The Eleatic Challenge in Aristotle's *Physics* I.8

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Abstract

In *Physics* I.8 Aristotle outlines and responds to an argument against the reality of change. Some have added detail to Aristotle's outline by reconstructing *a-priori* what the premises could mean and what could be supporting them. Others have looked to Parmenides' poem for his rich arguments against the reality of change. I offer a new reading which finds the missing details in Aristotle's explicit characterization of the Eleatics earlier in the *Physics*. The argument assumes, I argue, Predicational Monism, the claim that each being can possess one and only property. Aristotle attributes Predicational Monism to the Eleatics in *Phys.* I.2 and responds by explaining how a being can be both one and many. I argue that this explanation is key to how Aristotle resolves the argument against the reality of change in *Phys.* I.8.

1 Introduction

In *Phys.* I.8 Aristotle says that only his account of the principles of nature allows us to solve the following ancient argument against the reality of change (191a23–24):[1]

> (i) They say that no being either comes-to-be or perishes. For, they say, it is necessary that what comes-to-be comes-to-be either from what is or from what is not, both of which are impossible; for what is cannot come-to-be (since it already is), while nothing can come-to-be from what is not (since there must be something which underlies). (ii) And then, having reached this result [that change is impossible], they make things worse by going on to say that there

[1] Thanks to [ ]

> is no plurality, but only being itself (191a27–33; *trans.* from Irwin and Fine {13} slightly modified).[2]

Aristotle's remark in (ii) that the originators of this argument subsequently argued for Monism, the claim that only being exists, indicates that the 'they' in (i) are the Eleatics, Parmenides and Melissus, who Aristotle characterizes in *Phys.* I.2–3 as accepting both Monism and denying the existence of change (*c.f.* 184a15–18, 187a9–10). In those chapters Aristotle responds to what he calls their eristical arguments for Monism but leaves untreated their arguments against the possibility of change (186a4–7), a lacuna he now addresses in *Phys.* I.8.[3]

Call the argument in (i) the *Eleatic Challenge* (EC). Aristotle clarifies the conclusion of EC towards the end of the chapter: the Eleatics deny the existence of coming to be (γένεσις), perishing (φθορά), and change in general (ὅλως μεταβολή) (191b30–34). 'μεταβολή' is Aristotle's most general word for change: it includes unqualified change, growth, alteration, and locomotion.[4] The Eleatics, then, deny the existence of unqualified changes, which occur when some substance comes into or goes out of existence. They also deny the existence of qualified changes, which occur when a being that already exists changes in one of its qualities.[5] This is a radical claim: if any being exists, irrespective of what that being is, it cannot alter, grow, or move; nor could it have come into being, nor will it ever cease to be. Such a being exists eternally and is unchanging in all respects.[6]

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[2] φασιν οὔτε γίγνεσθαι τῶν ὄντων οὐδὲν οὔτε φθείρεσθαι διὰ τὸ ἀναγκαῖον μὲν εἶναι γίγνεσθαι τὸ γιγνόμενον ἢ ἐξ ὄντος ἢ ἐκ μὴ ὄντος, ἐκ δὲ τούτων ἀμφοτέρων ἀδύνατον εἶναι· οὔτε γὰρ τὸ ὂν γίγνεσθαι (εἶναι γὰρ ἤδη) ἔκ τε μὴ ὄντος οὐδὲν ἂν γενέσθαι· ὑποκεῖσθαι γάρ τι δεῖν. καὶ οὕτω δὴ τὸ ἐφεξῆς συμβαῖνον αὔξοντες οὐδ' εἶναι πολλά φασιν ἀλλὰ μόνον αὐτὸ τὸ ὄν.

[3] One might object that the originators of this argument are not merely the Eleatics but also the natural philosophers who Aristotle tells us in *Phys.* I.4 also responded to EC. There he says that they unanimously agreed that 'what is' cannot come from 'what is not', but responded that 'what is' can come from 'what is' (187a26–187b1). However, the protagonists of *Phys.* I.8 cannot include these natural philosophers. They do not deny that change is possible nor do they deny that there is a plurality of beings. They try to solve this puzzle. They do not endorse its conclusion.

[4] See Morison {20, pp. 11–15} and Ross {21, pp. 7–8} for discussion.

[5] I use 'quality' broadly to include any item from a category other than substance.

[6] The only way of construing EC as an argument against both qualified and unqualified change is by taking 'no being' ('τῶν ὄντων οὐδὲν') in (i) to include both qualities and substances and by taking each occurrence of the verbs 'come-to-be' ('γίγνομαι') and 'perish' or 'cease-to-be' ('φθείρω') completely (which I do throughout). The Eleatic, then, denies that either substances or qualities can come into being or perish full stop. This is equivalent to a denial of both qualified and unqualified change given how Aristotle distinguishes the two changes at 190a31–33: qualities only qualifiedly come into being, which occurs when some substance becomes so qualified; substances unqualifiedly come into being, which does not involve anything becoming qualified by a substance. See Loux {17, p. 281} for a similar reading.

Such a radical claim needs a convincing argument. Unfortunately, Aristotle merely adumbrates EC leaving unexplained key premises, including why a being coming-to-be from 'what is not' would entail that nothing underlies, and, equally importantly, what motivates the requirement that something must underlie. Some have added detail to Aristotle's outline by reconstructing *a-priori* what the premises could mean and what could be supporting them.[7] These interpreters have often taken EC to be concerned with how to distinguish genuine change from sheer emergence.[8] Others have looked to Parmenides' poem for his rich arguments against the reality of change. There he argues, on the one hand, that were we to accept that a being comes from 'what is not', we would be implicated in the absurdity of thinking and speaking of 'what is not', and, on the other hand, that were a being to come from 'what is not', then the Principle of Sufficient Reason would be violated: there would be no explanation as to why it came to be at that time, that place, etc.[9]

In this paper, I argue for a new reading according to which EC concerns a a disagreement over whether the conditions for the possibility of change can themselves be satisfied. This disagreement can be brought into focus by noticing that the question, 'what can change?', can be understood in two ways. First, it can be understood as a question about what things must be like if they are to be capable of change. Second, it can be understood as a question about what things are that way. An answer to this first question might be that things must be spatiotemporally located if they are to be capable of change. An answer to the second might be that it is only individual substances that are so located and so only individual substances that can change.

I argue that in *Phys.* I Aristotle presents himself and the Eleatics as agreeing on how to answer the first question but disagreeing on how to answer the second. They agree that in order for a being to change, it must be ontologically complex. In particular, it must be able to possess each of those opposites a change occurs between, like the hot and cold, as well as possess some other feature that explains the capacity of that being to admit those opposites. But they do not agree that there are such complex beings. The Eleatics, as Aristotle presents them in *Phys.* I.2, denies that any being can be ontologically complex. They accept Predicational Monism (PM), the claim that each being can possess

[7] See, for instance Code {6}.

[8] See, for instance, Gill {11, p. 63}, Gill {10, p. 7}, Waterlow {23, p. 8}, and Irwin {12, pp. 84–87}

[9] See, for instance, *Pr.* B.8 3–10. For interpreters who use Parmenides to interpret *Phys.* I.8, see Shields {22, pp. 50–52} and Ebrey {9}.

one and only property, e.g., a being can be hot, or a stone, but it cannot be a hot stone.[10] So to the first question, the Eleatics answer that only ontologically complex beings can change. To the second, they answer that, since there are no ontologically complex beings, nothing can change. Aristotle responds, on the one hand, by rebutting the Eleatics' argument for PM, and, on the other hand, by using his rejection of PM to develop a full and satisfactory solution to EC.

My main goal in this paper, then, is to show that it is this thesis, PM, that ultimately leads the Eleatics (as Aristotle presents them) to endorse the conclusion of EC, and, further, Aristotle solves EC by using his response to PM. However, I want to emphasize upfront that I make no claim about the historical Eleatics.[11] I think interpreters venture too far afield when they turn to Parmenides' poem to interpret EC. We must interpret EC, I argue, by attending to how Aristotle characterizes the Eleatics earlier in *Phys.* I. So while I will proceed by speaking about what the Eleatics believe, the Eleatics I am concerned with are the ones we find in the text of *Phys.* I.

I first outline two conditions on an adequate interpretation of EC and argue that the dominant readings in the literature fail one or both of these requirements. I then proceed to defend my claim that PM is an implicit premise in EC before showing that Aristotle's response to EC relies on his rejection of PM.

2 Interpreting EC

In this section, I first defend two requirements on an adequate interpretation of EC and then argue that alternative interpretations fail to satisfy one or both of these requirements. For ease of presentation, I label the premises of EC as follows:

1. If 'what is' comes-to-be, then it comes-to-be either from 'what is' or from 'what is not'.
2. If 'what is' comes-to-be from 'what is', then it is already.
3. 'What is' cannot come-to-be if it is already.
4. Therefore, 'what is' cannot come-to-be from 'what is'.
5. If 'what is' comes-to-be from 'what is not', then nothing underlies.
6. If 'what is' comes-to-be, then something must underlie.

[10] See Section 4 for discussion of PM.

[11] Some do, though, interpret the historical Parmenides as endorsing Predicational Monism. See, for instance, Curd {8}.

7. Therefore, 'what is' cannot come-to-be from 'what is not'.
8. Therefore, 'what is' cannot come-to-be.

Our first requirement states that an adequate interpretation must identify EC's missing premises. On the first horn, we must explain 2 and 3. 2 assumes that if, say, a dolphin comes from 'what is', then that dolphin would already be. What explains this inference? For 3, we must explain why something cannot become if it already is. When we turn a cold piece of clay into a cold statue, we have turned a cold thing into a cold thing. 3 prohibits this type of becoming, so we need an interpretation that explains this prohibition. On the second horn, we must explain why a being coming-to-be from 'what is not' would entail that nothing underlies (5), and also explain why the absence of something underlying makes it impossible for a being to come-to-be (6).

Our second requirement places a constraint on the candidates for these missing premises: the missing premises must be ones that Aristotle takes the Eleatics to endorse. Why? Aristotle twice diagnoses the Eleatics' endorsement of the conclusion of EC as resting on some confusion:

> For this is why earlier thinkers were also diverted from the road leading them to <an understanding of> coming to be, perishing, and change in general. For if they had seen this <underlying> nature,[12] that would have cured all their ignorance (191b30–34; see also 191b10–13).[13]

Aristotle here charges the Eleatic with some mistake, a mistake that ultimately impales them on both horns of EC. Since Aristotle's solution relies on correcting this mistake, we would expect it to play a role in EC. An adequate interpretation of EC, then, must identify this mistake and explain how it figures as a premise (implicit or explicit) in EC.

It is worth noting that by identifying our missing premise(s), we will be able to characterize what is philosophically interesting about EC. On the interpretation I argue for below, the Eleatics have a principled philosophical position, namely PM, which explains why they accept the the explicit premises of EC. The central issue, then, is about whether or not any being can have the requisite complexity to be subject to change. As such, if Aristotle is to adequately

[12]While Aristotle does not mention 'ὑποκειμένη' here, one Bekker page previously he speaks about the underlying nature (ἡ δὲ ὑποκειμένη φύσις) (191a7–8). So I follow Ross {21, p. 497} in taking ὑποκειμένη φύσις as the referent of 'ἡ φύσις'.

[13]ὥσθ' (ὅπερ ἐλέγομεν) αἱ ἀπορίαι λύονται δι' ἃς ἀναγκαζόμενοι ἀναιροῦσι τῶν εἰρημένων ἔνια· διὰ γὰρ τοῦτο τοσοῦτον καὶ οἱ πρότερον ἐξετράπησαν τῆς ὁδοῦ τῆς ἐπὶ τὴν γένεσιν καὶ φθορὰν καὶ ὅλως μεταβολήν· αὕτη γὰρ ἂν ὀφθεῖσα ἡ φύσις ἅπασαν ἔλυσεν αὐτῶν τὴν ἄγνοιαν.

respond to EC, he must diagnose and adequately respond to the Eleatics' denial that any being can be so complex.

Many hitherto defended interpretations have failed one or both of these requirements. These interpretations are normally characterized according to how they construe the dichotomy between 'what is' ('ἐξ ὄντος') and 'what is not' ('ἐκ μὴ ὄντος') in 1. Both are participle phrases formed from the preposition 'from' ('ἐξ) with the present participle of the verb 'being' (ἐῖναι') in the genitive case. There are two different interpretations of these participles, which Ross nicely outlines:

> It is not at first sight clear whether this means 'either from what is or from what is not' or 'either from what is it or from what is not it.'[14]

On Ross's first option, the participles are construed existentially with the result that 1 states that what-is comes from what-exists or what does-not-exist. Call this the *Complete Reading* (CR). There are two versions of CR. According to the first version (CR1), premise 1 states two options about, as Timothy Clarke puts it, the precursor of the generated thing. "[T]he 'precursor' of the generated thing is whatever it is that *becomes* the generated thing, as the seed becomes the plant or the bricks become the house."[15] Premise 1 states that this precursor is either something that exists or something that does not exist, where the something is left unspecified.

According to the second version (CR2), premise 1 states two "options about *the pre-generation state* of the thing that comes to be."[16] Premise 1 states that the product comes from a state where it, the product, was previously existing or from a state where it, the product, was previously not existing.[17] So on CR2, premise 1 states that Socrates comes from a prior state where he himself existed or a state where he himself did not exist. According to CR1, premise 1 states that Socrates comes from some existing thing or other or from some non-existing thing or other.

[14]Ross {21, p. 494}. See also Kelsey {15, p. 333}. Ross assumes that the complete and incomplete readings (see below) exhaust the interpretative options, but this assumes that the Greek verb 'εἶναι' has exactly the same syntactic and semantic properties as the English verb 'to be', an assumption which has been challenged by, for instance, Brown {3} and Kahn {14}. I am going to set aside this issue as I think we can adequately interpret the participles without determining how to understand 'εἶναι'.

[15]Clarke {5, p. 135}.

[16]Clarke {5, p. 136}.

[17]See Clarke {5} for the best defense of this reading. I take Waterlow {23, p. 9} as also endorsing this reading. Even though she also says that the thing that comes to be is a complement of the verbs (Waterlow {23, p. 10}), her overall reading is better captured by CR2 than any other alternative.

CR1 falls afoul of the first horn of EC. According to its interpretation of premise 2, if Socrates comes from some existing thing or other, then Socrates comes from himself. Why would the Eleatic accept this inference? If CR1 is the correct reading, there is some missing premise (or premises) that explains why the existing thing Socrates came from would be Socrates himself.[18] It is difficult to supply any premise that the Eleatics could accept. They cannot, for instance, assume that there is just one being that exists. The Eleatics, according to Aristotle, will go on to argue for Monism, the claim that there is only being itself. If the Eleatics did assume Monism in their argument for the impossibility of change, which in turn, they assumed in their argument for Monism, then we would not need to investigate the principles of nature to respond to EC. All we would need to do is observe that the Eleatics make a simple logical mistake.

CR2 falls afoul of the second horn. According to its reading of premise 5, if Socrates comes from himself not-existing, then nothing would underlie. Why would the Eleatic endorse this inference? Clarke suggests that (i) if Socrates is in the process of being born, then Socrates would be the subject that is undergoing this process; (ii) if Socrates comes from himself not-existing, then the subject of the change does not exist as the change begins; (iii) the subject of a change must exist as the change begins. Thus Socrates cannot be the subject of his own birth.[19] Let us grant (ii) and (iii). Why would the Eleatic endorse (i)? Clarke offers no explanation, but one is needed. While the Eleatic might deny that Socrates can be the subject of his own birth, they also must explain why there is *no* subject whatsoever. To do that, they must explain why Socrates is the only candidate subject for his birth.

To illustrate the problem, consider the following two claims: (i) The pale becomes musical from being previously unmusical. (ii) The pale cannot be the subject of a music lesson. The conjunction of (i) and (ii) does not entail that there is no subject whatsoever for the change described in (i). The conjunction only entails that *the pale* or *pallor* is not the relevant subject of the change. The conjunction is compatible with there being some subject other than pallor for the change. For instance, it is compatible with the person who happened to be pale throughout their music education being the subject of the change.

The problem for defenders of CR2 is that the Eleatics are left ignoring a glaring possibility: something other than Socrates underlies when he changes from not-existing to existing. What premise might explain this denial? Some

[18]This problem is nicely raised by Kelsey {15, p. 333}.
[19]Clarke {5, p. 137}.

candidates will not suffice. They cannot assume that there is only one possible being, say, Socrates. If this claim were assumed, it would follow that Socrates and only Socrates could be subject of his own birth. But were the Eleatics to assume that there is only one possible being as a premise of EC, they would be assuming Monism as a premise in an argument whose conclusion they will use to argue for Monism. Again, this is a simple logical mistake that requires no deep investigation of the principles of nature.

The second approach to the dichotomy mentioned by Ross construes the participles predictively as in 'what is F' or 'what is not F'. Call this the *Incomplete Reading* (IR). The success of IR depends on the value supplied for 'F'. Some suggestions will not suffice. Ross, for instance, suggests that the value of 'F' is the product of the change itself, e.g., Socrates comes from what is Socrates or from what is not Socrates. But this suggestion is vulnerable to the same objection raised against CR2: why would it follow from Socrates coming from what is not Socrates, that there is no subject of this change whatsoever?[20] While we might supply a premise to EC to explain this inference, it is difficult to identify one that would be acceptable to the Eleatics.

A more promising Incomplete Reading has been offered by Sean Kelsey. He claims that the value of 'F' is 'substance' with the result that premise 1 reads as the claim that a substance comes from what is substance or from what is not substance.[21] But Kelsey's interpretation of the second horn fails our second requirement. Consider the following passage:

> Suppose then we ask what sort of thing it is that substances such as Socrates come to be from. Either it is a substance or it is not a substance. If it is a substance, then it will become something that it already is, namely a substance. If it is not a substance, it will not "underlie" (for Aristotle, only substances "underlie").[22]

Kelsey interprets the second horn of the dilemma as follows: if Socrates comes from what is not a substance, then Socrates comes from what does not underlie, which Kelsey takes to mean something which is not an ultimate subject of predication. Kelsey points out that, for Aristotle, only substances are such ultimate subjects. Hence, if Socrates comes from what-is-not a substance, the requirement that something must underlie would not be satisfied.

[20] See Kelsey {15, p. 334} for a good statement of this difficulty.

[21] Kelsey {15}. Note that Kelsey's reading, as he points out, can also be presented as a version of CR if we take 'εἶναι' to mean 'substance'. For ease of presentation, I take his view as an instance of the IR. My objections below applies equally to both presentations of his view.

[22] Kelsey {15, p. 336}.

It is a problem for Aristotle if a substance must come from something that is an ultimate subject of predication, but could not come from a substance. But this is hardly a problem for the Eleatics from whom the puzzle originates, at least according to Aristotle. On Kelsey's reading, the claim that only substances underlie is a central premise of the argument, but this is a premise that, as Kelsey points out in our quotation above, is an Aristotelian premise. So Aristotle would be wrong to attribute this claim to the Eleatics as a premise in EC and would be uncharitable to charge them with some confusion when endorsing its conclusion.[23]

3 A New Incomplete Reading

Interpreting 'what is' and 'what is not' is difficult because, on the one hand, the Greek can be construed in several different ways, and, on the other hand, the text of *Phys.* I.8 provides inconclusive evidence for the correct construal. It has gone unnoticed, however, that Aristotle uses these participle phrases earlier in *Phys.* I.5 in a way that fixes their meaning in I.8. Attending to this earlier usage of the phrases, I argue for a new version of the Incomplete Reading according to which the participles 'what is' and 'what is not' take as their complements those opposites a change occurs between. On this reading, the complement of 'what is' is F, and the complement of 'what is not' is G, where F and G are those opposites the change occurs between.[24]

Strong evidence for this interpretation of 'what is' and 'what is not' comes from the following passage in *Phys.* I.5:

> All thinkers agree in making the opposites principles, both those who describe the All as one and unmoved, for even Parmenides treats hot and cold as principles under the names fire and earth, and those too who use the rare and the dense. The same is true of Democritus also, which his plenum and the void, both of which exists, he says, the one as being, the other as not-being (188a19–23).[25]

[23] See Clarke {5, p. 135} for similar worries.

[24] There are four different ways for things to be opposed to each other according to Aristotle, "either as relatives, or as contraries, or as privation and possession, or as affirmation and negation." (*Cat.* 11b17–19). See Ackrill {1, pp. 109–111} for discussion. The opposites that concern us are contraries, though I continue to use 'opposite' throughout.

[25] Πάντες δὴ τἀναντία ἀρχὰς ποιοῦσιν οἵ τε λέγοντες ὅτι ἓν τὸ πᾶν καὶ μὴ κινούμενον (καὶ γὰρ Παρμενίδης θερμὸν καὶ ψυχρὸν ἀρχὰς ποιεῖ, ταῦτα δὲ προσαγορεύει πῦρ καὶ γῆν) καὶ οἱ μανὸν καὶ πυκνόν, καὶ Δημόκριτος τὸ πλῆρες καὶ κενόν, ὧν τὸ μὲν ὡς ὂν τὸ δὲ ὡς οὐκ ὂν εἶναί φησιν·

In this quotation, Aristotle says that all his predecessors agree that some pair of opposites are principles, including Parmenides whose candidates for the principles are the hot and cold. Aristotle adds something striking for our purposes: Democritus believes that one opposite, the plenum, exists as 'what is' (τὸ ὄν), while the other, the void, exists as 'what is not' (τὸ οὐκ ὄν).[26] While Aristotle characterizes Democritus as believing that some pair of opposites are 'what is' and 'what is not', he does not say the same about Parmenides in our above quotation. Nevertheless, in other parts of the corpus we do find Aristotle claiming that Parmenides "ranges the hot with what is, and the cold with what is not" (*Met.* 986b31–987; see also *GC* 318b5–12).

We might expect Aristotle to use 'what is' and 'what is not' in *Phys.* I.8 in a similar way to how he uses the phrases earlier in *Phys.* I.5. At least, anyone who denies that the uses are similar must either identify some text where Aristotle signals a change in use, or, if no sign is forthcoming, explain why Aristotle would use the phrases in different ways in two parts of his one investigation into the principles of nature.

Admittedly our quotation from *Phys.* I.5 seems of little help in deciding how to construe the participles. Consider how Aristotle characterizes Parmenides. One might interpret him as claiming that, for Parmenides, the hot is what exists and the cold is what does not exist. This is bizarre. Hot and cold differ not because one exists and the other does not exist. Rather, hot and cold differ because they are different existing temperatures.

Fortunately, we can gain some clarity on what Aristotle means by noting that he, himself, uses 'what is' and 'what is not' elsewhere to characterize the *termini* of change. For instance, in *GC.* I.3 he claims that "the way which leads to what is not unqualifiedly is unqualified perishing, and the way that leads to what is unqualifiedly is unqualified generation". He adds that the distinction between 'what is' and 'what is not' will always be made in terms of some pair of opposites, where "one of the pair will be what is, the other what is not'' (*GC* 318b5–12).

The point Aristotle is making is straightforward: a process of generation begins with 'what is not' and ends with 'what is'. A process of perishing begins with 'what is' and ends with 'what is not', where 'what is' and 'what is

[26]By calling the plenum and void a pair of opposites, Aristotle means that Democritus treats the opposites the full and the empty as principles under the names 'the plenum' and 'the void'. (See *Met.* 985b4–9.) This is analogous to how Parmenides treats the hot and the cold as principles under the names 'fire' and 'earth'.

not' are those opposites the change occurs between. The relevant complements of 'what is' and 'what is not' depend on the kind of process involved. Warming takes place between the opposites cold and hot: a stone becomes warm from being cold. Thus warming can be characterized as a change that occurs between 'what is not' and 'what is' as long as we take 'the cold' as the complement of 'what is not' and 'the hot' is the complement of 'what is'. A sculpting, on the other hand, can be characterized as a change from 'what is not' to 'what is' as long we take 'the unsculpted' as the complement of 'what is not' and 'the sculpted' as the complement of 'what is'.

So construed, 'what is' and 'what is not' are incomplete phrases that have two distinct complements. 'What is' has as its complement that opposite towards which the change is directed. 'What is not' has as its complement that opposite from which the change proceeds.[27] 1, then, states that an opposite, say, the hot comes from itself or from its opposite, the cold.[28] 2–4 provide an argument that no opposite can come from itself, e.g., the hot cannot come from the hot. 5–7 provide an argument that nothing can come from what it is opposed to, e.g., the hot cannot come from the cold.

This reading is a natural upshot of Aristotle's discussion of opposites earlier in *Phys.* I.5. After telling us that all his predecessors make some pair of opposites the principles, he proceeds to clarify and defend this claim by talking about the structure of change. He argues that the "the pale comes from the not pale, and not from any not pale, but from the dark or something in between" (188a31–188b6). Aristotle concludes that for every change 'what comes to be' is an opposite, where what it has come from is what it is opposed to (188b21–26). He recognizes, though, that this conclusion may not seem to apply to complex entities like statues, houses, and humans. Nevertheless, Aristotle argues that even the generation of a complex entity involves an opposite coming-to-

[27]Compare my reading to Michael Loux's, who claims that (i) 'what is' and 'what is not' "provide fully significant and unambiguous characterizations of the terms of a coming to be" (Loux {17, p. 288}). (ii) These phrases are "generalizations of more particular characterizations" (Loux {17, p. 290}). I have presented my reading as a version of the Incomplete Reading, but it may also be presented as in agreement with Loux. Taken this way, 'what is not' and 'what is' are general characterizations of the *termini* of a change just because they are generalizations of pairs of opposites, where some specific pair of opposites are the *termini* of some specific change. Note, though, that Loux and I differ in that he thinks 'what-is-not' stands for the mere absence of 'what is', e.g. the mere absence of heat. In contrast, I construe 'what is not' as the opposite of 'what is', e.g. the cold.

[28]Since the Eleatic accepts PM, they must take the phrases 'what is hot' and 'the hot' as referring to one and the same thing. (See Section 4.) Thus 'the hot coming from the hot' is equivalent to 'what is hot coming from what is hot.' Similarly, 'the hot coming from the cold' is equivalent to 'what is hot coming from what is cold.'

be, where what it has come from is what it is opposed to. For instance, when a statue comes-to-be, a shaped thing has come from a non shaped thing (188b15–20).[29]

My reading of the participles succeeds only if it allows for an interpretation of EC that satisfies both requirements for an adequate interpretation discussed in Section 2. I discuss each horn in turn. Recall our first horn:

2. If 'what is' comes-to-be from 'what is', then it is already.
3. 'What is' cannot come-to-be if it is already.
4. Therefore, 'what is' cannot come-to-be from 'what is'.

On my account, 'what is' is the *terminus ad quem* of the change; it is that which the change is a process towards. Let us use the example of heat. 2 now states that if the hot comes from the hot, then the hot is already, while 3 tells us that the hot cannot come-to-be if it is already.

Aristotle does not in our chapter give the Eleatics' reason for the prohibition stated in 3. But the claim should be understood in light of the discussion of opposites in *Phys.* I.5. We have seen that after telling us that all his predecessors, including the Eleatics, make some pair of opposites the principles, Aristotle proceeds to explain this claim by stating that what comes-to-be is an opposite and that it comes from what it is opposed to, e.g., the hot comes from the cold. 3, then, is a violation of this general claim that has already been attributed to the Eleatics.[30]

2 may seem to pose a problem for my reading. According to it, if the hot comes from the hot, then the hot is already. This assumes that both *terminus ad quem* and *terminus a quo* are identical. In other words, it assumes that were a hot thing to come from a hot thing, both the product and subject it came from would be one and the same hot thing. Why would the Eleatic accept this inference? When we craft a hot gold statue from some hot molten gold, a hot thing has come from a hot thing, but, in this case, these hot things are not identical. As Aristotle presents them, the Eleatics ignore a glaring option:

[29]Two qualifications: First, Aristotle does not say that substances come from their opposites, which would commit him to the claim he denies at *Cat.* 3b24–32 that substances have opposites. He commits himself only to the claim that the form of a substance has an opposite. Second, once Aristotle has outlined his own view of the principles, he will claim that what comes-to-be is not merely an opposite, but a composite of some opposite and some subject (*c.f.* 190b17–21). Aristotle motivates his reading, we will see, by denying PM, a claim which is incompatible with both the product and subject it came from being composite.

[30]An alternative way of construing 3 is by noting that this change is one that has heat as its product, i.e., the product is hot. 3 might be claiming that the hot cannot become what it already is, i.e., since the hot is hot, it cannot become hot. For a similar reading, see Kelsey {15, p. 335}.

one hot things come from a different hot thing. In Section 4, I will argue that it is the Eleatics' acceptance of PM that explains why they endorse 2, and so explains why they do not avail of this glaring option.

Turning now to the second horn, recall it reads as follows:

5. If 'what is' comes-to-be from 'what is not', then nothing underlies.
6. If 'what is' comes-to-be, then something must underlie.
7. Therefore, 'what is' cannot come-to-be from 'what-is-not'.

5 seems false when 'what is' and 'what is not' are construed as a pair of opposites: the hot coming from the cold does not, by itself, entail that nothing underlies. To begin addressing this difficulty, note that 5 assumes two further claims:

5.1. If 'what is' came-to-be from 'what is not', then 'what is not' would underlie (be the subject of change).
5.2. 'What is not' cannot underlie.

5.1 says that if the hot were to come from the cold, then the cold would be the subject of the warming. 5.2 tells us that the cold cannot be the subject of warming. Since cold cannot be the subject of the change, the Eleatic infers that there cannot be a subject of this change; there is no subject the hot comes from.

Aristotle provides the Eleatics' reason for 5.2 in *Phys.* I.6: no opposite can serve as the subject of change. Aristotle begins by telling us that his predecessors denied that opposites can act upon and create beings out of one another. For this reason, they posit some other being that is so worked upon. For instance, we learn that Love and Strife can make nothing out of one another, but that both must act upon some further thing(s), which is, of course, a reference to Empedocles (189a21–27).[31]

Aristotle does not detail why he and his predecessors agree that opposites cannot be the subject of change into one another. He merely tells us that he and they agree that opposites are not such to act and be acted upon by one another, and, thus, that there must be some distinct thing that is such to be so acted upon. The concern might be that were the cold to be the subject of warming, then the cold would have to admit heat, but that this is impossible. Alternatively, the concern might be that being cold does not explain why any cold thing can admit heat. On this reading, being cold does not explain how

[31]See Ebrey {9, ch. 2} for further discussion.

any subject can be the subject of warming. Rather, the subject must have some other feature—be such in some other way—for it to be capable of admitting the heat. On both readings, the subject of a change must be the right sort of thing to be capable of change, where the cold and the thing which is just cold are not the right sorts of thing.[32]

5.1 may also seem to pose a difficulty for my reading. It says, for instance, that were the hot to come from the cold, the cold would be the subject of change. Why would the Eleatic accept this claim? Hot things do come from cold things by coming from subjects which are initially cold, but not merely cold. In other words, the hot coming from the cold does not entail that the cold, rather than some other initially cold entity, is the subject of change. In the next section, I argue that it is the Eleatics' commitment to PM that explains this inference.

4 The Principled Mistake

My interpretation of EC raises two stark questions, questions which will ultimately be answered by clearly identifying the role PM plays in EC. The first question concerns the first horn: why does the fact that, say, the hot comes from the hot entail that both *terminus ad quem* and *terminus a quo* are identical? Why couldn't one hot thing come from another hot thing just as when a hot golden statue comes from some hot molten gold? Our second question concerns the second horn: why does it follow from the fact that the hot comes from the cold that the cold and nothing else is the subject of warming?[33]

Here I want to show that a hitherto unnoticed assumption has been operative in the argument, an assumption that Aristotle attributes to the Eleatics in

[32]One might object that I have mistranslated 'ὑποκεῖσθαι'. Some, like Michael Loux, claim that it was Aristotle who discovered the need for a subject of change. Since the Eleatic was unaware of that need, according to Loux, Aristotle cannot be claiming that the Eleatic assumes that need as a premise in EC. Loux {17, p. 285} suggests, "the remark in question has to be understood to have the neutral force "[t]here must be something there beforehand." So translated, the Eleatic just asserts that if 'what is' comes from 'what is not', then 'what is' comes from nothing at all. If this were right, then I am wrong that 5 assumes that an opposite cannot be the subject of change. In response, there is little evidence that Aristotle believes that he was the one who discovered the need for a subject of change, and there is strong evidence that he attributes awareness of this need to his predecessors. For instance, at 189b5–8 Aristotle says his predecessors agree that there is a subject, but they disagree about which being or beings is/are these subjects, whether it be one of the elements fire, air, earth, and water (or some combination), or whether it be atoms, etc. So their disagreement is not over whether there is a subject of change, but over what the subject is. See also 187a12–17 and Waterlow {23, p. 9} and Kelsey {16} for similar points.

[33]Many have worried that the Incomplete Reading cannot explain the second horn for this reason. See, for instance, Kelsey {15, p. 334} and Anagnostopoulos {2}.

Phys. I.2 and an assumption whose rejection is key to Aristotle's own solution to EC. In this section, I will discuss the assumption and its role on both horns. In the next two sections, I discuss the role Aristotle's rejection of this assumption plays in his response to EC. The assumption that concerns me is contained in the following passage from the beginning of *Phys.* I.2:

> The most pertinent question with which to begin will be this: In what sense is it asserted that all things are one? For 'is' is used in many ways. Do they mean that all things are substances, quantities, or qualities? And, further, are all things one substance—one man, one horse, or one soul—or quality and that one and the same—pale or hot or something of the kind? (185a20-26).[34]

In this quotation, Aristotle says that there are different categories of beings, substances, quantities, qualities, and so on. Thus there are different ways of understanding the Eleatics' claim that all beings are one. The claim could mean that all beings are substances (and only substances), or it could mean that all beings are quantities (and only quantities), or finally it could mean that all beings are qualities (and only qualities). For each of these options, there is a further question about the Eleatics' claim: is there just one or many beings in each category? For instance, if the Eleatics claim that all beings are, say, hot, then there is the further question as to whether there is just one hot thing or many hot things.

Both ways of understanding the claim that all beings are one is similar in one important way: each entails Predicational Monism. If the Eleatics think that all things are one because each thing is hot and only hot, then, irrespective of whether there is one or many hot things, each thing that exists is only one kind of thing. If they think that all things are one because each thing is a horse and only a horse, then, irrespective of whether there is one or many horses, each thing that exists is only one kind of thing.

PM is not to be confused with Monism. PM states that for every object x, there is some property P such that x is P and only P. It is not the stronger claim that there is some one property P such that for every object x, x is P and only P. Nor is PM the claim that there is one and only being that exists. These latter two claims are Aristotle's two different ways of understanding Monism. Each of these ways of understanding Monism does entail PM, but they are not

[34] ἀρχὴ δὲ οἰκειοτάτη πασῶν, ἐπειδὴ πολλαχῶς λέγεται τὸ ὄν, πῶς λέγουσιν οἱ λέγοντες εἶναι ἓν τὰ πάντα, πότερον οὐσίαν τὰ πάντα ἢ ποσὰ ἢ ποιά, καὶ πάλιν πότερον οὐσίαν μίαν τὰ πάντα, οἷον ἄνθρωπον ἕνα ἢ ἵππον ἕνα ἢ ψυχὴν μίαν, ἢ ποιὸν ἓν δὲ τοῦτο, οἷον λευκὸν ἢ θερμὸν ἢ τῶν ἄλλων τι τῶν τοιούτων.

entailed by PM. PM is not a claim, nor does it entail a claim, about the number of properties or beings that exist. It is a claim about the number of predicational relations an object can enter into, namely, it claims that each thing can enter into one and only one predicational relation.[35]

It is difficult to state PM more clearly than I have for reasons Aristotle himself raises. On the one hand, it is uncharitable to characterize the Eleatics as saying that each thing has only one property if this assumes that there are both subjects and the properties they possess. If the Eleatics allow that each thing is only, say, hot, then Aristotle complains that there must be two types of things that exist, both heat and the substance that possesses heat (185a29–32). But the Eleatics deny this. They would deny that there are both substances and qualities. They claim that, for each thing that exists, there is some F, such that that thing is F *through and through*. In other words, if x is F, the Eleatics do not think that there are two things that stand in some predication relation.

Let us apply this point to both substance and qualities. Consider horses. The Eleatic claims that a phrase of the form 'what is a horse' cannot be construed as referring to both some subject and the property of being a horse. The phrases 'the horse' and 'what is a horse' must be understood as referring to the one thing that is a horse through and through. The point also applies to qualities. Aristotle points out that Parmenides assumes in his arguments that there cannot be both the pale and that which is pale, e.g., there cannot be both the property of pallor and things which have that property (*c.f.* 186a22*ff.*). On this view, one cannot draw a distinction between 'what is pale' and 'pallor'. There is just the thing which is pale through and through. Thus if we suppose that Socrates is pale, then Socrates must be pale through and through. He cannot then be anything else in addition to being pale, in particular, he cannot also be a human, a substance. Thus there can be something which is pale and there can be something which is human, but there cannot be something which is a pale human.

It is this assumption of Predicational Monism (PM) that explains our most important inferences in EC. On the first horn, if the hot comes from the hot, then it will be some hot thing (and only hot thing) that is the subject of change. This effectively blocks the option the Eleatic ignores: one hot thing turns into another hot thing, e.g., hot gold becomes a hot statue. In such a case, the subject is not merely hot. It is also gold, or a stone, or some other such thing. But if a

[35]See Clarke {4, p. 48} for a detailed discussion on the varieties of monism in *Phys.* I.2-3.

subject were hot and only hot, it cannot also be a gold, or a stone, etc. Such a subject has no feature or property it can lose or gain other than heat. Thus it is incapable of changing from one hot thing to another hot thing.

On the second horn, we must explain why it follows from the fact that the cold is unable to serve as the subject of a warming that there would be no subject whatsoever. This again is explained by the assumption of PM. If the hot comes from the cold, then what the hot comes from is only cold. There is nothing else the cold subject can be, e.g., it cannot be a stone, or clay, etc. This shows us that if the hot were to come from the cold, then the subject would be cold and nothing more. Since such an entity cannot be the subject, the hot coming-to-be from the cold would entail that the hot comes from no subject at all.[36]

On the interpretation I am defending, EC concerns the ontology of changing beings. The Challenge, in effect, turns on 3 key claims:

A1: Change occurs between opposites.
A2: There is a subject of each change distinct from those opposites the change occurs between.
A3: Each being has one and only property (PM).

A1 and A2 place two conditions on what beings can change. According to A1, if a being is to change, it must be capable of admitting those opposites, like the hot and cold, that change occurs between. According to A2, whatever changes cannot be one of those opposites, e.g., the subject that warms cannot be just cold. It must be distinct, in someway, from both the hot and the cold by being, for instance, a stone, or clay, etc. Aristotle and the Eleatics agree on A1 and A2; they agree that change is possible only if both A1 and A2 are satisfied. Their disagreement is over A3, which is incompatible with the conjunction of A1 and A2. If A3 is true, then the subject cannot both possess those opposites lost and gained in a change, and, at the same time, be distinct from those opposites. The Eleatics accept A1–A3. They accept that a subject must undergo each change, but they are unable to clearly distinguish any candidate for this subject other than the *termini* of a change. Since they agree that an opposite cannot undergo a change, could never be a subject of change, their acceptance of PM forces

[36]Compare my defense of the Incomplete Reading to Anagnostopoulos {2, p. 262} who also agrees that the second horn relies on the assumption from *Phys.* I.6 that no opposite can be the subject of change. While our readings are in agreement on this point, Anagnostopoulos offers little argument as to why it follows from the fact that 'what is' comes from 'what is not' that there would be no subject. It is precisely the assumption of PM that explains this inference on my reading.

them to conclude that change is impossible.

This reading of EC satisfies both requirements for an adequate interpretation discussed in Section 2. Aristotle attributes PM to the Eleatics in *Phys.* I.2, and he attributes both A1 and A2 to all his predecessors, including the Eleatics, in *Phys.* I.5 and I.6 respectively. EC, in effect, comprises an argument that the assumption of PM makes it impossible for A1 and A2 to be satisfied. This reading, then, has the virtue of both identifying EC's missing premises and identifying premises that Aristotle attributes to the Eleatics earlier in *Phys.* I.

5 Aristotle's Solution to EC

Over the next two sections, I offer additional support for my reading by arguing that Aristotle uses his response to PM to solve EC; his explanation of how beings can have more than one property is key to that solution. I first outline Aristotle's solution to EC in *Phys.* I.8. I then argue that this solution relies on Aristotle's rejection of PM.

Aristotle solves EC by distinguishing two ways for the product of a change to come from something else. (But, as I argue below, this distinction itself is one that Aristotle motivates by way of his response to PM). Aristotle introduces this distinction by pointing out that we can speak in two different ways of something acting, suffering, or changing *from* being a doctor, either from being coincidentally a doctor or precisely insofar as being a doctor (191a34–191b4). The distinction marks a difference in whether being a doctor plays a role in explaining why some individual is able to act, suffer, and change in some specific way.

As an example, let us take the famous doctor Galen. Suppose Galen builds a house. This event can be described as one in which a doctor builds a house. While this description is true, there is nothing about being a doctor that explains Galen's ability to build a house. In this instance, Galen builds a house from being a doctor, but only from being *coincidentally* a doctor. This contrasts to a case where being a doctor explains Galen's ability to act, suffer, or change. For instance, when Galen cures a patient, the event can be described as one in which a doctor cures a patient. In this case, being a doctor is precisely what explains Galen's ability to tend to his patients. Galen, then, cures from being a doctor, not merely coincidentally, but precisely insofar as he is a doctor.

Just as we can say that Galen does something from being a doctor in two

ways, Aristotle points out that we can understand the claim that 'what is' comes from something in two ways, and, so understood 1 in two different ways:

1a. 'What is' comes-to-be non-coincidentally from 'what is' or from 'what is not'.
1b. 'What is' comes-to-be coincidentally from 'what-is' or from 'what is not'.

1a is true only if being 'what is' or 'what is not' explains the ability of some subject to be turned into 'what is'. In contrast, 1b is true only if the subject is either 'what is' or 'what is not' at the beginning of the change and neither description picks out the relevant ability of the subject to be turned into 'what is'.

The distinction between 1a and 1b by itself shows that EC, the argument from 1-8, is not sound. Read as either 1a or 1b, 1 falsely assumes an exhaustive distinction between two ways for 'what is' to come from 'what is' or 'what is not'. Since 1 is false, EC is not sound. Nevertheless, each horn might still contain sound arguments against both 1a and 1b: they may effectively show that 'what is' cannot come either coincidentally or non-coincidentally from 'what is' or 'what is not'. Aristotle does concede that the arguments on both horns, 2–4 and 5–7, are valid and sound when read non-coincidentally. He says that he is "in agreement with them in holding that nothing can be said without qualification to come from what is not (191b13–14)...in the same way we maintain that nothing comes-to-be [unqualifiedly] from what is (191b17-18)."

Aristotle is right to make this concession. If the hot were to come non-coincidentally from the hot, then what the hot came from would be a subject of warming precisely in virtue of its being hot. But while a subject might change from being one hot thing to another hot thing, this is because the change is a sculpting, or shaping, etc., and not a warming. In other words, the change is not one in which the subject is becoming hot, even though, it is hot at the end of the change. Similarly, if the hot were to come non-coincidentally from the cold, then what the hot came from would be a subject of warming precisely in virtue of being cold. But this is a possibility which, in agreement with his predecessors, Aristotle rejected in *Phys.* I.6.

While the arguments on 2–4 and 5–7 are valid and sound when given their non-coincidental readings, Aristotle argues that neither argument succeeds when given their coincidental readings. Consider the first horn with the addition of the 'coincidental' qualification:

2b. If 'what is' comes-to-be coincidentally from 'what is', then it is already.

3b. 'What is' cannot come-to-be coincidentally if it is already.

4b. Therefore, 'what is' cannot come-to-be coincidentally from 'what is'.

While the argument is valid, Aristotle argues that it is not sound because 3b is false:

> Similarly, there is no coming to be, except coincidentally, from what-is, or of what-is.[37] But coincidentally what is also comes to be, in the same way as if animal comes to be from animal and a certain animal from a certain animal. (Suppose, for instance, that a dog comes to be from a horse. For the dog would come to be not only from a certain animal, but also from animal, though not insofar as it is animal for that is already present (191b17–23).[38]

This bit of text is difficult. It speaks of a horse coming from a dog and an animal from an animal, a bizarre example.[39] Let us bracket the question as to why Aristotle picks such a bizarre example and focus on the point the example is meant to illustrate: 'what is' can come coincidentally from 'what is'. In the example provided, the perspicuous description of the change is that the dog comes from a horse. Since a dog and a horse are both animals, this change can also be described as one where animal comes-to-be, though, coincidentally, from animal. Aristotle's point is that while animal comes from something which happens to be an animal, it does not do so insofar as that prior thing is an animal, i.e., being an animal does not explain how the horse can be turned into a dog.

How do we apply this point to 2a–4b? Suppose our hot gold is crafted into a hot statue. This change is most properly characterized as a sculpting,

[37] I follow Ross {21, p. 495} and Kelsey {15, pp. 352–353} in taking Aristotle to be referring to the *terminus a quo* in two ways, as 'that from which the product comes into being' and as 'that which becomes the product'. I then take 'κατὰ συμβεβηκός' to qualify both claims. It says that 'what is' can coincidentally come from 'what is', and also that 'what is' can coincidentally become 'what is'. On this reading, Aristotle dose not here deny that 'what is' can come from 'what is'. He asserts that 'what is' can do so, but only coincidentally.

[38] ὡσαύτως δὲ οὐδ' ἐξ ὄντος οὐδὲ τὸ ὂν γίγνεσθαι, πλὴν κατὰ συμβεβηκός· οὕτω δὲ καὶ τοῦτο γίγνεσθαι, τὸν αὐτὸν τρόπον οἷον εἰ ἐκ ζῴου ζῷον γίγνοιτο καὶ ἐκ τινὸς ζῴου τι ζῷον· οἷον εἰ κύων ἐξ ἵππου γίγνοιτο. γίγνοιτο μὲν γὰρ ἂν οὐ μόνον ἐκ τινὸς ζῴου ὁ κύων, ἀλλὰ καὶ ἐκ ζῴου, ἀλλ' οὐχ ᾗ ζῷον· ὑπάρχει γὰρ ἤδη τοῦτο·

[39] Some have found the speculative biology unacceptable. Ross {21, p. 495}, for instance, suggests that we read the text as saying 'κύων ἐκ κυνὸς ἢ ἵππος ἐξ ἵππου γίγνοιτο'. Aristotle would then be speaking of a dog coming from a dog and a horse coming from a horse. Ross's emendation can be taken in two ways. The first takes Aristotle to be speaking of efficient causation, which leaves open how this example is meant to illustrate what is involved in, if you like, material causation. The second takes Aristotle to be claiming that the matter for the generation of a dog is itself a dog, which is no better than construing him as claiming that the matter for the generation of the dog is the horse. So, I will proceed with the text as stated.

as a change where the shaped has come from the unshaped. Nevertheless, the change can also be described as one where the hot came from the hot, even as one where the hot becomes hot. It is important to emphasize, though, that the description 'the hot becomes hot' is not a description of a warming. Aristotle is not claiming that the hot warms up. Nor does the change in which the hot comes from the hot count as a warming. The relevant process of change is a sculpting, not a warming. Nevertheless, this change can be described as one where the hot comes coincidentally from the hot, where the presence of 'coincidentally' tells us that this is not to be understood as the most perspicuous description of the change.

Turning now to our second horn:

5.1b. If 'what is' came-to-be coincidentally from 'what is not', then 'what is not' would underlie (be the subject of change).

5.2b. 'What is not' cannot underlie.

5b. If 'what is' comes-to-be coincidentally from 'what is not', then nothing underlies.

6b. If 'what is' comes-to-be, then something must underlie.

7b. Therefore, 'what is' cannot come-to-be coincidentally from 'what is not'.

The argument is valid, but not sound. Aristotle argues that 5.1b is false, thus allowing him reject 5b: the fact that 'what is' comes from 'what is not' does not entail that nothing underlies. Aristotle makes this point in the following passage:

> We agree with them in saying that nothing comes-to-be without qualification from what is not, but we say that things come-to-be in a way from what is not, for instance, things come-to-be coincidentally [from what is not]; for things come from the privation, which in itself is not, and which is not present (191b13–16). [40]

In this quotation, Aristotle concedes that the hot cannot come non-coincidentally from 'what is not', i.e., from the cold. But he claims that it can still come coincidentally from 'what is not', which is naturally glossed on my reading as the

[40] ἡμεῖς δὲ καὶ αὐτοί φαμεν γίγνεσθαι μὲν μηθὲν ἁπλῶς ἐκ μὴ ὄντος πὼς μέντοι γίγνεσθαι ἐκ μὴ ὄντος, οἷον κατὰ συμβεβηκός ἐκ γὰρ τῆς στερήσεως, ὅ ἐστι καθ' αὐτὸ μὴ ὄν, οὐκ ἐνυπάρχοντος γίγνεταί τι· Both 'unqualifiedly' ('ἁπλῶς') and 'coincidentally' ('κατὰ συμβεβηκός') are adverbial phrases that could modify two different verbs: 1) 'come-to-be' ('γίγνεται') and 2) 'being' ('εἶναι'). I presume it modifies the former. I also assume that Aristotle does not use 'unqualifiedly' ('ἁπλῶς') to restrict his attention to unqualified becoming. Rather, the phrase qualifies Aristotle's acceptance of the Eleatics' claim that something cannot come from 'what is not'. Aristotle accepts this claim when it is not qualified by 'coincidentally'. He then turns to defend a qualified way (πὼς) for something to come from 'what is not'.

claim that the hot comes comes coincidentally from the cold, the privation of the hot. Aristotle is here stressing that what the hot comes from happens to be cold, but that thing is not a subject of change in virtue of being cold. It is a subject in virtue of being, say, a cold piece of clay, or a cold glass of water. This shows that the hot coming coincidentally from the cold does not entail that the cold is the subject of the change. More generally, the fact that 'what is' comes coincidentally from 'what is not' does not entail that 'what is not' is the subject of change. Thus 5.1b is false.

6 Aristotle's Rejection of PM

Aristotle's solution to EC relies on a distinction between what we can call *coincidental becoming* and *non-coincidental becoming*, a distinction which he introduces in *Phys.* I.7. It has gone unnoticed that Aristotle's introduction of this distinction relies on his response to PM in *Phys.* I.2. Thus it has gone unnoticed that Aristotle's solution to EC relies on his rejection of PM.

First note that PM is incompatible with a distinction between coincidental and non-coincidental becoming. On the first horn, we saw that Aristotle claims that when a dog comes from a horse, then animal comes coincidentally from animal. This claim assumes that neither the *terminus a quo* nor *terminus ad quem* possesses just one property, a possibility excluded by PM. The former is not merely a horse. It is also an animal. The latter is not merely a dog. It is also an animal. On the second horn, Aristotle claims that the hot comes coincidentally from the cold. This is possible only if the hot comes from something which is cold, but not insofar as that thing is cold. Thus if the hot comes coincidentally from the cold, the subject it comes from must be something else in addition to being cold, i.e., it must be a cold horse, or a cold stone, or a cold piece of batter. This requires that the subject is something else in addition to being cold, a possibility excluded by PM.

Aristotle's responds to PM in *Phys.* I.2:

> (i) Even the more recent of the ancient thinkers were in a pother lest the same thing should turn out in their hands both one and many. (ii) So some, like Lycophron, were led to omit 'is', others to change the mode of expression and say 'the man has been whitened' instead of 'is white', and 'walks' instead of 'is walking', for fear that if they added the word 'is' they should be making the one to be many—as if 'one' and 'is' were always used in one and the same

> way. (iii) What is may be many either in definition (for example to be white is one thing, to be musical another, yet the same thing may be both, so the one is many) or by division, as the whole and its parts (185b25–34).[41]

In (i) Aristotle summarizes one of the Eleatics' primary worries. He says that a puzzle about an entity being one and many also was tackled by other philosophers, including the sophist Lycophron mentioned in (ii). The use of 'also' indicates that the puzzle was also addressed by the Eleatics, the topic of Aristotle's discussion in *Phys.* I.2. This tells us that a puzzle over how a being can be both one and many lies behind the Eleatics' claim that each being can only be one kind of thing, which is what we might expect given that the Eleatics subsequently assume PM in their arguments for Monism (*c.f.* 186a22*ff.*).

The puzzle is straightforward. Consider the musician Arion. Arion is one being. Thus he is one. Since he is both a man and musical, he is also two. Hence Arion is both one and many. We secure a contradiction if we assume that being one and many are contradictory properties. The Eleatic takes the contradiction seriously and replies by saying that each being is only one thing, e.g., Arion is a man or musical, but he is not a musical man.

Aristotle thinks that the puzzle is easy to solve. In (iii) he says that there are different ways for a being to be one and many, namely, being one and many in number as opposed to being one and many in definition. Socrates, Arion, and Plato are many men, where this means that they are numerically many. Arion is one man, where this means that he is numerically one man—there is just one of him. On the other hand, being a man, a dog, a great oak, cold, tall, and cheerful are many in definition, where this means that what it is to be each is different. So a numerically one being, like Arion, can be many just because he has many properties each of which is different in definition, e.g., he is a man, musical, cheerful, etc.

This distinction between different ways of being one and many is precisely the distinction that Aristotle uses to distinguish between coincidental and non-coincidental becoming in *Phys.* I.7. In that chapter, Aristotle is concerned to reconcile the conclusion of *Phys.* I.5 that some pair of opposites are the principles

[41] ἐθορυβοῦντο δὲ καὶ οἱ ὕστεροι τῶν ἀρχαίων ὅπως μὴ ἅμα γένηται αὐτοῖς τὸ αὐτὸ ἓν καὶ πολλά. διὸ οἱ μὲν τὸ ἐστὶν ἀφεῖλον, ὥσπερ Λυκόφρων, οἱ δὲ τὴν λέξιν μετερρύθμιζον, ὅτι ὁ ἄνθρωπος οὐ λευκός ἐστιν ἀλλὰ λελεύκωται, οὐδὲ βαδίζων ἐστὶν ἀλλὰ βαδίζει, ἵνα μή ποτε τὸ ἐστὶ προσάπτοντες πολλὰ εἶναι ποιῶσι τὸ ἕν, ὡς μοναχῶς λεγομένου τοῦ ἑνὸς ἢ τοῦ ὄντος. πολλὰ δὲ τὰ ὄντα ἢ λόγῳ (οἷον ἄλλο τὸ λευκῷ εἶναι καὶ μουσικῷ, τὸ δ' αὐτὸ ἄμφω· πολλὰ ἄρα τὸ ἕν) ἢ διαιρέσει, ὥσπερ τὸ ὅλον καὶ τὰ μέρη.

with the conclusion of *Phys.* I.6 that the subject of change is a principle distinct from those opposite the change occurs between. This raises the question both of how many principles there are, and, more importantly, the question of what exactly a product comes from, the subject or privation. Aristotle's crucial move in answering these questions is to claim that the subject is one in number, two in form:

> In every case, there must be something which underlies [is the subject for] what comes to be; even if the subject is one in number, the subject is not one in form, since being a man is not the same as being an unmusical thing. (By 'in form' I mean the same as 'in account') (189b13–16; *c.f.* 190b23–24).[42]

Here Aristotle says that even if the subject is one in number, it can still be many, in particular, it can be two in form, which is equivalent to being two in definition. This is the same claim we saw Aristotle using in *Phys.* I.2 to respond to the Eleatics' argument for PM. What it is to be a man differs from what it is to be unmusical. Thus one individual thing like Arion can be both one and many. He is numerically one entity, but, nevertheless, he is several kinds of things.[43] This is a claim, we have seen, that the Eleatics cannot accept. Since they endorse PM, they cannot agree that any entity is both musical and a man.

After establishing that the subject is one in number, two in form, Aristotle distinguishes what the product comes from coincidentally *vs.* what it comes from non-coincidentally (190b25–27). He tells us that it is not coincidentally that things comes from the subject. In contrast, it is only coincidentally that things come from the privation and opposite, where Aristotle lists things like the unmusical and the cold as opposites (190b30-33). This distinction requires Aristotle's rejection of PM: the product comes coincidentally from the privation because it comes non-coincidentally from the subject and the privation is coincidental to the subject, e.g., the man is also unmusical. PM excludes the possibility that the subject has any coincidental features at all.

The distinction between different ways of being one and many also allows Aristotle a nuanced view about how many principles there are, a view unavailable to the Eleatics. Aristotle concludes that the principles, subject, form, and privation, count as two in number, but three in being (190b35–191a3). The form

[42]διωρισμένων δὲ τούτων, ἐξ ἁπάντων τῶν γιγνομένων τοῦτο ἔστι λαβεῖν, ἐάν τις ἐπιβλέψῃ ὥσπερ λέγομεν, ὅτι δεῖ τι ἀεὶ ὑποκεῖσθαι τὸ γιγνόμενον, καὶ τοῦτο εἰ καὶ ἀριθμῷ ἐστιν ἕν, ἀλλ' εἴδει γε οὐχ ἕν· τὸ γὰρ εἶδει λέγω καὶ λόγῳ ταὐτόν·

[43]There is disagreement over whether 'one in number' is a monadic predicate, as I take it, or a dyadic predicate. See Code {6, 7}, Irwin {12, p. 85}, Matthews {19, 18}.

is one in number. The subject/privation complex is one number, there is just one entity that is, say, musical and a man. But what it is to be form, privation, and subject differs, e.g., what it is be a man differs from what it is be unmusical and what it is to be musical. Since this conclusion requires the subject to be complex in a way excluded by PM, it is a view unavailable to the Eleatics.

Aristotle, then, motivates his distinction between coincidental and non-coincidental becoming by utilizing his response to PM. Since this distinction is required to solve EC, and since this distinction is one Aristotle argues for by rejecting PM, we can then see why the disagreement over PM generates such an intractable debate between Aristotle and the Eleatics. The Eleatics have a principled philosophical position, PM, that excludes them drawing the distinction between coincidental and non-coincidental becoming required to solve EC. It is Aristotle's response to PM that allows him motivate that distinction and escape the clutches of the dilemma.[44]

7 Conclusion

My interpretation of EC has two important upshots. The first upshot concerns the relation between *Phys.* I.8 and the book in which it is contained. *Phys.* I.8, on my reading, does not include a full statement of EC. Three key premises are assumed, but not stated. The first premise is PM—each being has one and only one property. The second is the claim that change occurs between opposites—each change requires a subject that can lose and gain those opposites a change occurs between. The third is that there must be a subject distinct from those opposites the change occurs between. While these premises are not stated in *Phys.* I.8, they are stated in earlier chapters in *Phys.* I.

The second upshot concerns the philosophical problem at the heart of EC. On my interpretation, EC concerns the ontological complexity beings must possess if they are to be capable of change. Unless a being is capable of being both one and many, there will be no change. As such, unless we can untangle those difficulties with construing beings as being both one and many, of possessing the requisite complexity, we will find no escape from the horns of the dilemma.

[44] Anagnostopoulos {2} also claims that Aristotle's distinction between coincidental and non-coincidental becoming relies on his distinction between being one and many in number and being. Our readings differ in that mine sees the disagreement from *Phys.* I.2 as key to understanding the role of these distinctions in *Phys.* I.8.

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