

Aristotle On The Separation Of Species-Form

Kyle A. Fraser
kyle.fraser@ukings.ns.ca

"Whereas Plato separates the Formal cause from its material participants, and posits a One over the Many, Aristotle insists that the universal species-form must reside in its singular members." This is the kind of simplistic and formulaic account of the difference between the Platonic and Aristotelian metaphysics that one might expect to discover in any standard textbook on the history of philosophy. For the purposes of a general introduction to the subject it is perhaps adequate; but for the serious scholar it represents, at best, only one side of the truth. Separation (*chwrismos*) for Aristotle, as for Plato, is one of the chief attributes of the primary substance. Aristotle does not reject the idea of separate forms; he clarifies and develops it, so as to purge it of certain paradoxical implications which are attendant upon its more traditional formulations. This paper is an exploration of two central aspects of the Aristotelian development of the Platonic concept of separation:

(1) Aristotle, we will argue, reinterprets the Platonic separation as a noetic separation, a separation in definition (*twi logwi chwriston*), thus circumventing the various paradoxes connected with the idea of a quasi-physical separation from sensibles. Commentators, anxious to avoid Platonizing implications, have misconstrued this idea of definitional separation as a merely conceptual separation, akin to the conceptual separation of the objects of mathematics. Aristotle's real meaning, however, is that the species-forms are grounded in an objective and eternal thinking, viz. the self-thinking thought of the divine mind. The separation of the divine mind affords the species-forms a kind of transcendence that is fully compatible with their immanence in the species-members.

(2) The Aristotelian categorial framework narrows significantly the range of the Platonic *chwrismos*. Whereas Plato, at times, envisions separate Forms for all classes of entity, Aristotle reserves formal separation for the substantial species-forms. Non-substantial forms (e.g. qualities, quantities, relations, etc) and artificial forms (e.g. the form of a house) all exhibit modes of inherence and ontic dependency in concrete substances. The species-form, however, is not an inherent attribute of the concrete substance. It is the cause which makes the concrete substance the kind of substance that it is. Thus the species-form is prior in being to the various species-members, and must be grounded in the transcendent mind of God.

Before turning to the elaboration and defence of these specific theses, some general remarks about the state of contemporary scholarship are in order.

I. Is Aristotelian Metaphysics Apodeictic Science Or Conceptual Analysis?

The aforementioned tendency to interpret the primacy and separation of the species-forms as a merely conceptual separation, can be regarded as part and parcel of a general interpretative shift in the Aristotelian scholarship. There is a well-entrenched view of the *Metaphysics*, associated in particular with the writings of G.E.L. Owen,¹ according to which the methods and concerns of the Aristotelian 'first philosophy' are entirely distinct from those demonstrative, or 'apodeictic', methods of inquiry which are pursued in the empirical sciences and painstakingly outlined in the *Posterior Analytics*. On Owen's influential view, first philosophy is construed rather as a dialectical science, in the vein of the *Topics*, focused especially on the clarification and analysis of reputable opinions (*endoxa*) and linguistic usage (*legomena*). A similar position has been advocated on the continent by P. Aubenque, W. Leszl, and J. Moreau. All of these scholars regard first philosophy as an introspective inquiry into the human conceptual apparatus-- into the first principles of human thought and communication.²

On the face it, this perspective has a certain plausibility. After all, Aristotle is primarily concerned in the *Metaphysics* with the analysis of certain homonymous or multivocal principles, like being, unity, substance, sameness, actuality, etc.; and this interest in homonymy can be construed, quite readily, as an interest in defining the multiple senses of the words, 'being', 'one', 'same', 'substance', 'actual', as those words are employed in ordinary language. Thus, for Owen, the science of being *qua* being is not a strict demonstrative science, which seeks to deduce theorems about the objective structure of beings; it is a semantic inquiry that aims at the clarification of the language of 'being' and cognate expressions. The various ways in which being is spoken of correspond to the categories, viz. substance, quality, quantity, relation, etc., which, on Owen's view, represent the ultimate meanings of 'being' as presupposed in ordinary discourse. Despite their homonymy, or diversity of definition, the categorial meanings are nonetheless unified, in virtue of their various connections to substance, the foundational principle of the inquiry. For Owen, these connections between categories are semantic

¹ Owen's seminal work on the science of being, which first introduces the notion of 'focal meaning', is his "Logic and Metaphysics in Some Earlier Works of Aristotle" [in *Plato and Aristotle in the mid-fourth Century*, ed. Owen and Doring (Goteborg, 1960)]; see also "The Platonism of Aristotle", *Proceedings of the British Academy* 51 (1965).

² "Mais une ontologie comme science peut se fixer d'abord une tâche plus modeste et réalisable dans son principe: établir l'ensemble des conditions a priori qui permettent aux hommes de communiquer par le langage." [P. Aubenque, *Le Problème de L'Être chez Aristote*, (Paris, 1962): 132]; "Aristotle...offers a conception of ontology which attributes to it the character not of a knowledge of truths that are inaccessible to non-philosophers, but of a clarification of certain conceptual structures of our intellectual apparatus...which are in principle accessible to everybody..." [W. Leszl, *Aristotle's Conception of Ontology*, (Padua, 1975): 2]. For a similar view see also J. Moreau, "Aristote et la dialectique platonicienne," in *Aristotle on Dialectic: The Topics*, Proceedings of the 3rd Symp. Arist., ed. G.E.L. Owen (Oxford, 1968): 80-90.

connections, linking the various nominal definitions of the word 'being; they are not essential and causal connections, linking objective genera of beings to their common source and principle; thus they cannot be analysed according to Aristotle's normal demonstrative practice. These semantic connections constitute what Owen calls a doctrine of 'focal meaning', a terminology that has since gained a wide acceptance, even though its underlying interpretative bias has not always received adequate attention.³

Many objections can be brought to bear against such a view of Aristotle's purposes and methods in the *Metaphysics*. To begin with, the notion that Aristotle's interest in homonymy is an interest in the multiple meanings of words is a serious distortion. The correction of this view has recently been accomplished by way of a detailed analysis of the concept of 'signification' (*to shmainein*).⁴ Put simply, when Aristotle says that a word, like 'being', has multiple significations he is saying not that it has many senses, but that it has many potential referents, that there are many essential natures to which it can correctly be applied. The homonyms (*homwnuma*) are not words with many senses, but entities with diverse essences. Aristotle does not even have a word for 'concept'; in general his view of language presupposes only words and their objective referents, without the mediation of any intensional level of analysis. Moreover, the notion that metaphysics is an introspective form of inquiry, an analysis of the human conceptual and linguistic framework, introduces a notion of self-reflection that is alien to Aristotle's psychology. The mind, as Aristotle tells us explicitly at *De An.* III 4-5, has no intrinsic content or structure, but is a pure potentiality for knowing; it is itself knowable only mediately, through the objective essences which enform it and make it actual. There is no possibility here of a self-enclosed inquiry into conceptual first principles.

Even if metaphysics were primarily a dialectical science, i.e. an inquiry that takes reputable opinions as its basis (i.e. opinions of the wise, or common opinions), still this would not imply that metaphysics is a conceptual science. The scientific application of dialectical methods is, for Aristotle, merely a starting point in the pursuit of objective truths about the world: one must consider what other philosophers have said about the nature of things as a preliminary to one's own investigations. The search for truth is, to this extent only, a work of collaboration, which is historically conditioned; but it is not limited to an analysis of what others have said, in detachment from the objective structure of the world. There is only one area of Aristotelian inquiry that can reasonably be construed as constituting a properly conceptual form of inquiry: and that is mathematics. For in mathematics and geometry, as Aristotle explains in *M.2*, one conceives as primary that which in reality is posterior, viz. number or dimensionality. In mathematics there is an inversion of the true structure of the world, in which what is primary for thought diverges from what is primary for being. But this divergence does not occur, and must

³ The idea of 'focal meaning' is developed by D.W. Hamlyn, "Focal Meaning," *Proceedings of the Aristotelian Society* 78 (1977-78): 1-18; and in a more extreme form by Martha Nussbaum, "Saving Aristotle's Appearances," in *Language and Logos*, ed. Schofield and Nussbaum (Cambridge 1982): 267-95.

⁴ For critical evaluations of Owen and 'focal meaning' centering around the concepts of homonymy and signification, see Irwin's, "Homonymy," *Review of Metaphysics* 34 (March 1981): 523-544; and his "Aristotle's Concept of Signification," in *Language and Logos*, ed. Schofield and Nussbaum (Cambridge 1982): 241-67; see also M.Ferejohn, "Aristotle on Focal Meaning and the Unity of Science," *Phronesis* 25 (1980): 117-128.

not occur, in metaphysics: for here we are searching for what is primary both in being and in definition. The formal conditions for definability that Aristotle sets out, e.g., in Zeta 4-6 are based upon ontological relations of priority and posteriority; that which is fully and properly definable, must be ontologically basic, such that it does not presuppose in its explanatory account any dependence on an underlying substrate [Cf. note 11]. It is this demand--which is a demand both for thinking and being--that leads Aristotle ultimately to the conclusion that the species-form is primary substance (*prwth ousia*): the cause of the being of sensible substance, and thus indirectly of the non-substantial forms of being, i.e. the categories, that inhere in sensible substance. The relations of priority in question here are neither semantic nor conceptual relations, such as would arise from an introspective analysis of human thought and language; they are the objective causal connections that constitute the structure of being and substance.⁵ In stressing the objective character of the priority and 'separation' of the species-forms, and a fundamental continuity with Platonic metaphysics, we are insisting that the difficulties surrounding the relation of form, matter and composite, especially as developed in *Metaphysics Zeta*, must be faced directly, and not reduced to a bit of linguistic or conceptual tidy-mindedness.

II. Textual Interpretation

Aristotle's criticisms of the Platonic Forms center especially around the notion of separation (*chwrismos*), which is clearly defined by Aristotle at Delta 11:

Some things are spoken of as prior and posterior in the preceding sense, others are so called according to nature and substance (*kata physin kai ousian*), wherever one class of items can exist apart from another (*einai aneu allwn*), but the other cannot exist apart from it-- a distinction which Plato employs (1019a1-4)

The concept of separation is logically embedded in the idea of ontological priority: A is prior in being to B just in case A can exist apart from B, while B cannot exist apart from A. Aristotle indicates that it is this notion of ontic priority and separation that Plato envisions for his Forms. But-- as Aristotle constantly complains-- if the Forms exist apart

⁵ How precisely the investigation of this structure of relations can be regarded as a project for demonstrative science, in the sense of the *Posterior Analytics*, is a problem explored at length in my forthcoming PhD dissertation, *The Demonstrative Structure and Methodology of the Aristotelian Science of Being qua Being*. I hope to share the results of that inquiry in the near future. This dissertation is part of a larger movement in the recent scholarship to recover the scientific or 'demonstrative' character of metaphysics. I note especially A. Code's "Owen on the Development of Aristotle's *Metaphysics*," in *Aristotle's Philosophical Development*, ed. W. Wians (Rowan and Littlefield Publishers, 1996): 305-325; R. Bolton's "Science and the Science of Substance in Aristotle's *Metaphysics Z*," in *Form, Matter and Mixture*, ed. F. Lewis and R. Bolton (Oxford 1996): 231-280; and M. Frede, "The Unity of General and Special Metaphysics," in *Essays in Ancient Philosophy* (Oxford 1987). In general there is a growing discontentment with that picture of Aristotle as an 'ordinary language philosopher' that so dominated the scholarship of the 60's and 70's.

from their instances then they cannot function as causes of their being and becoming. In order for a Form X to function as the cause of the X-ness of its members it must reside in them as an immanent formative principle.⁶ The cause of the substantiality of the concrete particulars must function from within, as a biological and generative principle, which forms and determines the menstruum, transforming it from an indeterminate heap into a 'this' (*tode ti*).⁷ This principle of determination is not transcendent: it is contained in the semen of the progenitor and transmitted to his progeny, and so on ad infinitum.⁸

From the side of biological generation this picture appears coherent and unproblematic: the eternity of the formal cause is maintained through the eternal process of generation and corruption in the sub-lunary world. The form is not separate, but neither does it come to be and pass away (1033b5ff); it is somehow transmitted eternally from one individual species-member to the next. It is prior to the composite only in this temporal sense: just as the material menstruum must pre-exist in the mother's womb, so the form must pre-exist in the progenitor, so that it can be passed on to the progeny (*aei gar dei prouparchein thn hylhn kai to eidos*, 1034b12-13).

But there is another perspective on the formal cause that does not sit easily with the generative model just described. In this divergent perspective, which I will call the 'ontological', form is viewed not diachronically, as the cause of coming-into-being, but synchronically, as the cause of being and actuality. As soon as one takes seriously the fact that the organic body of the composite substance is formally and functionally defined--i.e. that no formless matter can be identified in its actual composition--the idea that the biological substance is a composite of form in matter becomes suspect. In what sense can the species-form properly be said to reside in the material body, or to be transmitted from one individual to another, if the individual substance cannot even be identified as an actual substance except through the determination of the species-form?

This ontological perspective on form, in which form is viewed as cause of actual being, yields conclusions that are incompatible with the generative perspective, in which the form is viewed merely as cause of coming-into-being and is afforded a diachronic eternity only. The generative model makes no attempt to work through the deeper problems of ontological priority that surround the relation of form, matter and composite; it simply asserts that the generator is adequate to the transmission of the form and the causing of the form in the matter. But the generator does not own the form; it is not a possession that he can pass on, like a piece of antique furniture. In this regard, Aristotle's frequent employment of artistic and biological analogies can be misleading. To be sure there is a ready sense in which the craftsman, say a sculptor, causes the form in the marble with which he works. Here the formal cause, the idea in the mind of the sculptor (*to eidos en thi psychhi*, 1032b1), is clearly subordinated to the efficient causality of the artist. But to infer that a father, in the same way, causes the form of humanity in the

⁶ "Further it would seem to be impossible for the substance to be separate from that of which it is the substance (*eti doxeien an adunaton einai choris thn ousian kai hou h ousia*, 991b1-2)."

⁷ For species-form as cause of the determination or 'thisness' of the matter see esp. Z.17 1041b4-9.

⁸ Aristotle's account of the containment of the form in the semen is discussed in Bk.1 of *Generation of Animals*.

menstruum is misleading to say the least.⁹ In the biological case the formal cause is not contained in, and subordinated to the generator. The form is the cause of the actual being of the generator, just as it is the cause of the being and becoming of his offspring. The progenitor is formally identical (*homoeidhs*, 1032a24) to the progeny. Within the ontological perspective, as developed especially in the middle books of the *Metaphysics*,¹⁰ Aristotle is led to the inevitable conclusion that the formal cause is ontologically prior to the matter and the composite (1029a29-32; 1050b2-6). It is primary substance (*prwth ousia*, 1037a27-29) and the cause of being and substantiality (*aitia tou einai*, 1043a2)

The priority of the formal cause is explored aporetically in chapters 10-11 of Book Zeta. There Aristotle distinguishes clearly between the definition (logos) of the form and the definition of the composite. In the first mode of definition the matter is not present. The form as such is defined without reference to any external conditions of instantiation. It is *auto kath' auto* (1037a21). The definition of the composite, by contrast, has a predicative or 'this in that' (*tode en twde*) structure, expressing the inherence of the form in a suitable matter, i.e. a matter fitted to perform the vital functions specified in the essence of the form. Thus the form of the human, viewed per se, is prior in definition to the flesh and bones of the composite human, from which the latter comes to be, and into which it is resolved after death. These material parts are part of the what-is-being (*to ti hn einai*) of the composite, but not of the form (1037a24-26). The composite is a derivative entity, and its derivative status is reflected in the predicational structure of its essence or what-is-being. By contrast the formal cause is primary entity, an indivisible whole of parts, and thus it is defined without reference to any underlying substrate.¹¹ The form, as an organic complex of functions, can be defined without reference to the ultimate matter, or *eschath hyle*, of the composite.¹²

⁹ The analogy between artistic production and natural generation is pressed hard at Z.7-9, in the context of an anti-Platonic polemic. Just as the artist is adequate to the causing of the artificial form in the matter, so the progenitor is adequate to the causing of the biological form in the menstruum (*alla hikanon to gennwn poihsai kai tou eidous aition einai en thi hylhi*, 1034a4-5). Thus there is no need to posit separate Forms to explain coming-into-being. But this move completely overlooks issues of ontological priority between form and composite. See infra note 10.

¹⁰ Z.7-9 are exceptional, since they move for the most part within the terms of the generative model, and do not touch on the question of the ontic priority of the formal cause. In general these chapters seem to interrupt the flow of the argument between Z.4-6 and Z.10-11. At Z.4-6 certain formal criteria of definability are set out, which are then brought to bear in Z.10-11 on the definitions of form and composite. Whereas Z.7-9 seem to suppress the question of the ontic priority of form (in favour of a temporal priority and a diachronic eternality), Z.4-6, and 10-11 move inexorably towards the view that primary substance must be prior in being and therefore (in some sense) separate.

¹¹ According to the formal criteria for definability set out in Z.4-6 there will be a definition expressing an essence (*to ti hn einai*) whenever we are dealing with a determinate kind (*tode ti*) and a primary entity (*prwton*), but not in those cases where a thing's nature is expressed by predicating one thing of another (1030a3-11). These formal criteria are applied in Z.10-11 to the definitions of form and composite: the form alone is strictly definable, while the composite has an essence and definition in a secondary way.

¹² The identity of the ultimate matter is a confused issue in Z.10-11. Sometimes Aristotle speaks as though the homoiomerous parts, e.g. flesh and bone, are ultimate constituents into which the composite is resolved. His more usual view, however, is that flesh and bone are inseparable from the living substance, to the extent that they are functionally defined. The flesh and bone of a dead man are flesh and bone only

If the formal cause is prior in being and definition to matter and the composite, then how will this square with Aristotle's anti-Platonic polemic? Priority in being, according to the lights of Delta 11, implies separation, the capacity to exist apart. And this ontic priority seems to be required for Aristotle's formal causes if they are to function as causes of the being and substantiality of the species-members. Now, the standard way of resolving this difficulty is to construe the priority of the Aristotelian formal cause as a priority in definition only, i.e. as a conceptual and not an ontological priority.¹³ It is Aristotle's express view, e.g. at De An. III 4-5, that human thinking is identical, in actual being, to the forms that it thinks. So it might appear that the actuality of form is fully realized in human consciousness, by way of a conceptual abstraction from its material basis. This conclusion is often inferred from the following passage in Eta 2:

The substratum is substance...and in another way the definition and shape which, since it is a this (*tode ti*), is separate in definition (*twi logwi chwriston*); and thirdly, that which is composed of these is substance, which alone undergoes generation and destruction, and is separate without qualification (*chwriston haplws*) (1042a26-31).

Here the separation of the formal cause is described as a separation in definition, in contrast with the unqualified separation of the concrete particular. It seems evident that Aristotle has in mind for the formal cause a separation in thinking, and not in concrete, physical existence. To this extent he resists falling back into the naive version of Platonism that he elsewhere vehemently critiques, viz. the view according to which the Forms seem to enjoy a quasi-physical separation from their instances. But it is a serious

homonymously. Flesh and bone, viewed functionally, are therefore parts of the species-form. However, if we view the flesh and bone in terms of their matter, viz. the elements, they are no longer species-specific. The elemental matter is not functionally defined in terms of any specific nature. Thus the elements have a claim to the title of *eschath hylh*. Whether there is a prime matter that further underlies the elemental transmutations is a vexed issue in the scholarship (for a summary of the debate see Bostock, *Aristotle: Metaphysics Z and H*, (Oxford: Clarendon Press, 1994): 76-85)

¹³ "A substantial form does not exist in the world as a separate entity, but as an entity that can be separated out from a concrete substance by abstraction." [T. Scaltas, *Substance and Universals in Aristotle's Metaphysics* (Ithaca: Cornell University Press 1994): 193]. M.L. Gill [*Aristotle on Substance* (Princeton, N.J. 1989)] makes the same point: "Separation in account apparently concerns an entity's conceptual independence from other more basic entities..." (p.36). For the same view, see also: W.K.C. Guthrie, *A History of Greek Philosophy*, Vol.VI (Cambridge University Press, 1988): 219-20; Donald Morrison, 'Separation in Aristotle's *Metaphysics*,' *Oxford Studies in Ancient Philosophy*, vol.3 (1985): 156-57; Michael Loux, *Primary Ousia* (Cornell University Press, 1991): 261-64. This widespread view of Aristotle's formalism is far too simplistic. Clearly there must be some sense in which the species-form exists apart, while at the same time functioning as immanent cause. If the species-form were strictly immanent, in a way that precludes transcendence, then it would cease to be a universal. Those who argue that the species-forms are numerically distinct, though specifically identical, may object that no problem of separation arises on their view. If each species-member has its own, numerically unique formal principle then the question of separation perhaps does not arise. But the idea of singular forms has little textual basis. The 'thisness' of the species-form can adequately be accounted for in terms of a concrete universality in distinction from the abstract universality of the genus. For a summary of the terms of the debate see Bostock (1994): 185ff. For a view opposed to the orthodoxy, and close to our own, see Jonathan Lear, *The Desire to Understand*, (Cambridge, 1988). Daniel Graham, in his *Aristotle's Two Systems*, (Oxford: Clarendon Press, 1987) also treats the separation of form as a serious ontological issue (see pp.268-75), though his claims about the incompatibility of the *Categories* ontology and the *Metaphysics* do not convince

error indeed to construe this definitional separation as a merely conceptual and subjective separation, with no ontological implications. Such a move makes nonsense of the causal function of the form, and its claim to the title of primary substance.

The objection can be put still more precisely. The orthodox claim that the definitional priority and separation of the formal cause is purely conceptual would put the formal cause on the same level, ontologically speaking, as the objects of mathematics. Aristotle regards the objects of mathematics and geometry as prior in definition, to the extent that our understanding of bodily substances implies an understanding of lines, planes and solids. Body, viewed abstractly, is defined as that which is divisible in three dimensions (1016b27-28). But this conceptual priority does not imply a priority in substance:

Let us grant that they [sc.the mathematical] are prior in definition. Still not everything that is prior in definition is also prior in substance (*ou panta hosa twi logwi protera kai thi ousiai protera*). For those things are prior in substance which, being separate from others (*chwridsomena*), surpass them in being (1077a36-77b3)...

The objects of mathematics are prior to concrete substances in definition, but not in the order of being and substantiality. They cannot exist apart from concrete substances. The mathematician and geometer arrive at their proper objects of study by treating what is not separate as if it were separate (*ei tis to mh kechwrismenon theih chwrisas, hoper ho arithmhtikos poiei kai ho gewmetrhs*, 1078a21-23), i.e., they regard concrete substances qua indivisible or qua solid, as if these attributes were primary, while abstracting those more fundamental and essential attributes of substances which are studied in the natural sciences.¹⁴

It is a characteristic feature of the methodology of the mathematical sciences that they define their subject genera by way of an abstraction that inverts objective relations of ontic priority and posteriority.

It should be obvious that the definitional separation of the formal cause cannot be identified with the abstractive separation of the mathematical. When we define a formal cause there is no need to abstract the matter and to consider the form as though it were separate. The form in its very mode of 'what-is-being' is objectively separate from the external material constituents of the composite: it is *auto kath' auto*. The definitional priority of the formal cause follows from--is a direct consequence of-- its ontological priority.

Aristotle's arguments in M.2. concerning the derivative status of mathematical attributes constitute an effective and coherent line of objection to the Platonist tenet that

¹⁴ Abstraction (*aphairesews*) in Aristotle's terminology is the removal of the attributes which are irrelevant to the level of investigation, as this is designated by the 'qua' operator, e.g. the mathematician abstracts all attributes of substances that do not inhere in them qua indivisible. Abstraction has as its consequence the conceptual 'separation', or freeing up of the attributes which form the subject matter of the mathematical sciences. See, e.g., 1077b9-11

mathematicals represent a species of transcendent Form or Idea. Here Platonist separation is effectively and decisively countered as soon as the posterior status of the category of quantity is disclosed. The same line of anti-Platonic argument can be applied to forms from the other non-substance categories. Indeed, the Aristotelian categorial framework can be regarded as a direct response to Plato's Formalism, to the extent that it seeks to ground forms, from all non-substance categories, in the underlying substantial substrate. The non-substances are regarded collectively as the class of entities inhering in a substantial substrate (*ta en hypokeimenwi*); and by 'inherence', or being in a subject, Aristotle means precisely a non-separability, an incapacity to exist apart (Cat.1a24-25). Thus qualitative forms like 'whiteness', forms of relation, etc, as well as the formal quantitative dimensions studied in mathematics, are deprived of the transcendent status they enjoy in traditional Platonism. Artificial forms, like the form of a house, are also easily dealt with; for in these cases the form inheres in the soul of the artist just as, analogously, a non-substantial attribute like 'pallor' inheres in a substance. In all of these cases there is an inherence, and an ontological dependence, that stands opposed to Platonic separation. But there is a definite limit to this line of argument.

When one turns to identify the nature of the underlying substantial substrate, which so effectively holds together the Aristotelian categorial framework, one is forced to move directly from the preliminary ontology of the *Categories* to the more developed metaphysics of substantial form and matter pursued in Zeta, Eta, Theta.¹⁵ What is it that makes the concrete substance a determinate and intelligible subject of predication, a subject that can be identified over time as the same 'such and such'? It is, of course, the biological species-form. The per se attributes which constitute the species-form are not 'inherent' attributes in the *Categories* sense. They are the attributes which make the concrete substance the definite kind or species of substance that it is. The species-form provides the composite with the core identity that allows it to function as a metaphysical and predicative subject at all. Strictly speaking, essential attributes are not attributes of the composite, since the composite cannot be identified as a determinate subject except through their mediation. They are, more properly, to be regarded as attributes or differentiae of the *hylh*. And thus Aristotle indicates at various points in the *Metaphysics* that the species-form is predicated of the matter, whereas the species term, e.g. 'man', 'horse', 'gadfly', is predicated of the composite and denotes the universal concept of the composite (e.g.1029a20-24;1035b27-30).

Thus while the question of separation is quite easily dealt with in the non-substantial categories, and in the case of artificial forms, within the category of substance an aporia

¹⁵ The ontology of the *Categories* deals only with the unanalysed singular substances, i.e. substances not yet analysed into their constitutive form and matter. The *eide* of the *Categories* are not to be confused with the constitutive species-forms of the *Metaphysics*. The *eidh* of the *Categories* are the species, like man and horse, which are 'said of' the singular substances. In the *Metaphysics* this notion of species is further analysed into two aspects, species-form and species-matter. The term '*eidos*' is used in the *Metaphysics* to denote both the species as such, i.e. the universal composite (1035b27-30), and the species-form. The species-form, unlike the species as such, is not predicated of the composite; it is predicated of the matter. The predicative relation of form and matter underlies and explains the predicative relation of species and individual, i.e. the formal determination of the matter is what makes the singular substance the specific kind of substance that it is.

remains. Aristotle has managed radically to depopulate Plato's intelligible world: qualities, numbers, relations, forms of artefacts have all been tied down to entities in the first category. But the truly substantial form--i.e. the biological species-form-- as cause of the substantiality of the composite, still has a claim to separation. The issue remains unresolved:

But if the substances of perishable entities are separable is not yet clear (*ei d' eisi tw'n phthartw'n hai ousiai chwrístai, ouden pw dhlon*), except that this is clearly not possible in some cases, e.g. in the case of those substances that cannot exist apart from the particulars, like 'house' or 'utensil' (1043b18-21).

The question of separation has, in this passage, been narrowed to a sharp focus: it is now precisely a question about the ontological status of biological species-forms. How can Aristotle maintain the causal primacy of the species-form over the composite without reverting to a Platonic style separation? The key would seem to lie in the much-misunderstood claim that the species-form is 'separate in definition'. If, as we have shown, this phrase does not imply a merely subjective and conceptual separation, akin to the abstractive separation of mathematical, then what does it mean?

The full and adequate explication of its meaning would require a re-thinking of Aristotle's conception of God as self-thinking thought. In claiming that species-form is definitionally separate, Aristotle is indicating that it is essentially an object of thought. But he does not mean that these forms are separate merely in our subjective human thinking of them. This, again, would be wholly inadequate. Aristotle needs to establish an objective ground for the species-forms above and beyond the endless cycle of becoming--without resorting to the sort of literal or quasi-physical separation that would inevitably transform his formal causes into higher-order particulars. The literal understanding of separation precludes an immanence in the species-members, and leads to the various paradoxes connected with the reifying of the Forms, e.g. the paradox of self-predication and the third-man regress. What Aristotle requires to circumvent these difficulties (I contend) is an objective and transcendent mind that is adequate to the contemplation of the formal structure of the cosmos. This mind would allow for a definitional separation of the species-form, which is distinct from the unqualified physical separation of the concrete substances, but which is nonetheless objective and ontological in its implications.

The explanation of the activity of God as a self-thinking thought, as presented in Lambda 9, provides the solution to the problem of the noetic separation of the biological forms. There Aristotle argues that God, as the perfect being, must think only the most perfect thoughts: thus he must think Himself. But there seems to be a difficulty attached to this idea of a self-thinking. According to the principles of Aristotelian psychology, thinking is always of a distinct object, and only bears upon itself mediately (*en parergwi*, 1074b36). In other words, as already mentioned above, actual thinking is identical with some formal object, and in itself is a merely potential existent with no innate character. Now, commentators disagree vehemently on the import of these lines. The orthodox view

is that this reference to the psychology of the *De Anima* is merely intended as an analogy, to show that thinking can be formally identical to itself where there is no external matter intervening. Just as the thinking of the scientist is identical to the matterless forms it thinks, so the thinking of God, being matterless, is identical to itself. The self-thinking of God is therefore a form of pure self-reference¹⁶ But if this is Aristotle's meaning he has not expressed it at all clearly. The reference to the doctrine of the *De Anima* suggests that God's thinking bears, in the first instance, upon a distinct formal object, and only mediately on Himself, i.e. to the extent that there is a structural identity or isomorphism between His actual thinking and the formal objects that it thinks. These lines suggest, in other words, that God's self-thinking is inclusive of lower forms of substance.⁽¹⁷⁾

The self-thinking of God is, like human thinking, a form of mediated self-reference. But it is timeless and indivisible: God comprehends all of the substantial forms of things as a single and indivisible whole (1075a5-10). The self-thinking of God provides a transcendent grounding for the species-forms which is still fully compatible with their causal immanence in the sub-lunary world. The separation of the divine mind is not a physical separation, but a separation between two orders or grades of being: between the order of pure noetic formality, and the order of materiate instantiation.

An inclusive interpretation of God's self-thinking bears with it at least two important implications, one for the coherence of Aristotle's metaphysics, the other for our understanding of its fundamentally Platonic character. First, it establishes a precise sense in which theology, as first philosophy, can be viewed as the culmination and perfection of natural or second philosophy, according to the indications of E.1., a point that has traditionally proven a source of difficulty for commentators. The treatment of natural form will, on this view, be taken up and completed in the theological consideration of the divine actuality; the immanent teleology of natural forms will be shown to be fully compatible with a transcendent teleology that posits God as final and formal cause of nature. Secondly, this interpretation of God's self-thinking reveals Aristotle as a reformed Platonist, who has maintained the original Platonist insistence on the One over the Many, while fundamentally rethinking the meaning of this formal separation and considerably narrowing its range of application. It may well be that Aristotle in this regard is developing suggestions implied by Plato himself in the *Sophist*, where it seems to be argued that life and intelligence (*nous*) belong to the intelligible world (*to pantelws on*). But this point will have to wait for another occasion.

¹⁶ For this view of God's self-thinking see esp. Klaus Oehler, 'Aristotle on Self-Knowledge,' in *Proceedings of the American Philosophical Society*, vol.118, no.6, Dec. 1974: 493-506