aristotle's theory of categories. (My arguments have an even stronger theoretical motivation than I have spelled out here, for they ensue from the basic ideas of the highly successful approach to language analysis which I have called game-theoretical semantics. For it, see Saarinen 1979.) We can now recognize all the apparently discrepant ingredients of Aristotle's doctrine in the systematic situation revealed by my analysis. Aristotle's use of question words and phrases as labels for categories matches my use of wh-words as a guide to the subdomain involved in an instantiation. His view of categories as the different kinds of simple things that can be said of an entity matches my classification of the meanings of simple predicates as guides to the logical "sort" intended. His use of categories as the largest classes of logically comparable entities amounts to the focal point of my quest of the different largest domains of quantification presupposed in a natural language, and Aristotle's correlation of different uses of the word ἐστί corresponds to the automatic
alignment in my treatment of the other distinctions with certain differences in the use of the word "is".

What is more important, the correlation of these several distinctions is seen not to be accidental or artificial. Its reasons lie deep in the logic of the situation. Charles Kahn has suggested that the different Aristotelian distinctions represent different strata in Aristotle's thinking. That may very well be so, but we don't understand Aristotle unless we also recognize the intrinsic logical connections between the different correlated classifications of his. No longer does it make any sense to ask which of the several distinctions Aristotle "really" means, for they are all inextricably intertwined. The extensive controversies that have been prompted by this question are simply otiose. (This does not mean that differences of emphasis are not called for here; cf. my comments below on those who stress the ties between categories and question types.) The interesting questions pertain instead (inter alia) to Aristotle's awareness of the connecting links between the different distinctions. Indeed, it is in spelling out the main interrelations between the distinctions which converge in Aristotle's theory of categories that my "transcendental deduction of the categories" goes essentially beyond those earlier scholars who have emphasized the multi-faceted character of Aristotelian categories.

Even though the reconstruction of Aristotelian categories which we have just reached, perhaps does not ipso facto solve any major interpretational problems, it yields valuable clues which help to understand Aristotle and in many cases even promise further insights. For instance, one problem we can now approach pertains to the relation of Aristotle's theory to the facts of the Greek language.

Trendelenburg, Apelt, and Benveniste have claimed that the Aristotelian distinction between different categories reflects certain general features of the ancient Greek language. Ackrill's persuasive arguments to the effect that what is distinguished from each other in the category distinctions are not verbal expressions but entities may serve as an antidote to such excesses. However, Ackrill's thesis does not imply that Aristotle was not guided by logical structures which manifest themselves in the grammar of the Greek language. I cannot try to write either a transformational grammar or a game-theoretical semantics for the ancient Greek language. Suffice it merely to point out that the grammatical facts which are highlighted by my treatment are less eye-catching but subtler than those flaunted by Trendelenburg and Benveniste. They pertain to such things as the identity (in form) of indefinite relatives with indirect interrogatives in Greek, and the close relationship of both with quantifier words. These features of the Greek
grammar serve to link the different correlated distinctions explained above to each other especially closely, and thereby to motivate Aristotle's theory. If I had to find linguistic evidence for my interpretation of Aristotle, that is the direction in which I could (and would) go. Even on the present superficial level, it is not hard to see that my treatment of instantiation works mutatis mutandis even better with Greek than with English.

Likewise, we are now in a position to draw an interesting conclusion from our observations. The different classes of questions with which Aristotle correlated his other distinctions were primarily indirect questions. The correlation depends crucially on an analogy between relative pronouns and question words, and this analogy (or near identity) can obviously be best argued for by comparing with each other the logical behavior of relative clauses and indirect questions. (An especially useful Mittelglied here is the class of relative clauses without antecedents. Their logic is remarkably similar to that of indirect questions.) Aristotle's distinction between different categories is less a distinction between different question types as between question words, and it pertains to these words in so far as they are doing duty for their relative clause twins.

This observation reflects somewhat unfavorably on those scholars who have made much of the classification of questions as the alleged cornerstone of Aristotelian categories. It seems to me that their thesis remains unproven. Admittedly, the importance of the dialectical questioning games practiced in the Academy for Aristotle can scarcely be exaggerated. However, there is little evidence in the Topics or elsewhere that the theory of categories was developed for (or from) such games.

7. Is the reconstructed Aristotelian theory correct?

Categories vs. logical types

Here we come to some of the most crucial questions concerning Aristotle's theory of categories. Is the theory correct as an analysis of the "logic" of the Greek language (or of the English language)? Are there differences between different languages vis-à-vis Aristotelian categories? The "transcendental deduction" of Aristotelian categories presented above might seem to vindicate the main features of Aristotle's theory. In spite of its persuasiveness, it nevertheless gives us only an approximation to the true semantical theory of natural language categories. It is based upon assumptions which are only partly true, and hence it cannot be taken
as the last and final word on the subject. Below, I shall indicate one specific limitation of my argument and consequently of our reconstructed theory of Aristotelian categories. On a general theoretical level, another major shortcoming of the theory is obvious, connected with its relation to logical type distinctions. It is in a wider logical and philosophical perspective clear that even Aristotelian category distinctions must in the last analysis be based on type distinctions. The latter distinctions may not coincide with Russell's. Indeed, the types (categories) of Frege and Russell seem to me too few and too far apart to serve as a realistic basis of our Sprachlogik. But, whatever the requisite types are, they must serve as the foundation of any viable distinction between different categories. In other words, some bridge has to be constructed from Aristotelian categories to logical ones to vindicate them. How foreign modern type distinctions were for Aristotle is also illustrated by his deeply ingrained habit of bracketing together the obtaining of (what we would call) facts and the existence of individuals. (See e.g. Met. Z 17, 1041 a 14-16, b 4-5.)

This general problem is highlighted by the more specific observation that Aristotelian categories turn out on my analysis to be quite different from logical categories in the sense of logical types. (This point is relevant here among other reasons because the contrary has been maintained by Gilbert Ryle; cf. Ryle 1937-1938.) Not only is it the case that entities of a different logical type (in what is roughly Russell's sense) belong to the same category, as Socrates, man, and animal all belong to the so-called category of substance. There is a sense in which all categories come close to containing entities of the same logical type. After all, they all contain items which can be said of a substance like Socrates. For instance, the members of the so-called category of relation are not relations for Aristotle, but relatives (relational predicates). This is amply shown by his discussion of this category in Cat. 7, 8 a 35 ff., especially his comments on correlatives and their epistemic and ontological interdependence. (Cf. Cat. 6, 6 a 35 ff.; De Soph. El. 31, 181 b 26-28; Top. VI, 4, 142 a 28-31; and VI, 8, 146 b 3-4.) Likewise, quantities are not for Aristotle what we would mean by them (e.g. a length), but quantitative attributes (e.g. being of such-and-such length).

These observations are perhaps not very surprising. There is a sense in which the very "category" of relation (as distinguished from relational predicates) came to its own only much later in the history of philosophy. (Cf. Weinberg 1965.) However, the absence of relations proper from Aristotle's categorical scheme highlights the problems it leads into. For where else can he put relations? The only
propositional form he seems to recognize is the subject-predicate one. If some of those predicates are relational, we need an account as to how some of them can be built of relations. Alternatively, we need a reduction of relational propositions to subject-predicate propositions. Neither task was attempted by Aristotle, although the latter one was undertaken by Leibniz, whose philosophy is in the last analysis much more Aristotelian than is usually recognized. (Cf. here Hintikka 1972b.)

Similar remarks can be made about several other categories, especially about the categories of quantity, place, time, and action.

These are illustrations of deeper and more widespread tensions in Aristotle's thought. In treating (at least in its first stage) all categories on a par Aristotle (as well as my rational reconstruction of his theory) fails to give a deeper account of the rationale of category distinctions. It is for this reason especially important to realize the differences between Aristotelian categories and logical types.

It is here that Aristotle's relative neglect of the Frege-Russell distinction (even as a difference in use and not just as a difference in meaning) becomes a handicap for him. Admittedly, it was claimed by Maier that Aristotle's theory of categories was calculated to accommodate certain distinctions between different senses of "is". (See vol. 2, p. 291 ff.) Maier's distinctions include most of the Frege-Russell ones. Indeed, Maier's first two distinctions are identificatory being vs. accidentally predicatory being, p. 280, and existential vs. copulative being, p. 282. No major insights are forthcoming from Maier, however, into the way Aristotle managed to combine the Frege-Russell distinction with his doctrine of categories. For he firmly believes that, according to Aristotle, "immediate reflection on the concept of being [Maier's emphasis]... forms the principle of division for the table of categories" (pp. 298-299). Maier's immediacy claim notwithstanding, Aristotle himself does not trust immediate intuition here, but discusses the relation of other categories to that of a substance. However, these arguments are either calculated to show the dependence of other categories on that of substance, or (which may come down to the same thing) to point out the role of focal meaning in relating the being of the other categories to that of substance. They do not rely on the kinds of distinctions which Maier mentions or which are likely to be made by a twentieth-century logician. All told, it thus remains a mystery -- or at least an unaccomplished explanatory task -- how Aristotelian categories can be related to such logical distinctions as those between different logical types.

These difficulties offer us an incentive to improve our interpretive framework so as to bridge the gap between Aristotelian categories and logical ones. We also
have to try to understand Aristotle's own efforts to overcome the separation between different categories. The latter question has been discussed convincingly by G. E. L. Owen, and I will not treat it here. The former question likewise admits of different kinds of approaches. At least two important lines of thought are forthcoming here.

Above we studied the ways in which expressions for the different categories enter into a complex proposition containing quantifiers. This study has to be supplemented by an account of the ways in which categorically different expressions enter into primitive ("atomic") propositions. It was precisely such an account that we saw earlier Aristotle failing to give in the case of relations (and in the case of several other categories). Admittedly, Aristotle argues for the primacy of substance over other categories, but he does not analyze the nature of this primacy or the role of other categories in a way which would relate them to logical type distinctions.

Secondly, the very structure of such quantifier phrases as were discussed above (e.g. "every white horse which Alexander rode") can be analyzed further. One especially interesting analysis has been offered by Joan Bresnan. It can be illustrated by comparing the nonrelative part of those simple quantifier phrases we have so far considered ("every white horse") with an example of a richer structure, e.g. "every two bottles of fine red wine".

Neither of these lines of inquiry seems to be connected with Aristotle's efforts to overcome categorical alienation in his metaphysics, even though the second is related to his form-matter contrast.

In spite of their inconclusiveness, these considerations are highly relevant to the subject matter of this paper, viz. to the question of the ambiguity or nonambiguity of being. If all we are dealing with -- or rather, Aristotle was dealing with -- is a many-sorted theory, there is no reason to think that any ambiguity of the verbs for being is implied by his theory. In order to have given reasons for a genuine ambiguity, Aristotle ought to have given the kind of further analysis of his categories which would have related them to logical types. This he never does, however, and hence the vaunted ambiguity of being between different Aristotelian categories remains at best an unproven and unargued-for dogma. It is not even clear whether Aristotle held any clear-cut ambiguity thesis for ἐστὶ as used in different categories, for his terminology strongly suggests that he took himself to be discussing differences in use rather than ambiguities. (Cf. Hintikka 1959.)
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