

Keren Wilson Shatalov*

Aristotle on Non-substantial Particulars, Fundamentality, and Change

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Abstract: There is a debate about whether particular properties are for Aristotle non-recurrent and trope-like individuals or recurrent universals. I argue that *Physics* I.7 provides evidence that he took non-substantial particulars to be neither; they are instead non-recurrent modes. *Physics* I.7 also helps show why this matters. Particular properties must be individual modes in order for Aristotle to preserve three key philosophical commitments: that objects of ordinary experience are primary substances, that primary substances undergo genuine change, and that primary substances are ontologically fundamental.

Keywords: Aristotle, metaphysics, substance, properties, change, inherence

1 Introduction

There is a debate concerning the character of non-substantial particulars, i. e., particular properties, in Aristotle's metaphysics. The catalyst for this debate was Ackrill's treatment of Aristotle's definition of 'in a subject' in the notes to his 1963 translation of *Categories and De Interpretatione*,¹ and Owen's challenge to Ackrill's assessment in his 1965 paper "Inherence."² From this exchange followed a multitude of published works addressing this issue. There are, in general, two sorts of views on the character of non-substantial particulars in Aristotle's thought. On the one side are Ackrill, Duerlinger³, Devereux⁴, and others, who hold that for Aristotle non-substantial particulars are non-recurrent dependent instances of general properties; that is, non-substantial particulars are trope-like. Those espousing views of this kind follow a long tradition of scholarship and commentators. Michael Frede

1 Ackrill 1963.

2 Owen 1965.

3 Duerlinger 1970.

4 Devereux 1992.

*Corresponding author: Dr. Keren Wilson Shatalov, Clemson University, Philosophy and Religion, 29634-0002 Clemson, South Carolina, USA; kshatal@clemson.edu

called it “the received view,”⁵ and G.E.L. Owen called it a “dogma.”⁶ Owen and those following him argue instead that non-substantial particulars are fully determinate universals. On this view non-substantial particulars can belong to more than one substantial particular. As fully determinate universals, they are particulars only in the sense that they are predicated of nothing under them the way a genus is predicated of a species. The trend of the discussion has turned somewhat since Owen’s work, however; so that in his 2000 book, Michael Wedin called Owen’s view the “new orthodoxy.”⁷

Much of the literature on this topic has focused on how to understand the definition of being in a subject that Aristotle offers at *Categories* 2, 1a25, since being in a subject is there given as the relationship in which non-substantial particulars stand to substances. Commentary on this passage is remarkable both for its subtlety and for the wide array of views to which those few lines have given rise. Observing this, one may reasonably conclude that relying on the *Categories* discussion alone will not solve this interpretive disagreement. Commentators have consequently turned to other parts of Aristotle’s corpus, especially his *Metaphysics*, to evaluate the issue and reflect on its ramifications for other themes in his metaphysics. In this essay I will do the same. I have two goals. The first is to show how both kinds of interpretation are vulnerable to a similar worry; it is difficult to see how either can preserve the radical fundamentality Aristotle ascribes to primary substances such that non-substantial particulars (and indeed everything else) are unable to be apart from them. While this concern has been pointed out before as an objection to Owen-style or recurrentist views, I think that remarks from Frede and from more recent philosophers show that Ackrill-style views are also vulnerable. My second goal is to turn to a work which has not yet received much attention in relation to non-substantial particulars: Aristotle’s account of change in the first book of his *Physics*. I think that this text sharpens the concern about fundamentality for Ackrillian views, but also provides a way forward. I argue that Aristotle’s discussion there shows that he is committed to non-substantial particulars being non-recurrent, but, moreover, also as being more appropriately understood as modes rather than tropes.

As I will argue, this matters philosophically for Aristotle’s discussion of change. He is insistent that there is genuine change in the world and that substances can genuinely change. If Aristotle accepts non-substantial particulars as recurrent universals, then it will result from his account of change that the supposed changes he

5 Frede 1987b, 57.

6 Owen 1965, 97.

7 Wedin 2000, 59.

is explaining are merely the association and disassociation of elements which are more or less independent of each other, and therefore not the ‘genuine’ change to which I take him to be committed. Aristotle’s attempt to show that substances can genuinely change while remaining substances not only commits him to one side of the debate about non-substantial particulars, it also prompts him toward a certain view about how properties depend upon and are possessed by their bearers, a view which I think can be better captured by thinking of properties as modes rather than tropes.

To begin, let me clarify how I am thinking of some of the key terms in this debate: change (especially what I am calling ‘genuine’ change), substance, and property. For Aristotle genuine change is not mere association and disassociation of fundamental entities; it is rather one and the same (fundamental) thing coming to be different. In other words, Aristotle is keen to correct Anaxagoras’s mistake that “no thing comes to be (γίνεται) or is destroyed (ἀπόλλυται) but rather, out of things that are, there is mixing and separation. And so, to speak correctly, they would have to call coming to be ‘mixing’ and being destroyed ‘separating.’”⁸ I propose that Aristotle and Anaxagoras are working with the same conception of coming to be, or change, but Anaxagoras denies that it occurs while Aristotle aims to show how it does. For Anaxagoras, all observable change in the cosmos is the result of the mixing together of “seeds,” or basic elements, which do not change at all in their distinguishing characteristics and are neither generated nor destroyed. They change only by becoming mixed together in different proportions. At the observable level, or at the level of things built out of elements observable or not, things do seem to undergo change. Yet these changes reduce to the mixing of the basic elements, so that, for Anaxagoras, fundamentally there is no genuine change. Aristotle, on the other hand, wants to allow that at the fundamental level there truly is change. The changes of substances, the fundamental items in his ontology, are not merely the mixing together of what already exists, that is, are not merely the association and disassociation of more basic ingredients.⁹

8 οὐδὲν γὰρ χρῆμα γίνεται οὐδὲ ἀπόλλυται, ἀλλ’ ἀπὸ ἐόντων χρημάτων συμμίσγεται τε καὶ διακρίνεται. καὶ οὕτως ἂν ὀρθῶς καλοῖεν τὸ τε γίνεσθαι συμμίσγεσθαι καὶ τὸ ἀπόλλυσθαι διακρίνεσθαι. Greek text from Laks and Most’s 2014 edition, D15 (B17) on pp. 62–63.

9 To take another tack, the sense I have in mind by ‘genuine change’ is something like that which is contrasted with mere Cambridge change in contemporary discussions since Geach – or which at least occupies some of the disputed territory. In the debate about mere Cambridge vs. genuine change, change (genuine or mere Cambridge) occurs whenever it becomes true to say of some object something that it was not true to say of it before. Classic cases of *mere* Cambridge change are relational changes which do not involve any change in the monadic, intrinsic, or internal features of an object. E. g., I become closer to the president when he travels to a speaking engagement in a nearby city. Genuine changes, as contrasted with mere Cambridge changes, are changes in the

This is something that I think one can see Aristotle doing in his analysis of change in the *Physics*, or so I will argue. He is concerned to save the phenomenon of genuine change and to preserve ordinary objects as being substances, but to do so he must take a stand on the metaphysics of properties and property possession. On my reading, in order to preserve the phenomenon of genuine change Aristotle's analysis requires that properties, that is, non-substantial particulars, must be trope-like in that they are non-recurrent. Further, these individual properties must be metaphysically dependent in such a way that the apparent 'complex' which they form is not a case of Anaxagorean mixture, or what a present-day metaphysician might call a 'bundle.' In other words, properties are modes.

By 'substance' I mean, generally, whatever is fundamental in an ontology. Thus, on a rational reconstruction of Plato's metaphysics Platonic substances are the Forms, Empedoclean substances are the four roots (and, perhaps, Love and Strife), and Cartesian substances are individual bodies and souls. Which things are substances for Aristotle is a matter of some debate. In what follows, I will assume that in *Categories*, *Posterior Analytics*, *Physics*, and perhaps other earlier works, Aristotle is committed to the idea that the objects of ordinary experience are substances.¹⁰ That is to say, objects such as Alexander and Bucephalus, you and me, are

monadic, intrinsic, or internal features of an object. E. g., I changed when I grew from my height as a twelve-year-old to my current height. The sense is that in mere Cambridge changes the object does not really change, no matter the difference in what one can say about it, while in genuine changes it does. But there is disagreement about what it would take for a change to be genuine: change in intrinsic properties, monadic properties, or internal properties are not identical proposals. On my view, while it is unclear how Aristotle would treat relations (his chapter on relatives in *Categories* is undecided about much, and not in the first instance about relations, whatever it might imply about them), there is little reason to think he would not count change in at least some of these as genuine change. A likelier candidate for Aristotle's purposes is that genuine change concerns intrinsic properties. However, analysis of this term is rife with disagreements: disagreement about whether intrinsic properties are all monadic, about whether they are all necessary and if so in what sense, and about whether they are all essential. If genuine change for Aristotle is intrinsic change, then part of Aristotle's task is to work out a sense of 'intrinsic,' a way of possessing properties such that the possessor of the property is the genuine subject of change. This may indeed be a fitting way of understanding part of what I take Aristotle to accomplish, or seem to accomplish, in *Physics* I.7.

¹⁰ In sections 1.2 and 1.3 of his recent article, "The Anatomy of a Primary Substance in Aristotle's *Categories*," Francesco Ademollo presents several interesting arguments against the interpretation that the primary substances in *Categories* are ordinary objects rather than the essential features of those objects. However, Ademollo admittedly takes particular properties to be "trope-like" (Ademollo 2022, 159), and his objections to taking ordinary objects to be primary substances depend greatly upon what this means. He says that particular properties are numerically distinct from each other, and his objections against ordinary objects as primary substances suggest that he takes tropes to be numerically distinct entities from the substances they inhere in. For example, he worries that if a primary substance is an ordinary object, then when an attribute is treated as falling

what are fundamentally real. Aristotle may have changed his mind after writing these works; many have thought he did.¹¹ For the purposes of this paper, however, I do not intend to weigh in on the developmentalist debate, but only to comment on Aristotle's view about substances and properties as I see it worked out in a few treatises that even most developmentalists tend to agree are earlier parts of his corpus, and in which he addresses the problem of change.¹² As I understand it, in the *Physics* Aristotle is trying to harmonize his commitment to what I have called genuine change, with his commitment to ordinary objects being substances. I take the result to be philosophically interesting, whatever its ultimate success.

Finally, in weighing in on the debate about the metaphysics of non-substantial particulars in Aristotle, I am concerned with the Aristotelian account of properties. The term 'property' can be taken generally enough to include, for example, the property of being a human and the property of being Socrates. It can also be taken more narrowly so that only essential or only intrinsic features of objects are properties. The term can also be used to exclude essential features of objects and thereby include only non-essential features (e. g., my being human is not a property I *have*—it is what it is for me to be). In this essay I am not interested in Aristotle's account of essences, which I take to differ in some important ways from his account of the non-essential features of substances. I am interested in those characteristics something has that may or may not follow from its essence, but which at any rate are not the same as its essence. Accordingly, when I speak of properties, these are what I mean (though I make no claim about whether or not the term can be reasonably used with a greater extension). What I am calling non-substantial particulars, or particular properties, are individual properties that are not, and are not parts of, essences.

In the first section I will introduce the debate about non-substantial particulars by situating it within Aristotle's *Categories* and commenting on its recent history. In

under some category other than substance there is a kind of "double-counting" going on, since they were already included in the counting of the substance (Ademollo 2022, 159–160). But he does not consider taking particular properties as modes. On my view properties are modes, and they are not numerically distinct from the substances they are in (see section 2 of this paper). Because of this, my reading is not vulnerable to the objections Ademollo offers to the general view.

11 For the developmentalist view suggesting Aristotle changed his mind about which things are substances, see especially: Jaeger 1948.

12 Even if Aristotle comes to change his mind about which things ultimately count as substances, or even to disambiguate the different senses in which something could be called a substance, it seems worth highlighting that where he does this in *Metaphysics Z* he takes as a working assumption that ordinary objects are substances, and this provides some guidance for what is meant by the term. For a rewarding recent discussion of the relevant passage in *Metaphysics*, see Zingano 2022, 270–271.

summarizing some of the important scholarship on the issue, I highlight how this issue is part of a larger conversation about the nature of fundamentality in metaphysics. In the next section I will turn to Aristotle's account of change in his *Physics* I to provide a reading which offers both textual evidence and philosophical reason that Aristotle took non-substantial particulars to be non-recurrent modes. This alleviates the fundamentality worry that besets traditional non-recurrentist readings.

2 *Status quaestionis*: non-substantial particulars and the fundamentality of substances

At *Categories* 2, 1a20-1b9 Aristotle offers a four-fold division of things: (a) things which are said of a subject but not in a subject, (b) things which are neither said of a subject nor in a subject, (c) things which are said of a subject and in a subject, and (d) things which are not said of a subject but are in a subject. Things which are said-of a subject are things whose definition and name can both be linguistically predicated of the subject. Thus animal is said-of man, and man is said-of Socrates, and color is said-of red. More generally, genera are said-of both the species and the individuals under them.¹³ Individuals are things which are not said-of anything under them. The division here is therefore between universals and particulars which are in a subject, and those which are not.¹⁴ At *Categories* 5, 2a11-13 Aristotle gives the name 'substance' (οὐσία) to things which are not in a subject; thus the four-fold division is a division among genera, species, and individuals in the genus of substance and in the non-substance genera. My concern here is especially with (d), the individuals which are in a subject. In the literature these have often been called 'non-substantial particulars'; for the sake of continuity, this is the term I will also use.¹⁵

¹³ Aristotle uses the examples of man and individual man, knowledge and knowledge-of-grammar in chapter 2 of *Categories* to indicate that genera are said-of species, and species said-of individuals. At 2a35 in chapter 5, he says that the said-of relation is transitive, so that a genus will also be said-of what its infima species is said of.

¹⁴ It is important that in Aristotle's four-fold ontology he does not count the two predication relations, said-of and in-a-subject, as items in his ontology in *Categories* 2. Nor does he discuss either of these in the chapter on relatives in the *Categories*. Thus, for Aristotle, in-a-subject and said-of-a-subject are not entities in addition to the subjects and the items which are in- or said-of them. This contrasts with views in contemporary metaphysics according to which instantiations are understood as relations such that when some subject has a property, there are three metaphysical items present: a property-bearer, a property, and an instantiation relation.

¹⁵ Should I use the term 'individual' or 'particular' here? That is, is the topic of my essay non-substantial particulars or non-substantial individuals? In *Categories* 2, 1b6 Aristotle uses ἄτομον, 'undi-

Since being in- a subject distinguishes the non-substance categories from the category of substance, the first thing to ask is what it is to be in a subject. Aristotle offers the following elliptical definition: “By ‘in a subject’ I mean what is in a subject, not as a part, and cannot exist separately from what it is in” (*Categories* 2, 1a24-25).¹⁶ Setting aside the question of the initial appearance of circularity, there are roughly two parts to the definition. Something which is in a subject in the sense Aristotle has in mind is (1) not a part of what it is in, and (2) unable to exist apart (ἀδύνατον χωρὶς εἶναι, 1a25) from that in which it is. The debate about non-substantial particulars is primarily concerned with part (2): what is it for something which is in a subject to be unable to exist apart from what it is in? There are two related issues here. One is recurrence – whether more than one thing can have the same non-substantial particular. In other words, is a non-substantial particular a universal so that the same one can be in more than one substantial particular, whether sequentially or at the same time? The other is a question of dependence – how does the non-substantial particular depend upon the substance(s) it is in, or what makes it inseparable from the primary substance it is in?

vided,’ to refer to what is not said-of anything under it, and Ackrill in his translation and commentary sticks to ‘individual’ as a translation of this term. Frede suggests that Aristotle has invented this use of the term ἄτομον and means by it that the individuals so called are undivided or one in number in that they are not said-of anything else (Frede 1987b, 51–52). Yet Frede also tends to speak of these individuals as particulars (e. g., 49, 50, 56, 60), and suggests that in later works Aristotle gives up on calling these same items ἄτομον while still taking them as particulars (50). Frede seems to take ‘particular’ as a term of broader significance in English, the logical opposite of ‘universal.’ The expression Aristotle uses for what Frede calls “particulars” is of the formula ὁ τις ἄνθρωπος and τὸ τι λεύκον, expressions which in the *Categories* Frede takes to refer to individuals. Thus, Frede thinks that with his use of ἄτομον in the *Categories*, Aristotle offers a significant proposal concerning the metaphysical features of particulars: particulars are also individuals. Code (1986, 414) seems to be following Frede in part when he takes ‘particular’ to be distinct in meaning from ‘individual.’ Thus, Code agrees with Frede by taking ‘individual’ to refer to all those items which are not said-of another, but disagrees with Frede by reserving the term ‘particular’ for a subset of these. Whatever their disagreement, I have found that the strategy of carefully distinguishing between the two terms in English is neither maintained universally nor even a dominant trend in English scholarship on Aristotle, metaphysics, or philosophy generally. Furthermore, scholarly literature on those items which are not said-of but in-a-subject tends to call these ‘non-substantial particulars,’ and, for the sake of continuity, so will I. The term ‘particular’ does have an ambiguity that can be misleading: ‘particular’ as an adjective seems flexible so that one can speak of particular genera or species as well as particular individuals, and context often determines whether one expects an individual or a genus when one reads ‘particular substance’ or ‘particular property,’ since the term could be used either way. Where confusion about this might arise, I will use the term ‘individual’ to clarify.

16 ἐν ὑποκειμένῳ δὲ λέγω ὃ ἐν τινὶ μὴ ὡς μέρος ὑπάρχον ἀδύνατον χωρὶς εἶναι τοῦ ἐν ᾧ ἐστίν. Greek text from Minio-Paluello’s 1949 edition. All translations from the *Categories* are from Ackrill 1963.

This latter question concerns the basic structure of Aristotle's metaphysics. Aristotle consistently, in the *Categories* as well as in his later works, proposes a metaphysics according to which ultimately everything depends on primary substance. But this basic outline leaves a lot of detail to be filled in. Plato had also proposed a substance ontology, but he disagreed with Aristotle about which things are substances, as well as about the nature of the dependence relations by which everything else depends on them. Later philosophers have disagreed with them both. Because of this, interpretations of Aristotle's view about non-substantial particulars interact heavily with the instincts scholars have about the basic structure of his ontology, and especially what criteria or considerations imply fundamentality (or primary substancehood), and in what way primary substances are related to everything else. This is evident in Ackrill and Owen's opening arguments for the two main sides of the debate.

J. L. Ackrill began the debate with his 1963 translation and commentary on the *Categories* and *de Interpretatione*. According to Ackrill, the discussion of in-a-subject at *Categories* 2, 1a25 states that non-substantial particulars are non-recurrent and individuated by the substances which have them, and so cannot be apart from the very substance in which they come to be.¹⁷ If x does not exist, x's Y does not either. If Socrates blanches, a particular instance of the generic quality of paleness comes to be in Socrates. When he flushes again, the instance of pallor he possessed is destroyed. Similarly, if I have two shirts of exactly the same color, each instance of the color is entirely dependent on the material it is in for its existence, and if a shirt is destroyed then so, too, is the non-substantial particular in it. Inasmuch as non-substantial particulars are non-recurrent and individuated by the substances which have them, they might be thought of as trope-like – though this is not terminology Ackrill uses, and perhaps for good reason, as we shall see.

On Ackrill's interpretation of the relation of being in-a-subject, non-substantial genera will not, strictly speaking, stand in this relation to primary substances. Since they are also not said-of primary substances, it is not clear how they might depend on them, and thus it is also unclear in what way it could be true, on Aristotle's view, that "if the primary substances did not exist it would be impossible for any of the other things to exist" (*Categories* 5, 2b5).¹⁸ Yet Ackrill insists that for Aristotle non-substantial genera cannot be things "existing in their own right like Platonic Forms," a concern that also seems to have motivated his interpretation of non-substantial particulars.¹⁹ Here Ackrill ties his interpretation of non-substan-

¹⁷ Ackrill 1963, 74.

¹⁸ Μὴ οὐσῶν οὖν τῶν πρώτων οὐσιῶν ἀδύνατον τῶν ἄλλων τι εἶναι.

¹⁹ Ackrill 1963, 88. See also pp. 74–75.

tial genera and particulars to concerns about fundamentality in a metaphysics of substance.²⁰

Owen, the second in the debate, proposed a new understanding of the notion of being in-a-subject intended to “nail” the Ackrillian view.²¹ Owen has this to say about the definition at 1a25:

It can indeed be read as saying ‘Z is in something ... and Z could not exist without this thing to contain it,’ but it can equally well be read as saying ‘Z is in something ... and Z could not exist without something to contain it.’ That is, the phrase ‘separately from what it is in’ can be taken generally.²²

Owen takes Aristotle to be defining what it is to be in-a-subject as being unable to exist without being in *something*, though not necessarily the very object it is in. In order for the quality paleness to exist, there must be something, such as Socrates, which is pale. But the paleness in Socrates does not require Socrates, in particular, for its existence, and it can be in multiple subjects at the same time. Suppose Socrates becomes more tan; the paleness Socrates had still persists in other substances which still have the same shade of pallor, such as Callias. On Owen’s view, individuals in the non-substance categories are universals in that they are recurrent, being in-a-subject in multiple subjects. They are individual in that they are said-of nothing below them and are thus the most determinate members of the category. This view is at odds with the Ackrillian view at once with respect to how non-substantial particulars depend on their subjects and with respect to recurrence. They are not individuated by the primary substances they are in, as Ackrill’s non-substantial particulars are, since the same individual can be in many primary substances at once. They are also not dependent on primary substances in the way

²⁰ Owen (1965) points out that at 2a34 Aristotle seems to imply that non-substantial genera are in-particular substances as in-a-subject, and Aristotle later seems to use examples in which genera and species from non-substance categories are in substances, as at 2b2-4. Later followers of the traditional view have felt the pressure both of the Platonic worry and of the textual issue, and have consequently emended Ackrill’s reading to allow a way in which generic items such as color can truly be in a subject. So, for example, Duerlinger (1970) offers a baroque reading distinguishing several different senses of ‘in’ that he thinks are in play in Aristotle’s definition, so that there is a way in which the generic property of pallor, and not just Socrates’ pallor, is in Socrates and so dependent on primary substance. Peramatzis (2000) offers a reading of Aristotle’s definition which is general enough to allow both color and particular instances of color to be in a subject. Note that this interpretive difficulty is similar to the one which I will argue cannot be avoided for views like Owen’s, which make non-substantial particulars to be recurrent universals. I take the problem to be insoluble for Owenian views. For tropes views I am attracted to a solution like that of Peramatzis.

²¹ Owen 1965, 97.

²² Owen 1965, 104.

Ackrill had argued, since they require no particular primary substance. To the extent that they are more independent of primary substances, Owenian non-substantial particulars seem more Form-like.

In Ackrill and Owen's exchange but also more widely in the literature, the kind of subtlety involved in examining the relevant bit of text from the *Categories* gives rise to the impression that this is a matter that cannot be solved by looking only at the opening chapters of the *Categories* or the definition of in-a-subject given there. As a result, subsequent discussion of Aristotle's notion of being in a subject and of the ontological status he ascribes to non-substantial particulars has sought help from other parts of Aristotle's corpus and other pervasive themes from his metaphysics, especially his more explicit discussions of the fundamentality he wishes to attribute to primary substances. I want to turn next to Michael Frede's contribution to the debate not only because I think it raises an important issue for Ackrill-style interpretations, but also because it helps set up why Aristotle's discussion of change in his *Physics* is especially relevant to understanding the view of substances and non-substantial particulars in the *Categories*.

Michael Frede's (anti-tropist) and Michael Wedin's (tropes-like) opposed interpretations of non-substantial particulars concern the way that Aristotle and Plato use the logical relationships between definitions to structure their ontologies. The debate turns on the question of what sort of explanatory relationship(s) reveal fundamentality in metaphysics, and specifically what is the relationship between definition (*λόγος*) and being. A common thread in their approaches, and one which I will follow, too, is that for Aristotle and Plato definability is tasked with two jobs: making being intelligible, and thus explainable and explanatory, but also giving it fundamentality. This is part of Aristotle and Plato's shared commitment to the idea that what is fundamental is also what explains and thereby makes knowledge possible. For Plato, what is fundamental and definable are Forms, that is to say, properties. Two reasons for this are especially interesting in the current discussion: first, only Forms are unchanging, and definability requires that the definiendum be unchanging; and second, only Forms can be defined without reference to some other thing, so only Forms are fully definable or definite.²³

On Frede's reading, Aristotle is more skeptical than Plato that properties are strictly speaking definable, not because he thinks they are changeable but because they are not separately definable. Substantial forms, which Frede takes to be primary substances for Aristotle, are the only items which are separately defina-

²³ A locus classicus for Plato's discussion of this is *Phaedo* 74a-75d. In Plato's example, equal objects we encounter with our senses are deficiently equal, while the Equal itself, and other Forms like it, are "things which we mark with the seal of 'what it is'" (75d), i. e., as having essences.

ble.²⁴ A definition tells what something really is in its own right, but for Aristotle non-substantial properties such as colors are merely something *of* something else. There is no red except the red in the color of a cherry or the flush in Socrates' cheeks. Thus there is no what-it-is-to be red, no definition. There is only telling what it is like for cherries or cheeks to be red.²⁵ According to Frede, Aristotle uses the logical relationships between definitions to structure his ontology. This seems on the whole correct, and is perhaps supported by the observation that Plato similarly looks to the definitions belonging to Forms to infer principles of exclusion and inclusion governing which Forms can be co-present in sensible particulars.²⁶

Moreover, Frede's concern with separate definability shows what might be a weakness in thinking of non-substantial particulars as tropes. Tropes are basically numerically distinct particular property instances. Following D. C. Williams (1954, 1966), many present-day philosophers proposing a trope ontology suggest that tropes are independent of any substrate or substance, and ultimately all reality consists in tropes and bundles of tropes. However, not all trope theorists agree; some propose that tropes inhere or are instantiated in a substrate.²⁷ An Ackrillian interpretation of Aristotle's non-substantial particulars seems to fit more with the latter group. However, in the "Coda" to his contribution to *The Problem of Universals in Contemporary Philosophy*, John Heil argues persuasively that tropes which inhere or are instantiated in a substrate are metaphysically distinct from tropes which do not (that is, from tropes in bundle theory accounts of substances). As such, they ought rather to be called 'modes.'²⁸ 'Mode' is a term inherited from medieval Latin metaphysics. Modes are ways a substance is, rather than entities in their own right.

24 Frede 1987d. For the claim that primary substances alone are separately definable, see p. 90. For an overview of what this means for Aristotle, see Frede 1987c, 76–77. For a more thorough discussion of primary substance's separability and priority in definition, see Frede and Patzig 1988, 104–165.

25 Here is Frede: "Secondly, the what it is of something is, or is part of, the essence of that thing, or, to use Aristotelian language, the what it is to be for that thing. Hence to say of something what it is, is not just to attribute some kind of being to it; it is to specify the kind of being which is essential to it. Third, given Aristotle's developed view of what it is to be for the various kind of entities, it turns out that non-substantial items do not unqualifiedly have any essential being of their own to be specified by saying what they are. For, as we saw, the being of such-and-such a color is just the accidental being we attribute to something when we say that it is colored this way. In this non-substantial items differ from substances which unqualifiedly have an essential being of their own; their essential being is not just the accidental being of something else" (Frede 1987a, 45–46).

26 Plato *Phaedo* 102b-105b.

27 For a helpful overview of modern trope theories, see Anna-Sofia Maurin's article "Tropes" in the *Stanford Encyclopedia of Philosophy*.

28 Heil 2015.

Heil argues that no object is “made up of an assemblage of modes together with a substance,” so that “if tropes are kinds of entity that could, in combination, make up objects, then tropes are ontologically fundamentally different from modes.”²⁹

On Frede’s reading, non-substantial particulars being not separately definable is part of how Aristotle shows that they are in some sense not distinct items from substances. For Aristotle, properties cannot be things that partly constitute a substance; otherwise the substance will turn out to depend on these rather than the other way around.³⁰ For the Ackrill line of interpretation, this suggests that taking non-substantial particulars to be non-recurrent does not by itself avoid the anti-Platonic worry that was raised against the Owen-style views. It presses the question of how non-recurrent, non-substantial particulars depend on the substances they are in—so that they do not turn out to be either co-equal principles out of which the world of experience is made, or, worse, more fundamental than so-called substances.

Though Frede raises an important question for what I have until now called ‘trope’ views, I think his own view ultimately falls prey to the same worry as those on the other side from Ackrill. Frede agrees with Owen in proposing that non-substantial particulars are recurrent. However, his unique interpretation of non-substantial particulars is informed by his reading of discussions of essential and accidental predication in the *Posterior Analytics*. For Frede, the relation of being in-a-subject in the *Categories* is present when the subject or substance is in the definition of the predicate or property. According to Frede, the lines 1a24-25 in *Categories* 2 “do not provide a definition of the relation ‘x is in y as its subject’; rather, they provide a definition of the class of entities that are in something as their subject.”³¹ This class of entities is such that “for each of them, we can specify at least one subject of which it is true that it could not exist without that subject.”³² The subject of a property is a general subject, and that property cannot exist without it in that it is part of the definition of that property that it only belongs to things like that. Frede has in mind especially properties such as male sex or female sex, since “only certain kinds of living things are male or female,” but color, health, and foolishness are also examples.³³ Only bodies have color, and they must have one color or another, while animals are either healthy or unhealthy, and only people can be foolish.

On Frede’s reading, the ontological dependence of non-substantial particulars on substance individuals, or primary substances, follows from the logical dependence of their definitions on the class of substances to which they belong. The onto-

²⁹ Heil 2015, 131.

³⁰ Frede 1987c, 72.

³¹ Frede 1987b, 59.

³² Frede 1987b, 59.

³³ Frede 1987b, 61

logical dependence of non-substantial particulars on primary substances is accordingly mediated by their dependence on substantial genera and species. From this it follows that non-substantial particulars are fully determinate properties that are nevertheless universals, since they might be possessed by any of the individuals in the class of subjects to which they belong. This is a far richer picture than what Owen provided, and the inseparability of the definitions of non-substantial particulars seems to point to an important lack of fundamentality among non-substantial particulars. Yet on Frede's view substantial forms are particular rather than universal, such that each concrete object, as a matter-form composite, has a numerically distinct substantial form, even if its form is specifically the same as that of any other concrete object of its kind. If Frede's non-substantial particulars are recurrent universals, then while non-substantial particulars might be logically or definitionally inseparable from substance-universals, none require any particular primary substance in order to be. The anti-Platonic worry lingers in a new form: is logical separability sufficient to guarantee the kind of fundamentality Aristotle wishes to ascribe to primary substances?³⁴

Frede's reading is especially motivated by passages from *Metaphysics* VII in which he takes Aristotle to be critiquing his own, earlier view from the *Categories* in which he treated ordinary, concrete objects as primary substances.³⁵ Frede's reading of those passages from the *Metaphysics* is a discussion for another day. Whether or not Aristotle changed his mind about ordinary objects being primary substances, within his discussion of change in *Physics* I he develops the *Categories* view that they are. There is textual evidence in *Physics* I that clearly shows that Aristotle took non-substantial particulars to be non-recurrent individuals, and that evidence reveals powerful philosophical reason for him to take them to be so. For it shows that unless non-substantial particulars are definitionally related to their subjects such that they are not numerically distinct from them, in other words, unless they are modes, then it will be impossible to say that primary substances can genuinely change. This is what I aim to show in my final section.

³⁴ In another context, Frede expresses a related worry when he suggests that logical separability points to only a qualified kind of fundamentality: "Perhaps the most important characteristic of substances is that they exist in their own right, that they do not depend for their existence on something else, or, as Aristotle puts it, are separate. Now this requirement notoriously admits of various interpretations. But it seems that, on any plausible interpretation of it, it is only separate forms that satisfy this requirement straightforwardly. They do not in any sense need matter or non-substantial characteristics, i. e., qualities, quantities, places, etc., or anything else to be realized. *The forms of sensible substances are separate, too, but only qualifiedly so, namely, separate in account; the account of a form is self-contained in that it does not involve a reference to any other item in the ontology*" (Frede 1987d, 90, emphasis mine).

³⁵ Frede 1987c, 74–75.

3 Aristotle's *Physics*: non-substantial particulars and changing substances

The disagreement about whether Aristotle regards individual properties as recurrent universals or instead as particular tropes or modes is closely tied to the question of the nature and possibility of change. This is clear when thinking about Plato's views. In positing unchanging Forms as substances, Plato seems to be following the lead of many of his predecessors in thinking that what is fundamental must be stable, unwavering, completely whatever it is, and always the same. Echoes of this can be found, for example, in Parmenides' conviction that what is must be one and unchanging, or Democritus's proposal that the basic atoms do not themselves change except relationally, or Anaxagoras's idea that the only change possible for the principles is change in their proportion in the mixture (and similarly for Empedocles). As was said above, on Plato's view the fact that Forms never change is key to their being definable, and so fundamental, while the changeability of ordinary objects means that they are not definable, and so not substances.

Aristotle, however, at least in works generally thought to be earlier in his career, such as the *Categories* and most of the *Physics*, is working out the thought that the objects of ordinary experience are the real things, the substances. At the same time, Aristotle is insistent that the change we observe in the world is real. In fact, he says that “to investigate whether what exists is one and motionless is not a contribution to the science of nature” (*Physics* I.2, 184b25-185a1),³⁶ and to respond to a view like this is “like refuting a merely contentious argument” (*Physics* I.2, 185a5-6).³⁷ This is not to say that it is impossible for us to be deceived about any particular instance of change, but only that genuine changes do occur and demand explanation. If some apparent change turns out to be a case in which no object, or at least no fundamental and non-reducible object, comes to be different, then it is not genuine change, since it is not change at the level of substances, the only real or fundamental things in the ontology. In his *Categories*, Aristotle goes further to say “[i]t seems most distinctive of substance that what is numerically one and the same is able to receive contraries” (*Categories* 5, 4a10-11).³⁸ His examples of what it means for them to “receive contraries” show that he is thinking that they genuinely change, not merely that contrary descriptions may truly be said of them. “For example,” he says, “an individual man—one and the same—becomes pale at one

36 Τὸ μὲν οὖν εἰ ἓν καὶ ἀκίνητον τὸ ὄν σκοπεῖν οὐ περὶ φύσεώς ἐστι σκοπεῖν.

37 ὁμοιον δὴ τὸ σκοπεῖν εἰ οὕτως ἓν καὶ πρὸς ἄλλην θέσιν ὅποιανοῦν διαλέγεσθαι τῶν λόγου ἔνεκα λεγομένων.

38 Μάλιστα δὲ ἴδιον τῆς οὐσίας δοκεῖ εἶναι τὸ ταῦτόν καὶ ἓν ἀριθμῶ ὄν τῶν ἐναντίων εἶναι δεκτικόν.

time and dark at another, and hot and cold, and bad and good” (*Categories* 5, 4a18-21).³⁹ In other words, according to Aristotle not only do substances change, but it is distinctive of them to do so. This is a radical view, given that none of his predecessors (except perhaps Heraclitus) allow fundamental things to change with respect to their own features.

It is a significant challenge to Aristotle to show how this could be. To meet the challenge, Aristotle needs to show that change itself is intelligible, and that it does not compromise the intelligibility and definability of the substances which change. He takes up this task in *Physics* I, where he attempts to provide an account of change which will show that substances can genuinely change while having essences – that is, while being the sorts of things that are strictly definable and that do not change with respect to their essences.⁴⁰ In doing so he must avoid the result that the changes of substances are really merely the association and disassociation of distinct, otherwise unchanging, and already existent items. If it turns out that change is just the association of substances with some other unchanging things, there is reason to worry that the items with which the supposed substances are associating are as fundamental as substances themselves, and so have as much claim to being substances. There is also reason to worry that that neither ultimately changes, at least not in the way Aristotle has in mind. If Socrates’ becoming pale from having been ruddy is merely Socrates coming to be associated with pallor rather than ruddiness, and both pallor and ruddiness persist no matter their relation to Socrates (or any other primary substance), it is not clear why one should think that pallor and ruddiness are not also substances themselves. I argue that if non-substantial particulars are fully determinate universals, then his account of change in *Physics* I cannot avoid this problematic result, while if they are modes, Aristotle is instead in a position to offer a rich account of genuinely changing substances.

39 Οἶον ὁ τις ἄνθρωπος, εἷς καὶ ὁ αὐτὸς ὦν, ὅτε μὲν λευκὸς ὅτε δὲ μέλας γίγνεται, καὶ θερμὸς καὶ ψυχρὸς, καὶ φαῦλος καὶ σπουδαῖος. Comparing the way substances receive contraries to the way in which statements or beliefs receive the contraries true and false, Aristotle concludes that “in the case of substances it is by themselves changing that they are able to receive contraries” (4a29-30), while “statements and beliefs, on the other hand, themselves remain completely unchangeable in every way; it is because the *actual thing* changes that the contrary comes to belong to them” (4a34-5, my emphasis).

40 For Plato and others substances change in no respect: for Aristotle they can change in some respects though not in others.

a. Aristotle's account of change

To see this, let me first summarize some points from Aristotle's account of change. For Aristotle, fundamental to understanding natural phenomena as changing things is understanding in what way they are complex. Aristotle opens book I of his *Physics* – a book that culminates in his analysis of the principles of change – by contrasting what we might call 'mixtures' or 'bundles' with unified wholes that have principles. He says that while the world of becoming at first appears to be "confused masses" (συγκεχυμένα; *Physics* I.1, 184a21-22), it is actually an orderly structure having principles (*Physics* I.1, 184a23; I.7, 190b17-20).⁴¹ The properties that we find in the world, the changes we observe, and natural phenomena generally, are regular, orderly, and discernible, rather than random and unintelligible.

According to Aristotle, the key to the intelligibility of change in the natural world is recognizing the orderliness of the change which is observed—recognizing that it is orderly, and then discerning what, precisely, that order consists in. The principles of change that Aristotle posits in *Physics* I.7 are the result of his attempt to state this order precisely. In *Physics* I.7, Aristotle gives two complementary versions of his account of change: one involving two principles that are contraries (190b17-23), the other positing three principles (190b24-29). Aristotle says that the three-principle version "elucidates the difference between the contraries" (191a17-18) that constitute the two-principle account.⁴² It does so by distinguishing properties from their subjects, and this, in turn, provides a *locus* for interrogating Aristotle's understanding of properties. It promises to clarify whether he takes properties to be recurrent abstract items, trope-like particulars, or modes.

To begin with, Aristotle points out that each product of a change requires certain preconditions. Oak trees come from acorns, not stones or anything else; humans produce humans and not raccoons; good harvests only come from plentiful rain and sun, good soil and seed, etc. It is not the case that anything comes from just anything, but only certain things from certain things.⁴³ Aristotle goes on to argue that, more precisely, all change is between contraries. Something becomes hot from having been cold, or at least colder; something becomes large by having been small, etc. This is something he concludes in part from observation (*Physics* I.5, 188a35-188b26), but which he improves upon with the following reflection: all of these contraries are analogous to each other by being instances of form

⁴¹ All translations from *Physics* are from Hardie and Gaye (1984) unless otherwise noted.

⁴² ἐκ δὲ τῶν νῦν φανερόν τις ἢ διαφορὰ τῶν ἐναντίων.

⁴³ This is something for which he argues in his response to Anaxagoras in *Physics* I.4, and which he asserts as a premise for further reasoning in I.5, 188a31-b1.

(ειδος) and lack (στέρησις) (*Physics* I.7, 190b14, 191a14). Thus, he concludes that all change is between the contraries of form and lack.⁴⁴ This is his introduction of the two-principle analysis of change.

It is tempting to understand these contraries as being merely contradictories, that is, to read Aristotle as making the somewhat obvious point that change consists in going from not having some feature to having it, or the reverse. David Bostock has given the clearest voice to this reading.⁴⁵ But to take Aristotle's contraries as being merely the presence and absence of some property is to overlook the first insight into change Aristotle claims to have, namely that in the natural world the products of change come from certain starting points in recognizable patterns. Y-things always come from X-things (not merely not-Y-things), D-things always come from C-things (not merely not-D-things), and so on. It is also belied by the examples Aristotle uses to clarify how he understands the contraries involved in change:

For what is in tune must come from what is not in tune, and *vice versa*; the tuned passes into the untuned—and not into *any* untuned, but into the corresponding opposite. It does not matter whether we take attunement, order, or composition for our illustration; the principle is obviously the same in all, and in fact applies equally to the production of a house, a statue, or anything else. A house comes from certain things in a certain state of separation instead of conjunction, a statue (or any other thing that has been shaped) from shapelessness—each of these objects being partly order and partly composition. (*Physics* I.5, 188b12-21)⁴⁶

With the example of the untuned Aristotle seems to be deliberately warning against taking the contraries as being contradictories. If the contrary Aristotle calls 'lack' were merely the not having of some property, then in the example of the tuned it could be anything that lacks the characteristic of being in tune. This would include

⁴⁴ Aristotle claims (at 189a1-3) that all of the contraries proposed as principles by his predecessors are analogous (ἀνάλογον), saying that “all are taken from the same table of columns, some of the pairs being wider, others narrower in extent.” Λαμβάνουσι γὰρ ἐκ τῆς αὐτῆς συστοιχίας: τὰ μὲν γὰρ περιέχει, τὰ δὲ περιέχεται τῶν ἐναντίων. In I.7 he calls these contraries ‘form’ and ‘lack’ (190b14, 191a14), though when he presents them as principles of change he names the principles ‘subject’ (ὑποκείμενον) and ‘form’ (μόρφη) (190b20).

⁴⁵ Bostock 2006.

⁴⁶ Ἀνάγκη γὰρ πᾶν τὸ ἡρμοσμένον ἐξ ἀναρμόστου γίνεσθαι καὶ τὸ ἀναρμόστον ἐξ ἡρμοσμένου, καὶ φθείρεσθαι τὸ ἡρμοσμένον εἰς ἀναρμοστίαν, καὶ ταύτην οὐ τὴν τυχοῦσαν ἀλλὰ τὴν ἀντικεμένην. Διαφέρει δ' οὐθὲν ἐπὶ ἀρμονίας εἰπεῖν ἢ τάξεως ἢ συνθέσεως: φανερόν γὰρ ὅτι ὁ αὐτὸς λόγος, ἀλλὰ μὴν καὶ οἰκία καὶ ἀνδριάς καὶ ὀπιθὺν ἄλλο γίνεταί ὁμοίως· ἢ τε γὰρ οἰκία γίνεταί ἐκ τοῦ μὴ συγκεῖσθαι ἀλλὰ διηρήσθαι ταδί ὡδί, καὶ ὁ ἀνδριάς καὶ τῶν ἐσηματισμένων τι ἐξ ἀσημοσύνης· καὶ ἕκαστον τούτων τὰ μὲν τάξις, τὰ δὲ σύνθεσις τίς ἐστίν. Here I use R. P. Hardie and R. K. Gaye's translation in the Barnes edition of *The Complete Works of Aristotle*, emending it only to replace “untunedness” with “the untuned” so as to preserve the ambiguity of the τό + neuter adjective construction.

lasagnas, cotton balls, and white noise just as well as out-of-tune guitars and novice opera singers. Yet it is only the latter two and things like them which can actually become in tune, or from which a tuned thing can come to be. This is nicely illustrated in English by the difference between the expression “out-of-tune” and the negation “not tuned.” Opera singers and guitars can be out-of-tune, while white noise and cotton balls cannot, precisely because white noise and cotton balls cannot be in tune, while opera singers and guitars can.⁴⁷ Aristotle’s house example points to the same thing. The contraries which are the principles of a house coming to be are not merely the form or structure of a house and the not having of it. Instead, the contrary which is the lack involves the presence of things required in order for the house to come to be, namely, the wood and nails and other construction material. In *Physics* I.7 Aristotle presents these contraries as two principles of change, which he names ‘subject’ (ὕποκειμενον) and ‘form’ (μορφή) (190b20).

Physics I.7 begins with and focuses on an analysis of change that posits three principles. To set up that analysis he offers a framework for thinking about change:

For we say something comes from something else, and a different thing from a different thing, saying simples and complex things. [...] On the one hand I call the person and the not musical the simples which become, and the musical the simple which has come to be; and I call what comes to be and what has come to be complexes whenever we say the not-musical person becomes a musical person. (*Physics* I.7, 189b32-190a5)⁴⁸

Inasmuch as what becomes – the complex at the *terminus a quo* of the change – is two in form or account. Aristotle distinguishes two separate principles in the three-principle version: matter (ὕλη) and privation (στέρησις) (*Physics* I.7, 190b25-27).⁴⁹ The complex at the *terminus ad quem* is comprised of the matter and a third

⁴⁷ In *Categories* 10, 12a26-34 and *Metaphysics* V.22 Aristotle says that something has a privation only when it is the sort of thing which would naturally have a certain property, e. g., something is said to be blind only when it is naturally such as to have sight. This is related to the point I wish to make here, since privation only occurs in a subject already characterized in a certain way. But in *Physics* it is clear that when the contraries are elevated to the point of being principles Aristotle does not think that the principles which he calls ὑποκειμενον and στέρησις are merely the absence of some property, but instead something having the relevant opposite features, or the relevant opposite features themselves, respectively.

⁴⁸ φαμὲν γὰρ γίνεσθαι ἐξ ἄλλου ἄλλο καὶ ἐξ ἑτέρου ἕτερον ἢ τὰ ἀπλᾶ λέγοντες ἢ τὰ συγκείμενα. λέγω δὲ τοῦτο ὡδί. ἔστι γὰρ γίνεσθαι ἀνθρώπων μουσικόν, ἔστι δὲ τὸ μὴ μουσικόν γίνεσθαι μουσικόν ἢ τὸν μὴ μουσικόν ἀνθρώπων ἀνθρώπων μουσικόν. ἀπλοῦν μὲν οὖν λέγω τὸ γιγνόμενον τὸν ἀνθρώπων καὶ τὸ μὴ μουσικόν, καὶ ὃ γίγνεται ἀπλοῦν, τὸ μουσικόν· συγκείμενον δὲ καὶ ὃ γίγνεται καὶ τὸ γιγνόμενον, ὅταν τὸν μὴ μουσικόν ἀνθρώπων φῶμεν γίνεσθαι μουσικόν ἀνθρώπων. My translation. Hardie and Gaye translate “form or account” following Bonitz’s edition, while Ross prints only λόγος in his edition.

⁴⁹ Aristotle will also sometimes call the first of these principles the ‘subject’ (ὕποκειμενον).

principle which he calls ‘form’ (εἶδος; *Physics* I.7, 190b23-28). Matter, form, and privation are accordingly the simples involved in the change.

The grammatical construction Aristotle uses to name form and privation is ambiguous. He uses τὸ + neuter adjective, which can mean either something abstract, such as culturedness, or something particular, what is cultured. Aristotle does not take care over this, and one wonders why not, given how it has exercised commentators. Some translators, such as Hardie and Gaye, take it that in some places in I.7 Aristotle intends the one, and in some places the other, and they translate accordingly, going back and forth between the two even in the same few lines. Others, such as Charlton (1970, 70), are certain that Aristotle has in mind only one meaning, the particular object (e. g., what is cultured), and translate the same way throughout. In my view form and privation – at least in cases not involving substantial generation and destruction⁵⁰ – are usually to be understood as particular properties. For example, when Aristotle says at 190a9-13 that one of the simples at the initial *terminus* of the change does not persist either by itself or in a subject, it seems clear that the simple he is talking about is a property. In other passages it is less clear, and the text might be read either way. In what follows I will take the contrary simples in the three-principle analysis to be particular properties.

On the three-principle account, the change is from the matter with the privation to the matter with the form. Aristotle treats the matter (ὕλη) combined with the privation (στέρησις) as equivalent to the subject (ὑποκείμενον) which was one of the contraries in the two-principle version. Together they are the thing which changes, with the features pre-requisite for the change (e. g., being out-of-tune). The matter combines with form (εἶδος/μορφή) to become the outcome of the change, the thing which has changed with the features it has come to have.⁵¹ Aristotle suggests that if we use this framework to think about all the different kinds of becoming or change, then we can draw certain conclusions, particularly “that there must always be an underlying something, namely that which becomes, and that this, though

⁵⁰ Change of place may be another exception, since place presents peculiar puzzles for metaphysics and consequently for readers of Aristotle.

⁵¹ As I understand it, Aristotle takes both the two- and three-principle accounts to apply to all kinds of change: change of properties or accidents as well as substantial generation and destruction, change of place, building, growing, etc. See *Physics* I.7, 189b30-32, and the variety of kinds of change which Aristotle includes in his discussion or gives as examples in I.5-8. Clearly this has ramifications for many interesting questions in Aristotle’s metaphysics and natural philosophy, preeminent among which in the literature is how to understand substantial generation and destruction, as well as the nature and role of ὕλη in these. However, my present concern is with Aristotle’s metaphysics of properties, and specifically with the metaphysical character of non-substantial particulars. While my discussion of Aristotle’s I.7 account of change has implications for other issues, I do not intend to follow these out here.

always one numerically, in form (εἶδει) at least is not one. (By ‘in form’ (εἶδει) I mean the same as ‘in account’ (λόγῳ).)” (*Physics* I.7, 190a14-16)⁵²

b. Non-substantial particulars are non-recurrent

If in the three-principle analysis of change the form and privation are non-substantial particulars (i. e., particular properties), how Aristotle treats them is indicative of how he wishes to treat non-substantial particulars more generally. This draws our attention to the three following texts, which show that for Aristotle non-substantial properties are non-recurrent:

- (1) When a simple thing is said to become something, in one case it survives through the process, in the other it does not. For the person remains a person and is such even when he becomes cultured, whereas the not cultured or the uncultured does not survive, either simply or combined with the subject. (*Physics* I.7, 190a9-13, trans. amended)⁵³
- (2) One part survives, the other does not: what is not an opposite survives (for the person survives), but the not cultured or uncultured does not survive, nor does the compound of the two, namely the uncultured person. (*Physics* I.7, 190a17-21, trans. amended)⁵⁴
- (3) We speak of ‘becoming that from this’ instead of ‘this becoming that’ more in the case of what does not survive the change—‘becoming cultured from uncultured,’ not ‘from person’ [...] The change, however, from an opposite which does not survive is described in both ways, ‘becoming that from this’ or ‘this becoming that.’ We say both that the uncultured becomes cultured, and that from uncultured he becomes cultured. (*Physics* I.7, 190a21-29, trans. amended)⁵⁵

52 Διωρισμένων δὲ τούτων, ἐξ ἀπάντων τῶν γιγνομένων τοῦτο ἔστι λαβεῖν, ἐάν τις ἐπιβλέψῃ ὡσπερ λέγομεν, ὅτι δεῖ τι αἰεὶ ὑποκεῖσθαι τὸ γιγνόμενον, καὶ τοῦτο εἰ καὶ ἀριθμῶ ἔστιν ἓν, ἀλλ’ εἶδει γε οὐχ ἓν· τὸ γὰρ εἶδει λέγω καὶ λόγῳ ταῦτόν.

53 Τῶν δὲ γιγνομένων ὡς τὰ ἀπλᾶ λέγομενον γίνεσθαι, τὸ μὲν ὑπομένον γίνεταί τὸ δ’ οὐχ ὑπομένον· ὁ μὲν γὰρ ἄνθρωπος ὑπομένει μουσικὸς γιγνόμενος ἄνθρωπος καὶ ἔστι, τὸ δὲ μὴ μουσικὸν καὶ τὸ ἄμουσον οὔτε ἀπλῶς οὔτε συντεθειμένον ὑπομένει.

54 Καὶ τὸ μὲν ὑπομένει, τὸ δ’ οὐχ ὑπομένει· τὸ μὲν μὴ ἀντικείμενον ὑπομένει (ὁ γὰρ ἄνθρωπος ὑπομένει), τὸ μὴ μουσικὸν δὲ καὶ τὸ ἄμουσον οὐχ ὑπομένει, οὐδὲ τὸ ἐξ ἀμοῦσιν συγκείμενον, οἷον ὁ ἄμουσος ἄνθρωπος.

55 Τὸ δ’ ἐκ τίνος γίνεσθαι τι, καὶ μὴ τόδε γίνεσθαι τι, μᾶλλον μὲν λέγεται ἐπὶ τῶν μὴ ὑπομενόντων, οἷον ἐξ ἀμούσου μουσικὸν γίνεσθαι, ἐξ ἀνθρώπου δὲ οὐ· οὐ μὴν ἀλλὰ καὶ ἐπὶ τῶν ὑπομενόντων ἐνίστε λέγεται ὡσαύτως· ἐκ γὰρ χαλκοῦ ἀνδριάντα γίνεσθαι φαμεν, οὐ τὸν χαλκὸν ἀνδριάντα. Τὸ

In each of these texts Aristotle claims that there is something which does not survive the change, or which does not remain or persist. In (1) he uses the framework of complexes and simples with which he set up the three-principle account to say that the στήρησις, the contrary property present at the beginning of the change, does not persist either by itself or in composition with the subject it was in (οὔτε ἀπλῶς οὔτε συντεθειμένον ὑπομένει, *Physics* I.7, 190a12-13). In (2) Aristotle repeats the point, and in (3) he says it again with particular attention to the way in which our patterns of speech reflect this. If the non-substantial particular involved in the change is a recurrent universal of the Owenian kind, then it would survive the change by itself (ἀπλῶς) as long as there is something else in the world, some other subject, in which it inheres. As long as Callicles is uncultured, the non-substantial particular persists or survives the change in which Socrates comes to be cultured. Because of this, Aristotle cannot consistently treat non-substantial particulars as recurrent in his analysis of change – at least not if he claims that they also do not survive through change.⁵⁶

This is further supported by looking to *Physics* I.8, 191a27-31, the beginning of the very next chapter after Aristotle has given his account of change. There Aristotle presents a dilemma: on the one hand, his account of change must avoid positing that change involves only what is already the case (and so nothing actually changes), and, on the other hand, it must avoid claiming that every change involves something coming to be from nothing (and so is impossible). Aristotle's determination to save the phenomenon of genuine change is part of his attempt to avoid the first horn of this dilemma in I.8. It cannot be avoided for changes of non-essential properties if one takes particular properties to be recurring universals.

If one reads Aristotle's account of the principles of change as allowing particular properties to persist as recurrent universals, though not persisting in the particular subject under consideration, one can do so only by reading Aristotle's account as suggesting that change is nothing more than an Anaxagorean mixing together and separating out of elements—except the elements for Aristotle will be, in alteration,

μέντοι ἐκ τοῦ ἀντικειμένου καὶ μὴ ὑπομένοντος ἀμφοτέρως λέγεται, καὶ ἐκ τοῦδε τόδε καὶ τόδε τόδε· καὶ γὰρ ἐξ ἀμούσου καὶ ὁ ἄμουσος γίγνεται μουσικός.

⁵⁶ Cohen (2008, 4) understands Aristotle to claim that the property does not persist through change, just as the particular object it makes does not persist. Thus, on his reading, too, Aristotle straightforwardly denies that properties are recurrent. Matthews (1982, 227) thinks that “the uncultured” refers to the object rather than the property, so that Aristotle's literal claim is only that the object does not survive. Since the object, the uncultured, is just something characterized essentially by the property of unculturedness (Cohen 2008, 8–9), Aristotle has not outright claimed that the property itself is non-recurrent. However, according to my argument in the previous section, the property still must be non-recurrent in order for Aristotle's account of change to avoid being Anaxagorean mixing of subjects or substances and recurrent properties.

objects and properties rather than the material elements Anaxagoras proposed. If all the apparently genuine changes that we have observed in the world are merely these elements, so-called substances and non-substantial particulars, coming into combination with and separation from each other, and no one of these elements requires any one of the others for its existence, they seem to be coequal within the mixture. It is no longer clear why one should think that particular properties are not as fundamental, that is, as qualified to count as substances, as those ordinary objects on which Aristotle is pleased to confer the title ‘substance.’ Particular properties seem rather to be co-equal persistent things from which the world of experience is made. Mixtures may change, the combinations created by the association of substances and non-substantial particulars may change, but mixtures are not fundamental. Thus, on this reading there would be no genuine change, since there is only change at the level of mixtures.

c. Non-substantial particulars are not tropes, but modes

If non-substantial particulars are not recurrent universals, they may be either tropes or modes. The discussion in *Physics* I.7 shows that Aristotle thinks of individual properties as modes, and also clarifies the difference between tropes and modes and why the difference matters.

First, if particular properties are particular tropes, then on the three-principle analysis of change change of non-essential properties is merely the replacement of one trope with another in a compound or bundle of subject and tropes. The only thing which distinguishes this analysis from Anaxagoras’s is that some of the elements in the bundle, namely the tropes, do not persist outside of it. The destructibility of tropes, however, is not sufficient to avoid change being mere Anaxagorean mixing, for it does not guarantee that tropes are dependent on so-called substances in a way that would prevent them from being fundamental beings, that is, substances, themselves. There could be some other reason they do not persist. After all, Aristotle’s primary substances are destructible, too (cf. *Physics* I.7, 190b1-3).

Moreover, on Aristotle’s view it is distinctive of substances that they genuinely change. If tropes are generable and destructible, they also genuinely change and so seem to exhibit the mark of substances.⁵⁷ Furthermore, either their generation and destruction must be explained by a different analysis than the one Aristotle proposes in *Physics* I.7, or else the same problem arises. Aristotle’s analysis of change is meant to apply to all genuine changes (*Physics* I.7, 189b30-32), including genera-

⁵⁷ For this point, see also Waterlow 1982, 20–21.

tion and destruction (190b1-2, b5-10), so if particular properties are generable and destructible, the analysis applies to these changes. But then the same analysis must also apply to whatever does not persist in the generation and destruction of the tropes, and again to what does not persist in these changes, etc. Thus, Aristotle must avoid positing that non-substantial particulars are tropes that come to be and are destroyed. Otherwise his analysis of change unravels.

Aristotle aims to avoid these worries when he says that what comes to be is “one numerically, [but] in form at least is not one” (190a16), clarifying that “in form” means “the same as ‘in account’” (190a17).⁵⁸ He repeats this for emphasis, foreshadowing it at 190a9-10, then explicitly saying it first at 190a15-16, then again at 190b10-15 before rephrasing it at 190b20-23 and 190b23-24. At 190a15-16 he uses the person and the unmusical as his examples; his claim is that the two items he had introduced as simples and which together form a complex at the initial *terminus* of the change are actually one in number, one thing which is logically complex or polyeidetic.

Aristotle’s assertion that what comes to be is one in number is a qualification of his earlier claim that what comes to be is complex. When at 190b10-15 Aristotle says that what comes to be is always complex (συνθετόν), he explains this by saying that what becomes is “twofold” (διττόν) in that it is τὸ ὑποκείμενον, the subject or underlying thing, and τὸ ἀντικείμενον, the contrary. At 190b20-23 he says that the cultured person (the “complex” at the outcome of the change) is “put together” (σύγκειται) “in a certain way” (τρόπον τινά) from the subject (ὑποκείμενον) and form (μορφή). The use of διττόν rather than δύο, paired with the cautious τρόπον τινά, suggests that Aristotle is trying to point to the way in which it makes sense to take what comes to be and what has come to be as complexes without contradicting his claim that what comes to be is one in number. It is not so much that in what comes to be two things are put together to form a compound, but rather that there is one thing which is twofold.⁵⁹

58 I take τοῦτο in 190a15 to refer to τὸ γιγνόμενον in the same line, so that Aristotle claims of τὸ γιγνόμενον that this, εἰ καὶ ἀριθμῶ ἔστιν ἓν, ἀλλ’ εἶδει θεοῦ οὐχ ἓν· τὸ γὰρ εἶδει λέγω καὶ λόγῳ ταυτῶν· οὐ γὰρ ταυτῶν τὸ ἀνθρώπων καὶ τὸ ἀμούσων εἶναι. (*Physics* I.7, 190a15-17)

59 Note that if the kind of unity of number Aristotle has in mind is understood this way, it does not require different attributes belonging to a subject to be one in number in the same way. One thing may have three folds, as it were, or two, or four. This is consistent with Aristotle’s assumption in *Categories* and *Physics* I that natural things are polyeidetic, that is, that many different things may be predicated of a subject as being in that subject. Aristotle says something similar in a later work; while the attributes cannot be counted along with the subject such that subject and two attributes make three things, one could still count the different attributes as attributes (*Metaphysics* XIV.1, 1088a11-14). Still, he says in another later passage that attributes may be accidentally one in number (*Metaphysics* V.6, 1015b16-21).

The kind of unity in number which Aristotle has in mind has to do with the way in which one of the logically distinct items is dependent on the other. Three passages illuminate how Aristotle is thinking about this. The first is from *Categories*, containing the idea that for each name that can be truly predicated of some subject there is an account of being going along with the name that belongs to the subject. The second is from *Posterior Analytics* I: Aristotle's analysis of subjecthood therein suggests there is a way for multiple accounts to belong to one thing. The third is from Aristotle's response to Parmenides in *Physics* I according to which being is said in many ways, and the being of properties is parasitic on their bearers.

In the *Categories* Aristotle proposes that there is a "definition of being" that goes along with a name (1, 1a1-2; 1a4; 1a7).⁶⁰ What makes bat (the mammal) and bat (the baseball implement) to be homonyms is that different definitions of being go along with the same name, while what makes Socrates and Bucephalus both to be animals is that the same definition of being going along with the name 'animal' belongs to both.⁶¹ When one can truly call something by some name, whether this is 'bat' or 'courageous',⁶² this is so because the definition of being going along with the name belongs to the subject.⁶³ The thing about ordinary objects is that they are many things, to speak idiomatically. They are polyeidetic; there is more than one definition of being that belongs to each of them, and each of them can be called by many names. This is why they at first appear to be bundles or "confused masses" (συγκεχυμένα).⁶⁴ For example, if Socrates is cultured, there is a cultured thing

60 ὁ δὲ κατὰ τοῦνομα λόγος τῆς οὐσίας.

61 Aristotle, *Categories* 1, 1a1-2. The examples, however, are my own.

62 Aristotle's use of the term ὄνομα does not distinguish between nouns and adjectives.

63 At *Categories* 5, 3a33-34, Aristotle says that it is distinctive of substances and differentiae that "all things called from them are so called synonymously," where synonyms are those things that both share a name and have the same definition of being going along with the name. It may seem to follow from this that nothing named from a property is named synonymously, but that is not quite correct. Courageous things are named paronymously from courage, since neither the name 'courage' nor the definition of courage belongs to a courageous thing (e. g., a courageous person is not a virtue). But the name 'courageous' can belong to many different things, and of some of them it might be said synonymously, of others homonymously. For example, the same definition of being going along with the name 'courageous' might be said of two people, while different (though related) definitions of being going along with the name 'courageous' might be said of a person, an action, and a plan.

64 Aristotle's use of συγκεχυμένα here contrasts with his use of συγκείμενα at I.7, 189b34. In *Physics* I.1 Aristotle denies that natural phenomena are συγκεχυμένα. In I.7 Aristotle suggests that we treat them as συγκείμενα in our analysis of change, and insists that they are always complex or put together (συνθετόν, 190b11). Since in I.7 Aristotle also claims that they are each one in number (190a1516, 190b23-24, 190b10-15, 190b20-23), his task there is to show in what way they are complex so as to preserve their being one in number. Συγκεχυμένα is a passive participle from συγχέω,

because there is a thing to which the definition of being going along with the name ‘cultured’ belongs. At the same time Socrates is also a human, and the definition of being going along with ‘human’ also belongs to him. If Cleopatra is human and a queen and beautiful, many definitions of being belong to her. Inasmuch as there are many definitions of being, it might appear that an ordinary object such as Cleopatra is not one thing at all, but a bundle. Arguably this is part of the reason Plato does not think ordinary objects are (primary) substances, as mentioned in section 1. Not only are they not perfectly definable, but even if one supposed they were, they would still answer to too many definitions, and so each would appear to be more than one in number.

A passage from *Posterior Analytics* shows that, for Aristotle, the definitions going along with some of the names truly predicated of an object belong to that object only because other, prior definitions already hold. The different definitions form a multi-level structure in which some are built on or rely on others, rather than forming a single-level mixture. In *Posterior Analytics* I.22, Aristotle suggests that when we speak appropriately or strictly,⁶⁵ that is, in such a way that what we say limns the metaphysical structure of the world, the definition or account of being going along with the name of the subject indicated in the sentence provides the ground, or part of the ground, for the definition of being belonging to the object according to the name given in the predicate. Using Aristotle’s favored example from *Physics* I.7, when we say ‘the person is cultured,’ being a person is the ground for the subject’s also being cultured.⁶⁶ It might go something like this: a person is a

meaning to pour together, but also to confound. Hardie and Gaye’s translation of συγκεχυμένα at 184a21-22 as “confused masses” captures the contrast Aristotle is presenting between how things usually appear, that is, as things put together from many, with how they show themselves to be “later” (184a22), after some study, as being intelligibly composed according to some order and having principles. ‘Confused’ captures the contrast with the intelligibility which results from having principles. ‘Masses’ captures the sense that many disparate things are put together without forming something naturally one. Thus, I think συγκεχυμένα might equally well be translated ‘mixtures’ or ‘bundles’ at 184a21, but not συγκείμενα at 189b34.

65 Predicating without qualification or ἀπλῶς vs. either “in no way predicating (μηδαμῶς κατηγορεῖν) or predicating accidentally (κατὰ συμβεβηκός δὲ κατηγορεῖν)” (83a15-16).

66 *Posterior Analytics* I.22, 83a1-83a35. In this passage Aristotle uses the examples of a white thing which is walking and a large thing which is a log. He says that “For when I say that the white thing is a log, then I say that that which is accidentally white is a log; and not that the white thing is the underlying subject for the log; for it is not the case that, being white or just what is some white, it came to be a log, so that it is not a log except accidentally. But when I say that the log is white, I do not say that something else is white and that that is accidentally a log, as when I say that the musical thing is white (for then I say that the man, who is accidentally musical, is white); but the log is the underlying subject which *did* come to be white without being something other than just what is a log or a particular log” (83a4-14). The relevant point for my argument is that Aristotle thinks that

rational animal, that is, an animal with a certain set of cognitive faculties. Having these, a person is educable. Being cultured, however, means having a certain education or having been educated. Thus, it is precisely a person who comes to be cultured.⁶⁷ In fact, the only way for the name ‘cultured’ to be true of something is if that thing is already a person (as long as one sets aside derivative senses of ‘cultured’ such as might apply to music or books, things which are cultured by being the sort of thing a cultured person would make or prefer, rather than by being educated themselves).⁶⁸ The property of being cultured depends on the subject’s already being a certain way, a person.

In his response to Parmenides in *Physics* I.3 Aristotle suggests that this kind of dependence is so radical that the dependent attribute cannot even be said to be except in a qualified way. Aristotle claims that Parmenides is compelled to say that all is one and unchanging because he missed the point, fundamental for Aristotle, that being is said in many ways (186a22-25). Having said this, Aristotle is at once at pains to explain what it means for being to be said in many ways, and he proceeds with an example. He proposes that we accept, for the sake of argument, that to be is to be white (186b6-7), and says that even if we hold fixed the definition of being going along with the name, still something can be said to *be that* in different ways:

For to be for the white and that to which it is given are different. And there is nothing separate beyond the white, for the white and that to which it belongs differ not by being separate but because to be for the white is different from to be for that to which it belongs. (*Physics* I.3, 186a28-31, trans. mine)⁶⁹

The locutions “to be for the white” (τὸ εἶναι λευκῶ) and “to be for that to which it belongs” (τὸ εἶναι δεδεθμενῶ) do not here signify definitions of being going along

what distinguishes ‘the musical is white’ from ‘the log is white’ (where the former is “no predication at all” (83a15) or predication only accidentally, while the latter is predication simply speaking) is that in ‘the log is white’ Aristotle is suggesting that it is the very thing, the log, which has come to be white. I imagine he is thinking of driftwood bleached by the sea; it is something about the log itself, its being a bit of wood, which enables it to take on the attribute of being white. In the case of the musical person, there is nothing about being musical that lends itself to pallor. For further discussion see Shatalov 2020, 241–244.

⁶⁷ By ‘precisely a person’ I mean the same sort of thing that Aristotle does in *Posterior Analytics* I.22, 83a1-35 with the expression ὅπερ τι (e. g. ὅπερ λευκόν τι at 83a7-8).

⁶⁸ *Posterior Analytics* I.22, 83a30-32. ὅσα δὲ μὴ οὐσίαν σημαίνει, δεῖ κατὰ τινος ὑποκειμένου κατηγορεῖσθαι, καὶ μὴ εἶναι τι λευκὸν ὃ οὐχ ἕτερόν τι ὄν λευκὸν ἐστίν.

⁶⁹ ἀσυμπέραντος δὲ ὅτι, εἰ μόνα τὰ λευκὰ ληφθεῖη, σημαίνοντος ἐν τοῦ λευκοῦ, οὐθὲν ἦττον πολλὰ τὰ λευκὰ καὶ οὐχ ἔν· οὔτε γὰρ τῆ, συνεχεία ἐν ἔσται τὸ λευκὸν οὔτε τῶ λογῶ. ἄλλο γὰρ ἔσται τὸ εἶναι λευκῶ καὶ τῶ δεδεθμενῶ. Καὶ οὐκ ἔσται παρὰ τὸ λευκὸν οὐθὲν χωριστόν· οὐ γὰρ ἢ χωριστόν ἀλλὰ τῶ εἶναι ἕτερον τὸ λευκὸν καὶ ᾧ ὑπάρχει.

with a name in the *Categories* way, since Aristotle has supposed, for the sake of argument, that the definition of white is the same. Still, of “the white,” or things called τὸ λευκόν, Aristotle distinguishes what receives whiteness (186a29), or that to which whiteness belongs (186a31), from whiteness itself, claiming that “to be” for each is different (186a29, 31). He is distinguishing between subjects and attributes, property-bearers and their properties, as *being* what they are in different ways. Yet he also says that whiteness itself is nothing separate beyond what receives it (189a29-30). In modern philosophical parlance he would put this by saying that the property or attribute is “nothing over and above” its subject.

I take this to be equivalent to his claim in I.7 that the subject of a change is one in number with the contrary. In I.7 Aristotle no longer supposes that there is only one definition of being, so the subject and the contraries involved in a change can differ in definition, as indeed he claims they do. But in I.3 he proposes that even if they did not, there would be still a different kind of difference in being, which nevertheless does not threaten the numerical unity of the items so differing. His way of putting it in I.3 implies that the unity in number which is present between the subject and its attributes prioritizes one of the two elements in each complex, namely, the subject, or that which receives the attribute.⁷⁰ There is numerical unity because one of the purported two items is metaphysically dependent upon or parasitic upon the other such that it is nothing over and above the latter. Ultimately, there is nothing over and above the substance. This does not fit well with tropes theory, since tropes seem to be precisely the sort of things from which a compound arises or which are something over and above the thing they are in, as Heil suggested.

The point is subtle, the difference between what is compound and put together from more than one thing, versus a single thing which is complex, having different aspects. The different items which the complex comprises emerge from analysis in the sense that the λόγος of each complex can be analyzed (διαλύσεις) into two (*Physics* I.7, 190b22-23). But the complex is not ultimately the result of two different things being put together.⁷¹ Attributes are not parts (*Categories* 2, 1a24-25); they are one in number with their bearers (*Physics* I.7, 190a15-16, b23-24, cf. 190b10-15, b20-23.). Consistent with *Categories* terminology, in *Physics* I.7 Aristotle implies that the

⁷⁰ Aristotle expresses a similar thought in *Metaphysics* V when discussing the way in which the cultured is said to be when the person is cultured, comparing it to the sense in which the not-white is said to be: “In this sense, too, the not-white is said to *be*, because that of which it is an accident is” (Τὸ γὰρ τότε εἶναι τότε σημαίνει τὸ συμβεβηκέναι τῷδε τότε; *Metaphysics* V.7, 1017a18-19, trans. W. D. Ross). The attribute can only be said to be at all because of that to which it belongs; one is not speaking strictly when one says of an attribute that it is (nor, similarly, that it is not).

⁷¹ This, I think, is what Aristotle was getting at when in *Categories* 2, 1a24-25 he says that properties are not parts of substances.

two names belonging to the cultured person indicate two different definitions of being going along with the names. But because the one depends on the other so that it indicates nothing beyond or separable from it, there is ultimately only one thing, rather than two. An attribute is a way of being of a substance, not something accruing to or assembled with it. Particular properties, for Aristotle, are modes.

Let me briefly contrast this interpretation of the numerical unity Aristotle posits in *Physics* I.7 with another very influential one. Doing so may help show why the interpretation of numerical unity that I offer, and my consequent proposal that particular properties are modes, is necessary for Aristotle to save the phenomenon of genuine change.

Cohen and Matthews have developed an analysis of what Aristotle calls ‘unity in number’ in *Physics* I.7. This analysis appears in the context of their discussion of what Matthews called “kooky objects.”⁷² According to Cohen, a kooky object is an object essentially characterized by an attribute which only accidentally belongs to some substance.⁷³ Culturedness is an attribute; what is cultured is a kooky object. On his and Matthews’ view, the cultured in Aristotle’s example is accidentally the same as the person. This means is that the cultured is a kooky object which is non-identical to the person but which contingently coincides with that person.⁷⁴ That is to say, the sense of being one in number which Aristotle has in mind in *Physics* I.7 might be termed ‘contingent coincidence.’ If this is right, then change consists in some substance coinciding first with one kooky object, and then with another.⁷⁵

Cohen is at pains to say that while on his view a kooky object coincides with a substance, “they are not two of anything.”⁷⁶ Yet it is difficult to see what this means if one is to take two distinct objects’ coinciding as an analysis of (one way of) being one in number for Aristotle. Some kind of equality of status if not sameness of kind seems required in order for two items to coincide. In the usual way of speaking, triangles coincide with triangles and other figures, lines with lines, and intervals of time with other intervals. But points do not coincide with lines, and neither do surfaces with bodies, nor apples with intervals of time. Thus, it seems best to take contingent coincidence not as an analysis of being one in number so much as a useful way of thinking about it, at least in some contexts, and ultimately with qualifications such as those pointed out above.⁷⁷ Yet thinking of numerical unity as con-

72 Matthews 1982, 224.

73 Cohen 2008, 8–9.

74 Matthews 1990, 258; Cohen 2008, 6–10.

75 Cohen 2008, 4.

76 Cohen 2008, 6.

77 Cohen and Matthews point out some contexts in which it may be useful to think about objects in this way, particularly in solving puzzles such as the Masked Man or explaining related fallacies (Matthews 1982, 227; cf. Cohen 2008, 7–9).

tingent coincidence has a limited use, and in particular it is not very helpful as a way of solving the puzzle about the possibility of genuine change.

Contingent coincidence suggests a view according to which an ordinary object consists in a subject or substance bundled with or coinciding with kooky objects. The resulting analysis of change of accidental properties is one in which substances do not themselves change. Rather, first they coincide with one kooky object, and then they coincide with another. The ordinary object may change, but it is not a substance. Instead, its changes are Anaxagorean mixing and separating out of substances and kooky objects. Moreover, on the reading of Matthews and Cohen, the kooky objects with which substances coincide do change in the course of this mixing and unmixing; one is destroyed, and one is generated.⁷⁸ This raises the question of whether and how the analysis of change could apply to kooky objects. If it does, then the view faces the regression problem outlined above. Additionally, it raises the question of which is truly fundamental: kooky objects or particular properties.

On the other hand, the *Physics* I.7 analysis of change may not apply to kooky objects. Matthews says that

Aristotle's picture of an accidental unity is that of an ephemeral object – an object whose very existence rests on the accidental presence, or compresence, of some feature, or features, in a substance. Accidental unities exist, he supposes, but not in their own right; indeed it is, Aristotle says, only in an accidental sense of the verb 'to be' that they can be said to be (*Metaph.* vi 2). (Matthews 1982, 224)

If kooky objects are only said to be accidentally, if for a kooky object to exist is really just for a substance to have some property, perhaps kooky objects do not change, strictly speaking, either.⁷⁹ Changes of kooky objects are nothing more than the changes

⁷⁸ Matthews 1982, 225; Cohen 2008, 4.

⁷⁹ For reasons like this, I am led to the further thought that a kooky object is best understood as a sort of useful fiction for Aristotle, something which results when one applies what Lear has called a "predicate filter" (Lear 1982, 168–170) such that one attends to some substance only *qua* some attribute that it has. That is, a kooky object is just what one has when one attends to some object according to the definition of being going along with a name which does not reveal the substance's essence. The cultured, the kooky object, really is a substance, but one being considered only inasmuch as it has the feature of being cultured, ignoring the features on which this depends and ultimately ignoring the substance's essence. And this is a useful way to consider substances in certain contexts. For example, I may wish to understand what could follow from something's being uncultured or what further features its being uncultured is grounds for (e. g., perhaps being awkward at a certain kind of dinner party, or not yet being able to appreciate some object of art, or requiring certain steps in order to become cultured). It is a useful way of thinking if one is counting presidents (Cohen 2008, 6), or explaining how it is possible that you do not know the masked man (Cohen 2008, 7). It may even be psychologically necessary, since we often do not know on what prior features others are

of substances, nothing more than some feature no longer being present in or coming to be present in the substance. If this is so, then talk of kooky objects does not help in an analysis of change, and instead merely emphasizes the need for one. How is it that a substance comes to have some new feature so that a new kooky object comes to be? In what way could this occur such that the substance itself genuinely changes rather than merely being mixed together with other similarly fundamental things?

I have argued that Aristotle's goal of preserving genuine change leads him to treat non-substantial particulars as being trope-like in that they are not repeating. But it also leads him to treat them as being dependent on substances in a certain way; they are not distinct, countable objects. In this sense it might be better to speak of them as modes, as Heil suggests. Aristotle may have been moved to save the phenomenon of genuine change because of an additional commitment to taking ordinary objects as primary substances, since ordinary objects are changing things. Yet his account, or something like it, must hold if substances can genuinely change, even if ordinary objects are not themselves the primary substances. If Aristotle's strategy of distinguishing between being one in number and being one in account works, then he has been able to show, *contra* Plato, Parmenides, and others, that substances can genuinely change. He is able to do so by regarding particular properties as non-recurrent modes.

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founded, or cannot take in the whole structure when concerning ourselves with one part of it. But it is a fiction to think there really is some distinct object that is essentially cultured.

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