

12-1-1988

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### Recommended Citation

Maudlin, Tim (1988) "Keeping Body and Soul Together: The Z.3 Puzzle and the Unity of Substances," *University of Dayton Review*. Vol. 19: No. 3, Article 13.

Available at: <https://ecommons.udayton.edu/udr/vol19/iss3/13>

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# KEEPING BODY AND SOUL TOGETHER: THE Z.3 PUZZLE AND THE UNITY OF SUBSTANCES

Tim Maudlin

Aristotle's *Metaphysics* is a tract concerned with being, and the central books focus on those entities which most unqualifiedly partake in being: substances.<sup>1</sup> Book Z, in particular, is devoted to the articulation of criteria by which to distinguish substances from non-substances, to the identification of substances, and to an examination both of the relationship between substances and their properties and of that between form and matter. This last topic is particularly pressing for Aristotle, for having supplemented the doctrine of the *Categories* with a hylomorphic analysis of substance he must now determine whether and how form and matter can combine to produce a truly unified substance. There is a temptation to assimilate the relationship of form and matter to that of substance and accident, a temptation which must be laid at Aristotle's own doorstep. The examples he commonly uses to illustrate the notions of form and matter, examples such as the bronze and the shape of a bronze sphere, suggest that the form as such has no intimate relation to the matter as such. But in the *Metaphysics* he finds that considering the relationship of matter and form *always* to be that of accidental predication has disastrous consequences, so he must struggle to find a new model for their inter-relationship. The first moment of this struggle will be the subject of this essay: the famous "stripping" argument of Z.3. I shall contend that this passage contains a premise, often overlooked in discussions, which identifies the argument as non-Aristotelean and whose denial provides Aristotle with a means of avoiding a paradox. In order to explain why this premise is unacceptable, he must introduce the notions of *energeia* (actuality) and *dunamis* (potentiality), using them to explicate the connection between substantial form and matter. But in order to see how he arrives at this point, let us begin with our passage.

In *Metaphysics* Z.3 Aristotle begins his investigation into substance. Four candidates for "the substance of each thing" are put forward: the essence, the universal, the genus, and the subject, the last of which is the topic of Z.3 (1028b34–36). The subject (*to hupokeimenon*, literally "what underlies") is identified as that of which everything else is predicated, and which is itself predicated of nothing. This characterization immediately rules out all entities from the categories other than substance from being the ultimate (*prōton*) subject since qualities, quantities, places, etc. are always qualities, quantities and places of something. Yet an individual such as Socrates, of whom qualities such as musicality may be predicated, and who would be a paradigm substance in the analysis Aristotle gives in the *Categories*, can also be analyzed into form and matter, and so it is not yet clear whether the ultimate subject is the form, the matter, or the compound of the two (1029a 2–9). We must therefore examine which of these has the best claim to be that of which everything else is predicated. At 1029a7–30 Aristotle presents one way of understanding what

a subject is. University of Dayton Review, Vol. 19, No. 3 (1988), Art. 13  
ultimate subject must be mistaken. The argument runs:<sup>2</sup>

So it has now been stated in outline what substance is, viz., it is that which is not said of a subject but everything else is said of it. Yet we must not only define it thus, for this is not sufficient: it is unclear, and moreover matter becomes substance. For if it is not substance, whatever else might be escapes us; for since everything else has been stripped off nothing seems to remain. For all the other things are, on the one hand, affections and products and powers of bodies, and again the length and breadth and depth are sorts of quantities and not substances (for quantity is not a substance); but, rather, that to which these ultimately belong, *that* is substance. But since length and breadth and depth have been stripped off, we don't see anything left unless that which is bounded [or defined] by these is something, so that matter alone must seem to be substance to those who investigate it in this way. I mean by "matter" that which in itself is said to be neither something (*ti*)<sup>3</sup> nor so-much nor any of the other things by which being is defined. For there is something of which each of these is predicated, something (*ti*) whose being is distinct from the being of the things predicated (*hōi to einai heteron kai tōn kategorion hekastēi*). For all the other things [than substance] are predicated of substance, and this itself is predicated of matter, so that the final [subject] in itself is neither something (*ti*) nor so-much nor anything else at all. Nor is it even the negations of these, for they too will belong to it accidentally. It follows for those considering it by these arguments that matter is substance, yet this is impossible. For separability and "thisness" are taken to belong most of all to substance, wherefore the form and the compound of both would seem to be substance rather than matter.

On the face of it, this passage presents a *reductio ad absurdum* of the definition of substance as that of which everything is predicated while it is predicated of nothing. For the definition seems to pick out as substance some sort of matter which of itself is entirely characterless, indefinite and amorphous; but substances are pre-eminently individual *things* (cf. 1028a11–20). But, as with every aporia which Aristotle presents, we must try to determine how much of the argument is in *propria persona*, whether Aristotle is committed to each of the premises, and whether there is any escape from the conclusion. In this instance such an inquiry is especially urgent, for if the argument is in *propria persona*, not only will it show that Aristotle believed the ultimate subject of predication not to be substance, it will also indicate that he regarded that ultimate subject as entirely characterless. That is, this passage might seem to prove Aristotle to be committed to the doctrine of prime matter.<sup>4</sup>

I do not mean to canvass the arguments for and against prime matter here, but a few remarks on the significance of this passage are in order. The argumentation of this passage arrives at prime matter in a way quite distinct from the other texts which are sometimes taken to establish that doctrine (passages such as *de Gen. et Cor.* 329a24–35 and 332a34–b1). Those arguments, which deal with the conditions

needed. **Maudlin: Keeping Body and Soul Together: The Z.3 Puzzle and the Unity of S**  
*empirical* observations. Were the elements not to be mutable, there would be no question about what, if anything, remains throughout that transformation. Our passage, however, is *metaphysical* or *logical* rather than *empirical* or *physical*. It depends not upon any observed physical behavior of substances but only on the nature of predication. Thus, although the entire issue of prime matter would not be resolved should this argument not be in *propria persona*, still one distinct approach to that doctrine would be blocked, and the relevant evidence would be confined to the analysis of the transmutation of elements.

I shall maintain that the argument of Z.3 is not Aristotle's own, that he is not committed by it to the doctrine of prime matter, and that it employs what is for Aristotle a mistaken account of the relationship between form and matter in a compound substance. I shall begin by presenting some circumstantial clues that suggest this reading. But the major burden of this part shall be an exposition and analysis of the premisses employed in the argument. Among these we shall find one that runs counter to the ensuing discussions in the *Metaphysics*, which allows us to see just why Aristotle need not accept the conclusion of Z.3. Finally, I shall suggest a possible source for the Z.3 puzzle. But let us begin with some superficial evidence.

There are clear indications in this passage that Aristotle was following out a line of thought already extant in the philosophical literature. He notes that various things follow "for those who investigate in this way" (1029a19, cf. also *ek men oun toutōn theōroūsi* at a26). This may only refer to those who accept that the ultimate subject is substance, but it may also indicate that other peculiar premisses are used in the deduction. The conclusion of the passage seems stronger than the announced intention and also conflicts with Aristotle's later pronouncements. For although he begins by suggesting that the characterization of substance as subject is obscure and in need of clarification, he seems to end by rejecting it altogether since it implies that a totally indeterminate matter is substance. Yet the synopsis and review of Z which begins chapter H still recognizes the subject as substance (1042a13) and identifies this underlying substance as matter (1042b9). So either Aristotle has simply forgotten the result of Z.3 or he feels that those objections to the subject-criterion of substance have been overcome. Let us take the latter possibility as a working hypothesis and seek a premise of the Z.3 argument which may have come to be rejected.

If the foremost point of the Z.3 passage is to identify the ultimate subject of predication, one line alone seems sufficient to solve that problem: "For all the other things are predicated of substance, and this itself is predicated of matter" (1029a23). Aristotle nowhere denies this assertion, and it corresponds with the identification of substance-qua-subject with matter in H.1 and H.2. But it is not simply the result that matter becomes substance which generates the difficulties of Z.3, but that the matter should be so entirely characterless, possessing none of the usual marks of substance. This reduction of matter to the totally indefinite does not follow simply from the claim that all things are predicated of substance and it of matter. Abstraction of all the predicates from the subject is involved, this being the stripping process so central to the text. What is involved in this abstraction? What conditions must hold for the separation of predicate and subject to be possible?

The stripping process of Z.3 is a matter of logical abstraction, of disregarding properties. Just as we construct a proof about triangle *qua* triangle not by considering a triangle which is neither scalene nor isosceles but by allowing the proof only

to employ those terms in the definition of a thing, so too can we more generally disregard the inessential features of an object. We do not abstract color, say, from Socrates by imagining him to have no color, or by considering processes for removing all color from him, but by recognizing that the characterization of Socrates *qua* human being need not advert to his color.<sup>5</sup> If the stripping process is such a disregarding of properties, then the success of the procedure critically depends upon one condition: *the predicate disregarded cannot be part of the defining conditions of the subject of which it is predicated.* The essence of the predicate and that of the subject must be logically distinct, else the result of disregarding the predicate will not be to leave one with the subject as such.

The logical independence of the predicate and subject, then, is an essential premise of the Z.3 analysis. Further, it is not employed by Aristotle as a tacit background assumption, but is quite explicitly stated: "For there is something (*ti*) of which each of these is predicated, *something whose being is distinct from the being of the things predicated*" (1029a21–23). Indeed, this premise in conjunction with the assertion that "all the other things are predicated of substance, and this itself is predicated of matter" immediately yields the conclusion that matter cannot be substance. For whatever characteristics make something a substance are predicated of matter, which in itself must have a distinct, and hence non-substantial, essence. So our quarry is nearly cornered; we now have a simple two-premise argument whose conclusion conflicts with Aristotle's retention of matter or the subject as a sort of substance in book H. If he is to be consistent he must either reject that substance is predicated of matter or that subject and predicate always have logically distinct beings.

The distinctness of the being of the predicate from the being of the subject is *prima facie* a very questionable premise. After all, one would suppose that anything of which substance is predicated thereby is a substance, rather than the opposite. And, to take a mundane example, although we all agree that there is something of which the hardness, rectangularity, color, etc. of the table are predicated, we would balk at the suggestion that the subject is something entirely distinct from these properties. After all, it is the *table* which is colored, hard, rectangular, etc. and we have no reason to believe that the table could be defined (or could exist) independently of these qualities. The distinctness thesis immediately implies that *nothing* can be affirmed of the ultimate subject of predication as such (*kath' hautou*), for to do so would be to predicate something of it. Indeed, despite his sanguine locutions early in the passage, Aristotle is forced to forego calling the ultimate matter even *something* (*ti*) (1029a20).

As the reader will doubtless have anticipated, it is the premise which asserts the universal distinctness of the being of the subject from that of the predicate which I believe not to be accepted by Aristotle. If he has imported this premise from elsewhere, we should expect him to develop an account of predication which denies it. And should this premise fall, with it would fall both the general argument for prime matter in Z.3 and the objections to the characterization of substance as the ultimate subject of predication.

My evidence for this reading of Z.3 will be of three types. First is a text which directly indicates that Aristotle rejected the Z.3 picture of predication. Next we shall examine *Metaphysics* Z and H to see whether Aristotle's considered views allow him to avoid the aporia. Finally, a possible non-Aristotelean source for the Z.3 argument will be suggested.

The main title is "Keeping Body and Soul Together: The Z.3 Puzzle and the Unity of Substance." The subtitle is "Aristotle's Metaphysics Gamma 4 and the Unity of Substance." The author is "Maudlin, Thomas." The publisher is "eCommons, 1988." The page number is "125". The page number "5" is also present at the bottom right. The text discusses Aristotle's theory of substance and accident, specifically the Z.3 puzzle. It argues that the process of abstraction is one Aristotle often uses, and that one can disregard various predicates of a subject, and must do so to properly understand *qua* what the subject has certain of its properties. And the stripping process clearly is legitimate when the being of the subject and the predicate are distinct. But this holds just when the predicate is an *accident* of the subject, rather than part of its *essence*. The Z.3 thesis, then, is that *every* predicate is an accident of its ultimate subject, prime matter, and hence can be logically stripped from it. But Aristotle denies this very thesis in *Metaphysics* Gamma chapter 4:

And those who say this generally destroy the substance and the essence. For it is necessary for them to say that everything is accidental . . . To indicate the essence [of something] is to say that its being (*to einai autōi*) is nothing else . . . So that it is necessary for them to say that there will not be such an account [i.e. of the essence] of anything, but all attributes are accidental. For substance and accident are distinguished by this: the white is accidental to the man because although he is white, white is not in his essence.<sup>6</sup> But if everything is predicated accidentally, there will not be any ultimate thing of which they are predicated, if the accident always indicates a predicate of some subject. For it [i.e. the identification of new subjects] must go on *ad infinitum*, but this is impossible. (1007a20–b1)

The argument refuted in this passage bears a strong resemblance to that of Z.3. Someone has taken a position which implies that the predicate is always accidentally predicated of the subject, that it is never part of the essence of the subject, so that the beings of the predicate and of the subject are always distinct. But then the being of the subject itself must be predicated of yet another distinct subject, and so on indefinitely. The Z.3 passage bites off the regress by positing an ultimate subject which *has* no essence, nothing true of it as such. But Aristotle would surely conclude that the Z.3 argument, as much as this, destroys the substance and the essence since according to it nothing is ever essentially predicated of a subject. If Aristotle here rejects the notion that all predication is accidental, it is difficult to imagine that he would accept in Z.3 that the ultimate subject of predication is prime matter, all of whose positive attributes at a time are accidents.

If, then, the Z.3 argument is not in Aristotle's own voice, and if the unacceptable premise is not the identification of substance with the ultimate subject but rather the thesis that the being of the predicate and that of the subject are always logically distinct, then we should expect Aristotle to develop an account of the relationship between substantial form and the matter of which it is predicated which contradicts that thesis. This is just what he does.

Let us begin by considering the most clear and, *prima facie*, undeniable example of a substance: a living animal. An animal, such as a human being, has a form: its soul. That soul is predicated of a certain particular kind of matter: an organic body (cf. *de Anima* 412a28, *Metaphysics* 1037a5ff., 1041b6). The immediate matter of a human is a complete body composed of non-uniform parts such as the face, hand, heart, etc. The matter of these in turn are the organic uniform parts such as blood and bone.<sup>7</sup> What is the logical relationship between the being of the form and the

Aristotle is quite clear and emphatic on this point. The non-uniform parts, and even their uniform constituents, only are what they are when ensouled. A dead hand is a hand in name only, like the stone hand of a statue. A finger cannot survive separation from the body and remain a finger. Even flesh and bone, although their activities are less immediately evident, are truly flesh and bone only when part of a functioning animal (cf. *Metaphysics* 1035b22–27, 1036b27–32, 1040b5–16, *de Gen. An.* 734b25ff.). So in the case of ensouled beings, the matter of which the soul is predicated only is what it is *when ensouled*. This dependence is reflected in the *definitions* of the parts: the parts are *logically* (and hence ontologically) posterior to the whole since their definitions must make reference to the whole ensouled organism:

And the account of the right angle does not resolve into the account of the acute, but that of the acute into that of the right. For someone defining the acute must make use of the right since "acute" is "less than a right angle." And the circle is similarly related to the semi-circle, for the semi-circle is defined by the circle, and also the finger by the whole; for a finger is such-and-such a part of a man. So whatever are parts in the sense of matter, into which a thing is resolved as into matter, are posterior . . . (1035b6–12)

Similarly, the entire organic body of which the soul is predicated must be logically posterior to the soul since without the soul *it wouldn't be the sort of body it is*. Definitions of the body must make mention of the soul and its functions.

It is perhaps apposite to remark here that there is every reason to believe that Aristotle would have considered the ultimate form, the species, of an animal to make the matter peculiar to that species. There is sometimes a tendency to think of different sorts of animals as being made of flesh and blood in the way cups and saucers can be made of clay, as if only the *arrangement* of the parts differentiates the species. But is anything so obvious as that horses are made of *horse-flesh* and humans of *human-flesh*? There is clearly an intrinsic difference between beef and pork, and I see no reason to believe that Aristotle would have thought that a pig could be made of the former and a cow of the latter. *Down to the species level* the form makes the matter what it is.

It might also be remarked that this definitional dependence of the matter of an animal on its form is a *stronger* relationship than that of hypothetical necessity. It is not just that the performance of the psychic functions requires a certain kind of matter, as the function of a saw requires it to be made of iron (*Physics* 199b34–200a14). The strongest possible case of hypothetical necessity would be that where the form or function of an object entailed precisely the sort of matter from which it must be made, from iron, say, or such-and-such a sort of iron. But even in this case, the being of the matter would not depend on the form: it is no definitional part of being iron, for example, that it be made into a saw. In the case of an animal, it is not just that the form requires a particular sort of matter to be realized, but that the matter essentially requires a particular kind of form.

This dependence of the subject on its predicate in the case of predicating a substantial form of matter permits Aristotle to escape the Z.3 aporia. Since the being of the matter is not logically distinct from the being of the form,<sup>8</sup> the abstraction

Maudlin: Keeping Body and Soul Together: The Z.3 Puzzle and the Unity of S  
process. In the case of the unified soul-body composite, in the case of composites such as animals, manifest the sort of *unity* which is the hallmark of true substances. Much of *Metaphysics* Z,H, and TH is devoted to the explication of how such a unity is possible. In the case of the unity of matter and form in a composite, the problem is originally motivated by the Z.3 puzzle.

The definitional and ontological dependence of matter on substantial form presents Aristotle with a new problem to solve. For he still wants to maintain that the two, as subject and predicate, are not identical. In the case of the part-whole relation this is easy to maintain: although "man," and hence "soul," must be mentioned in the account of a finger, it is clear that the finger is not identical to the man, the part to the whole. But in the case of the relation of the whole organic body to the soul the problem of definitionally *distinguishing* the two becomes acute. A man can survive without a finger, and not vice versa, demonstrating the priority of the former to the latter. An animal body cannot, strictly speaking, exist without an animal soul, but neither can the soul exist without the body.<sup>9</sup> Aristotle is therefore faced with a dilemma. On the one hand, he wants to maintain some difference, if only in account, between soul and body. On the other, any such distinction threatens to turn the unified soul-body composite into *two* things rather than one.

Furthermore, a parallel difficulty faces Aristotle when he turns to the form itself. Accounts of forms are often given by providing genus and differentia. Yet what is the logical relationship between these? Again, they clearly are not identical, but if they are *two distinct things* the unity of definition is threatened since the form defined by genus and differentia will become a plurality. More generally, all of the items cited in an account of a substance cannot themselves be substances without risking such a plurality, but neither can such an account mention only non-substances lest substances be constituted merely out of qualities (1038b23). Aristotle poses this difficulty and sketches its solution in Z.13:

For it is impossible for a substance to be made out of substances actually inhering in it, for things which are *actually* two are never *actually* one. But if something were *potentially* two it might be one. For example the double is made out of two *potential* halves, for the actuality [of the halves] separates it. So, if a substance is one it will not be made out of substances inhering in it which also exist in this way, as Democritus rightly says. For it is impossible to say that one thing is made out of two, or two out of one . . . (1039a3–10)

The key notion alluded to here is the distinction between *actuality* and *potentiality*. This pair of correlative terms is central to Aristotle's resolution of the problem of the unity of substance, and he devotes all of book TH to it. The distinction is applied to all of the outstanding difficulties surrounding the analysis of definition and substance: the relation of genus and differentia; the relation of the parts of a definition to the object being defined; and our problem of the relation of form to matter in a composite substance. In fact, Aristotle often treats the problems of genus/differentia and form/matter as identical. This is not surprising: at 1024b8–9, when defining *genos* (genus), Aristotle mentions that in one sense it is a subject, which is called matter (cf. 1038a6–7, 1043b31). Let us consider the solution to the problem of genus and differentia, of why, if man is by definition two-footed *and* animal, he is not two rather than one. Aristotle writes:



University of Dayton Review, Vol. 19, No. 3 [1988], Art. 13

It is clear that if [certain Platonists] seek to define and to speak as they are accustomed it will not be possible to remove and solve the difficulty, but if there is, as we say, on the one hand the matter and on the other hand the form, and the former is *potentially*, the latter *actually*, the subject of investigation will no longer be taken to be a difficulty. (1045a20–25)

A proper investigation of the actuality/potentiality distinction would take us too far astray,<sup>10</sup> but some brief observations can be made. In Aristotle's resolution to the problem of unity, form is actual, matter potential, final differentia is actual, genus potential. Further, the connection between these relata in a substance is much more intimate than accidental predication. The substantial form of a composite makes the matter what it is; it is the actuality, the realization of the matter.<sup>11</sup> Houses, books, boxes, etc., all of which have separately identifiable matters (stones, beams, pages, boards, etc.) are not really substances for this reason, although they do have forms which account for their most important properties.<sup>12</sup> This fundamental definitional unity of form and matter as potential and actual solves both the Z.3 dilemma and the difficulties about the unity of a substance and of a definition:

So the final matter and the shape are one and the same thing, the one potentially, the other actually. So to seek the cause of a unity is like seeking the cause of its being one. For each thing is some *one* thing, and the potential and the actual are in a way one . . . (1045b17–21)

Having shown that there are independent textual grounds for suspecting that the Z.3 argument is not in *propria persona*, and having demonstrated that the argument relies on an explicit premise, *viz.*, the logical distinctness of predicate and subject, which Aristotle elsewhere rejects in his account of form and matter, all that is left is to suggest a possible source for the Z.3 puzzle. As this question is quite tangential to our main purpose, and the proposal made shall be highly conjectural, I shall only touch on the topic.

The most obvious place to locate the source of the Z.3 puzzle is in the *Timaeus*. In that treatise space is introduced as a receptacle for the forms, in which they are realized only transiently and imperfectly. In order to receive the forms, the receptacle itself must be inherently characterless, like the matter of Z.3 (*Tim.* 50d–51c). This passage surely forms a large part of the background of Z.3. The nature of the receptacle, the ultimate subject, cannot itself be characterized by any of the Forms it receives, and hence is only imperfectly grasped, by the “bastard” reason (52b). It is a short step to say, as Plato surely would, that this indefinite and amorphous subject cannot be *ousia*. Indeed, all physical objects become less than true substances exactly because of the mutability and imperfection that they inherit from their mother, space. Such a result would be entirely unacceptable to Aristotle, who has no Platonic Forms upon which to confer the honorific title “substance.” He states the argument in Z.3 so that one can see how the device of essential predication, a form of predication or participation unavailable to Plato, can solve the problem.

But we have reason to search the Platonic corpus for further inspiration for the Z.3 puzzle besides the well known background in the *Timaeus*. If the distinction between *logical* and *physical* arguments for prime matter is sound, the *Timaeus* falls more in the physical camp. Space is said to be characterless in itself because of

the elements, keeping body and soul together. The Z.3 puzzle and the unity of mutation even of the elements into one another. The passage which leads up to the introduction of space focuses not on questions of predication or definition but on the complete instability of spatio-temporal objects (48c–50d). But we can find a less apparent source of the Z.3 argument if we turn to another Platonic work which wrestles with many of the same problems which confront Aristotle in the *Metaphysics*: the *Theaetetus*.

Although the early sections of the *Theaetetus*, which deal with the thesis that knowledge is perception, are not particularly relevant to the concerns of the *Metaphysics*, it is clear that the final section, from 201d to the end, must have been before Aristotle's mind when he wrote the central books of his treatise. In this last part, Plato considers the suggestion that knowledge is true belief with an account (*logos*) of the thing known. This raises the question of what sort of entities have the appropriate kind of account, and of the nature of an account, just the problems of definition which Aristotle must face. Thus, for example, Plato discusses whether an object of knowledge can have parts, or be the sum of its parts, at 204a–206a, and Aristotle examines these same questions in Z.10–11. More precise parallels can be found throughout the two works.<sup>13</sup> This last section of the *Theaetetus* begins with Theaetetus and Socrates considering a new account of knowledge, one which each has heard somewhere:

I seem to have heard some people say that the fundamental elements, as it were, from which both we are composed and everything else, don't have an account (*logos*). For each of these in and of itself can only be named, and it is not possible to say anything more, neither that it is nor that it isn't. For that would be to append "substance" or "not substance" to it, but one must attach nothing to it if one is to express that thing itself alone. So one must not attach "that thing" or "itself" or "alone" or "this" or any of the other many such terms. For these run all about being attached to everything, being distinct from that to which they are attached (*hetera onta ekeinōn hois prostithetai*). But if it were possible for it to be defined (*legesthai*) and to have an account peculiar to it, it would be defined without all of the other terms. So it is impossible to express any of the fundamental elements in an account, for it is not possible to do anything but to name it alone . . . (201e–202b)

This account shares essential features with the Z.3 argument. It is logical rather than physical. It argues that the ultimate elements of any account must themselves have no account. Not even "substance" can be predicated (in Plato's terminology "*prospheresthai*" or "*prostithesthai*") of them. Aristotle simply adds a method for arriving at one of these ultimate elements: stripping off predicates successively from the subject until one has a subject of which nothing is essentially predicated.<sup>14</sup>

There are some obvious differences between the Z.3 argument and the dream passage, but beside the evident linguistic similarities, I believe the underlying philosophical moral to be identical. The most salient difference is that whereas the *Metaphysics* analysis arrives at an amorphous "stuff," the *Theaetetus* argument ends with ultimate named *particulars*. The problem arises because one begins with a concrete particular and can pursue its analysis in several different ways. Both passages trace out the implications of the assumption that such a particular can be successively

analyzed into a distinct form and matter, or predicate and subject, of which it is the logical sum. If one then asks, at each step of the analysis, from which part the *particularity* of the particular comes, one is ultimately faced with a dilemma. On the one hand, since the form or predicate is always a *universal*, the particularity would seem to always be inherited from the subject or matter. Following this line of thought, as Plato does, one ends with particulars which have no characteristics in common with any others, and which can only be named, not defined and not known (cf. 203b3 ff.). That is, one arrives at a sort of bare particular. Aristotle, on the other hand, first strips off all of the universals and then notes that what remains *cannot* be a separable individual since it has no identifiable properties. Plato would surely also have endorsed this conclusion, since for him an object is some *one particular* object only in virtue of participating in the Form of Unity. Indeed, the *Parmenides* explores the difficulties which arise from regarding unity and existence as entirely separate Forms. Plato would insist that any true substance must participate in the Form of Unity, and hence that the elements of the dream passage can be neither substances nor particulars.<sup>15</sup>

To summarize, then, we have the following results. In Z.3 Aristotle presents an argument which reveals a difficulty in understanding how physical objects can be substances. One usual mark of substance is being the bearer of predicates, but if we continually abstract the subject from the predicate in analyzing a material object we shall ultimately arrive at an entirely indeterminate matter which seems not to be substance at all. I have argued that Aristotle does not accept the Z.3 abstraction process as universally feasible. It conflicts with remarks he makes elsewhere. More importantly, it requires a premise, the universal logical distinctness of subject and predicate, which Aristotle will reject in his discussion of matter. The potentiality/actuality distinction provides Aristotle with an account of how matter and substantial form can be unified in definition, thereby blocking the Z.3 regress. Finally, a plausible source for the Z.3 argument can be found outside Aristotle's works in the *Timaeus* and the *Theaetetus*.

The introduction of the distinction between substantial form and matter was bound to cause Aristotle difficulties. Most obviously, matter does not fit anywhere in the traditional ten categories. This problem, however, is not in itself overwhelming: the number of categories is not clearly fixed, nor does Aristotle present a transcendental deduction of them, so an additional category for matter could just be appended to the others. But such a resolution would have put in jeopardy the unity of concrete substances, whose natures generally flow from their formal features. Were substantial form and matter always to be categorically separate, concrete individuals could never exhibit the unity of definition requisite for substances. The Z.3 argument is part of a dialectical examination of these difficulties, an argument borrowed from the philosophical tradition, and which ultimately had to be refuted for a tenable position to emerge.

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- 1 I have been restrained from many an intemperate assertion by the kind and careful criticism of Rob Bolton and especially of Mary Louise Gill, whose influence permeates the whole of this essay. Such absurdities as remain are due solely to my own pighheadedness. This paper is extracted from a longer essay entitled "Substances and Space-Time: What Aristotle would have said to Einstein." This research has been supported by a Henry Rutgers Research Fellowship.
- 2 All translations are my own, from the text of Jaeger. I have aspired to literalness rather than elegance, and have tried to maintain consistent translations of the central technical terms.
- 3 The translation of the term "ti" throughout this passage cannot but be tendentious. Aristotle says that according to this argument "ti" cannot be predicated of the ultimate subject, but then goes on to use that term in referring to it. This might suggest that the term is being used ambiguously; Rob Bolton has suggested to me that whereas here it means "a particular thing," later it just means "something" (albeit not a member of any of the categories). This interpretation can remove some self-contradictoriness from the passage, but to so *translate* it would hide the (at least) surface paradoxicality of the view. I choose to translate it uniformly as "something" because I believe that paradoxicality to be intended. An exactly parallel, and evidently intentional, rhetorical flourish is used by Plato in a text which I believe to be one of the sources of this argument: *Theaetetus* 202a4. More on that passage anon.
- 4 Whether the passage is in Aristotle's own voice is already a matter of some debate. W. Charlton, for example, takes the main line of argument to be that of certain opponents of Aristotle who are identified in *Physics* II (Aristotle 1970, p. 138). H.M. Robinson, in contrast, states that he finds no plausible grounds for supposing a change in voice (Robinson 1974, p. 184). Much of this part of the essay will be devoted to defending the view that the argument is not Aristotle's.
- 5 Russell Dancy, in [Dancy 1978], assimilates the abstracting process to one of *imagining the property physically removed from the substance*, thus obscuring the vital difference between this logical argument and the empirical arguments concerning substantial change. Dancy suggests, for example, that we "strip off" a statue's color using turpentine (p. 398). Such appeal to physical procedures is clearly too weak for Aristotle's purpose: how could one strip off color generally, or be assured of an actual process which would eliminate all of the particular affections, products, and powers of bodies?
- 6 The phrase here, *ouch hoper leukon*, does not explicitly mention the essence, but is best rendered as saying that white is not in the essence of man. Cf. Jonathan Barnes' commentary in his translation of the *Posterior Analytics* (Aristotle, 1975) p. 168.
- 7 The non-uniform parts are those whose own parts are not of the same sort. Thus, a part of a face such as a nose is not itself a face. In contrast, a part of flesh is itself flesh and a part of bone, bone.
- 8 In saying that the being of the matter and that of the form are not logically distinct, I do not mean to imply that they are *identical*, just that one must make reference to the form in defining the matter. It is this degree of logical interdependence that thwarts the stripping process.
- 9 The ability to exist separately does not always accompany the part-whole relationship. Some parts, such as the heart and brain, are "simultaneous" with the body since it cannot live without them (1035b25–26). I will not here treat of active *nous*, the one type of soul that seems not to require any body, not being associated with the exercise of a bodily part.

- <sup>10</sup> A detailed treatment of these issues congenial to this account has been given by Mary Louise Gill in [Gill ms.]. I have drawn from her insights into the nature of composite substance in the following sketch.
- <sup>11</sup> The differentia similarly transforms and realizes the genus in each particular case. Aristotle says that the animality of a horse differs from the animality of a man, the species differentiating the genus itself non-accidentally (cf. *Metaphysics* I.8 1057b32ff.). If so, one can no more abstract the genus from the differentia in a given case than the matter from the form. Thus the genus as such is potential in an even deeper sense than just as being a determinable which has no existence apart from determinates.
- <sup>12</sup> The examples are given at 1042b12ff., the denial of their being substances at 1043a4. I take *autē hē energeia* at 1043a6 to mean that in a substance the form is the actuality of the matter of which it is predicated (as opposed to just being the actuality of the composite). The form of a house is the actuality of the house, it is what makes the house *be* a house. But being-part-of-a-house does not make a *stone* what it is, while being-part-of-an-animal does make *flesh* what it is. Not surprisingly, parts of animals and heaps of elements also fail to be substances (cf. 1040b5ff.).
- <sup>13</sup> Compare, for example, *Theaetetus* 208d with *Metaphysics* 1040a27–b2; 205a with 1043b36–44a2; and 203dff. with 1041b11ff.
- <sup>14</sup> As we have seen, the real trouble comes when we reach the point at which substance is predicated of matter and we must try to separate the matter from substantial form. One might also trace out the other branch of the division at this point, the *predicate*, and run a similar argument. This is just what Aristotle does at *Metaphysics* B.5 1001b27ff. By an identical process to that of Z.3 Aristotle strips off all the affections, motions, relations, arrangements and ratios (*logoi*) of bodies as not being substance. But when considering whether surface is more of a substance than the body it defines (or bounds), Z.3 opts for the subject, the indefinite extension, while B.5 selects the bounding surface. This line of attack leads not to prime matter as the ultimate substance but to points and lines. But surfaces, lines, and points are divisions of *bodies* (1002a18), present in them only *potentially* (1002a20), and so cannot themselves be substances. From Aristotle's point of view, the Platonic/Pythagorean analysis of physical entities into a combination of the (ontologically prior) limit and the unlimited, or the one and the indefinite dyad, yields the B.5–Z.3 dilemmas. For the unlimited is too indefinite to be substance, while unit measures are posterior in account to the substances of which they are measures (cf. *Metaphysics* N 1087b33ff.).
- <sup>15</sup> The differences between the Z.3 passage and that of the *Theaetetus* were impressed upon me by Sarah Brodie, which is not to say that she will be satisfied by my attempt to establish their fundamental philosophical unity.

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