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Making Room for Matter: Material Causes in the *Phaedo* and the *Physics*

Abstract: It is often claimed that Socrates rejects material causes in the *Phaedo* because they are not rational or not teleological. In this paper I argue for a new account: Socrates ultimately rejects material causes because he is committed to each change having a single cause. Because each change has a single cause, this cause must, on its own, provide an adequate explanation for the change. Material causes cannot provide an adequate explanation on their own and so Socrates rejects them. Aristotle agrees that material causes cannot explain changes on their own, but by allowing the same change to have multiple causes, he makes room for a material cause. Aristotle draws attention to the anti-Platonic implications of his four causes in a passage in *Physics* II.3 (195a3-14) that has been overlooked by commentators.

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Introduction

Socrates rejects material causes in the *Phaedo*, in sharp contrast to Aristotle, who gives them a fundamental role in his account of the natural world. It is frequently suggested that Socrates rejects material causation because he requires causes to be rational or to be teleological.¹ Aristotle would then be able to have material causes because he does not have any such requirement. In this paper I argue that this is not the source of their disagreement. Instead, Plato and Aristotle ultimately disagree about material causation because of a difference in their causal frameworks: Socrates thinks that each change has just one cause, whereas Aristotle thinks each change has multiple causes. If each change has only one cause, this cause must adequately explain the change on

¹ E.g., Annas 1982, Bostock 1986, Wiggins 1986, Hankinson 1998, Menn 2010, whose views are discussed below.

its own. Socrates rejects material causes because such causes, on their own, cannot adequately explain changes. Aristotle, on the other hand, thinks each change has four causes, which are all involved in the explanation of a given change. This allows matter to be a cause for Aristotle, because it only needs to provide part, not all, of the explanation.

The paper has three main parts. First, I examine features common to Socrates and Aristotle's causal theories in order to frame the discussion and argue that they are not talking past each other. Second, I turn to why Socrates rejects material causes in the *Phaedo*. This involves the most interpretive controversies and so is the largest part of the paper. I argue that Socrates rejects material causes because they violate the requirement that the same thing not cause opposites. Then I argue that he is committed to this requirement because he is committed to one cause per change. In the third part of the paper I explain how Aristotle can have a material cause by having multiple causes. And I argue that Aristotle draws attention to relevant anti-Platonic features of his causal account in a passage from *Physics* II.3 that has not been properly appreciated.

Before beginning, it is important to clarify one aspect of my thesis. I am claiming that Aristotle, by having four causes, is rejecting the *sort* of account found in the *Phaedo*, an important type that Aristotle knew well, and by rejecting it he can have material causes in his account, which Plato cannot have in the *Phaedo*. I am not claiming that Aristotle is targeting the *Phaedo's* account in particular, although we do know that Aristotle was quite familiar with this specific account.² For example, perhaps instead the sort of account in the *Phaedo* was popular in the Academy at the time and so Aristotle is more directly rejecting the Academy's account.

The general framework

In this section, I argue that Plato and Aristotle conceive of causes very similarly, so they are not talking past each other when they disagree about material causes.

Plato and Aristotle have a number of different terms that play a key role in their accounts of the natural world, including principle (ἀρχή), nature (φύσις), being/substance (οὐσία), and cause (αἰτία and αἴτιον).³ It is a difficult question,

² In the section below on Aristotle's account I discuss *GC* 335b10–24, where Aristotle says that forms are the only causes that Plato accepts in the *Phaedo*.

³ *Laws* X is the primary place where Plato uses the terms “principle” and “nature” when giving an account of the natural world. On a separate note, Frede 1980 claims that in the *Phaedo*

which we need not investigate here, how these terms relate to one another for Plato and Aristotle. Our focus is simply on their view of causes. Many scholars have noted that the terms typically translated “cause” in Plato and Aristotle (αἰτία and αἴτιον) pick out something different from our modern notion of cause. This has led some scholars, most famously Vlastos, to argue that we should translate them as “reason” (Vlastos’ preference) or “explanation” rather than cause.⁴ In this paper, I retain the traditional translation “cause,” although this is simply meant to track the Greek, not to presuppose any contemporary notion of causation.

In the *Phaedo* Socrates discusses causes to respond to Cebes’ objection to the affinity argument for immortality. Socrates says responding requires a “thorough inquiry into the cause of coming-to-be and passing away” (95e9–96a1). He is explicitly concerned with natural science (περὶ φύσεως ἱστορία), which he connects with an earlier tradition that we have come to think of as Greek cosmology and medicine. This is what he says natural science involves:

It seemed to me splendid to know the causes of each thing: because of what [διὰ τι] it comes to be, because of what it perishes, and because of what it is. (96a7–9)⁵

Throughout Socrates’ autobiography he connects causes with answers to the “because of what?” questions and looks for causes of coming to be, perishing, and being.⁶ (“διὰ τί;” is typically translated “why?” but, for reasons explained later, I will keep the more literal “because of what?”) Thus, to the extent that we allow answers to the “because of what?” question that we would not label as “causes,” Plato’s conception of causes is broader than ours. And while today we might treat natural laws as the bedrock of science, in the *Phaedo* causes plays this role.

Socrates’ description of causes in the *Phaedo* is very similar to Aristotle’s in the *Physics*. In *Physics* II.1 Aristotle defines nature and relates it to what his predecessors have been searching for. And in *Physics* II.3 he explains why we need to investigate causes:

These distinctions having been drawn [in *Physics* II.1 and II.2], one must examine the causes, what sorts and how many they are. For since our investigation is for the sake of knowing, and we do not suppose we know each thing until we grasp the “because of

Socrates distinguishes between *aitia* and *aition*. Sedley 1998, in his n. 1, provides reasons to worry that the distinction is not rigorously adhered to.

⁴ Vlastos 1969; Gallop 1977 translates ‘reason’ and Sharma 2009 advocates for ‘explanation.’

⁵ Translations from the *Phaedo* are my own, sometimes drawing from Gallop’s or Sedley and Long’s translations.

⁶ See Sedley 1998, 115, for further discussion of Plato’s causal language.

what” [διὰ τῆ] of each and that is to grasp the primary cause — it is clear that we must do this for coming-to-be, passing away, and all natural change; so that, knowing their principles, we may try to bring each object of inquiry back to them. (194b16–24)⁷

Aristotle says that their goal is to have knowledge of coming-to-be, passing-away, and all natural change. He wants to grasp the various sorts of cause because doing so will provide him with answers to the “because of what?” question that are needed to understand the natural world. Thus, both Plato and Aristotle see themselves as working within the ancient Greek tradition of natural science, they both see causes as answers to “because of what?” questions, and they both think we must grasp causes in order to understand coming to be and passing away.⁸ This is because they both think that knowledge is acquired by grasping causes, that is, by grasping “because of what?”⁹

For both of them causes are responsible for what they are causes of. Gallop, Hankinson, Sedley, and many others emphasizes that when reading Plato we must keep in mind that “αἰτία,” the Greek term translated “cause,” tells us what is responsible for something¹⁰ and Moravcsik, similarly, emphasizes that this is true for Aristotle’s use of the term.¹¹ It is connected to the legal context of determining who is ultimately responsible for a crime. This notion of cause is quite different from one in terms of necessary and sufficient conditions. There is no reason to think that in identifying what is responsible for something we are identifying necessary or sufficient conditions needed for that thing to happen: I might be responsible for something (e.g., a cup of coffee) even if it would have existed without me (someone else would have made it) and even if I could not have brought it about on my own (if nothing else background conditions must be met, such as a place to put the coffee maker, etc.).

As mentioned earlier, these sorts of considerations have led some to suggest that we should not translate “*aitia*” as “cause” but rather as “explanation” or “reason.” Certainly neither Plato nor Aristotle thinks that causes must be temporally prior, nor need they be an event – features which some contemporary philosophers think of as central to causes. Neither of them thinks of causes as limited to agents that act on something else. Instead, Plato and Aristotle are looking for what is responsible, the answer to “because of what?” One draw-

⁷ Translations of the *Physics* are my own, sometimes drawing from Charlton’s translation.

⁸ Plato says that he is also looking for causes of being, whereas Aristotle does not mention being and says he is looking for causes of all natural change. These differences will not matter for the purposes of the paper.

⁹ See, e.g., *Meno* 98a, *Physics* I.1, and *Posterior Analytics* I.2.

¹⁰ Gallop 1977, 169; Hankinson 1998, 71–74 and 85–86, and Sedley 1998, 115.

¹¹ Moravcsik 1991.

back to the translations “explanation” and “reason” is that these terms are frequently used to pick out linguistic expressions or cognitive states, rather than what is picked out by these expressions or states.¹² In this paper I will speak of one or more causes (jointly) “explaining” something. Again, this should not be taken to indicate anything mental, linguistic, or primarily epistemic; rather, “X explains B” is simply equivalent to “B because of X.”

Sedley connects the fact that causes are responsible to the fact that in the *Phaedo* causes are typically things (in a very broad sense of “thing”) as opposed to events, states of affairs, actions, etc. Candidate causes in the *Phaedo* include people, parts of people, numbers, reason, air, bones and sinews, and forms. This fits well with the idea that a cause tells us what is responsible: we typically find things responsible for changes, the paradigm being when we say that somebody is responsible for committing a crime. Aristotle also tends to pick out the four causes using nouns, in the *Physics* giving us things like bronze, fire, blacksmiths, saws, bodies, doctors, crafts, health, etc. Again, these are the things that Aristotle thinks are responsible for a change happening. This is not a strict claim about the metaphysical status of cause for either Plato or Aristotle. They are looking for what is responsible and this is likely to be some thing, but sometimes what they find responsible is some action or event.

Recall that causes are answers to the question “because of what?” It is fairly natural to answer such questions by providing a thing: “because of what is he tired?” – “wine.” This is one reason to translate “διὰ τῆ” with the more literal “because of what?” rather than “why?” – which is often more naturally answered with the description of an event.

Plato’s account

We can now turn to why Socrates does not allow matter-like causes in the *Phaedo*.¹³ After Socrates introduces the study of nature and describes some of claims about causes that he found puzzling, he describes three causal theories: the theory in terms of *nous* [reason] he hoped Anaxagoras would provide, the theory Anaxagoras

¹² Although Barnes 1994, 90, is right that ‘explanation’ often refers to the actual features of the world that are the basis for some fact.

¹³ In Plato’s dialogues, the term for matter, “ύλη,” only means something like matter (as opposed to trees or lumber) in the *Philebus* (54c). Otherwise, it is Aristotle’s term. In Ebrey 2007, chapter 4, I argue that Aristotle thinks that no one before him, including Plato, properly understood matter. In describing Socrates as rejecting material causes, I am using the term “material” loosely.

actually provided, and the theory of forms-as-causes that Socrates adopted. Socrates' criticism of material causes comes in his criticism of the theory that Anaxagoras actually provided. It will be useful to look at most of his criticism:

...as I went on with my reading I saw that the man made no use of his *nous* [reason], and did not assign any causes for the ordering of things, but assigned responsibility [αἰτιώμε-
vov] to air and ether and water and many other absurdities. And it seemed to me that what happened was very much as if one should say that Socrates does whatever he does by *nous*, and then, in trying to give the causes of the particular things I do, should say first that I am now sitting here because of these things, that my body is composed of bones and sinews.... or again he'd mention other sorts of causes for our conversing, assigning responsibility to voice and air and hearing and countless other things, and having neglected to mention the true causes, that since Athenians decided that it was best to condemn me, because of that it seemed to me best to sit here and more just to stay and undergo whatever penalty they order. For, by the Dog, I suppose these bones and sinews of mine would have been in Megara or Boeotia long ago, carried by an opinion of what was best, if I did not suppose it was more just and nobler to undergo whatever penalty the city may assign rather than to escape and run away. But it is most absurd to call things of that sort causes. If someone were to say that I could not have done what seemed proper to me if I had not bones and sinews and other things that I have, he would be telling the truth. But to say that I do what I do because of these things, and that I perform these things with *nous*, but not from the choice of what is best, would be an extremely careless way of talking. This is to be unable to distinguish that in reality the cause is one thing, and the thing without which the cause could never be a cause is quite another. (98b7–99b4)

Socrates draws an analogy to his situation in jail to explain why it is ridiculous to make things like air, ether and water causes. The explanations Anaxagoras gives are analogous to saying that Socrates' bones and sinews are the cause of his being in jail, rather than his thinking that this is best. This is to confuse the cause with something necessary for the cause to be a cause.

Why does Socrates think that the bones and sinews are a necessary prerequisite rather than the proper cause? I will argue that Socrates has neutral criteria for being a cause, which he uses to test the various options: (a) what he initially supposed were causes, (b) *nous*, (c) Anaxagorean materials, and (d) forms. He thinks (b) *nous* and (d) forms meet these criteria (the problem with *nous* is that he does not know how to implement the theory). On the other hand, he thinks that (a) what he initially took to be causes and (c) bones and sinews do not meet these criteria. Consider again what he says is wrong with causes like bones and sinews:

For, by the Dog, I suppose these bones and sinews of mine would have been in Megara or Boeotia long ago, carried by an opinion of what was best¹⁴, if I did not suppose it

¹⁴ Some, e.g., Gallop, translate this clause as “impelled by their [i.e., the bones and sinews] judgment of what is best.” I do not think this is the most natural translation. But even if it is

was more just and nobler to undergo whatever penalty the city may assign rather than to escape and run away. (98e5–99a4).

Why is it supposed to be absurd to call the bones and sinews a cause of his staying in jail? According to the dominant reading, Socrates thinks that causes should be teleological and/or rational and his criticism of Anaxagoras's account is that it is neither.¹⁵ This is a key passage for this reading. (We will examine other evidence at the end of this section.) The problem is that Socrates does not object to the bones and sinews on the grounds that they are not teleological or rational. Instead, he points out that they can be involved in quite different changes, depending on what opinion is guiding them. Throughout the autobiographical section Socrates is committed, quite generally, to the causal requirement that the same thing cannot cause opposites. Thus, following Sedley, we should interpret Socrates as disqualifying bones and sinews on the grounds that they do not meet this general causal requirement.¹⁶

Socrates has three requirements on causes in the *Phaedo*, each having to do with opposites.¹⁷ As an example of the requirement that the same thing not cause opposites, consider Socrates' explanation of why one person cannot be bigger than another "by a head":

I suppose you would be afraid... if you said that someone is bigger or smaller by a head, first, because the bigger is bigger and the smaller smaller by the same... (101a5–a8)

If we generalize this claim, Socrates is saying that we should avoid claiming that X (a head) is a cause of Y (being bigger) if X has as good a claim of causing Y as it does of causing the opposite of Y (being smaller). Put in terms of question and answer, if I ask, "because of what is that bigger," I cannot answer "because of a head" since this could just as easily be an answer to the question "because of what is that smaller?" Socrates' bones and sinews cannot be the cause of his staying since it is no more because of them that he stays than because of them that he leaves. Thus, when Socrates says that he could have long ago been in Megara or Boeotia, the point is that bones and sinews do not particularly account for his staying in jail.

correct, it need not seriously affect my interpretation. On any interpretation, the bones and sinews cannot themselves be a proper cause of leaving, since Socrates says that it is absurd to call things of this sort causes. And this is all that I need: that it is no more because of the bones and sinews that he stays than it is because of them that he leaves.

¹⁵ See footnote 2 above.

¹⁶ Sedley 1998, at 122, briefly provides this interpretation. He also notes, at 121, the three causal requirements mentioned in the next paragraph, without claiming any originality in formulating them.

¹⁷ For a detailed discussion of these requirements, see Hankinson 1998, 89–94.

Recall that for Plato causes need not necessitate changes. After all, Socrates could believe that he should stay in jail and yet his friends could have kidnapped him and taken him off to Boeotia; his belief does not necessitate the change. The point is that he would be in Boeotia *despite* his belief as to what is best, whereas now he is in jail because of this belief. By contrast, he would not be in Boeotia despite his bones and sinews; they are neutral between his being in jail versus being elsewhere. Of course, without them he could not be in jail – they are a necessary prerequisite for the cause to be a cause – but they are not themselves the cause.

To understand why Socrates rejects material causes, we need to see why he requires that the same thing not cause opposites. The secondary literature typically treats this as an unexplained principle of causation for Plato (e.g., Sedley describes it as a law of causation assumed by Plato¹⁸). However, Socrates does explain why he accepts a very similar causal requirement: that opposites not cause the same thing. As we will see, a parallel explanation can be given for the requirement that the same thing not cause opposites. In both cases the explanation relies on there being just one cause per change – what I call Socrates' commitment to a single cause.¹⁹ Although Socrates does not explicitly endorse this commitment, he shows it in a number of ways, as we will see. The simplest way is worth mentioning now: Socrates repeatedly says he is searching for *the* cause of each thing; he uses the definite article, which strongly suggests that he thinks there is only one.²⁰ It is natural for him to do so, since the “because of what?” question is singular rather than plural (in Greek).

Socrates argues that opposites do not cause the same thing when he first rejects his initial candidates for causes (97a–b). He argues that neither addition nor division can be the cause of two because each of them has an equal claim to this: sometimes we say that something is two because of addition and other times because of division. Since there is no way to choose between these two options, both are thrown out. As Menn points out, this is an indifference argument.²¹ Note that the argument only works if we assume there is only one cause per change. There is no problem with addition and division having equal claim to causing two if addition causes two when conjoined with one set of causes

¹⁸ Sedley 1998, 121.

¹⁹ In the case of the account in terms of *nous*, one thing (*nous*) would be the cause of all things. For the other theories, there will be different causes for different things, but each thing will have only one cause: e.g., the form of beauty will be the cause of something's being beautiful and the form of largeness will be the cause of something's being large.

²⁰ See 95e10, 96e7, 97c2, 97c6, 97e2, 98b1, 98d5, 99b3, 99d1, 100b8, and 101b10.

²¹ Menn 2010, 46. Menn's treatment of this argument is discussed at the end of this section.

and division when conjoined with a different set. If this were the case, we would have a relevant difference, rather than indifference: the other causes would explain why in some cases addition is a cause and in other cases division is. If there were multiple causes, we would evaluate how well a set of causes explains something, not a given cause on its own.

It would be strange if Socrates thought there was an argument for thinking that opposites cannot cause the same thing and yet he thought it was a brute fact that the same thing cannot cause opposites. In fact, parallel reasoning can justify this latter requirement. Given commitment to a single cause, there is only one thing that tells us because-of-what a change happens, a single thing that explains a given change. If *X* is just as responsible for something as for the opposite thing, *X* is not a good stand-alone explanation for either. Hence, given a commitment to a single cause, the same thing cannot cause opposites. This too is an indifference argument: there is no more reason for something to be bigger because of a head than for it to be smaller because of a head; hence, the head is thrown out as a possible cause of either. Similarly, Socrates' bones and sinews are as good at explaining his staying as they are at explaining his leaving, so they are not a good candidate for what tells us why he stayed.²² If Socrates allowed for multiple causes, any given cause could be involved in the explanation of a pair of opposites, so long as it causes one opposite when part of one set of causes and causes the other opposite when part of a different set.²³

We have seen how Socrates' commitment to a single cause leads to the requirement that the same thing not cause opposites and we have seen two rea-

²² We have seen how to argue for two of the causal requirements. The tricky case is the third requirement: that a thing not cause its opposite. Perhaps Socrates thinks that if something is going to be a cause, it would be a better cause of something similar to itself than of something opposed. Since he thinks the same thing cannot cause opposites, if it causes anything, it would then need to cause what is similar to itself, rather than its opposite.

²³ Some people find the requirements involving opposites more intuitive than a commitment to a single cause, and so are concerned if Socrates relies on his commitment to a single cause to explain these requirements. However, I think the intuitive appeal of these requirements relies, implicitly, on a commitment to a single cause. The appeal of the requirement that the same thing not cause opposites is roughly this: if something can cause another thing to be hot, how can it also cause another thing to be cold? This, in turn, supposes that the cause does its important work on its own: that what explains something's being hot is precisely what explains its being cold. But consider Aristotle's account, according to which the same material cause, say iron, would be involved in explaining something becoming hot and in explaining something becoming cold. There is nothing unintuitive about this. The iron is partially responsible for the change; it is one of the causes of the change, but the efficient causes differ: perhaps fire in the one case and ice in the other. Once we seriously consider the possibility of multiple causes, the requirements involving opposites lose their intuitive appeal.

sons to attribute this commitment to him: he repeatedly speaks of *the* cause and his indifference argument presupposes this commitment. Let us turn to two other important ways that this commitment manifests itself. One is that Socrates is frequently adamant about *not* giving multiple causes for the same thing. For example, in describing what he expected Anaxagoras to do, he says:

I never supposed that, having said they were ordered by *nous*, he'd bring in any cause for them other than its being best for them to be just the way they are. (98a6–b1)

Socrates claims he was expecting Anaxagoras not to bring in *any cause other than* an account of what is best, which is what is involved in giving an account in terms of *nous*. Clearly Socrates expects the causal account to involve a single cause. Anaxagoras does not provide the account Socrates was expecting and he did not know how to provide one himself. As we have seen, he thinks Anaxagoras' actual account (in terms of air, ether, water and such absurdities) does not work. So he gives an account in terms of forms and again says we should not bring in any other causes:

It seems to me that if anything else is beautiful besides the beautiful itself, it is beautiful because of nothing other than that it participates in that beautiful, and I say so with everything. (100c4–6)

Each beautiful thing is caused to be beautiful because of *nothing other than* its sharing in beauty. Socrates' frequently insists, in discussing his account in terms of forms, that nothing else be brought in.²⁴

Not only is Socrates adamant about not giving multiple causes, he considers the different candidate causal accounts as alternatives to each other: first considering what he initially took to be causes, then considering *nous*, next considering things like air, ether, and fire, and finally considering the forms.²⁵ He does not consider the possibility that *nous*, earth, and the form of sitting are all causes of his sitting in jail. Rather, these are rival theories that each attempt to account for the natural world, each of which he evaluates as a whole. We can see this from how Socrates transitions between the different accounts. After de-

²⁴ One might think that the so-called sophisticated causes are causes alongside the forms. Denyer 2007 argues that we should not think of these as causes at all, in which case the issue would be moot. But even if Denyer is wrong, the relevant passages (e.g., 105b–c) make clear that sophisticated answers are *alternative* answers that one gives instead of citing the forms, not in addition to them; Socrates tells Cebes *not* to answer in terms of forms.

²⁵ Note that from the very beginning Socrates was not focused on the sort of things we typically call “causes,” nor on what Aristotle would call efficient causes. At the beginning of the discussion he reports that he had taken it as clear that one man is taller than another by a head (96d8–e1). The head is a candidate cause, but it is clearly not meant to be an efficient cause.

scribing what he initially took to be causes and mentioning some of their drawbacks, Socrates says, “Instead I rashly adopted a different approach, a jumble of my own, and in no way accepted the other” (97b6–7). Clearly his new approach is laid out as an alternative to what he originally took to be causes. We have already seen that Socrates expects Anaxagoras’ account in terms of *nous* to use nothing other than *nous*. But, in fact, Socrates says that Anaxagoras made no use of *nous*; instead, his theory relied on air, earth, and many other absurdities (98b–c). So again Socrates treats Anaxagoras as providing a complete theory.²⁶ The last transition is found in Socrates’ famous “second sailing” passage:

Now I would most gladly become anyone’s pupil to learn the truth about that sort of cause [i.e., the same sort as *nous*]; but since I was deprived of this, proving unable either to find it for myself or to learn it from anyone else, would you like me, Cebes, to give you a display of how I’ve conducted my second voyage in search of the cause? (99c6–d2).

There has been much debate about how much this passage allows Socrates’ new account to draw from his earlier discussion of *nous*. For our purposes, however, the key point is that Socrates sees himself as engaged in a new journey. It does not matter how much this journey incorporates ideas from his earlier discussion. Socrates is putting forward a new causal theory, this one in terms of forms.²⁷ While he may hold out hope of later developing a theory terms of *nous*, when he provides his new account he is clear that only forms will be causes within this theory.

We have seen that Socrates is committed to a single cause, that this leads to the requirement that the same thing not cause opposites, and that this causal requirement, in turn, explains why Socrates rejects material causes. But why is Socrates committed to a single cause in the *Phaedo*? Although the evidence clearly indicates that he is, we have to be speculative about why; he simply does not tell us. I suspect this is because it is part of how he thinks about causes: it would not occur to him to separate out this commitment. This, of

²⁶ The bones and sinews passage may seem inconsistent with a commitment to a single cause. Socrates identifies as a candidate for a single action’s cause “bones *and* sinews” near the end of the passage, and earlier rejects as a cause “voice and air and hearing and countless other things of the sort.” Socrates is interested in comparing different types of cause, but one might think that he allows for many different causes of the same type. However, this is not how he talks about causes; instead, he treats multiple things of the same type, together, as a single cause. He tells us that the bones and sinews cannot be *the* cause. It is because he treats them as a single thing that he can relegate them to “*that* without which the cause cannot be a cause” (99b) rather than “*those* without which...” (emphasis mine).

²⁷ While this paper is focused on the *Phaedo*, it is worth noting that forms are never described as causes in the *Timaeus*; the demiurge is identified as the cause. See the conclusion, below.

course, does not mean that his commitment is arbitrary. In fact, it fits with a basic commitment that Socrates seems to have: that explanations be strongly unified. If there were purported to be multiple causes, one would want to know why they all come together to explain something. But then this unifying element would seem to be what is truly responsible for the change, the true cause of the change, rather than the purported multiple causes. In any event, whatever the reason is that Socrates is committed to a single cause, the evidence clearly indicates that he is. The aim of this paper is to explain why Socrates and Aristotle disagree about material causes. For this purpose, the important point is that we can trace Plato's rejection of material causes back to his commitment to a single cause.

Let us turn to the most popular account of why Socrates rejects material causes: because they are not teleological or rational. We have already seen that the bones and sinews passage does not support this reading. Scholars also point to Socrates' hope that Anaxagoras would provide an account in terms of what is best. This is often thought to show that Socrates thinks causes should, in general, tell us what is best.²⁸ However, it is only when describing *nous* as a cause that Socrates says that causes should track what is best. He thinks that there is a right way to give an account in terms of *nous*, which we are familiar with from the Socratic dialogues.²⁹ According to this account, the person who really has knowledge or *nous* knows what is best and acts accordingly. Hence, Socrates' views about *nous* are what lead him to expect an explanation in terms of what is best. He makes this clear when he first says what he was hoping to find in Anaxagoras:

One day, however, I heard someone reading from a book he said was by Anaxagoras, according to which it is, in fact, *nous* that orders and is the cause of everything. I was pleased with this cause and it seemed to me, somehow, to be a good thing that *nous* should be the cause for everything. And I thought that, if that's the case, then *nous* in ordering all things must order and place each thing in whatever way is best; so if anyone wanted to find out the cause of how each thing comes to be or perishes or is, this is what he must find out about it: how is it best for that thing to be, or to act or be acted upon in any way? (97b8–d1)

Note that Socrates reports that he, not Anaxagoras, is the one who thought that if *nous* orders all things then they will be put in the best possible place. From this claim Socrates concludes that on this theory one should find how it is best for it to be. Once he is no longer considering an account of in terms of *nous*, he no longer assumes that the best plays a role.

²⁸ So Annas 1982, 314–315, Gallop 1977, 175–177, Wiggins 1986 (passim).

²⁹ See *Meno* 88b, where *nous* is used interchangeably with *phronesis* and is something that consistently guides us to what is good.

Menn has recently claimed that causes for Socrates must be teleological and argued against Sedley's use of causal requirements to understand Platonic causes.³⁰ Menn's interest is in Socrates' objection to the reasonable (*μετρίως*) causes that Socrates initially found plausible. Menn argues that the examples that Socrates uses are drawn from Epicharmus' argument that you are not the same person you were yesterday nor the same as the one you will be tomorrow. Menn thinks that Socrates' objection to the physicists is that they are unable to account for identity across time or across possibilities at a single time. He contrasts his view with Sedley's, who thinks the problem does not have to do with identity across time, but rather with the proposed causes violating the three causal requirements that involve opposites.³¹

Perhaps Plato is drawing from Epicharmus. Nonetheless, Socrates does not criticize these proposed causes *because of* their failure to account for identity over time. In the crucial stretch of text, Socrates first describes a number of proposed causes he does not accept, without telling us why he does not accept them. Then he says:

'By Zeus', he said, 'I am far from thinking that I know the cause of any of these things, I who do not even accept from myself, when someone adds a one to a one, either that the one to which the addition was made has become two, <or that the one which was added has become two>, or that the one which was added *and* the one it was added to become two on account of the addition of the one to the other: for I am astonished if when each of them was separate from the other, each of them was one and they were not then two, but when they have approached each other, this is a cause to them of their becoming two, [namely] the concurrence of their being put close to each other. Nor, if someone divides a one, can I still be persuaded that this too is a cause of their having become two, [namely] the division: for the cause of becoming two is the contrary of what it was before. For before the cause was that they were brought [closer] together and one was added to the other, whereas now the cause is that one is brought [further] apart and separated from the other. (96e6–97b3)³²

The passage provides Menn with his best evidence that Socrates is interested in questions of identity in this section of the *Phaedo*: what is it that becomes two when one and one are added together?³³ But notice Socrates' reason for being

³⁰ Menn 2010.

³¹ Sedley 1997, 119. For example, on Sedley's view, the problem with saying that a head is the cause of one person being larger than another is that a head has an equal claim to causing the opposite result: one person can be smaller than another by a head.

³² Menn's translation: Menn 2010, 40.

³³ In conversation, David Sedley noted that the passage could be read differently: perhaps Socrates is simply trying to avoid the issue of what becomes two, because it does not matter for his purposes which one it is. For purposes of argument, I simply assume Menn's reading.

unable to answer this question: he is amazed that bringing-together can cause this. While the source of his initial amazement is a bit unclear, he seems not to understand why being close together would make these things two. The force of this amazement is brought out when we turn to division. It turns out that in other contexts the opposite process has precisely the same result. So, while it is true that Socrates cannot use addition and division to answer questions about identity across time, his reason has to do with general defects in this sort of causal account: its explanations work no better than opposite ones. There is no reason, from this passage, to think that Socrates is accepting or rejecting causal theories *on the basis of* whether they can account for identity across time. Identity through time is something that Socrates cares about and perhaps he would eventually want to reject causal theories because of their inability to explain this, but at this point he is rejecting theories on a much more basic ground: they fail to meet requirements about opposites that every cause must meet.³⁴

Aristotle's account

Let us turn to why Aristotle thinks natural changes must have multiple causes, how these causes allows the same thing to cause opposites, and how this makes room for matter as a cause. I argue that Aristotle views himself as disagreeing with Plato about whether changes have multiple causes and about whether the same thing can be the cause of opposites.

³⁴ Menn 2010, 52, thinks we should not take the apparent requirements about opposites seriously because the arguments that appear to rely on them (101a6–b1) look sophistical if we do not assume that the real issue involves questions of identity. He thinks they look sophistical because, for example, to say that the head is a cause of being larger is shorthand for saying that *the presence of a head* makes something larger and the presence of a head does not run afoul of the causal requirement: it is not the cause of the opposite, being smaller. Sedley 1998 argues that we should not understand Platonic causes in terms of descriptions like “presence of a head”, in part because Socrates allows us to redescribe causes and expects them to avoid violating the causal laws even after redescription. For example, Socrates thinks it is a problem for a head to be the cause of something large because the head itself is small. I would add to Sedley's argument that “presence of a head” seems to be precisely the sort of explanation that Socrates thinks will never succeed, because it does not meet the minimal causal requirements. Sometimes containing-a-head makes you smaller: if, say, it pulled down your torso, bringing you closer to the ground. Of course, without a head Simmias would not be Simmias and so would not be smaller – because he would not be at all. But that is just to say that containing-a-head is a necessary prerequisite for being larger.

One might think that Aristotle's four causes are four different sorts of things that can be *the* cause in a change. But he says that we need all four causes in order to completely understand a change – not just one.³⁵ The first thing he does after describing the four causes is say that there can be multiple causes of the same thing:

Things are called causes in roughly this many ways. Since things are called causes in many ways, it follows, in fact, that many things can be causes, and not by virtue of concurrence, of the same thing. For example, of a statue both the art of statue-making and the bronze, not in so far as it is anything else, but as a statue, but not in the same way, rather the one as matter and the other as that from which the change proceeds. (195a3–8)

In *Physics* II.7 Aristotle emphasizes that the student of nature must bring in *all* of these when answering “because of what?”:

Plainly, then, these are the causes and this is how many they are. They are four, and it belongs to the naturalist to know about them all, and when explaining “because of what?” in a natural investigation, to get back to them all: the matter, the form, the changer, and that for the sake of which. (198a21–25)

In the *Physics* Aristotle treats this just as the way things are. A full explanation of a change involves all four causes.

Aristotle has good reason to treat them as distinct since he thinks they each explain the change in fundamentally different ways. For example, the form and the matter are both *internal* to what undergoes the change, whereas the efficient cause is *external* to what undergoes the change.³⁶ Similarly, the matter, *qua* matter, is properly the patient of the change and the efficient cause is the agent. These features point to these causes being robustly different types of thing, both numerically and in terms of their role in change. While the form and that for-the-sake-of-which are often one in number (see, for example, 198a25–26), they are still different in account.

Aristotle might seem to give matter the status of a mere prerequisite, just as Socrates does with the bones and sinews, since he says in *Physics* II.9 that matter is hypothetically necessary for a given change.³⁷ However, Aristotle repeatedly emphasizes in II.9 that matter is hypothetically necessary *and* a cause.³⁸

³⁵ For a complementary discussion of this topic, see Johnson 2005, 94.

³⁶ One way he marks this is by calling form and matter elements (στοιχεῖα). Another way is by saying that each is present in (ἐνυπάρχον). I examine these ideas in detail in Ebrey 2007, chapter 3.

³⁷ Brad Inwood impressed upon me the importance of addressing this concern.

³⁸ What Aristotle means by “hypothetical necessity” is open to much debate. For a detailed examination of this issue see Rosen 2008.

The goal of II.9 is to explain how necessity is found in natural things (198b11–12). Aristotle claims that matter is necessary on a hypothesis. However, he clarifies three times that matter is not simply a prerequisite, but also explanatory: “Now without these things [the city walls] would not have come to be; nevertheless, it was not because of them, *except as because of* [διὰ] *the matter*,” (200a5–6, emphasis added) “[it could not be] without things which have a necessary nature; nevertheless, it is not because of [διὰ] them, *except as matter*” (200a8–10, emphasis added), “nevertheless, the end is not because of [διὰ] these things *except as matter...*” (200a26–27, emphasis added). Matter is not a mere prerequisite for Aristotle; it is a prerequisite and a cause.

While Aristotle does not explain why we need multiple causes in the *Physics*, he does in *De Generatione et Corruptione* II.9, explicitly contrasting his view with that of the *Phaedo*. The goal of II.9 is to argue that neither form nor matter is enough in generation and corruption; an efficient cause is also needed (335a30–32, 335b7–8). His main argument against relying only on material causes is that matter is only passive; an efficient cause is needed to have something active (355b29–33).

He uses the *Phaedo* as an example of an account relying only on forms. Our goal is not to decide whether his criticisms are correct, but to see how he understands the *Phaedo* and why he thinks we need multiple causes:

To these [form and matter] must be added the third [cause], which everyone dreams of but no one mentions. Some supposed that the nature of the forms to be an adequate cause for coming to be, just as Socrates in the *Phaedo*. For he, after blaming the others for saying nothing, adopts the hypothesis that, of things that are, some are forms and others partake of the forms, and that each thing is said to be in virtue of the form, to come to be in virtue of receiving a share of it and to perish in virtue of losing it; so that if this is true, the forms, he supposes, are necessarily the causes of both generation and corruption. ... [This is incorrect,] for if the forms are causes, because of what do they not always generate things continuously rather than sometimes doing so and sometimes not, given that both the forms and the things-which-partake always are? Furthermore, in some cases we observe something else being the cause: it is the doctor who induces health and the knowledgeable man knowledge, when there is health itself and knowledge and the things-which-partake, and similarly in the other cases where things are done in virtue of some power. (335b7–24)³⁹

Aristotle begins by saying that his predecessors have not mentioned the efficient cause.⁴⁰ To support this claim, he mentions a group of people who

³⁹ *De Generatione et Corruptione* translations are mine own, drawing from Williams’ translation.

⁴⁰ Many interpreters claim that Aristotle here ascribes to Socrates the view that forms are efficient causes. The idea seems to have originated with Cherniss 1944, 376ff., and Vlastos

thought of forms as adequate causes of generation and then uses the *Phaedo* as a specific example, saying that for Socrates everything comes to be in virtue of the form. It is clear from these claims that Aristotle thinks the Socrates of the *Phaedo* is committed to one cause per change, namely the relevant form. Aristotle's first objection is that Socrates provides no reason why things would not be constantly generated. Given that the form of largeness exists and this is the only cause needed for me to get larger, why am I not constantly becoming larger? Since there is only one cause, the form of largeness, and it never goes away and since I exist, we have everything needed for me to come to be larger.

Someone might reply on Socrates' behalf: the forms do not constantly generate because certain necessary prerequisite must be present before this generation occurs. Of course, for this not to be *ad hoc*, there needs to be some reason to treat these as necessary prerequisites and not as causes. We saw that Socrates relegates the bones and sinews to necessary prerequisites because they have no more claim to cause one result than its opposite. However, in many cases we can point to non-forms that are not equally responsible for opposite changes. That, I take it, is one reason that Aristotle turns to the doctor in his second objection; the doctor is responsible for health. If anything, what has the most obvious claim for being *the* cause is not the form, but rather the efficient cause: the doctor and the knowledgeable man. The doctor is what's most clearly responsible for the change.

From Aristotle's criticisms of the materialists and the *Phaedo*, we can identify three reasons he has for being committed to multiple causes. From his criticism of the materialist, we know he thinks that omitting a cause can leave out a crucial role in the change, e.g., the patient or the agent. From his first criticism of the *Phaedo*, we know he thinks that a causal account must explain why

1969, 303 (followed e.g., by Annas 1982, Sharma 2009). This claim is not found in Joachim 1922 or Williams 1982 and is argued against in Bolton 1998, 95–100. The Cherniss-Vlastos reading is quite unlikely, since it goes against the point of the passage (see the beginning of the quotation above): to show that Aristotle's predecessors left out the efficient cause. Aristotle brings in the *Phaedo* as an example of an account that tries to make do with just a formal cause. It would undermine Aristotle's point if Platonic forms turned out to be efficient causes. The main reason to think that Aristotle treats Platonic forms as efficient causes is because he says that they "generate" (γεννάω). But we need not understand this term as referring, specifically, to the activity of an efficient cause. Aristotle could use it simply to mean that on Socrates' account forms, on their own, explain why the change happened. Sharma 2009, 152, also points to Aristotle's claim that forms are "causes of both generation and corruption" as evidence that Aristotle thinks of Platonic forms as efficient causes. But for Aristotle all four causes are causes of generation and corruption, not just the efficient cause.

sometimes there are changes and other times are not. And from his second criticism of the *Phaedo* we know he thinks that we must account for what we patiently observe as causes.

We have seen why Aristotle thinks that changes must have multiple causes. As we saw in the last section, Socrates' commitment to a single cause leads him to think that the same thing cannot cause opposites and that, in turn, is why he does not allow material causes. Since Aristotle allows for multiple causes, he should allow the same thing to be the cause of opposites and allow material causes. And this is just what we find.

In fact, Aristotle acknowledges that there can be multiple causes and that the same thing can cause opposites in the three remarks (195a3–14) made immediately after he introduces his four causes. These remarks are rarely discussed; neither Ross nor Charlton mentions them in their commentaries. I suspect that they seem like scattered remarks to most scholars. In fact, all three deny Platonic claims. Thus, the four causes are not simply meant to help the naturalist investigate the natural world, but also to correct some misunderstandings one might have gotten from Plato or Platonists. We have already seen the first of these claims, which tells us that there can be multiple causes of the same thing. The second is that two things can cause one another. It is not relevant to us here, although there is good reason to think it is anti-Platonic.⁴¹ And then there is the third claim:

And again, the same thing is [a cause] of opposites. That which, being present, is the cause of something, this thing is sometimes, being absent, held responsible (αἰτιώμεθα) for the opposite. (195a11–13)⁴²

41 This contradicts a general Platonic principle that if A because of B, then not B because of A. We see this claim at work, e.g., in the *Euthyphro*, where he says that if something is pious because it is loved by the gods, then it cannot be loved by the gods because it is pious. (In support of this reading, see Evans 2012; against, Cohen 1971). The reason Aristotle can have two things cause each other is that they can be different types of causes. There is not a straightforward circular explanation; instead, A is because of B in one way (say, as a material cause) and B because of A in a different way (say, as a formal cause).

42 The passage starts by clearly stating that the *same thing* can be a cause, and goes on to say that *that* which is present... *this* thing is held responsible when absent. However, at the end of the passage he says that the loss is set down to the *absence* of the steersman, and that the *presence* would be the cause: “for example, the capsizing of the ship is set down to the absence of the steersman, whose presence would have been the cause of its being saved.” The absence and the presence are not one and the same thing. So he does not actually seem to illustrate the principle he lays down at the beginning. However we resolve this issue, there is no reason to doubt that Aristotle holds onto the principle he states at the beginning: that the same thing can be the cause of opposites.

Here we see a direct denial of the requirement found in the *Phaedo*. Aristotle is able to make this claim because he does not think that any one cause needs to explain a change on its own.

Aristotle frequently asserts that the same matter is involved in opposite changes. He connects matter to a passive *dunamis* (i.e., power, capacity) for opposites. Such matter is not directed towards a particular result; instead, it is open to different, opposing options. For example, in *De Generatione et Corruptione* I.1 he says:

This shows that it is always necessary to posit a single matter for the opposing properties, whether the change that occurs is locomotion, growing and getting smaller, or alteration. (314b26–28)

Aristotle's claim is that changes between contraries have the same matter. Clearly this matter must be open to opposite possibilities. Hence, Aristotle can only allow matter to be a cause because he allows the same thing to be the cause of opposites.

Having seen how Aristotle makes room for matter, we might worry again that Socrates and Aristotle are talking past each other. For Socrates a cause provides a complete explanation for something, it is completely responsible, whereas for Aristotle it only part of an explanation, partly responsible. I do not think we can avoid conflict in this way. Aristotle simply does not think that there is a single thing that is completely responsible for a change; multiple things must be brought in. So if Socrates were to insist that it is built into the notion of a cause that only it is needed for a full explanation, then Aristotle would just reject the whole notion. Instead, Aristotle does not treat this as central to the notion. One way or the other, Aristotle disagrees with the claims made in the *Phaedo*. Whether or not Aristotle's position is ultimately satisfying is another question, beyond the scope of this paper. One might worry that by allowing robustly different things to be jointly responsible, he removes the sort of unity needed for a fully satisfactory explanation. Perhaps Aristotle can avoid this problem by giving explanatory priority to the final cause, or in some other way. But exploring this properly would require its own paper.

Conclusion

I have explained why Aristotle can accept material causes, whereas Socrates rejects them in the *Phaedo*. Socrates does not think that anything matter-like is responsible for changes, no such thing is a constituent part of our understand-

ing, and so it is not the primary thing the natural scientist is aiming to grasp. At best, the natural scientist would need to grasp such things as necessary prerequisites for grasping the explanation. Aristotle thinks that matter is part of the explanation, is part of what the natural scientist is directly seeking, and is responsible for the change happening; if the natural scientist leaves it out then he has not given a full account of the change.

Aristotle thinks that matter makes an important contribution to a change that is fundamental to how and why the change happens (or does not happen) in the way that it does. Specifically, matter is responsible for the contribution made by the patient in the change – the iron that the blacksmith works on, the wood that the builder acts on, etc. The patient is just as essential to the change as the agent; if it is mischaracterized or underspecified, you will not fully understand why the change happened in the way that it did. If the blacksmith had worked with copper instead of iron, the change would have turned out differently. Matter has a fundamental explanatory role in change, but one that typically does not privilege one result over its opposite.

I have purposefully restricted myself to the *Phaedo*. In the *Philebus*, Socrates also does not allow matter-like things to be causes, instead saying that only the producer is a cause (26e). In the *Timaeus*, on the other hand, Timaeus consistently identifies the demiurge as the cause, except for one place where he says that auxiliary causes (συναίτια) are a type of cause (46e). These auxiliary causes seem, at least in many cases, to be matter-like. But rather than examine them in this paper, they are best treated as a separate topic. My goal here has simply been to shed mutual light on the *Phaedo* and the *Physics* by showing how a core commitment in the *Phaedo* makes matter-like causes impossible and how rejecting this commitment in the *Physics* makes room for matter as a cause.⁴³

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