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Aristotle on Unity: Metaphysics Delta 6Constantine Georgiadis, McMaster University, Hamilton, Ontario
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The brief passage on accidental unity (ἐν κατὰ συμβεβηκός) in Chapter 6 of Metaphysics Δ (1015b 16-34) raises a number of questions for which the text does not provide explicit answers. Aristotle does not define the nature of accidental unity, nor does he explain the status and character of the items which partake in accidental unities. One may wonder whether those items pertain to language, or to reality or whether they involve a certain relation of language to reality. Aristotle lists different examples which are purported to illustrate different kinds of accidental unity but those kinds are not described in general terms. Aristotle takes care, however, to explicate the conditions which underlie the specific use of each example of accidental unity.

I want to argue first, on the basis of clues provided by the text itself, that the locus of accidental unities is not the real, or objective, realm but the linguistic one. However, though the items involved in accidental unities are linguistic, they bear a relation to reality because of their character as denoting expressions. I shall subsequently discuss the sense in which a unity is accidental. Finally, I shall provide an analysis of the different kinds of accidental unity associated with Aristotle's examples, and explain the senses in which accidental unity may relate to a universal.

In his notes on Met. Δ6, Ross, without entertaining the problem of the status of accidental unities, enumerates the various kinds of accidental unity, by employing the terms substance, accident, co-accident and genus.¹ It appears, then, that his interpretation of the passage is strictly ontological.

On the other hand, Kirwan seems to be aware of the possibility of a linguistic interpretation of accidental unities, for he notes that '[i]n b 24-5 the combined items are verbal expressions, "portions of the formula"'. He dismisses, however, the importance of this, by stating that, 'Aristotle is being careless: it is primarily things, not words, which are said to coincide ...'.² Kirwan also speaks of examples such as artistic Coriscus as 'non-linguistic complexes'.³

Pace Ross and Kirwan, I think that there is evidence in the text which supports a linguistic interpretation of accidental unities. At b 18-19, Aristotle claims that 'it is the same thing to say (εἰπεῖν) "Coriscus and the musical" (sc. are one) and "musical Coriscus" (sc. is one)'. Had Aristotle's concern been with entities themselves, one might have expected him to formulate his claim in objective terms without reference to statements. At b 24-5 Aristotle speaks of 'musical Coriscus', ὁ μουσικὸς Κορίσκος, as one of the parts (θάτερον τῶν μορίων) of a statement (ἐν τῷ λόγῳ) and similarly at b 26-7 he refers to 'musical Coriscus' and 'just Coriscus' as involving relations of parts (ἐκατέρου μέρος) in a statement. Finally at b 28-9 he speaks of an accident which is said (λέγεται) of some universal name (τῶν καθόλου τινὸς ὀνομάτων).

Seen as linguistic items, 'Coriscus', 'that-which-is-musical' or 'musical Coriscus' (μουσικὸς Κορίσκος), 'just Coriscus' (δίκαιος Κορίσκος) are all denoting expressions which in specific combinations result in accidental unities. Of these, 'Coriscus' as the proper name of a man denotes an individual substance in its essential constitution, as an instance of the kind man; all the other expressions denote the same individual

substance as qualified by an accidental characteristic (*συμβεβηκός*) and as exemplifying the quasi-sortal associated with the given accidental characteristic. A nominalized adjective preceded by the definite neuter article, e.g. 'τὸ μουσικόν' (that-which-is-musical), denotes, in the context of discourse about Coriscus, the individual substance, without explicit reference to its proper name, from the perspective of its accidental characteristic, musicalness. What is at issue, however, is not musicalness but a particular exemplifying the quasi-sortal musical thing derived from musicalness. On the other hand, the complex predicative-nominal phrase 'musical Coriscus' includes the attribute component 'musical' (*μουσικός*) and the nominal component 'Coriscus' (*Κορίσκος*). The latter determines grammatically the gender and number of the former. The expression 'musical Coriscus' explicitly denotes Coriscus precisely as an example of the quasi-sortal musical thing. There is no difference in the sortal expressed by 'that-which-is-musical' and by 'musical Coriscus'. The difference lies only in the fact that 'musical Coriscus' is explicitly the denotans of Coriscus while 'that-which-is-musical' is only implicitly so. One and the same entity is denoted by 'Coriscus' and 'musical Coriscus' but it is denoted differently due to differences in the denoting expressions themselves.⁴ Such differences have to do either with the content of the denoting expressions or with their mode of denoting. 'Musical Coriscus' and 'just Coriscus' differ in their content in virtue of the different sortals, 'musical thing' and 'just thing', which they instantiate respectively. 'Musical Coriscus' and 'just Coriscus' do not differ, however, with respect to their mode of denoting which is in both cases the accidental mode of denoting. They both denote Coriscus qua something accidentally such-and-such (musical, just) and not qua something essentially so-and-so (a man). One and the same substance, Coriscus, is the object of denoting. Denoting expressions such as 'that-which-is-musical' and 'that-which-is-just' (or 'musical Coriscus' and 'just Coriscus') indicate built-in dependence on substance because their corresponding sortal, a quasi sortal, is constructed on the basis of an accident which is always an accident of substance, and not an independent thing itself. Musicalness and justice characterize Coriscus who is the real entity, *οὐσία*, denoted by 'that-which-is-musical' and 'that-which-is-just'.⁵ Only 'Coriscus', however, denotes the substance Coriscus in a non-accidental or essential mode. The proper name 'Coriscus' is associated with the sortal man which reflects the very nature of Coriscus as something essentially constituted in itself, i.e., an independent entity or substance.⁶

Some general features concerning the structure of accidental unities may be inferred from Aristotle's examples.

An accidental unity is composed of two different expressions in either of two ways:

- (1) A proper name is combined with an instance of a quasi-sortal.
- (2) Two instances of quasi-sortals, referring to different quasi-sortals, are combined with each other.

Aristotle undertakes to show the conditions which underlie the above two ways. His method is to appeal to a predicative context which reveals the key role of a single substance acting as the subject of the corresponding predicate(s)/attribute(s).⁷ The first kind of accidental unity (A) involves the conjunction of a proper name and an instance of a quasi-sortal. Aristotle gives the example of the conjunction of the following: 'Coriscus' + 'that-which-is-musical' (*τὸ μουσικόν*). The accidental unity of the two expressions is, according to Aristotle, equivalent to the expression 'musical Coriscus' (*Κορίσκος μουσικός*). This is so, explains, Aristotle, because it is the same thing to say 'Coriscus' and 'that-which-is-musical' (are one)' and 'Musical Coriscus' (is one)' (b 18-19). The accidental unity of 'Coriscus' and 'that-which-is-musical' has as its condition that one be accidental to the other (*ὅτι θάτερον θατέρῳ συμβεβηκεν*) (b 22-23). I understand the latter sentence to refer to the predication 'Coriscus is the musical thing (*τὸ μουσικόν*)' in which 'musical thing' is predicated of the substance Coriscus denoted by 'Coriscus' (cf. *οὐσία* at b 22).⁸ The accidental unity of the two

denoting expressions is thus explained through the unity of an accidental predicative statement, with substance serving as the link between predication and a corresponding state of affairs.

The second kind of accidental unity (B) involves the conjunction of two instances of quasi-sortals. Example: 'that-which-is-musical' and 'that-which-is-just'. Their accidental union is represented by the unitary complex expression 'the musical and just Coriscus' (b 19-20). The condition required here for the two expressions to combine in an accidental unity is that they both be accidental to (be predicated of) one (and the same) substance (*ὅτι μὴ οὐσίᾳ συμβέβηκεν*) (b 22-23). This means that the denoting expressions cannot refer to different substances but must refer to one and the same substance. This is so when we say 'Coriscus is the musical (thing) and the just thing' or severally 'Coriscus is the musical thing' and 'Coriscus is the just thing' (where Coriscus stands for one and the same substance).

What might be thought to be a third kind of accidental unity at b 23-24 is actually only a version (A1) of the first kind. The elements of the accidental unity are again a proper name and an instance of a quasi-sortal with the difference, however, that the substance denoted is made explicit in the formulation of the expression. Thus while the term used in the first kind of unity, 'that-which-is-musical', does not make explicit the substance denoted, the term used here, 'musical Coriscus', makes this explicit. An example of an accidental unity is the conjunction of 'Coriscus' and 'musical Coriscus'. Aristotle treats this as an example which resembles 'in a certain way' (*δμοίως τρόπον τινά*) the example of the first kind of accidental unity (referred to at b 22-23). Thus, as by 'Coriscus' and 'that which-is-musical' are one' we understand that 'that-which-is-musical' is accidental to (predicated of) Coriscus, so by 'Coriscus' and 'musical Coriscus' are one' we understand that 'musical Coriscus' is accidental to (predicated of) Coriscus (b 23-26). The terms *δμοίως* ('similarly') at b 23 and *ὡς* ('as') at b 26 indicate the analogy. The relation between 'musical Coriscus' and 'Coriscus' is viewed by Aristotle as a relation between the elements of a predicative statement (*λόγος*): 'one portion of the statement is accidental to the other (*θάτερον τῶν μορίων θατέρῳ συμβέβηκε τῶν ἐν τῷ λόγῳ*) (b 24-5). The possibility of unitary accidental predication is what establishes the accidental unity of 'Coriscus' and 'musical Coriscus'.⁹

A fourth example of accidental unity at b 26-27 is subsequently treated as exemplifying a version (B1) of the second kind of accidental unity. In the combination of 'musical Coriscus' and 'just Coriscus' discussed here, explicit reference is made to the substance, Coriscus, denoted by each of the instances of quasi-sortals. A condition for the accidental unity is that one part of each of the denoting expressions, 'musical' and 'just', respectively, be accidental to the part 'Coriscus' which is identical in both and denotes one and the same substance.

In all of Aristotle's examples above, a condition for there being accidental unity is that a single substance should be uniquely denoted by the denoting expressions, in contexts which allow substance to be the subject of appropriate accidental predications.

In the last part of his discussion, Aristotle considers examples in which not an individual substance is the bearer of accidental unity but either a genus (*γένος*) or a universal name (*καθόλου ὄνομα*).

By genus Aristotle means a class dependent on an individual instance and expressing a generalized aspect of it. This is the sense in which in the Categories Aristotle says:

Since you will call the individual man grammatical, therefore (*οὐκοῦν*) you will call both man and animal grammatical (3a 4-6).¹⁰

In the case, however, of a universal name no such direct dependence on individual instances is implied. Rather a connection between universal concepts is entertained in terms of meaningful relations between them. In the latter case, individual cases are only a presupposed background but not the context of the discussion.

This distinction enables Aristotle to introduce versions (A2) and (B2) of (A1) and (B1). Here the use of a proper name is substituted by the use of a universal term.

The example examined is now 'Man and musical man are the same (*τὸ αὐτό*)' (b 29). Presumably Aristotle replaces 'one' by 'the same' because of the suggestion of numerical oneness in the previous uses of 'one' which is not suitable in the present universal context.

If 'man' is understood in the sense of a universal name, the example above can be taken to exemplify a modification of (A1), the new version (A2). A condition of accidental unity is that 'man', as a 'musical thing', should be accidental to man as his predicate (b 30-31).

Another alternative is to take 'man' in the sense of genus. In this case we have a modification of (B1), the new version (B2), because 'man' and 'musical man' are regarded as expressions denoting an individual substance, Coriscus. 'Man' and 'musical man' are regarded now as expressions denoting an individual substance, Coriscus. What enables 'man' and 'musical man' to join in an accidental unity is the fact that they are both accidental to (*συμβέβηκεν*) a given individual thing, Coriscus (b 31-32). Yet in contrast to the examples in (B) and (B1), here one of the expressions, man, relates to Coriscus in an essential mode of denoting, because it applies to him as a natural kind associated with the essential nature of Coriscus (*ὡς γένος καὶ ἐν τῇ οὐσίᾳ*). If so, 'being accidental to' (*συμβέβηκεν*) Coriscus at b 32 indicates a formal, logical relation and not an ontological one. 'Musical man', on the other hand, denotes Coriscus in an accidental mode, because it is associated with a state or affection of Coriscus (b 32-34). Aristotle's commentary regarding the items which enter into the composition of the accidental unity under (B2) may indicate his reluctance to consider (B2) as a mere version of (B) and (B1). More strictly, perhaps, the unity of 'man' and 'musical man' should be considered to exemplify a different kind of accidental unity.

* * *

While Aristotle's discussion of accidental unity pertains, as I have argued, to the realm of language and cannot be dissociated from matters of semantics and predication, his approach to essential unity (*ἐν καθ'αὐτό*) (1015b 36-1017a 6) is entitative. Aristotle is interested here in things (entities) which are called one essentially (*καθ'αὐτὰ ἐν λεγόμενα*). This means that essential unity in the entitative sense has a contrary which is not that of the previous section.

A brief passage at 1016b 6-9 seems to refer to contexts in which things would be called one in an accidental way, though Aristotle does not explicitly characterize these things as accidentally one:

While most things, then, are said to be one in so far as they do, have, undergo, or relate to another thing, things called one in a primary way (*πρώτως*) are those whose being (*οὐσία*) is one; it is one either in continuity, or in form, or in definition.

On the one hand, then, there are things which are called one because of a shared relation or connection to some one thing. On the other hand, there are things which are called one primarily, because of what they are in their own right. It would seem

that the former are to be taken as things that are one accidentally, in the entitative sense, in opposition to things which are essentially one ($\acute{\epsilon}\nu\ \kappa\alpha\theta'\ \alpha\upsilon\tau\acute{\alpha}$).

Aristotle's objective is to distinguish the different kinds of things which are called one essentially. He discusses first things which are called one on account of their being continuous ($\tau\acute{\omega}\ \sigma\upsilon\nu\epsilon\chi\eta\ \acute{\epsilon}\iota\nu\alpha\iota$) (1015b 36-1016a 1.).

Aristotle proposes the following list: a bundle of sticks made continuous by a tie, planks of wood continuous by glue, a line, even if bent, a limb, e.g. a leg or an arm (a 1-3).

At first sight one may be puzzled by the example of the bundle: 'How can Aristotle consider the bundle to be a continuous thing -- we may ask -- given the fact that it is an assemblage of discrete continuous things?' Soon, however, we realize that Aristotle employs here a kinetic conception of the one-continuous which is as such independent of the familiar distinction between the contiguous and continuous. What is significant from this perspective is the fact that the sticks are held spatially together by means of the string and thus the whole bundle can be subjected to one indivisible motion in which the motion of the constituent parts -- the sticks -- is identical to the motion of the whole bundle. The constituent parts of the bundle -- the sticks -- or the constituent parts of the box -- the planks of wood -- require something external, the string or the glue, by means of which they can be held together in a cohesive, extensive unity. In this sense they are continuous by art. The bundle or the box are continuous insofar as the motion of each is one and indivisible. Their being one consists in their being continuous. And their being continuous is specified in terms of their motion. Accordingly, anything capable of a separate, unitary motion is one and continuous.

Aristotle asserts initially that things which are continuous by nature are more one ($\mu\acute{\alpha}\lambda\lambda\omicron\nu\ \acute{\epsilon}\nu$) than things which are continuous by art (b 4). Presumably this is because the former are intrinsically capable of motion while the latter are not. He then proceeds to characterize the continuous in terms of motion.

Continuous is said to be that whose motion is one essentially and cannot be otherwise (ll. 5-6),¹⁴ in the sense that it excludes any internal variability with respect to the motion of the parts of the whole (cf. ll. 15-16). 'One motion' is further explained as 'indivisible motion' and the latter is in turn specified as being so 'according to time' (ll. 5-6). Thus, while a straight line is in motion, it has all its parts moving simultaneously at all times, and it cannot be the case that some part with magnitude should be at rest and another in motion (ll. 15-16).¹¹ According to this principle of indivisibility of motion in time (cf. ll. 5-6), the motion of any part of a the whole coincides, at all times during the duration of the motion (in direction and velocity) with the motion of any other part as well as with the motion of the whole.

The above is the description of what is perfectly one -- continuous in the kinetic sense. The motion of the line is to be understood, I think, as an idealized, abstract representation of the motion of concrete, physical things from the point of view of their having or not having a joint or bend,¹² as we shall presently see.

Aristotle, as if to show that he has not discarded the distinction he drew in the Physics between continuous ($\sigma\upsilon\nu\epsilon\chi\eta$) and tangent ($\acute{\alpha}\pi\tau\acute{o}\mu\epsilon\nu\alpha$) things,¹³ at a 7-9 notes:

Those things are continuous by themselves ($\kappa\alpha\theta'\ \alpha\upsilon\tau\acute{\alpha}\ \sigma\upsilon\nu\epsilon\chi\eta$) which are not one by contact ($\acute{\alpha}\phi\eta$); for if you put planks of wood in contact with one another you will not say that they are one plank, or body, or anything else continuous.

I take it that by *καθ'αὐτὰ συνεχῆ*, Aristotle has in mind things considered as continuous outside their relation to motion, which is not, however, the present context. Immediately after this apparent digression, he returns to the things which are continuous in a general (i.e. the kinetic) sense (*ὅλως συνεχῆ*) (1.9).¹⁴

Aristotle accommodates a less stringent conception of the one-continuous compared to the paradigm case of the straight line, by distinguishing between things which have a bend (*κάμψιν*) and those which have not (11. 2, 10-17). Thus a leg or an arm have a bend and a line can be bent in an angle (1.13) while the shin or the thigh and the straight line have no bend.

Aristotle considers all of the above to be one (one by nature) but he argues that the shin or the thigh is more one (*μᾶλλον ἓν*) than a leg, since it is possible for the motion of the leg not to be one (11.10-12).¹⁵ On the other hand, a bent line can be viewed ambiguously both as one and not one, since it is possible for its parts which join at an angle to move simultaneously or not to move simultaneously or for one part to be at rest while the other is in motion (11.13-15).

We use 'one' in a different way, Aristotle points out next, when we indicate that the subject (*τὸ ὑποκείμενον*) is undifferentiated in form. As the subsequent discussion of this shows, by subject Aristotle means here matter (*ύλη*).¹⁶

Kirwan translates *ἓν λέγεται τὸ ὑποκείμενον τῷ εἶδει εἶναι ἀδιάφορον* at 11.17-18 as 'a thing is called one from its subject's being undifferentiated in form', and in his notes he remarks: 'Although Aristotle defines in this paragraph, a sense in which e.g. a pane of glass and a pond of water would be one, his examples predicate 'one' of the materials themselves -- water, wine, juice, etc.'¹⁷ I do not think that Kirwan is justified to assume that what is at issue here is the relative sense of matter as 'the material of one thing or another'. On the contrary, Aristotle seems to have in mind matter in the absolute sense of stuff, taken independently of its relation to individual things. The above should be translated '... 'one' is used, insofar as the subject [i.e. matter] is undifferentiated in form'. Aristotle explains that matter is undifferentiated in form in being indivisible according to perception (11.17-19). The relevant form here is perceptible form. Matter is one in so far as no qualitative distinction is made in perceiving any part of it. It would seem that Aristotle views the unity of a certain kind of matter in terms of a given set of repeatable perceptible qualities. Aristotle further notes that the subject (matter) can either refer to the first subject, or to the last one in a descending order. I take it that Aristotle has in mind here a distinction between a specific (first subject) and a generic sense (last subject) of matter (11. 24-28). This distinction is illustrated through examples. Thus, on the one hand, wine and water are severally called one insofar as each of them, as first subject, is indivisible according to its (specific) form, and, on the other hand, the fluids (such as oil, wine, etc.), as well as the meltables,¹⁸ are called one because the last (generic) subject of all is the same. For all these share the same (generic) nature, e.g. water or air (11.19-24).

Aristotle uses as transition from a physical perspective on unity to a logico-epistemological one the discussion of the unity of genus which bears similarities to the unity of matter. Things are called one, in a new use of 'one', whose genus (*τὸ γένος*) is one, differentiated according to opposite differentiae. It is clear that the things which are called one here are the species of a given genus (cf 1.30). They are one because the genus, which is the subject to the differentiae (*τὸ ὑποκείμενον ταῖς διαφοραῖς*) is one. For example, horse, man, dog are one something, because they are all animals (11.24-27). The genus is one as subject to the differentiae, according to Aristotle, in a way similar to that in which matter is one (11.27-28).¹⁹ Aristotle seems to be treating here the genus as a unity which can be identified independently of

its differentiae which differentiate it into different species, in a similar way to that in which matter as last subject has an identity of its own, independently of the matter-species above it.

The unity discussed above was the unity of the proximate genus in terms of which horse, man, and dog were said to be one qua animals. Aristotle discusses next the unity of the genus above the proximate one (*τὸ ἄνω γένος*) with reference to which the genera at the lowest level of such hierarchy, which he calls last (*τελευταῖα*) -- probably in a comparative sense -- are said to be one. They are one because the genus above the proximate one is the same. Thus the isosceles and the equilateral are called one and the same figure, since they are both triangles, though not the same triangles (since they differ in the number of equal sides) (11.28-32).²⁰

Kirwan presents Aristotle's point in terms of the formula, 'x and y are the G if both are F, and G is the genus of F', and notes: 'If they are the last forms of the genus' seems to stipulate (i) that 'x' and 'y' mark place for form (i.e. species) descriptions rather than proper names and (ii) that the species be the infimae species of x and y. It is not clear why either of these conditions is necessary.²¹ I shall respond to this by noting, first, that the whole section 1016a 24-f 6, as I see it, deals with universals and the unity characteristic to them, and hence proper names are inapplicable here; and, second, that, as I suggested above, we need not take *τελευταῖα τοῦ γένους εἶδη* in the sense of the infimae species. They are the last from the bottom in a triadic hierarchy of genera but not necessarily qua infimae species. Probably the term *εἶδος* does not have here the technical sense of species but simply the sense of a form of genus. Such an *εἶδος* would itself be a *γένος*, in the broad sense of kind or class.

Exploring further the unity of genera that are subordinate to something else, Aristotle introduces a definitional point of view and asserts that two genera are one insofar as the linguistic expression of what they are (*ὁ λόγος ὃ τὸ τί ἦν εἶναι λέγων*), i.e. their definition, does not express anything that divides them (*ἀδιαίρετος*) but expresses the same thing. E.g. 'that which is the subject of growth' (*τὸ ηὔξημένον*) and 'that which is the subject of diminution' (*φθίνον*) are definitionally one in presumably having in common the definition 'that which is the subject of quantitative change'. This definition is indivisible (one and the same) and hence they are one. This is similar to the case of figures which share one form. Thus the isosceles and the equilateral, are one figure (e.g. three-sided, rectilinear figure). Aristotle parenthetically remarks that his reference to things having an indivisible definition is not meant to deny that their definition taken in itself is divisible (namely into genus and differentia) (11.32a-b 1).

Introducing next a noetic perspective, Aristotle stipulates that those things are most strictly (*μάλιστα*) one whose conception (*νόησις*) relative to their essence is indivisible and excludes separation, either in time, or place, or definition. This -- explains Aristotle -- especially applies to substances (b 1-3).

Both Ross and Kirwan assume that the above triple indivisibility is connected with that of a single individual.²² It seems to me that there is no need for such an assumption since, as I have argued, Aristotle is concerned here with the unity of universals. Since a universal is not in place and time and is the proper object of definition its conception would be paradigmatic of the above indivisibility. From a noetic point of view, unity belongs par excellence to essences of substance kinds.²³ Generally, Aristotle adds, to the extent that something can be conceived as indivisible, it is said to be one. E.g., man qua man, animal qua animal, and magnitude qua magnitude, in the respect precisely in which they involve no division, i.e. as far as their own specific, generic or quantitative nature is concerned, are said to be one man, one animal, and one magnitude respectively (11. 3-6).

A still different sense of 'one' is that of the 'whole' (*ὅλον*). It is introduced by Aristotle in response to an inadequate view of the individual thing which confines its unity to spatial continuity and quantitative distinctness. 'Although we say that in a sense anything is one if it is a quantity and continuous, yet, in another sense, we deny it unless the thing is some kind of whole (*ὅλον*), i.e. unless it has one form (*εἶδος*) (b 11-13). 'Whole' and 'form' have here a normative force. Without the form the thing lacks the characteristic unity of the whole and it is instead a conglomerate of parts. Such is a compound of misassembled parts of a shoe. It is only when the shoe has its parts correctly assembled that it has a form and it is really a shoe. For this reason also a circular line which is whole and complete (*ὅλη καὶ τέλειος*) is 'more one' than all other lines (11.13-17).

Aristotle takes care to underline that the form responsible for the whole is one (11.13, 16). The unity of the whole is the unity of a single form. Yet in Aristotle's examples the role of the form responsible for the whole seems to be cashed out in different ways. The aspect stressed in the shoe example is the proper arrangement of the parts; the aspect focused upon in the circular line example is the outline and shape that is exemplified in a perfect manner. The circular line, in comparison to other lines, lacks nothing. One can lengthen a straight line at either end; one cannot do this to a circle since it is perfectly complete.

Up to 1016b, Aristotle was preoccupied with the general question, 'What are the things which are called one (*λέγεται ἓν*)?' A common characteristic to all those things as unities was that, in one way or the other, they were all indivisible. But at b 18-23 a different approach is taken when the one itself is made the object of inquiry and Aristotle asks the essentialist question: 'What is for the one to be one?' The one is treated now as a universal whose nature is that of being a first measure. Qua first measure the one has the status of an epistemic principle.

The extant text at b 18 makes a definitional connection between one as principle and one as principle of number. This, as Christ has argued, seems to be the result of a gloss.²⁵ The one as principle of number does not belong to the general essence of the one but is only a particular specification of the one. Christ proposed the bracketing of *ἀριθμῶ* and I agree. Accordingly, the text at b 17-18 should read as follows: *τὸ δὲ ἐνὶ εἶναι ἀρχὴ τινὶ ἐστὶν [ἀριθμῶ] εἶναι* ('to be one is to be a principle with respect to something'). The one as defined here is a universal object which requires to be further specified. Its particular specifications differ according to different genera of inquiry. The one as measure is in each case something first and indivisible with respect to the domain to which it applies as a means of knowledge. While in one genus the one-principle is the quarter-tone (i.e. the minimal interval in music), in another (in language) it is the vowel or the consonant; something else is the one-principle with respect to weight and something else with respect to motion (11.b 17-23).

Each of the measures-principles above has a definite content which is indivisible and one. At b 23-24, Aristotle draws a dichotomy between two kinds of 'one'. On the one hand there is the 'one' which is indivisible (*ἀδιάτρετον*) in quantity (*τῷ ποσῶ*), and on the other hand, there is the 'one' which is indivisible in form (*εἴδει*). I take it that all the examples listed above are of the kind which is indivisible in form because each one of them has a unitary intelligible content. Indivisibility in quantity, however, is of a different kind since it is not an indivisibility of a given intelligible content but a posited indivisibility whose nature is formal and not material. Aristotle defines two irreducible kinds of such indivisible items: 'What is indivisible in respect of quantity in all dimensions is called a unit (*μονάς*) if it has no position (*ἄθετον*), a point if it has position (*θέσιν ἔχον*)' (b 24-26; Kirwan's trans.). Ross in his notes refers to the Pythagorean definition of the point as *μονὰς θέσιν ἔχουσα* (a unit having position) (Proclus in *Eucl.* p. 95.26).²⁶ This is however misleading because Aristotle is careful not to explain the point in terms of the unit.

Unit and point are defined independently of one another as different kinds of indivisible quantity whose very content is indivisibility. The line is subsequently described as indivisible only in one way (i.e. in length), the plane in two ways (i.e. in length and breadth), and the body as totally divisible (i.e. in all three dimensions) (11.26-28). Beginning with the plane, Aristotle repeats the series of definitions in reverse order (plane, line, unit, point) indicating perhaps the presence of a systematic sequence among the items concerned (11.28-31).

Aristotle introduces next a connected series of kinds of unity on a ladder of generality rising from numerical unity ($\xi\nu\ \alpha\rho\iota\theta\mu\acute{\omega}\nu$), through formal unity ($\xi\nu\ \epsilon\acute{\iota}\delta\epsilon\iota$) and generic (=categorical) unity ($\xi\nu\ \gamma\acute{\epsilon}\nu\epsilon\iota$) to analogical unity ($\xi\nu\ \alpha\nu\alpha\lambda\omicron\gamma\acute{\iota}\alpha$). What is distinctive of the new schema is that it establishes a hierarchy of unity having at its basis one or more individual things with respect to which different levels of unity are distinguished, implying a corresponding distance in generality from the individual thing(s). Aristotle draws the distinction between things which are one either in number, or form, or genus, or analogy. 'Things which are one in number are those whose matter is one' (11. 32-31), says Aristotle. By itself this laconic reference to 'one matter' is not very illuminating, and one has to resort to conjectures. Most likely, Aristotle refers to an individual piece of matter as the basis for the numerical distinction²⁷ of one individual thing from another individual thing of the same species or of different species. Aristotle describes as one in form ($\epsilon\acute{\iota}\delta\epsilon\iota$) those things whose definition ($\lambda\acute{o}\gamma\omicron\varsigma$) is one (l. 33). I think that the expression 'one in form' should be understood broadly in the sense of 'one in kind' independently of the level of generality. According to this broad sense, one in form are Socrates and Plato because of their identical definition, as men, but also one in form are a man and a horse because of their identical definition, as animals.²⁸

Thus the next level of unity concerns generic unity in the special sense of categorial unity. Here genus indicates what has no genus above it and is a genus in itself or absolutely. Aristotle says that those things are one in genus whose figure of predication ($\tau\omicron\ \sigma\chi\eta\mu\alpha\ \tau\eta\varsigma\ \kappa\alpha\tau\eta\gamma\omicron\rho\acute{\iota}\alpha\varsigma$) is one (11. 33-34). The expression 'figure of predication' in association with 'being' as 'figure of the predication of being' appears again in Met. Δ 28, 1024b 13, in a context in which Aristotle discusses things which are said to be different in genus. There he explicitly connects the figures of the predication of being with the different categories (cf. 1024b 9-16). It would seem, then, that also in Δ 6, by things whose figure of predication is one, Aristotle means things which are categorially one. It is in this sense that they are one in genus.

Finally one by analogy (according to ratio, $\alpha\nu\grave{\alpha}\ \lambda\acute{o}\gamma\omicron\nu$) are things, says Aristotle, which are related 'as the other to another' (11. 34-35). The unity of things here is based on a correspondence between the relations which are severally exhibited by two pairs of things.

Discussing the logical connections among things one in number, one in form, one in genus and one by analogy, Aristotle observes that the later unity (i.e. the more universal) always follows (is entailed by) the earlier one (i.e. the less universal). Thus things which are one in number are also (in what they entail) things which are one in form but the reverse does not obtain in all cases. Again, things which are one in genus are entailed by things which are one in form, and things which are one by analogy, by things which are one in genus, but not vice-versa in all cases (11. 1016b 35-1017a 3).

Kirwan formulates the entailment of analogical unity by the generic unity as follows: 'If x and y are in one genus G , they are also one in analogy in that $x::G::y::G$ '.²⁸ I think this formula rightly suggests that Aristotle does not have in mind here a trans-categorial analogical unity since the whole ladder of unities, in

the present schema, is based on the unity of numerically distinct individuals, which are of course in the category of substance.

In conclusion, the following are according to my interpretation the kinds of essential unity discussed in Met. $\Delta 6$, in the order of their presentation, and abstracting from the issue of their affinities and groupings.

- 1) Unity of the continuous thing understood in terms of its motion.
- 2) Unity of matter in terms of the unity of its form, seen from a perceptual-qualitative point of view.
- 3) Unity among universals as kinds/classes.
- 4) Unity in terms of the essential definition associated with the unity of conception.
- 5) Unity of the whole.
- 6) Unity of the measure-principle.
- 7) Quantitative-mathematical unity.
- 8) Numerical, formal, categorial and analogical unity.

NOTES

1. W.D. Ross, Aristotle's Metaphysics, I (Oxford: Clarendon Press, 1924), 301.
2. Christopher Kirwan, Aristotle's Metaphysics Books Γ, Δ, Ε (Oxford: Oxford University Press, 1971), 134.
3. Ibid, 135.
4. A perceptive analysis, to which I am indebted, of Aristotle's sui generis semantics of accidental sameness, which parallels that of accidental unity, has been given by F.J. Pelletier in 'Sameness and Referential Opacity in Aristotle', Nous 13 (1979), 283-311. Pelletier underlines the role of description in Aristotle's semantics: "... the description α has a certain relation to the description β, i.e., the analysis given of what it is for objects (or an object) to be the same is in terms of relations between expressions which denote them (it). And it is differences in this relation between expressions which gives rise to the different kinds of sameness." (p.291) See also the section on The Categories as Classes of Names in L.M. De Rijk's study 'On Ancient and Mediaeval Semantics and Metaphysics', Part 3, Vivarium 18 (1980), 1-62.
5. Οὐσία at 1015b 22 should be understood not merely in the categorial sense but also, and primarily, in the sense of real entity, independent being. Compare οὐσία συμβέβηκεν here with τῷ ὄντι συμβέβηκεν at Δ7, 1017a 16.
6. The semantic model of denoting I have employed here does not require, from an ontological point of view, any other kind of entity besides substance and accident. It can dispense with 'kooky objects' (G.B. Matthews' expression) exemplified by entities which Mohan Matthen calls 'predicative complexes', e.g. pale-Coriscus, healthy-Socrates. According to Matthen, '[p]redicative complexes constitute a third ontological realm distinct both from individual substances and from predicables' ('Greek Ontology and the 'Is' of Truth', Phronesis 28 (1983), 129).
7. Pelletier, op. cit., 300-1.
8. It should be noted that what we may call 'identity statements' exemplify for Aristotle predicative statements.
9. Kirwan, wrongly in my opinion, understands λόγος as referring simply to the formula 'artistic [musical] Coriscus' of which, according to him, one part, i.e. 'artistic' ('the property of being artistic') is 'capable of coinciding in Coriscus'. By translating οἶον as 'I mean' at b 26, he leaves out the analogy between the new version of unity and the first kind of accidental unity.
10. Cf. Met. Z5, 1020b 20-21.
11. This seems to exclude the points at which a line can be divided as well as the extremities of a line which are not strictly parts of a line but have a purely formal status which exempts them from being in motion. Cf. Phys. 220a 10-17.
12. Compare 1016a 13-15 with Movement of Animals, 702a 22f.
13. Phys. 231a 22-3: '...continuous if their extremities are one (ἓν); in contact if their extremities are together (ἔμα)' . Cf. also Aristotle's definition of the continuous: 'I understand a thing to be continuous when the touching limits of the respective parts become one and the same' (227a 11-12).

14. Ross suggests that Aristotle's position on the continuous in Met. Δ6 is inadequate. He comments on 1.5: 'The continuous is better defined in Phys. V.3 without reference to movement, which is not really an element in the notion.' What Ross has failed to appreciate is Aristotle's deliberate treatment here of the one-continuous from a kinetic perspective.
15. At 1016a 10-11, καὶ ἔτι μάλλον (sc. ἔν λέγεται, cf. 11. 9-10) τὰ μὴ ἔχοντα κάμφιν suggests a stricter use of ἔν in their respect and hence a superior status of their unity; whereas καὶ εὐθεῖα τῆς κεκαμμένης μάλλον ἔν at 11. 12-12 suggests a difference in the degree of unity.
16. Cf. Δ 28, 1024b 9: '... the subject, which we call matter'.
17. Op. cit., 136.
18. Cf. Δ 4, 1015a 10.
19. Jaeger inserts δὲν in front of ἡ ὕλη μία at 1016a 28. This is unwarranted if I am right in thinking that Aristotle's earlier discussion dealt with matter per se, in its character of stuff, and not as a constituent of material things or substances.
20. Aristotle's expressions 'οὕτως ἔν λέγεται', 'ὅτε δὲ ταῦτόν λέγεται' (11. 29-30) suggest manners of talk or linguistic description (cf. 11. 25-26). Aristotle is interested not only in the different kinds of generic unity but also in the different ways we talk about it. Cf. Phys. 224a 4-12, especially 11. 6-7: 'Things are called the same-so-and-so in so far as they do not differ by a differentia, but not in so far as they differ.'
21. Kirwan, op. cit., 137.
22. Ross, op. cit., 303; Kirwan, op. cit., 138.
23. Cf. Met. I 1, 1052a 35-b 1; De An. III, 430b 14-17.
24. Cf. Met. I 1, 1052b 28 where the one is described as above all (κυριωτατα) the measure of quantity but not as simply the measure of quantity.
25. Christ, Studia in Aristotelis Libros Metaphysicos Collata, Berlin, 1853, 36-7. Christ attributes the imported gloss to the influence of 1021a 13-14, τὸ δ' ἔν τοῦ ἀριθμοῦ ἀρχὴ καὶ μέτρον, and of I 1, 1052b 23-4, τὸ ἔν ἀριθμοῦ ἀρχὴ ἢ ἀριθμός.
26. Ross, op. cit., 304.
27. Cf. Phys., 190b 24-25: 'For the man, the gold, and in general the matter are countable (ἡ ὕλη ἀριθμητή)'; Met. Δ 8, 1074a 34-35: 'But things which are many in number have matter.'
28. Kirwan, op. cit., 140.