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Some Thoughts on Aristotelian Form: With Special Reference to *Metaphysics* Z 8

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Argument

The term "universal" is ambiguous; it can indicate either what *actually* exists in several instances, or what *can* so exist, even if it is actually exemplified in only one instance. The former sense implies the latter, but not vice versa. It is suggested that form for Aristotle is universal in the latter sense, including what is part of the nature of a species but not individual accidents due to the matter, and that this may help to explain a problematic passage in *Metaphysics* Z 15. Analysis of passages in *Metaphysics* Z 8 may however suggest that form as universal in the former sense exists only as a potentiality. The claim that form includes only specific, not individual features has implications for Aristotle's theory of heredity; more generally, his theory of form reflects the tensions between Platonist and non-Platonist elements in his thought and his methods of enquiry.

1. Introduction

Aristotle describes the question, "what is being?" as "enquired into long ago and now and always, and always causing perplexity" (*Metaphysics* Z 1 1028b2–4). These words might now be applied with equal force to the question what Aristotle's own answer might be. It is clear that form, as Aristotle understands it, is central to his answer to that question in books Z and H of the *Metaphysics* (cf. Burnyeat 2001, 6). It is less clear, as is shown by the literature not just of the past half-century but of the past two millennia, just how Aristotle does understand it.

To attempt, in the space of a single paper, to give a comprehensive answer to that question, taking into account all the evidence even of Z alone, would be folly; to do this and do justice to all previous discussions would be impossible even in a book longer than Aristotle's *Metaphysics* itself in its entirety. The present paper makes no attempt to do either of these things. Nor does it claim to advance substantial new interpretations, either in general or in detail; it would be surprising if, after so much discussion, it remained possible to contribute more than slight nuancing of views already advanced. For reasons of space and readability I will state points dogmatically where I might prefer to be tentative; what I say here is put forward as a contribution to ongoing discussion, one-sided as such contributions must be. Nor will I attempt to document anticipations

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of each point I make here; this is an area where completeness is impossible and where attempting it can only result in unacceptable selectivity.

Nevertheless, and perhaps paradoxically, one aim of the paper is to suggest the value of attending to earlier discussions.[1] A second is to consider how one possible interpretation can be related to one particular section of Aristotle's discussion; a third to indicate – since there is no space to do more – how the issues discussed in the paper relate to our understanding of Aristotle's wider scientific enterprise. It may also be salutary to underline just how much uncertainty there is concerning central concepts of Aristotle's philosophy.

The paper argues for two principal claims. (I) Discussion of Aristotle's theory of form is facilitated by distinguishing between two different senses of the term "universal," which should be understood as an adjective not as a noun. (II) Form includes only those features which are common to all members of a species. The second conclusion is perhaps the one of more interest to those whose concern is with Aristotle as a scientist; the second claim does not depend directly on the first, but the epistemological considerations that form part of the background to (I) also make (II) more plausible.

2. A problem, and a necessary distinction

The problem is familiar. Aristotle appears to be committed to three claims which form an inconsistent triad: (1) knowledge is of the universal, (2) universals are not substances, and so cannot claim to be primary realities, but (3) knowledge is of what is real, and this must surely include primary realities. (1) and (2) are explicitly argued for in Z;[2] (3) is axiomatic for Parmenides, Plato, and Aristotle at least among Greek philosophers.

The solution is that there is an equivocation in "universal" between (1) and (2). In (1) "universal" indicates those features of a thing which are such as to apply to all instances of a type – however many or few instances there are.[3] Even if there is only one instance, a definition cannot capture its particularity in such a way that another instance satisfying the definition could not hypothetically appear, as Aristotle points out in Z15 1040a33–b2. However, what is universal in *this* sense is a subset of the

[1] The antiquity of Alexander, or of Aquinas, certainly gives them no special authority as guides to the interpretation of Aristotle; but neither does it automatically mean that their comments are of less value than contemporary discussions. The remarks of A. C. Lloyd 1981, 5, are very much to the point. More specifically: even if the interpretation for which I shall argue in §6 of this paper is not in fact true to Aristotle's own thought, consideration of Alexander shows that it is not just Neoplatonism that is to blame. See below, n. 43.

[2] (1) in *Metaphysics* Z 10 1036a2–9, Z 15 1040a27–b2 (and in *Nicomachean Ethics* 6.3 1139b19–24); (2) in Z 13.

[3] "Such as to apply" in the absence of privation; it is not implied that a human being who has lost one leg thereby ceases to be a human being. Balme 1990, 28–29 denies (1), arguing that the unity of form and matter in *Metaphysics* H 6 implies that an individual such as Socrates can be uniquely defined. But H 6 appears to say nothing about the *distinctive* features of individuals. Balme's use of the chapter had already been questioned by Witt 1985, 50–51.

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features of any given instance of the type – in fact, those which are included in an account of its essence or form; and to call something universal in *this* sense does not *a priori* exclude its being a particular instance, particular not in the sense that Socrates' rationality, for example, exhibits peculiar features different from Callias', but just in the sense that it is the rationality that is part of the essence of *Socrates* as a human being. (Whether or not this is a sort of particularity that Aristotle would recognize remains to be discussed; my claim at present is no more than that it is a logical possibility.) (2) however refers to universals considered *as universals*, that is as common to many instances. If we label the first sense "universal$_A$" and the second "universal$_B$," then everything that is universal$_B$ will be universal$_A$, but not *vice versa* – not, that is to say, in cases where there is only one instance of a type. (It might be objected that "universal$_A$" might better be described as "essential" rather than "universal" at all; but it is in terms of universal$_A$ that the claim that knowledge is of the universal should be understood.) It should be emphasized, too, that "universal" is an *adjectival* expression; reference to "the universal" is always shorthand for reference to something that has the attribute of being universal (in either sense of the term).

This way of understanding "universal" is not new; and its history, both in antiquity and more recently, may bear some examination. Alexander of Aphrodisias, the commentator on Aristotle who flourished around 200 A.D., argues that definition is not of what is common *as common*, because it is completely irrelevant to the accuracy of a definition whether it applies to the sole member of a type – henceforth, a "singleton" – or to many things of the same type.[4] That is to say, (1) should be understood as indicating that definition is of what is universal$_A$, but only incidentally of what is universal$_B$.

Aristotle himself in *De interpretatione* 6 17a38–41, as Modrak notes, defines the universal not as what *is* predicated of many subjects, but as what has such a nature that it *can* be predicated of many (Modrak 1979, 373).[5] (This is indeed in the context of the *Categories* theory of secondary substances predicated of individuals; it is not clear that either the universal$_A$ object of definition of which Alexander speaks in *Quaestio* 1.3, or form in Aristotle's *Metaphysics*, is to be thought of as *predicated* of the instances to which it applies [Modrak 1979, 373; cf. Driscoll 1981, 151, and Woods 1991a on *Metaphysics* Z 13].) Also stated in terms of predication, but explicitly distinguishing between two senses of "universal," is Aquinas' distinction, in the context of Z 13, between (a) "the nature to which intellect attributes the notion (*intentio*) of universality," identified as

[4] Alexander, *Quaestio* 1.3 8.12–17. For the identification of "common," "universal" and "form" compare Alexander, *On the Soul* 85.14–20. Cf. also Alexander *Quaestio* 1.11 23.25–30 – where "universal" is *confined* to universal$_B$ – with the discussions of Tweedale 1984 and of Sharples 1987, 1199–1202; and, with de Haas 2001, 522, Porphyry *In Cat.* 81.16; also Irwin 1988, 264–265 and n. 46.

[5] Rashed puts the distinction in terms of one between intension and extension (Rashed 2004, 18 n. 26, 41 n. 67); Richard Sorabji (private communication) in terms of one between a nature that is shareable and one that is actually shared.

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genus and species which indicate the substance of that of which they are predicated, and (b) the universal *as universal*, i.e. as one in many.[6]

More recently, Irwin distinguishes between the universal as what *is* as a matter of fact present in several instances and the universal as what *can* be present in several (Irwin 1988, 578 n. 46);[7] Frede and Patzig argue that definition is of the universal in the sense that a definition must be universally valid (Frede and Patzig 1988, vol.1, 55).[8]

3. Does universal$_B$ form exist for Aristotle?

The interpretation so far outlined suggests that for Aristotle definition and scientific knowledge have as their objects the nature of a species, present in one instance, *repeatable* in other instances but, as the existence of singletons shows, not dependent for its existence on being actually *repeated*. (To be sure, in the case of perishable sublunary individuals the specific nature will only *continue* to exist if it is repeated, and the teleological organization of individual species and of the universe as a whole will see to it that it is in fact repeated; but these are different issues.) This raises questions about the relation of such a view to practical epistemology in general and to Aristotelian natural science in particular; and it is to those that I will return at the end of this paper.

First, though, there is an ontological question about form. What is at stake can be seen more clearly if we take the example of the form of human being in Socrates and in Callias, and ask whether what we have is:

(A) a single universal$_B$ form of human being that informs both instances; or
(B) two instances of the form human being, numerically distinct though the same in form (or in kind, or in species); or
(C) two types of form, a universal$_B$ form and two individual forms that are numerically different (though the same in form/kind/species).

Moreover, concerning (A) and (C) we can ask whether the universal$_B$ form is itself numerically one (A1, C1), or whether it is a sort of thing about which the question whether it is *numerically* one or many is simply inappropriate, though it is the same in *kind* in the two individuals (A2, C2) (cf. Albritton 1957, 706; G. E. R. Lloyd 1988, 223–224). If we opt for the latter we may, but need not, conclude that

[6] Aquinas, *In Aristotelis Metaphysica*, 7 lect.13 §5, cited by Driscoll 1981, 458. I have followed the Latin text made available on-line in Alarcón 2004. See A. C. Lloyd 1981, 43 and 54; and Owens 1982, 453 and n. 50.
[7] At 264–265, Irwin distinguishes between the universal (in the sense of universal$_B$) and the property of e.g. being a human being, which corresponds to what I am calling universal$_A$. Cf. also Irwin 1988, 267–268. Witt 1985, 48 distinguishes between "individual form" and "radically individual form," the former corresponding to what I have labeled universal$_A$.
[8] Wedin rightly compares the statement at *Posterior Analytics* 2.19 100a17 that when we perceive a particular our perception is of the universal (Wedin 1991, 380 n. 36), and the statement at *Metaphysics* Z 15 1036a7–8 that particulars are known "by the universal account" (ibid., 382 n. 37).

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(D) the concept of numerical identity or difference is inappropriate for all form, so that the distinction between universal$_B$ form and individual form ceases to have any meaning.[9]

Jim Lennox has recently argued that

(E) "forms cannot be said to be numerically one *or one in any other way*; rather . . . forms are what *make natural and artificial objects* one, both numerically and formally" (Lennox 2001, 142; emphasis mine).

It may be helpful to consider the analogy of Beethoven's Ninth Symphony, far removed though it indeed is from being an Aristotelian substance. Analogous to (A) will be the view that there is one and only one Ninth Symphony of Beethoven, even though it exists in many individual performances, the differences between which are however irrelevant (within limits) to their being performances of the Ninth Symphony; to (B) that there are as many (identical) Ninth Symphonies as there are performances (identical, because we are considering only the universal$_A$ features and so disregarding differences of tempo and the like), and that that is all we can say; to (C) that there is both one Ninth Symphony of Beethoven and many; to (D) that the only admissible answer to the question how many Ninth Symphonies of Beethoven there are is that the sequence of notes is the same in all the performances (to which we may add, taking up Alexander's point in *Quaestio* 1.3: even if there is only ever one performance of a particular piece of music, that performance is still a performance of that piece of music); to (E), that the question whether there is one Ninth Symphony is simply misguided.

Supporters of (B) may well feel that this analogy loads the dice against them in so far as "Ninth Symphony of Beethoven" is more like a proper name than "human being" is. But while we do talk of "human beings," we do not customarily use formal species-names like *homo sapiens* in the plural; and it is part of the contention of this paper that when he is considering epistemology or metaphysics – whatever may be the case when he is considering biology (or ethics) – Aristotle is more interested in *homo sapiens* than he is in Socrates or Callias. The example is also imperfect in that Beethoven's Ninth Symphony is actual only stage by stage while it is being performed; the performance does not result in a permanent end-product like a house or a bronze sphere. But performances are perhaps the modern context where we can find the sort of significant variations between instances of a type that would have been the norm in products too in the world of Aristotle and his audience, a world with much less experience of mechanical mass production.

[9] A view attributed to Avicenna by A. C. Lloyd 1981, 43, 54, and to Boethius by Frede and Patzig 1988, vol.1, 50. Cf. however Albritton 1957, 699 n. 2: "I doubt whether Aristotle would have understood any better than I do the suggestion that a thing may be neither universal nor particular."

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4. The claim that form does not come to be by a process

It is time to see whether *Metaph.* Z 8 has any bearing on our choice between the positions outlined. I should emphasize again that I am considering Z 8 simply as a sample part of Aristotle's discussion, not as in any way definitive; and I should also say that I do not dissent from the common view that Z 7–9 are a self-contained unit inserted, perhaps by Aristotle himself, into an argument that was originally continuous without them (cf. Burnyeat 2001, 29–38), or from Burnyeat's view that Z 7–9 have an agenda of their own concerned with the synonymy of producer and product (ibid., 35–36) and his more general warning that the sections of Z are self-contained in the sense that we cannot automatically use points made in one section in the interpretation of another (ibid., 4–6). None of these points however invalidates consideration of particular passages for the light they may throw on Aristotle's own approach to form, provided only that we assume that Aristotle has a consistent position on this topic throughout Z (including Z 7–9).

In *Metaph.* Z 8 Aristotle argues that, since coming-to-be is to be analyzed in terms of the production of a composite by the combination of form and matter, it must be the composite that comes-to-be in this process, and not the form or the matter themselves:

> T1. As [the maker] does not make what underlies, the bronze, so he does not make the sphere either, unless accidentally because the bronze sphere is a sphere and he does make that. For to make a this-something is to make this out of what underlies generally; I mean that to make the bronze round is not to make the bronze or the sphere but something else, that is this form in something else. (1033a28–34)

When one makes a bronze sphere, one does not make either the bronze or the sphere, but one puts the form "sphere" into the bronze. Otherwise there would be an infinite regress, the form or the matter themselves coming to be from further constituents, and so ad infinitum (Z 8 1033b3–5).

At Z 8 1033b16–18 Aristotle says that the form does not come to be:

> T2. It is clear then from what has been said that what is spoken of as form or substance does not come to be, but the composite whole which is spoken of according to this does come to be.

This is awkward for supporters of individual forms. For the form of sphere in *this* bronze sphere presumably does not exist before the sphere is made, or after it is destroyed (Woods 1991b, 81–2).

If we wish to retain individual forms (as in options (B) or (C) above) one might suppose that they do not themselves go through a process of coming to be, but simply *are* and *are not*; the form of sphere in this bronze simply *appears* when the process of

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manufacture is completed, passing instantaneously from not-being to being.[10] There are a number of texts elsewhere in *Metaphysics* ZH that apparently support this:

> T3. Since substance is of different sorts, the concrete whole and the account – I mean that the former is substance in this way, as the account taken together with the matter, while the other is the account altogether –, of as many things as are spoken of in this way [*sc.* as account, together with matter], of these there is passing-away, for there is also coming-to-be, but of the account there is not in such a way as to be-in-process-of-passing-away – for neither is there coming to be, for it is not (1) being for house[11] that comes to be but (2) being for this house – *but they are and are not without coming-to-be and passing away*; for it has been shown that no-one produces or makes these (Z 15 1039b20–27).[12]

> T4. It is necessary for this [i.e., substance] either to be eternal *or to pass away without being-in-process-of-passing-away and to have come to be without being-in-process-of-coming-to-be*. It has been shown and made clear elsewhere that no-one makes or produces the form, but what is made is *this*, and what comes to be is what is from these (H3 1043b14–18).

> T5. Since some things *are and are not without coming to be and passing away*, like points, if they exist, and in general forms (for it is not the white that comes to be but the wood [that comes to be] white, if everything that comes to be comes to be something and from something), not all opposites will come to be from each other, but a pale human being will come to be from a dark human being in a different way from that in which pale [comes from] dark (H5 1044b21–26).[13]

T3 and T5 are consistent with T2 in that they say that form does not come to be; T4 is different in that it speaks rather of "coming to be without being in process of coming-to-be" (if that is how we are to understand γεγονέναι ἄνευ τοῦ γίγνεσθαι). The difference may only be verbal; it depends whether or not one allows what does not itself undergo a process of coming-to-be still to be spoken of as coming-to-be in a sense.[14]

[10] Cf. pseudo-Alexander, *On Aristotle's* Metaphysics 495.22–23, 496.11,22; Ross 1924, ii.311 – the latter seeming to conflict with ii.188, where Ross suggests that instantaneous appearance applies only to forms in non-substance categories.

[11] τὸ οὐσίᾳ εἶναι.

[12] The last clause may well be a later addition reflecting the insertion of Z 7–9 (Burnyeat 2001, 32–33). But this does not affect my overall argument, except in so far as the addition, if it is Aristotle's own, shows that he considered T3 as making a similar point to that made in Z 8.

[13] T5 refers to qualitative change rather than to the coming-to-be of a substance. Nevertheless, given the reference to "forms in general," it may have some value as evidence when coupled with the other passages.

[14] Burnyeat 2001, 33, says that the statement at Z 10 1035a29–30 that the parts of the form do not perish, "or not in this way," is unaccountable if Z 8 had preceded. It may be noted that in this respect T4 agrees with Z 10, rather than with T2 in Z 8.

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T3 draws a contrast between (1) being for house – i.e. the essence of house – and (2) being for this house. If we suppose that essence is to be identified with form,[15] the apparent presence of an implied distinction between universal$_B$ form (1) and individual form (2) is problematic for views (A), (B), (D), and (E) above, since none of these allows the existence of both. But the passage is also problematic for view (C), because of the apparent implication that the individual form (2), by contrast with the universal one (1), *does* undergo a process.

The common response has been to interpret (2) as referring not to the form or essence of the individual house but simply to the *house*, whether retaining the text as transmitted[16] or emending it with Frede and Patzig to ἥδε ἡ οἰκία, "this house" simply.[17] There is a well-known parallel at Aristotle, *On the Heaven* 1.9 278a5–10 (Heinaman 1979, 253–254 n. 8; Modrak 1979, 377 n. 40; Bostock 1994, 217):

> T6. None the less being for circle and *[being] for this circle* will be different, and one will be the form, the other *the form in the matter* and of the particulars.

"The form in the matter" is unfortunately ambiguous: it could (i) be a way of referring to the form-matter compound, or (ii) a way of referring to an individual form, the one that is in (the particular) matter, as opposed to the form of the species in general. If we interpret the last clause as "the form which is (a) in the matter and (b) of the particulars," this suggests (ii). On the other hand, the description of the form which is being for *this circle* (singular) as being "of the particulars" (plural) is awkward; and the last clause could also be read as "the form which is in the matter, being (one of the) particular(s),"[18] so that the whole will amount to "the other will be the form-matter compound and will be a particular," i.e. (i).[19] In any case, the parallel provided by T6 is an argument against emendation in T3, as Frede and Patzig recognize.

[15] Balme [1980] 1987, 305, indeed argues that the statements at 1032b1–2 and 1035b32 that form is to be understood as essence indicate that this is *not* always the case. See further below, §6.

[16] Burnyeat et al. 1979, 141–142 attribute this interpretation to Albritton 1957, 703–4, but this does not seem entirely right; Albritton at 704 n. 8 argues that (2) is *not* simply a periphrasis for "this house," because of Z 11 1037b4–5 (things taken together with their matter are not identical with their essences). Irwin 1988, 266, argues that (2) is the individual form, which in his view is a form-matter compound; similarly, though insisting that what is substance is the individual form which *requires* matter, rather than the compound of form and matter, Hartman 1977, 68 and n. 18. See below, n. 18. Asclepius, *In Metaph.* 440.26–27 paraphrases "being for this house" by "the compound … the enmattered form"; [Alexander], *In Metaph.* 530.7–8 by "this particular house."

[17] Frede and Patzig 1988, vol. 2, 281–282, taking (1) to refer to the *individual* form which is and is not without itself undergoing generation and corruption.

[18] At 277b32–33 Aristotle has distinguished between "the shape in itself and [the shape] *combined with the matter*." Simplicius does not regard the distinction between the form which is in the matter (ii) and the form-matter compound (i) as significant; cf. his *In De caelo* 275.4 with 275.10.

[19] Whiting 1991, 638 n. 57, notes that the contrast at 277b35 between the sphere and the gold and bronze spheres supports (i).

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Bostock 1994, 217 suggests that Aristotle would be unlikely to use the *un*emended (2) in T3 to refer to the house, simply, if (1) refers to an individual form. However, if the contrast Aristotle is drawing is between the form-matter compound which does go through a process of coming-to-be, and the form which does not, the question whether the form is individual or universal is not the primary issue; and while the individual form in this house is what makes it a house, it is not (if form is universal$_A$) what makes it *this* house rather than any other. It is not (on this view of form) anything about Socrates' form (his soul) that makes him Socrates rather than Callias. Consequently, while the individual form is indeed from one point of view the being of this house, it is, from another point of view, more correctly described as an instance of "being for house" than as "being for *this* house."

5. Thises and Suches

The second half of Z 8 is an argument against Platonic separate forms, prompted by the danger that the denial that form is generated might suggest that Plato was right after all (Ross 1924, ii.188).[20] If the Forms were separate, Aristotle argues, no this-something could come to be. Why not? Presumably because no substance can have another substance existing in actuality as one of its ingredients: so Ross 1924, ii.189, comparing Z 13 1039a3 and citing for this explanation pseudo-Alexander, who expresses the point by saying that if the form were a "this-something" (τόδε τι), it could only enter into the compound by means of juxtaposition, as bricks make a house (496.23–27).

Aristotle himself puts the point as follows:

> T7. No this-something would come to be, if it were so, but in fact it indicates *a sort of thing* (a "*such*"), and is not a this-something and definite, but [the maker] is making and producing a such from this, and when it is produced, it is a this of this sort (a "this-such"). (1033b21–24)

Similarly at the end of the chapter (1034a5–8):

> T8. The whole, *such* a form in these flesh and bones, is Callias or (*literally*: and) Socrates; and it is different (sc. in each case) on account of the matter, for it is different, but the same in form, for the form is indivisible.[21]

[20] I am grateful to Carlo Natali for pressing this point.

[21] I take it that the last clause need only express the point that the form is the *infima species* and cannot be further subdivided into several species-forms – that is, that it is one in *kind* (cf. Frede and Patzig 1988, vol. 2, 145, 147–148; Irwin 1988, 572 n. 13.)

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If however an Aristotelian form is *only* a "such," it would seem that it cannot be a substance. And that seems odd, for Aristotle wants to insist that the form is not simply a quality that the individual has. You are not just some matter that happens to have the property of being human. The differentia is not in the subject in the same way that a quality is;[22] and if the differentia, which is part of the essence, is not, or not straightforwardly, a quality, it seems difficult to suppose that the form is.[23] True, the bronze sphere is not a paradigm example of a substance, and can be interpreted as some bronze that has the quality of being spherical; but 1034a5–7 seems at first sight to suggest that Callias or Socrates is some flesh and bone that has the quality of being human, and – quite apart from the well-known problem that flesh and bone, in the proper sense of those terms, can only exist in a living animal body – this does not seem plausible. If your form is your soul, it seems odd to suggest that having a soul is just having a certain quality.

However, within the first part of Z 8 itself 1033b13, and perhaps also b19, suggests that a form *is* a "this" (τόδε); and so too do passages such as *Metaphysics* Δ 8 1017b24–26, H 1 1042a26–31 (Frede and Patzig 1988, vol.1, 39, 52).[24] It is for this reason that Burnyeat et al. interpret "and" (καὶ) in T8 at 1033b22 as epexegetic – the form is not a "this-something" (τόδε τι) *in the sense of* what is definite (ὡρισμένον) (Burnyeat et al. 1979, 68. Cf. also Bostock 1994, 132; Yu 1994, 22 n. 18).[25]

Perhaps Aristotle's position is the following. The form in itself can only be described as "such."[26] But when the form has come to be in some particular matter, then the implication that the composite is matter possessing a certain quality should be resisted; the fact that the form is a "such" should not *at that point* be taken to imply that even the form, and still less the compound, is a "such" *rather than* a "this."[27] It is only when

[22] *Categories* 5 3a21–24; cf. Anscombe and Geach 1961, 27, 33–34; Frede 1987, 78. Alexander explicitly says that the differentiae of substances are in the category of substance: *On Aristotle's* Metaphysics 206.13–207.1, Madigan 1994, 80–81.

[23] That form is not in matter as in a subject is repeatedly argued in texts attributed to Alexander: *Quaestiones* 1.8, 1.17, 1.26, and *Mantissa* 5. See Sharples 2004, 61–63.

[24] Yu 1994, 21–22 n. 18, argues that "this" (τόδε) is not the same as "this-something" (τόδε τι), and points out that in 1033b13 and 1033b19 "this" is also applied to the matter, suggesting that it therefore does not indicate individuality but simply points out the presence of two constituents in the compound; cf. also Bostock 1994, 132. However, the passages in Δ 8 and H 1 do refer to form as "this-something" (τόδε τι).

[25] Rather than distinguishing between different senses of "this-something," Aristotle in b22 seems simply to be claiming that form *in itself*, not as the form in any individual, is not a "this-something" at all. This is different from the position of Owens 1951, for whom being a "this" is a feature of form which in itself is neither individual nor universal, and "this" indicates not individuality but definability (233, 242–245). While the latter point is certainly true in some passages (cf. Sharples 1999; Burnyeat 2001, 49 n. 99), it seems hard to reconcile with the contrast in Z 8 between "this" and "such" (Owens himself dismisses Z 7–9 as showing no interest in problems of existence; 1951, 221).

[26] Alexander says that form as the object of intellect is not "this" but "such" (*On the Soul* 87.14–16; Tweedale 1984, 282 n. 3).

[27] Scaltsas 1994, 168 and 193 argues that substantial form in actuality is particular because it is identical with the concrete substance, while substantial form in abstraction is universal. (Cf. also Hughes 1979, especially 123–124: "taken as universals, essences are no more than the potentiality of there being substances.")

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considered in isolation from particular instantiations that the form is a "such" rather than a "this"; and the form never actually exists except in a particular instantiation. Aristotle does after all solve the problem "how knowledge can be of the universal when universals do not exist?" by arguing, in *Metaphysics* M10 1087a15ff., that knowledge is always actually of individuals of a certain type.

If this is correct, the choice between the range of options with which we started seems to be decided in favor of (C) – the view that Aristotle recognizes both universal$_B$ and individual forms; and the question whether it is (C1) or is not (C2) appropriate to speak of universal$_B$ form as *numerically* one seems to be decided in the negative – it is the actualizations that can be numbered, not the potentiality.

On this basis, the eternity of sublunary species will turn out to be a potential eternity which is actualized stage by stage (cf. Aristotle, *Physics* 3.6 206a25–29). The reason why the form does not undergo a *process* of coming to be will be that the actualization of the formal potentiality and that of the material potentiality differ, in that the latter involves a process of change and the former does not do so itself (though it requires and results from a process of change in the matter). The *material* potentiality is the potentiality of something else with a nature of its own to take on the form, i.e. become the form-matter compound (as when the bronze becomes a brazen sphere; cf. Z 7 1033a16–23). The actualization of the universal, potential form of sphere in the individual sphere, however, is not in itself a case of something *else* becoming a sphere (although it has this as a necessary condition of its occurrence); and that is why it is not itself a process. T4 suggests a close connection between the fact that the form does not undergo a process and the fact that it is not itself made; if "making" is understood as the process of transforming something (the matter) into something else (the compound), the actualization of form in the individual instance will not indeed itself be an instance of making, though it will depend on one.[28] Nor is there a conflict between the claim that universal$_B$ form is potentially individual form and the claim from which we started, that form is only universal$_B$ accidentally, in that it is not necessary that it exist in more than one instance. If a form did exist in only one instance – which is an unreal hypothesis as far as the forms of perishable sublunary beings are concerned – that would simply mean that the potentiality was actualized only once.

6. The problem of essentialism

Nominalism can be defined as the view that nothing exists apart from individual particulars (Driscoll 1981, 135 n. 35). Is the position outlined here nominalist? Only if we suppose that to exist only potentially is not to exist. But that is not what is being suggested here; the form of human being, or of horse, is a form of a definite type which is actualized whenever and wherever the appropriate conditions (a parent, the

[28] Cf. Shields 1990, 375–377, 381–4 and n. 6, well comparing Aristotle, *Physics* 7.3 246b10–16.

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appropriate matter, and no obstacles) are present. To claim that the form to which an Aristotelian species breeds true is simply a way of describing the result of mechanical processes would be to explain form in terms of matter (or, strictly, of the qualities of the matter and their interactions) rather than the reverse.

Aristotle himself makes the point, in *On the Heaven* 1.9 278a5–10 (cf. also *Metaphysics* Z 15 1040a27–b2) that where there is only one instance of a thing it is difficult in practice to distinguish between what is essential to it and what is not. But that does not affect the metaphysical issue, so long as the distinction is a real one and not just created by our thought.[29] The emphasis both Aristotle and Alexander place on the eternity of sublunary beings as eternity in species,[30] rather than as individuals, suggests that species-forms are not purely mental constructs; it would be bizarre to suggest that the survival of the species horse, for example, *depends* on our forming a conception of just what is and is not essential for counting as a horse.[31] Similarly, it is one thing to say that thought is required to distinguish between snubness and hollowness, which is clearly true,[32] but quite another to say that hollowness is a product of thought. The solution may be to say that what requires thought is the *recognition* as common of what is in fact common; as argued earlier, what is universal$_B$ is necessarily universal$_A$, and it is only thought that can distinguish the universal$_A$ form from the material accidents that attach to it.

Distinctions between what is essential to a species and what is not may not in practice be clear-cut, especially as we get further away from the living creatures that are Aristotle's paradigm cases of sublunary substance (cf. G. E. R. Lloyd 1996, 71).[33] Nevertheless, it seems that both for Aristotle and for Alexander there is in principle a distinction between what is essential to every member of a species and what is not, the latter being accidents due to the matter in each individual. This implies that the use

[29] Cf. Frede 1987, 78: "It is a basic nontrivial fact about the world that things come with forms that are exactly alike, and not just sufficiently similar to class them together in one kind." I have discussed Alexander's position on this issue, and especially the problem posed by his *On the Soul* 90.2–8, in Sharples 2005.

[30] Aristotle, *On Coming-to-Be and Passing-Away* 2.11 338b16, *On the Soul* 2.4 415a29–b7; cf. Scaltsas 1994, 193; Spellman 1995, 121; Lennox 2001, 154–156. Alexander, *On Providence* 89.5ff. Ruland; cf. also *Quaestiones* 1.25 41.11ff., 2.19 63.22ff., 3.5 89.20ff.

[31] I leave aside the question of the relation of forms to *God's* thought; see Sharples 2002, 31–33. Lennox 2001, while recognizing that the fixity of species itself implies a sort of essentialism (155, 173), argues that for Aristotle what is eternal is not the form of a species (127); rather, it is the *members* of a kind that achieve eternity *in* form (146; compare above, (E) in §3). Alexander describes the form and "the things that are common" as imperishable, respectively at *On Aristotle's* Metaphysics 215.15–18 and at *Quaest*. 1.3 8.22; cf. Madigan 1994, 86–87. Aristotle himself, at *On Coming-to-Be and Passing Away* 2.10 337a33, speaks rather of *coming-to-be* as being eternal. It seems that Alexander has expressed an Aristotelian idea in a way which is not quite the same as Aristotle's (compare n. 43 below).

[32] "The snub" being specifically a hollow *nose*, hollowness the shape abstracted from (for example) a snub nose. I am grateful to Richard Sorabji for helpfully introducing this familiar example from *Metaphysics* Z 5 into the discussion here.

[33] Perhaps significantly, the problem cases from zoology that Lloyd discusses in the sequel concern the classification of species within more general kinds, not the assignation of individuals to species.

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of the same Greek word, εἶδος, both for "form" and for "species," is far from being arbitrary. A species is the group of individuals – or, in the light of the foregoing, the single individual, if there happens to be only one – each of which is defined by, and indeed given being by, the presence in it of the form of that type of thing. Aristotle can certainly use εἶδος extensionally of a collection of individuals,[34] but this use may be derivative, in the sense that it is the εἶδος in the sense of form that makes the individuals a group in the first place.[35] Conversely, the features that distinguish one member of a species from another are accidents due to matter and therefore in principle irrelevant to Aristotelian science.[36] There is no knowledge, in the sense of scientific knowledge and understanding, of what is accidental; knowledge is related to essence and purpose.

David Balme declares that "Aristotle's biology is not essentialist." The essence of a species is not, he argues, something fundamental and given, but derived – derived from the end towards which the activities of the members of the species are directed, or, as we might say nowadays, the ecological niche that it occupies (Balme 1987).[37] In addition to this Balme draws a distinction between essence and form, regarding the latter, but not the former, as including *all* the characteristics of an individual (ibid., 294), and arguing that form is structural whereas essence is functional (ibid., 305). The distinction seems questionable; the fact that fish and dogs, for example, move around in the way they each do is arguably part of their essence, in the sense that their goal in life is to be creatures of types which (among other activities) move in these particular ways, and to have the form, or soul, of a fish or of a dog requires (among other things) having a body with the particular sort of locomotive organs appropriate to each – that is to say, with the appropriate structure. But while to have the form, or soul, of a dog involves moving on four legs, it is not clear that the length of a particular dog's legs is, for Aristotle, anything other than a material accident. (True, there are possible issues here concerning why, for example, dachshunds and Great Danes should be regarded as members of the same Aristotelian species; but that there are in his view distinct species in nature seems clear even if the boundaries are not always certain.)

Aristotle however appears to attribute the transmission of *individual* characteristics from father to child to the agency of the father's form.[38] Irwin (1988, 254) consequently argues that individual or "particular" form includes individual peculiarities, while

[34] So for example at *Metaphysics* Λ 5 1071a27; cf. Whiting 1991, 622–623.

[35] Cf. Shields 1990, 386 n. 14; the species-form is what causes the members of the species to be members of the species. Madigan 1994, 79 notes that Alexander, *On Aristotle's* Metaphysics 203.22–23 distinguishes between εἶδος as form and as species, saying that it is apprehension of the former that leads to that of the latter.

[36] Aristotle, *Physics* 2.5 197a18–21, *Metaphysics* E 2 1027a20–26. *Generation of Animals* 5.1 778a32 does not perhaps entirely rule out a science of why different members of a species have eyes of different colors, but it certainly suggests that such a science would be secondary in importance.

[37] On ecology see J. D. Hughes 1988.

[38] This is suggested by considering *GA* 1.21 729b20 and 4.3 767b25 together; but see further below. Cf. Sharples 1986, especially 120, with the comments of G. E. R. Lloyd 1988, 227; what follows here is my descent on one side of the fence on which he rightly noted I was sitting.

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recognizing (261–264) that it is universal forms, rather than individual forms so understood, that will be the objects of scientific knowledge.[39] The inheritance of individual characteristics from the *mother* is however attributed to matter, when the form from the father has failed to master the matter (Aristotle, *GA* 4.3 767b20ff., 768a7). This asymmetry is problematic, particularly so in that mother and father can each alike transmit characteristics from more remote ancestors on their own side of the family. There are two ways in which the asymmetry could in principle be resolved, either (i) by accepting that the mother too contributes form (so Balme 1987, 305–306), or (ii) by excluding, after all, from the form from the father everything other than the features common to all human beings. From (ii) it would follow that the father, like the mother, transmits other features through matter, though in his case through the effects of matter which does not itself persist in the embryo (so Witt 1985, 52–54).[40]

If Aristotle's biology was to be consistent with his formal epistemology, it seems that (ii) is the route he should have taken. The price to be paid is that many of the features of individuals will be outside the scope of biology as a formal science. Did Aristotle in fact incline to option (ii)?

In a well-known passage in *Generation of Animals* 5.1 Aristotle says that the existence of an eye is for the sake of something but its color is not, unless it is usual for animals of the type in question to have eyes of a particular color.[41] He then says that in some cases such features have nothing to do with the account (*logos*) of the being of the creature, but are the results of necessity, and that their causes should be referred to *the matter and the principle that caused the movement* (*Generation of Animals* 5.1 778a34–778b1); and later in the same passage he contrasts these two causes with the account and the final cause (ibid., 778b8–10). If "the principle that caused the movement" is to be identified with the male principle and the material cause with the contribution of the female, as the general theory advanced in *Generation of Animals* would suggest, and if the "account" is the account of the form, we seem to have a clear indication here that not everything that derives from the father is to be regarded as part of the form.[42]

[39] Spellman 1995, 47 objects that on Irwin's view there will be nothing that is both knowable as such *and* substance. The point may not be just epistemological; for she argues convincingly for the connection between what is universal$_A$ and Aristotelian teleology (Spellman 1995, 120).

[40] The non-persistence of the matter from the father preserves part at least of the point of 1.21 729b20 (above, n. 38). Coles 1995, 78, argues against such a view that the movements that effect generation and those that produce individual features proceed from the same source. But this is relevant to the mechanism by which transmission takes place, rather than to the analysis of which features are due to form and which to matter. Cf. the criticisms of Coles' general approach by Tress 1999.

[41] *Generation of Animals* 5.1 778a32–34. The example played an important part in Balme's analysis of necessity in Aristotle (Balme 1992, 79–80).

[42] Balme 1987, 294, takes the "account" here to be the account of form in the sense of essence, contrasted with form in the actualized sense including individual peculiarities, while still holding that it is the latter that is involved in the mechanism of inheritance; see Balme 1987, 294 and above n. 15. Cooper 1988, 36, interprets this chapter of *Generation of Animals* rather as showing that features like color of eyes, and even the curly hair of Ethiopians, are by-products from the matter and are not inherited from the father at all.

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7. Conclusion

The view that forms, whether individual or not, exclude individual peculiarities reflects a reading of Aristotle which emphasizes the continuities between Plato's thought and Aristotle's own, especially in epistemology.[43] Aristotle's theory of form thus combines an anti-Platonist metaphysics with a Platonist epistemology. For Aristotle form exists actually only in individual instances, and universal form (in the sense of universal_B) exists only potentially; form is universal (in the sense of universal_A) in that it excludes all peculiarities below the level of species – a notion of form which may be more suited to the precision of mathematics than to the complexities of biology where hard-and-fast boundaries may be more difficult to draw.[44] Aristotle thus appears to occupy an uncomfortable middle ground between a thorough-going Platonism on the one hand and a "bottom-up" empirical biology on the other. But that Aristotle should occupy the middle ground should not be a cause for surprise.

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[43] Balme [1980] 1987, 306 (cf. Balme 1990, 29) condemns as Neoplatonist a reading of Aristotle which treats form or *species* (in the medieval sense of that term) as a reality within individual things; if such a reading is correctly attributed to Alexander, then in this respect at least Alexander appears as a Neoplatonist before his time. This would not be the only Platonizing aspect in Alexander's interpretation of Aristotle; see for example Berti 1997, 67–68, on the idea that the heavenly spheres imitate the Unmoved Mover. See also Rashed 2004, 41.

[44] One may compare the tension between Aristotle's account of scientific method and his actual practice in biology; cf. G. E. R. Lloyd 1996, 7–37, and Lennox 2001, 4–6.

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