

*An Aristotelian puzzle about definition:  
Metaphysics Z.12*

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The aim of this paper is to explore and elaborate a puzzle about definition that Aristotle raises in a variety of forms in *APo.* 2.6, in *Metaph.* Z.12, and again in *Metaph.* H.6.<sup>1</sup> My focus will be on the puzzle itself and its relevance to an inquiry into substance, but I will also touch on some issues pertaining to his proposed solution (or solutions) to it. One version of the puzzle is formulated in the aporetic section of *Posterior Analytics* as follows:

ΤΙ: The same puzzle arises both for somebody proving by division and for this [above mentioned] manner of syllogism: why will man be a two-footed footed animal but not animal and footed? For on the basis of these assumptions there is no necessity that what is predicated becomes a unity, but it might be as if the same man were musical and literate.<sup>2</sup>

Here he is considering accounts that purport to define a thing by mentioning both a genus to which it belongs and one or more differentiae. The object of definition is not a word or expression such as “man,” but it is rather some entity picked out or signified by that expression. What is at stake is the unity of the thing, that entity. Accounts constructed out of genera and differentiae may be arrived at as the end results of a method of division, and he further indicates that they may be arrived at as conclusions of syllogisms. Even if in the end this latter option is in some sense acceptable, regardless of whether one produces such definitions by a method of division or by deducing them from premises that include some other kind of premises,<sup>3</sup> we are told that the same problem arises for definitions of this sort.

What exactly is the problem? Suppose that the subject of the definition is man, and that the linguistic predicate of such a definition is, for instance,

<sup>1</sup> See also *Int.* 5.17a13–15. See Mary Louise Gill (Chapter 5, this volume) for an alternative interpretation of Z.12, and a novel treatment of H.6 and its relation to Z.12.

<sup>2</sup> *APo.* 2.6.92a27–33.

<sup>3</sup> Perhaps the premises even include some other kind of definition of the thing, on which see n. 47.

“two-footed, footed animal.” What he asks is why man is a two-footed, footed animal, but man is not both animal *and* footed. If there is a problem here, then there should be something problematic about the unity of an item described not only as a man but also as both “animal *and* footed.” For present purposes let us set aside the fact that Aristotle had earlier mentioned two differentiae (two-footed and footed), and concentrate on just this phrase.<sup>4</sup> Now of course if man is a footed animal it does follow that man is an animal and it does follow that man is footed. However, Aristotle seems to think that the methods under consideration provide no guarantee that the predicate in question constitutes a unity. Although one could reasonably urge that it is a unity in some sense, even so there is no guarantee that the predicate indicates any more unity than is captured by an expression such as “literate and musical.” Accordingly, we should consider in what sense that would constitute a unity, and why unity in that sense is not sufficient for the predicate of a defining account.

Suppose, for instance, that the same man were both musical and literate. In that case one could correctly apply to that man both the predicate “musical” and the predicate “literate.” The man is both musical and literate.<sup>5</sup> However, to say this of a man is not to predicate just *one* thing of him. Aristotle is not here offering an account of conjunctive predication, but if what is linguistically predicated is the expression “literate and musical,” then the truth of such a predication involves two ontological predications of two different predicables. Insofar as the two predicables themselves indicate some kind of unity, this is due simply to the fact that they both apply to a single subject. It is not due to any intrinsic relation between these two predicables. There is a unity when there is some one other thing (i.e. a man) that happens to be characterized by both. That unity (the unity indicated when we say of a man that he is both musical and literate) is for Aristotle accidental. It might be the case that a man is both musical and literate, but the expression “musical and literate” does not indicate a single predicable, and the musical thing and the literate thing are one merely accidentally. The complex phrase is applicable to a man just in case the man is the subject for each of two distinct predicables. That being

<sup>4</sup> I am following the manuscript reading *zōion kai pezon* at 92a30. If Ross 1949 is right that the proper reading is *zōion kai pezon kai dipoun* then the conjunctive account would contain not two, but three elements. In that case the question of their unity would not be strictly parallel to that of musical and literate in 90a32–3. We shall see later that *Metaph. Z.12* will offer an account of the unity of the two differentiae, footed and two-footed, according to which being two-footed entails being footed in that the former is a specific, determinate way of being footed.

<sup>5</sup> The predicate in this case would be the complex, conjunctive expression “musical and literate.”

the case, the expression “musical and literate” does not signify one thing but picks out two different items, each of which the man (accidentally) is.

By way of contrast, if Aristotle thinks that there is a problem concerning the definition of man, then although it is true to say of a man that he is footed and it is true to say of a man that he is an animal, the predicate “footed animal” must be unified in a stronger manner, and a footed animal cannot be merely an accidental unity. The unity indicated by the predicate should not consist merely in the fact that each of the two constituent predicables applies to one and the same subject in such a way that that subject (the man) happens to be footed and happens to be an animal. The footed thing and the animal are not accidentally one, and being footed is not accidentally connected with being an animal through both simply happening to characterize a single, unified subject. What unites musicality and literacy is something distinct from both that serves as their subject, and the musical thing and the literate thing are each accidentally one with that subject. However, Aristotle takes it that it would be problematic if a footed animal were like this. Hence it would be problematic to hold that the same pattern of analysis is what unites the constituent elements of the phrase “footed animal.” In particular, when saying that man is a footed animal one is not predicating two things of a man in the same way that an expression such as “musical and literate” does involve two distinct predications. The man is not accidentally one with either the footed thing or the animal, and they (the footed thing and the animal) are not one merely accidentally.<sup>6</sup>

Of course what one says about something when it is called footed is not the same as what is said about it when it is called an animal. Nonetheless, calling a man a footed animal is not saying two distinct things about it in the way that calling a man “musical and literate” is, and the subject that is called a footed animal is not related in merely accidental ways to what it is called when it is called a footed animal. In the *Posterior Analytics* passage Aristotle does not go on to elaborate on why it would be problematic if the two cases were instances of the same kind of unity, or if one’s method of definition did not assure a relevant asymmetry. However, the elucidation of the puzzle in *Metaph.* Z.12 helps to make it clearer what Aristotle thinks is at stake. The kind of unity that a definition must have does not require that the items signified by the various components of the definition are identical, or that they are exactly the same predicable. However, it is required that

<sup>6</sup> As will emerge shortly, the musical thing and the literate thing are accidental beings that are accidentally the same as the man; musicality and literacy are attributes.

the definition indicates a kind of intrinsic or *per se* unity that contrasts with mere accidental unity. The chapter begins as follows:

T2: Now we should first<sup>7</sup> discuss definition, in so far as we have not discussed it in the *Analytics*; for the problem stated there is useful for our discussions concerning substance. I mean this problem: why is that thing, of which we say the formula is a definition, one, as for instance two-footed animal is of man; for let this be its formula. Why, then, is this one, and not many, animal and two-footed?<sup>8</sup>

As we have already seen, a version of this kind of puzzle was in fact discussed in *APo.* 2.6. We are now being told that there is more to say, and that it is worth discussing the puzzle further here because such discussion will be useful for our treatment of *substance*. In *Metaphysics Z*, unlike *Posterior Analytics*, Aristotle is concerned to answer the question “What is substance?,” and now he indicates that pressing this puzzle is going to turn out to be useful for that project.

At least part of the reason why it is useful for the investigation of substance is that according to *Metaph. Z.3* the essence of a thing has been thought to be the substance, or being, of that thing.<sup>9</sup> Since a definition signifies an essence, this would yield the result that the definition is the account of a thing’s substance – it is the *logos tēs ousias*. Suppose that the account of man is reached by the method of division. If this account is in fact a *definition* of the nature of man, then it signifies the essence of man. As such it would be the account that expresses the *ousia*, or being, of a man (on the assumption that the essence of a thing is its substance). However, a definition signifies what something is intrinsically, in its own right. There must be an intrinsic, as opposed to an accidental, relation between a thing and its essence. As Aristotle put it earlier in *Metaph. Z.4*:

T3: And first let us say something about it [essence] logically. The essence of each thing is what it is said to be in virtue of itself.<sup>10</sup>

This is a perfectly respectable notion of essence, and one that he is here taking seriously as a candidate for the *ousia*, or being, of a thing. However, later I will give some indications that Aristotle rejects the idea that an account of essence reached through division is one that captures the *ousia*

<sup>7</sup> Picking up *skepton husteron* at 1037a20. This is a first treatment of the *aporia* in the *Metaphysics*; H.6 will contain the second one.

<sup>8</sup> 1037b8–14.      <sup>9</sup> 1028b33–4.

<sup>10</sup> *Metaph. Z.4*.1029b13–14; see also *APo.* 1.4.73a34–7 and *Metaph. Δ.18*.1022a25–9. I here use “logically” for *logikōs* instead of the revised Oxford translation’s “in the abstract.” For an illuminating discussion of this term see Burnyeat 2001, 19–25. I would urge that Aristotle is here discussing a notion of essence that is employed in dialectic of the sort discussed in his *Topics*.

or being of that item. Furthermore, the puzzle with which we are presently concerned seems relevant to this rejection because defining in this way is said to make the puzzle intractable.<sup>11</sup> My concern now, though, is to get somewhat clearer on the nature of the problem itself rather than to examine the reasons for Aristotle's rejection of this approach to capturing the substance of a thing.

In order to understand how this puzzle is relevant to a critical investigation of this approach to definition as a viable method of identifying the substantial nature of a thing, it is useful to look at some of Aristotle's remarks about how his predecessors inquired into substance. At a very general level, a method of definition by division (whatever its other uses might be) allows one to analyze a definable item into component parts or elements. If the item in question is a substance, this kind of analysis into parts yields a putative account of what that substance is. There was, though, a more "ancient" method that predated definition by division and that Aristotle sees as providing a competing model for producing accounts of the constituent elements of substances. This was a method employed by early natural philosophers that Aristotle represents as inquiring into the principles of substances by seeking those natural bodies that are the elementary constituents of which substances are ultimately composed. Aristotle construes them as searching for an account of a thing's substance (a *logos tēs ousias*, or account saying of that substance what it is) by attempting to enumerate the material constituents of which a thing is composed. He says of these "ancient" philosophers:

T4: And the ancients also testify to this by their work;<sup>12</sup> for it was of substance that they sought the principles and elements and causes. Well then, those today instead hold universals to be substances (for genera are universals, and on account of the logical nature of their investigation they say it is rather these that are principles and substances); but the old thinkers hold particulars to be substances, such as fire and earth, but not what is common to both, body.<sup>13</sup>

These old thinkers are early natural philosophers who searched for the substance of a thing by inquiring into its fundamental material components,<sup>14</sup>

<sup>11</sup> See H.6.1045a20–2. <sup>12</sup> I.e. that substance is the subject of this inquiry.

<sup>13</sup> *Metaph.* Λ.1.1069a25–30, replacing "in the abstract" with "logically," for which see n. 10.

<sup>14</sup> He elsewhere will say such things about them as "Now the ancients who first began philosophizing about nature were examining the material origin and that sort of cause" (*PA* 1.1.640b4–6). Translations of *On the Parts of Animals* are from Lennox 2001a. See also *Ph.* 2.2.194a18–21: "Looking at the ancients, it [natural science] would seem to be about the matter, for Empedocles and Democritus touched on form and essence only to a small extent." As T4 indicates, he sees these early students of nature as attempting not just an inquiry into the natural phenomena of the physical universe, but

and they are contrasted with those “today” who as a result of their logical method of examination treat universals as substances. *Metaphysics* B discusses these two allegedly rival approaches to the same question, and one of its puzzles concerns whether it is those earlier ancient natural philosophers or the modern logic-choppers who have the correct view about the method to use in searching for an account of the substance of a thing. The relevant puzzle begins as follows:

T5: There is great difficulty as to how one should put things so as to attain the truth, both concerning these things<sup>15</sup> and concerning the principles, whether one ought to take the genera as elements or principles, or instead the primary constituents present in each thing.<sup>16</sup>

Corporeal, physical elements have a claim to be basic and fundamental. However, opposed to the views of the ancient natural philosophers is a very different approach that employs a very different kind of method. According to this more recent method an account of the being or *ousia* of a thing is constructed out of genera, and these items are its elements and principles.<sup>17</sup> On this view the genus is a principle, and a principle of such a sort as to be described as an *element*. Both camps employ methods for investigating those principles that they take to be the elements of the things that are, but they disagree whether the proper method is to look for those elements that are material constituents or those that are generic kinds. As Aristotle points out, however, they cannot both be right:

T6: But it is not possible to speak of the principles in both ways. For the formula of the substance is one; but definition through genera will be different from that which states the constituents.<sup>18</sup>

as also engaged in an inquiry into *substance*. This very same enterprise – inquiry into substance – is engaged in by others as well, including not only those contemporaries who argue that the genus is substance, but also Aristotle himself in *Metaphysics* Z. However, even for the purposes of natural philosophy their method is inadequate. Natural philosophy must, he thinks, inquire into matter, but it must do more. As he says in *PA* 1.1: “It is clear, then, that these natural philosophers speak incorrectly. Clearly, one should state that the animal is of such a kind, noting about each of its parts what it is and what sort of thing it is, just as one speaks of the form of the bed” (*PA* 1.1.641a14–17). They failed to give a correct account of the substantial nature of a physical object precisely because they did not have a method for investigating and defining forms, and it is in this regard that the more “contemporary” philosophers represent significant improvement. As he puts it: “One reason our predecessors did not arrive at this way is that there was no ‘what it is to be’ and ‘defining substantial being’” (*PA* 1.1.642a24–6).

<sup>15</sup> This refers to the preceding, fifth puzzle of *Metaphysics* B. It begins at 997a34–5 by asking “must one say that there are only sensible substances, or that there are others besides these?”

<sup>16</sup> *Metaph.* B.3.998a20–3.

<sup>17</sup> Aristotle is here using the concept of genera in a fairly broad way so as to encompass both the genus and the differentia.

<sup>18</sup> *Metaph.* B.3.998b11–14.

The disagreement about principles that he is describing is one that he takes to be a dispute about what the account of the substance of a thing is, and what method one ought to employ in seeking such an account. Since he construes the issue in this way, he represents them as having divergent views both about substance and about methodology in metaphysics. These divergent approaches of his predecessors are part of the larger background to the inquiry into substance that he initiates in *Metaphysics Z*.<sup>19</sup>

*Metaph. Z.12* takes up the question of the unity of a definable entity in connection with one of these two methods, the one that attempts to establish a definition by a process of division. If we view this in the context of the kind of dispute just mentioned, it is clear that the items articulated in the kind of definition of a substance he is examining are elements in the broad sense of genera rather than material constituents. Furthermore, as we shall see, his solution in that chapter involves presenting a determinate view about the account of the substance of a thing. So let us now resume our examination of that chapter and the way it elaborates the puzzle:

T7: For whereas in the case of man and pale they are many when one does not belong to the other, but they are one when one does belong and what underlies, man, is modified somehow (for then they become one thing and the pale man exists), in the present case one thing does not participate in the other, for the genus is thought not to participate in its differentiae (for the same thing would participate in opposites simultaneously, for the differentiae are opposites by virtue of which the genus is differentiated).<sup>20</sup>

In T2 he made it clear that the puzzle concerns definable items, and in each of the passages the definable item in question is *man*. The kind of definition of man put forward is one that mentions both the genus animal and the differentia two-footed. Our initial text from *Posterior Analytics*, T1, mentions an additional differentia, footed. As we shall see, this additional differentia makes its appearance later in Z.12 in that chapter's solution to the puzzle.

For Aristotle genera and differentiae are beings, or things that are. When an item such as man is defined by genus and differentia the definition is a complex phrase that contains parts that signify these beings. The terms "animal" and "two-footed" occur in the definition, and the former signifies a genus, and the later signifies a differentia. These are both beings, and since the differentia two-footed distinguishes the species man from other

<sup>19</sup> In that work he does not resolve this puzzle by siding with either the early natural philosophers or those who employ the more modern approach. It is relevant to point out that in *Metaph. Z.17* he argues for the view that the substance of a thing is not one of its elements.

<sup>20</sup> *Metaph. Z.12.1037b14–21*.

members of its genus they (the genus and the differentia) must in some sense be different beings. However, if the genus is one being and the differentia another, then the definition “two-footed animal” mentions two beings. Furthermore, if man is by definition a two-footed animal, and the relevant definition mentions two beings, then the question arises as to why the entity defined (i.e. man) is not a plurality that consists in both a two-footed thing *and* an animal that is distinct from that.

As I have already noted, it is surely correct to say of a man that he is both two-footed and an animal, for the same thing can be both two-footed and an animal. However, the way in which this is the case must differ significantly from the way in which a musical thing and a literate thing can be one and the same, and that is what we now need to clarify. The *Posterior Analytics* passage elaborates the puzzle by suggesting that “it might be as if the same man were musical and literate,” but that passage does not attempt to explain what the problem would be if things were like that for the definition of man. A definition reached by division *inevitably* mentions more than one item, and this will turn out to be problematic if the predicate in that definition indicates a unity merely in the same way that “musical and literate” does.

As already noted, being literate and being musical are one when one and the same man is both literate and musical. The very same man can be both literate and musical, but absent this connection with a common subject there is nothing that unifies these two beings. We need to look a bit more closely at the reason why this cannot be the way in which man is both two-footed and an animal *if* being a two-footed animal is the content of the definition of that subject (i.e. of man).

What needs to be added to the account of accidental unity already discussed above is the crucial role that *substances* play as the subjects that account for the unity in question. Literacy and musicality are attributes that may be possessed by certain *substances*, and if and when a substance is characterized by both of these simultaneously it is both a literate thing and a musical thing. One may truly say of some *substance* both that it is literate and that it is musical. What unifies this literate thing and this musical thing is the connection that each has with a single substance. What is here being highlighted – and was absent from my earlier discussion of accidental unity – is that for Aristotle the unifying *subject* alluded to in each case is a substance, whereas such items as the literate or the musical thing are not substances (although each is accidentally the same as some substance). The substance (e.g. Coriscus) could have existed without being either literate or musical and could continue to exist as the very same substance even were

he to lose the attributes by virtue of which he is correctly called musical and literate. Alternatively, he could be musical, but not literate, or vice versa. Even so, the literate and the musical are one and the same thing when the substance, Coriscus, is characterized by both musicality and literacy.

Consequently, the reason why the literate thing and the musical thing are one and the same is simply that each is one and the same as the same particular *substance*. Consider, for instance, the discussion in *Metaph.* Δ.6 as to how Coriscus and the musical are accidentally one:

T8: . . . things are called one accidentally such as Coriscus and the musical, and musical Coriscus (for it is the same thing to speak of Coriscus and the musical, and musical Coriscus), and the musical and the just, and musical and just Coriscus. For all these are called one accidentally, the just and the musical because they are accidents of *one substance*, and the musical and Coriscus because one is accidental to the other.<sup>21</sup>

Coriscus is a substance, musicality is one of his accidental attributes, and the musical Coriscus is an accidental unity. Furthermore, the musical thing and the just thing are accidentally the same because each is accidentally the same as a single substance. In the account or formula “musical Coriscus” one part picks out *musical* and the other part picks out *Coriscus*. What makes musical Coriscus a unity is simply that the former part is an accident of, or coincides, in the latter.<sup>22</sup>

This kind of account of the unity of accidental beings makes it clear that the common unifying subject is a *substance*. Further, it presupposes that the substance itself is a unity in a way that is more fundamental than the accidental unity of a substance with an attribute. The just and the musical are one in that each is said to be an accident of one substance. Unlike the musical Coriscus or the just Coriscus, both of which are accidental unities, Coriscus himself is simply one substance. Coriscus is not an accidental unity in the sense that he is really a complex or compound of some other more fundamental substance that serves as a subject and one or more accidental attribute. By way of contrast, Coriscus is, for Aristotle, an intrinsic or *per se* unity. In general terms, while an accidental unity may be analyzed into an intrinsic unity and an accidental attribute, the intrinsic unities are not to be analyzed in that way.

<sup>21</sup> *Metaph.* Δ.6.1015b17–23.

<sup>22</sup> 1015b23–7. On Aristotle’s behalf we should observe a distinction between accidental beings such as “the musical thing” and the attribute musicality. Coriscus is accidentally the same as the musical thing but is not accidentally the same as the property of musicality. Musicality is not an accidental being – rather it is one of the properties that may accidentally characterize a substance such as Coriscus. See Frede 1987 (esp. 41–2).

Given that what it is that unifies the literate and the musical thing (assuming that they are unified) is simply their relation to one and the same substance, there is for Aristotle nothing problematic about the claim that a man is both literate and musical. The literate and the musical constitute a unity, albeit a merely accidental unity. However, the account of unity that applies in this type of case could not help us to understand how a man could be both two-footed and an animal *if* a man is substance, and as such an intrinsic unity, and “two-footed animal” is the account saying what a man intrinsically is.<sup>23</sup>

In light of T8 we should think of asking why the musical Coriscus is one as asking why Coriscus and the musical are one. If the formula “biped animal” were parallel to this type of case, then asking why a footed animal is one would be the same as asking why the footed thing and the animal are one.<sup>24</sup> So let us now see what would be the case if the predicate “two-footed animal” were susceptible to the same pattern of analysis as Aristotle uses to explicate how a man could be both literate and musical. If it were, then the two-footed thing and the animal would be one and the same thing because each would be accidentally the same as a single substance, the man. The two-footed thing and the animal would be accidentally the same thing because each is accidentally the same as a single substance, the man. However, then the man would be accidentally two-footed and accidentally an animal, and so the formula “two-footed animal” would not express what a man is intrinsically, or in its own right.

A man, though, is a substance, and as such is an intrinsic unity, and an account saying what man is intrinsically cannot be the same as an account that says what man is accidentally. Since a definition says what a thing is in its own right, it would then follow that the account arrived at by collection and division would not even be a definition of man. The elements of the formula would be unified only in the way that literate and musical are unified through their connection to a single substance as the common subject that merely happens to possess them. Such a formula does not

<sup>23</sup> Aristotle has earlier claimed that in the strict and unqualified sense there is definition (and essence) only for *substances* (Z.4.1030b4–6). There are various derivative ways in which there are definitions for non-substances, but what we are concerned with in this *aporia* are definitions of substances. A substance is a being in its own right, or intrinsic being, and the definition of a substance says just what it is in its own right. However, if a definition does not say what some substance is in its own right, then it is not a definition in the strict sense and is not the definition of a substance. Furthermore, if the account saying what man is shows that a man is an accidental unity of some sort, then (i) that account is not a definition in the strict sense, and (ii) a man is not a substance.

<sup>24</sup> See *Metaph.* Δ.6.1015b18–19 for the musical Coriscus case.

capture what that subject is in and of itself, and hence it would not be the definition of that subject.

Alternatively, since the unity in question here cannot be due to a relation that both elements have to some underlying substance, one might consider treating “two-footed animal” as an analogue to “musical Coriscus.” However, this too fails to yield a satisfactory account of the intrinsic unity of a substance. Musical Coriscus is an accidental unity of substance and attribute, and it is a unity because *musical* is an accident of the substance Coriscus. If we were to treat a two-footed animal as unified in this way, then either “two-footed” would be an attribute of an animal, or “animal” would be an attribute of something two-footed. In either case the formula would still be that of an accidental, not an intrinsic, unity. In the development of this puzzle in *Metaph. Z.12* Aristotle considers the former type of approach, though not the latter. In the former case the genus “animal” would correspond to the underlying substance “Coriscus,” and the differentia “two-footed” would correspond to *musical*. Hence, on the analysis in question the genus animal would be a subject as *substance* and the two-footed thing would be accidentally the same as that substance.<sup>25</sup> Given this pattern of analysis, the genus, being the subject and substance, would have to play the role of the intrinsic unity. Against this Z.12 introduces the idea that:

T9: for the genus is thought not to participate in its differentiae (for the same thing would participate in opposites, for the differentiae are opposites by virtue of which the genus is differentiated).<sup>26</sup>

Since he is here assuming that the relation between Coriscus and pallor is one of “participation,” the reference to participation in this argument is arguably to some Platonic conception.<sup>27</sup> The point is that if one were to treat the genus as a substance and the differentia as the result of an attribute inhering in that substance, then the genus would have to possess opposing properties. For instance, if man is defined as “two-footed animal” and horse as “four-footed animal,” and if both man and horse have the same genus, then a single substance (i.e. animal) would be equally two-footed and four-footed. However, a single substance cannot be both two-footed and four-footed. Consequently, the genus is not a substance that is accidentally the same as the two-footed thing.

<sup>25</sup> Additionally, the attribute of two-footedness would correspond to the attribute of musicality.

<sup>26</sup> *Metaph. Z.12.1037b18–21*.

<sup>27</sup> In any case, it would not be relying upon the definition of participation in the *Topics* according to which participation must be essential predication (*Top. 4.1.121a11–13*). Thanks to Marko Malink for this and the texts mentioned in the next note.

One might try running the analysis the other way by treating the differentia as the subject and the genus as the attribute. However, Aristotle elsewhere indicates a reason not to go by this route since:

T10: it is impossible for the species of a genus to be predicated of their own differentiae or for the genus to be predicated without its species.<sup>28</sup>

Accordingly, the differentia “two-footed” could not be a subject of which the genus “animal” is predicable since no species of that genus is predicable of two-footed, and the genus is not predicable of a subject if none of its species are.

In the subsequent lines in the Z.12 passage<sup>29</sup> Aristotle goes on to say that even if the genus does participate in the differentiae the same account applies if there is more than one differentia. That is, the problem of unity arises when there are multiple differentiae, even if we were to put aside the impossibility of a genus participating in the differentiae. For instance, for man the differentiae might be: footed, two-footed, and wingless.<sup>30</sup> The context allows for more than one interpretation of the exact formulation of the problem he has in mind. He could mean that the *problem* of unity cannot be solved even if we do allow that the genus is a subject for differentiae, since even if the differentiae all were unified in that they were accidental attributes of one substance, there are still many of them. Even if the genus were a subject for each of them, the definable object, man, would simply be an animal that happens to be a footed thing and happens to be a two-footed thing and happens to be a wingless thing. We would end up treating the object that we are trying to define (in this case, man) as a series or a plurality of accidental complexes and not as a single intrinsic unity. In that case it could not be a substance.

In fact, he could also have pointed out that we could get a similar result even if there were just a single differentia, and the definition had just two

<sup>28</sup> *Metaph.* B.3.998b24–6. Granted, this occurs in the context of the development of an *aporia* and so we cannot automatically assume it represents his own view. However, even if we did not have a text showing that for him the genus is not predicated of the differentia, the main point remains intact. (But see *Top.* 6.6.144a32–b3; cf. also *APo.* 2.3.90b34–8. Also, the differentia cannot partake of the genus: *Top.* 4.2.122b20–3; cf. also *Metaph.* K.1.1059b33.) Regardless of which of the two elements in the account is taken to be subject and which predicate, if the relationship between them is accidental, then the subject they purport to define would itself be an accidental unity of some sort, and not a substance.

<sup>29</sup> 1037b21–7.

<sup>30</sup> Notice that “wingless” is not a determinate way of being footed, nor is being footed a determinate way of being wingless. Additionally, in *PA* 1.3 he classifies it as a privation and denies that it divides into more determinate forms. We will see shortly that it is not the kind of differentia that fits into the solution to the problem of unity that Z.12 presents.

elements.<sup>31</sup> Even in this limiting case, man would not be a substance, but a kind of complex of substance and attribute, and the formula of man would be an account of an accidental compound, not the account of a substance. However, on the assumption that a man is a substance, this cannot be right since:

ΤΙΙ: But nonetheless as many things as are in the definition must be one; for the definition is some one formula and a formula of *substance*, so that it must be a formula of some one thing; for substance signifies some one thing and a “this,” as we say.<sup>32</sup>

Nothing turns on the particular example, or even on whether the example is an acceptable exemplar of definition by genus and differentiae. For purposes of the general point it does not even matter whether this example chosen, in this case man, is a substance or not. This is a general puzzle for the view that an account arrived at by division is a definition of a substance, of an *ousia*.

This helps us see how the puzzle stated in *APo.* 2.6 is relevant to an inquiry into substance. It is not just that the predicate in a definition must signify a unity. It must signify an intrinsic unity as opposed to an accidental unity. This in turn is required because a definition says of some definable object what it is in its own right, intrinsically. However, the definable object itself would not be an intrinsic unity if the only account saying what it is has parts that are related in non-intrinsic and accidental ways. If the account saying what man is fails to express an intrinsic unity, and yet this is the account that gives the being of the item in question, then the object of the account, man, also fails to be an intrinsic unity. But in that case it cannot be a substance. The challenge is not to show that each of the parts of the definition somehow picks out one and the same identical thing, but

<sup>31</sup> This being the case, one would want an explanation as to why Aristotle here brings up a plurality of differentiae. *Perhaps* it is simply because he thinks that definable species will always have more than one differentia. However, there also is a special problem that arises in the case of multiple differentiae. Since his ontology of accidental beings has not provided for conjunctive accidental beings such as “the literate and musical man,” the analysis of accidental unity could not be applied to cases such as “the footed and two-footed animal.” So even if we could skirt around the objection that a subject cannot be characterized by opposites, we would not be able to apply an analysis of accidental unity to the definition of man once multiple differentiae are brought in.

Another possibility worth entertaining is that he has in mind the maneuver alluded to in *Z.14.1039a26–8* that takes the animal in man as different from the animal in horse. Such a move would escape the objection that one and the same entity (namely animal) is characterized by contraries. On such a proposal, the animal in man is arguably not characterized merely accidentally by two-footedness but rather *is* that animal that is intrinsically two-footed. This provides a potential escape route to the objection about opposites being present in the same subject, but the problem resurfaces once we take into consideration the plurality of differentiae.

<sup>32</sup> *Metaph.* *Z.12.1037b24–7.*

rather to define the being of a substance in such a way that each of the parts constitutes an intrinsic unity. The definition is complex, but its parts must be related in such a way that collectively they constitute what a single *substance* is in and of itself.

This is a general problem for definitions, since all definitions are complex phrases that contain constituent parts that themselves signify beings. The solution to the problem, in general terms, requires addressing the following:

T12: And in the case of definitions, how the things in the formula are parts, and why the definition is a single formula (for it is evident that the thing is one, but in virtue of what is the thing one, given that it has parts?) must be considered later.<sup>33</sup>

The definition of an intrinsic being is linguistically complex, but what is signified by its various components must be intrinsically unified. The problem of the unity of a definable object requires giving an answer to the question “in virtue of what are the various parts unified?” that is different from an account of a merely accidental unity. Whatever the answer to this question, it cannot be that what unifies the parts is that they are accidental attributes of some subject, or that one of them is a subject of which the other parts are accidental attributes. If the account by genus and differentiae is the account of the substance or being of a definable, intrinsic being, then its elements cannot be unified by their relation to something else, something other than those very elements. Hence the account itself must contain reference to whatever it is in virtue of which the object of definition is one. But what is that?

There is an answer to this question presented in *Metaph. Z.12*, though it does not seem to be Aristotle’s final word.<sup>34</sup> The solution is that what he calls the “final differentia” is the form and substance of a thing.<sup>35</sup> If, for instance, the final differentia for man is two-footed, then that single differentia, two-footed, is the form and substance of man. On this solution we dispense with the assumption that the entire definition by genus and differentia

<sup>33</sup> *Metaph. Z.11.1037a17–20*. The solution is first attempted in *Z.12* but is given in a different manner in *Metaph. H.6* (for which see Gill, Chapter 5 in this volume).

<sup>34</sup> As just stated in the previous note, when the puzzle about unity is raised once again in *H.6* the resolution is different from the one given in *Z.12*. *Metaph. H.6* invokes the distinction between matter and form, and the correlative distinction between potentiality and actuality. Whatever we make of the *H.6* solution to the problem of unity, it does not presuppose the method of definition by division. In fact, prior to giving his solution there he indicates that the puzzle cannot be solved by those who define in that manner (1045a20–2). Furthermore, and most importantly, it does not invoke the idea that the final differentia entails the rest and as such is the substance of the thing defined.

<sup>35</sup> 1038a25–6.

gives the *ousia* of man and replace it with the idea that the account of the *ousia* of man is an account constructed solely out of differentiae.<sup>36</sup>

He argues for this in two main steps. The first step is to rule out the possibility that the genus is the unifying substance of the thing,<sup>37</sup> and the second is to argue that the multiple differentiae in the definition arrived at by division can be put in a linear order in such a way that when dividing the more general into the more specific, each differentia is a “differentia of a differentia.” For instance, “two-footed” is a differentia that divides footed. Since the final and most determinate differentia entails all of the higher and more general differentiae, the account of the substance of man is reducible to a single term: “two-footed.” The ultimate answer to the question “What is man?” would in that case simply be “two-footed.” This answer has none of the internal complexity of a definition by genus and differentia. Since it does not mention a plurality of parts, the question as to what unifies those parts does not even arise. And if this is correct, then we have discovered *the* constituent element in a definition by division that is that by which the parts are one.

As noted, this solution assumes that definitions are arrived at by division, and further that the final differentia entails all of the others in that it is a more determinate and specific realization of those more general differentiae. However, this is at odds with what Aristotle says about the plurality of differentiae in the methodological discussion found in *PA* 1.3. That chapter sums up one of its main conclusions by saying that “it is impossible for those who divide in two to grasp any of the particular animals.”<sup>38</sup> Although that chapter acknowledges that in some cases a plurality of differentiae are indeed unified in the way explicated in *Metaph. Z.12*,<sup>39</sup> it also insists that animals need to be defined by a group of

<sup>36</sup> 1038a28–30.

<sup>37</sup> For this purpose he invokes the claim that the genus does not exist in an unqualified way over and above its species, or if it does, it does so only in the way that matter does (see 1038a5–6). The former is partially supported by the earlier argument against treating the genus as a subject of which a differentia is an attribute when earlier Aristotle was considering the attempt to treat the genus as a substance and the differentia as an attribute, and showing that this leads to absurdity. Although this does not prove that the genus is not a substance, one obvious way to avoid that absurdity altogether would be to deny that the genus does have independent existence. The assumption would be fully supported by an argument that no universal is a substance, and this is in fact one of the main themes of the next chapter. On the latter option (genus as matter) see Gill (Chapter 5, this volume).

<sup>38</sup> *PA* 1.3.644a10–11.

<sup>39</sup> See, for instance, 643b32–644a1: “For the continuity of the differences derived from the kind according to its division means just this, that the whole is a single thing. But the mode of expression makes it seem that the final one alone is the difference, e.g. ‘multi-split-footed’ or ‘two-footed,’ and that ‘footed’ and ‘many-footed’ are superfluous.” See also 1.2.642b5–9.

differentiae that do not all fall under a single, continuous division in this way.<sup>40</sup>

One might query whether *Metaph.* Z.12 was written before this methodological discussion in *On the Parts of Animals*, but even if it were, that does not alter the fact Z.12 is drawing out consequences for the process of arriving at definitions through a method of division. Whether or not Aristotle's considered view is that this approach can solve the problem of the unity of definition, it still does provide an argument that purports to identify that by which a substance is one *if* we search for the substance of a thing by examining the contents of definitions reached through that method. This is a method that needs to be taken into consideration in a search for the account of the substance of a thing, and Z.12 is a part of his examination of the use of that method in metaphysics.

Among other things, the conclusion that the substance of a thing is simply the final, and most determinate, differentia arrived at through division provides an answer to the following question posed in *Metaphysics* B about which of the elements in definitions by genus and differentia are the principles:

T13: Additionally, even if the genera are principles most of all, ought one to consider the first of the genera to be principles, or the last ones which are predicated of the individuals?<sup>41</sup>

According to Aristotle this was a matter of dispute. This statement immediately follows T6, and the context indicates that T13 is a further problem specifically for those who take the *logos tēs ousias* to be the account constructed out of genera (broadly construed). Granted that the genera broadly construed are principles, which element in a definition is the substance of the definable item? The argument in Z.12 would resolve this further dispute in favor of the ultimate differentia.<sup>42</sup> This complements nicely the puzzle in *Metaph.* B.3.998b14–28. There, after arguing in favor of the highest genera being the principles, and identifying those with being and unity, it then invokes T10 to construct an argument to show that it is impossible for these even to be genera. So, if we are going to search for the *ousia* of a thing by examining the component elements of a definition by genus and differentia, it would have to be the differentia that receives this honorific title, and the most specific, determinate one at that.

<sup>40</sup> 644a6–11; cf. 643b10–17 and 23–4. <sup>41</sup> *Metaph.* B.3.998b14–16.

<sup>42</sup> It is worth noting that *Metaph.* H.2.1043a2–7 does show commitment to the view that differentiae are the cause of being for a substance. However, that passage does not endorse the Z.12 solution to the problem of unity and does not indicate that such differentiae are arrived at through a method of division.

However, what Aristotle says regarding definition by genus and differentia in the *Topics* would suggest that this is the wrong answer. Although “the genus and differentia constitute the formula of the species,”<sup>43</sup> the differentia is treated in the *Topics* as some essential qualitative determination of the thing, and as such not as *what* the thing is:

T14: . . . for a thing’s differentia never signifies what it is, but rather some quality, as do footed and two-footed.<sup>44</sup>

Hence, of the elements in the definition, the element that is in the category of substance will be not the differentia but the other component, the generic kind. Hence following this method one is led to the view that it is the genus that is the *ousia*:

T15: . . . of the items in the definition, the genus is most of all thought to signify the substance of the thing defined.<sup>45</sup>

Thus in the *Topics* a formula or account of a species is constituted by the genus and the differentia, and of those elements, the genus is the *ousia* of the thing (whereas the differentia is a quality). However, the argument in *Metaph. Z.12* turns this on its head with its argument that the other element, the differentia, must be the *ousia* of a thing.

Against this background I would suggest that its treatment of the puzzle about unity is intended to show that *if* one attempts to locate the *ousia* of a thing by singling out an element of a definition arrived at by dichotomous division, one is led not to the view that the genus is substance, but rather to the opposed view that the substance of a thing is a final or ultimate differentia that is specified in the definition reached by division. However, whatever reasons there are in favor of the view that such a differentia is a quality would also be reasons to reject this approach as leading to a correct view about substance. If so, in this chapter Aristotle is not endorsing division as the appropriate method for reaching a correct account of the substance of a thing. Accordingly, we need not read the chapter as an attempt to show how he himself would utilize that method successfully in defense of what he himself takes to be the substance of a thing. There is fairly widespread scholarly consensus that for Aristotle in the case of a

<sup>43</sup> *Top.* 6.6.143b19–20.

<sup>44</sup> *Top.* 4.2.122b16–17 (for purposes of consistency I use “footed” and “two-footed” for *pezon* and *dipoun*). There are quite a few other passages in the *Topics* that treat the differentia as a quality, including 4.6.128a26–7 (“also that the differentia always signifies a quality of the genus”) and 6.6.144a20–2 (“See also whether the given differentia signifies a certain ‘this’ rather than some quality; for it is thought that every differentia shows a quality.”).

<sup>45</sup> *Top.* 6.1.139a29–31.

living thing its substance is its form, and that this is its soul. However, this is not a view that Aristotle arrives at through an examination of the parts of definitions arrived at by genus and differentia.

If this is right, then Z.12 is best seen as part of a critical examination of a method for inquiry into substance that fails, and this in turn helps show the need for a different mode of inquiry. *Metaph.* Z.17 initiates a fresh inquiry into substance by starting with the idea that a substance is a cause and a principle:

TI6: Since, then, substance is a principle and a certain cause, one must pursue it from this standpoint. The “why” is always sought in this way: why does one thing belong to some other thing?<sup>46</sup>

It is here that Aristotle invokes ideas about the connection between syllogistic argument and definition that he develops at some length in *Posterior Analytics* 2.<sup>47</sup> Aristotle stresses in Z.17 that in posing this kind of question we are not asking why a man is a man. The answer to that is either something to the effect that each thing is itself, or perhaps that a man is indivisible with respect to itself (and that just is what being one is). In either case one would be giving an answer that could be applied to anything at all. Such an answer gives us nothing that is distinctive of man, and it does not require any real inquiry at all.<sup>48</sup> However, where there is a genuine inquiry the question must be posed in the form “why does something belong to some other thing?” and accordingly a subject and a predicate must be distinguished so that we may inquire into why something (i.e. the predicate) belongs to something else (i.e. the subject). The subsequent inquiry would be a search for an answer to the question of why that predicate belongs to that subject. When it is formulated in this way, Aristotle thinks that it is possible to ask why a man is what he is:

<sup>46</sup> *Metaph.* Z.17.1041a9–11.

<sup>47</sup> His discussion there is intricate and full of subtleties, and this is not the place to examine it. For present purposes it suffices to note that it distinguishes different kinds of definition: “Hence one definition is an indemonstrable formula of what a thing is; one is a deduction of what it is, differing in arrangement from a demonstration; and a third is a conclusion of the demonstration of what it is” (*APo.* 2.10.941a11–13). The first of these three types of definition is an indemonstrable first principle of a science. Being indemonstrable there simply is no middle term that mediates or explains the connection between its subject and predicate. If definition by genus and differentia were to fall into this first type, then there could be no inquiry as to why a man is a biped, or why a man is an animal. Conversely, if there are answers to questions of this type, then the definition by genus and differentia is not a definition of the first type, but rather could be (when properly explained) the *conclusion* of a demonstration in which the predicate in the indemonstrable account is used as the middle term.

<sup>48</sup> See *Metaph.* Z.17.1041a11–20.

T17: But one might well inquire why man is *such and such* an animal.<sup>49</sup>

The phrase “*such and such an animal*” (*zōion toiondi*) is a complex expression. There are all sorts of terms that we could insert at the placeholder “*such*,” and one of them would be “two-footed.” Among other things, one could engage in genuine inquiry as to why a man is (a) *two-footed* animal. For such an inquiry to be successful there would have to be a middle term that connects the other two terms in such a way that there is an explanation of why the predicate in question belongs to the subject, man. Such an explanation would have as its conclusion the proposition that man is a two-footed animal and would contain in its premises some third term that explains or mediates the connection between being a man and being a two-footed animal. From this perspective, the definition by division is not the account that captures the being or *ousia* of man. The definition by division may well be a necessarily true proposition that classifies the species by isolating a factor that distinguishes it from other members of its kind, but it does capture the *ousia* of the definable item.

Given that the soul is the substance of a living thing, it would be the possession of a soul of a certain type that explains why something is the kind of living thing it is. Animals, for instance, are *perceptive* living things. On this hylomorphic conception of the soul as substance, the various features by reference to which different kinds of animals are distinguished and classified are themselves explicable by reference to a single cause, the soul. The definition of man by division, however, is not foundationally bedrock. Nonetheless, if the methodological approach put forward in Z.17 does succeed, then it also suggests an alternative approach to solving the puzzle about definition presented in Z.12. As I have argued above, the problem there was to show how the different elements in the definition by division constitute an intrinsic, as opposed to an accidental, unity. If the definition by division can itself be explained by reference to a middle term, that thereby would show how and why the features in the definition by division are intrinsically, as opposed to accidentally, related to the defined substance (i.e. man). In that case, definitions by division would not answer the question posed in T12 by revealing that by virtue of which a definable item is one.<sup>50</sup> However, there would be hope that a definition of a different kind, reached by a different route, could.

<sup>49</sup> *Metaph.* Z.17.1041a20–1. Here I follow the Oxford translation in taking “man” as the subject.

<sup>50</sup> Hence the *ousia* of a thing is not even mentioned in such an account, for which see *Metaph.* H.3.1043b10–14.