

No Simples, No Gunk, No Nothing

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[Penultimate draft; forthcoming in *Pacific Philosophical Quarterly*]

Mereological realism holds that the world has a mereological structure—i.e., a distribution of mereological properties and relations. In this paper, I defend Eleaticism about properties, according to which there are no causally inert non-logical properties. I then present an Eleatic argument for mereological anti-realism, which denies the existence of both mereological composites and mereological simples. After defending Eleaticism and mereological anti-realism, I argue that mereological anti-realism is preferable to mereological nihilism. I then conclude by examining the thesis that composition is identity and noting its consequences for the question of mereological structure.

§1. Introduction

Eleaticism holds that causal activity is a precondition for existence.¹ According to the Eleatic, there are no causally inactive entities of a given kind. (Alternatively, all entities of a certain kind are causally active.) The most familiar form of Eleaticism takes this causal requirement for existence as a perfectly general one: causal activity is a precondition for the existence of entities of any kind whatsoever. So, for example, since abstract objects are often characterized as causally inert, this Eleatic thesis provides a direct argument for nominalism—the thesis that there are no abstract objects.² In contrast, weaker forms of Eleaticism target only a restricted range of entities and hold that causal activity is a precondition for only certain kinds of entities.

Although Eleaticism has implications for the existence of abstract objects, it also has consequences for the ontology of the material world. Here, I present and defend an Eleatic argument regarding the mereological structure of the material world. This argument targets the thesis of mereological realism, according to which the world has a mereological structure—i.e., a distribution of mereological properties and relations.³ If successful, it establishes mereological anti-realism, which denies that entities ever instantiate mereological properties or relations. Mereological anti-realism is therefore at odds with the reality of mereological composition and with any views that posit

¹ On Eleaticism or “Alexander’s Dictum,” see Armstrong (1978), Cheyne (1998), Colyvan (1998), Elder (2003), Hudson (2003), Kim (1993), and Oddie (1982).

² On Eleatic arguments against abstract entities, see Baker (2003) and Cheyne (1998). Platonists can, of course, resist this line of argument by defending the causal efficacy of abstracta (e.g., events or artworks), but I set aside these concerns here. See Caplan and Matheson (2004) for discussion.

³ Eleatic arguments regarding mereology have been offered before. Merricks (2001) argues against the existence of non-conscious mereologically composite objects on broadly Eleatic grounds. According to Merricks, if there are mereologically composite objects, such objects would, in concert with their mereologically simple parts, systematically overdetermine their causal effects. And, since only composite objects which instantiate mental properties like *being conscious* have non-redundant causal powers, Merricks concludes that the only composite objects are those which instantiate intrinsic, causally relevant mental properties. The present argument differs from Merricks’ arguments since it targets mereological realism rather than composite material objects. It also appeals to an importantly different Eleatic thesis. See Dorr (2002) for a broadly Eleatic case for mereological nihilism.

mereological simples or mereological gunk (i.e., objects every part of which have proper parts).

My defense of the Eleatic Argument will run as follows. In §2, I defend a restricted version of Eleaticism, which denies the existence of causally inactive properties. In §3, I introduce and explain mereological realism. In §4, I present the Eleatic Argument against Mereological Realism (hereafter, the Eleatic Argument) and consider its relation to the thesis that composition is identity. I then argue that the thesis of composition as identity provides a natural strategy for resisting mereological anti-realism. I conclude in §5, where I argue that mereological anti-realism is preferable to mereological nihilism.

§2. The Eleatic Principle

In this section, I defend the following restricted form of Eleaticism (hereafter, “Eleaticism”):

Eleaticism: Necessarily, there are no causally inactive properties.⁴

Eleaticism denies the existence of causally inactive properties or, as we can call them, “idlers.”⁵ It therefore prohibits ontological commitment to any epiphenomenal properties: properties that occupy no (or no non-trivial) role in the causal structure of the world.⁶ This Eleatic ban on idlers is not limited to monadic properties, but extends to properties or relations of any adicity. For convenience’s sake, however, I will understand “property” in the most general sense, including both properties and relations. Furthermore, I will assume a particular conception of properties and relations in what follows. Specifically, I will understand “property” in the sparse sense, where properties and relations are more than mere semantic values of predicates or set-theoretic constructions out of individuals. So understood, properties are genuine ontological posits targeted by scientific and metaphysical inquiry and implicated in the joints of nature.⁷

My defense of Eleaticism assumes a controversial but widely supported view about the nature of properties:

Causal Essentialism: Properties are individuated by their causal role.⁸

According to causal essentialism, the identity and distinctness of properties depends

⁴ So stated, Eleaticism is compatible with the thesis that there are no properties; however, I assume the existence of properties in what follows. On nominalism, understood as the thesis that there are no properties, see Dorr (2006) and Melia (2008).

⁵ Cf. Lewis (2008). Note, however, that Lewis has fundamental causally inert properties in mind.

⁶ On epiphenomenal and phenomenal properties in particular, see Chalmers (1998).

⁷ On the sparse and abundant conceptions of properties, see Lewis (1983, 1986). In defense of the abundant conception, see Bealer (1993) and Jubien (1989). In defense of the sparse conception of properties, see Armstrong (1978).

⁸ On the arguments concerning causal essentialism, see Hawthorne (2003) and Schaffer (2005).

upon their causal (or nomic) role.⁹ These roles are to be understood in terms of the relations of nomic necessitation that properties bear to one another. Crucially, these nomic necessitation relations are mere *facons de parler*. Typically, they are expressed using a primitive nomic necessitation operator, N , where $NFxGx$ can be understood as asserting that the instantiation of F -ness nomically necessitates the instantiation of G -ness. For convenience's sake, it is helpful to talk of the causal relations that hold between these properties, but, since the N -operator is a primitive piece of theoretical ideology, it carries no ontological commitment. Talk of causal relations and roles should therefore be taken as shorthand for truths expressible using the N -operator.¹⁰ Granted this conception of causal roles, the consequences of causal essentialism are straightforward: any properties that occupy the same causal role in the world are identical. Conversely, any properties that occupy different causal roles are distinct.

Causal essentialism enjoys considerable support. For some, this support owes to the epistemic woes that arise if we admit the possibility of distinct yet causally indiscernible properties.¹¹ For others, causal essentialism is properly motivated by noting that properties are most naturally understood as powers—entities that determine effects and interactions between objects—and there is nothing more to being a certain power than occupying a certain causal role.¹² Here, I offer no defense of causal essentialism, but instead mark it as an assumption of what follows.

Granted causal essentialism, the argument for Eleaticism is straightforward: Suppose that there are some idlers. Since these properties are causally inactive and therefore occupy the same trivial causal role of bearing no causal relations, causal essentialism entails that any idlers that occupy this role are identical. So, there is at most one idler. But, since there is no unique idler, Eleaticism follows and there are no idlers.

Since causal essentialism entails the identity of all properties that occupy the same causal role, it guarantees that there is at most one idler. One way to resist this argument for Eleaticism is, of course, to defend the existence of a unique idler. The problem with this response is twofold. First, there is no particular property that is plausibly viewed as the lone epiphenomenal idler. And, since there is no compelling reason to defend the existence of a unique idler, the natural conclusion to draw is that no property occupies this null causal role. There are therefore no idlers.¹³ Second, the existence of a single property or relation that occupies the null causal role is contrary to the motivations for causal essentialism. As suggested above, causal essentialism takes causal roles and the individuation of properties to owe to the genuine causal relations

⁹ For simplicity's sake, I omit complications regarding causality and nomicality, focusing on causal rather than nomic or causal-nomic profiles. I take it that nothing in the present discussion hangs on this assumption.

¹⁰ See Hudson (2003) for an Eleatic puzzle which seems to require an infinite hierarchy of causal powers.

¹¹ Shoemaker (1980) defends the epistemic argument for causal essentialism.

¹² See Bird (2005) for a defense of a thesis very near causal essentialism: dispositional essentialism, according to which objects have their causal-nomic role essentially.

¹³ I suspect that the most natural candidate for being the unique idler is *being conscious*, but, not only is the response attractive only to those sympathetic to epiphenomenalism, it also seems to significantly curtail the diversity of phenomenal experience if there is only a single epiphenomenal mental property.

between properties. And, while the letter of causal essentialism, as just formulated, may be compatible with a property occupying the null causal role, it is more naturally understood (and just as easily formulated) as pertaining only to non-trivial causal roles. The causal essentialist therefore has principled reason to reject a lonely idle property and endorse Eleaticism.¹⁴

Setting aside worries about a lonely idler, there is a forceful counter-argument against Eleaticism. No theory can be articulated without commitment to claims of identity and diversity (e.g., Barack and Mitt are distinct, while Barack and Obama are identical), but the relevant properties have no distinctive causal role, so Eleaticism is incredible: it requires us to deny that objects have properties like *being self-identical* or *being distinct from something*.¹⁵ Fortunately, Eleaticists need say no such thing. The relevant relations—identity and distinctness—are, of course, logical relations and, given their logicity, they qualify as principled exceptions to the Eleaticist prohibition against idlers. So, given the strong presumption in favour of countenancing properties and relations of identity and distinctness, Eleaticism can be naturally modified to exempt logical properties from its scope:

Eleaticism: Necessarily, there are no causally inactive non-logical properties.

I have now presented my defense of Eleaticism as a consequence of another more general commitment.¹⁶ For those sympathetic to stronger, more sweeping forms of Eleaticism, it is not a thesis to argue for but, rather, a central thesis from which one argues. For diehard Eleaticists, the prohibition against idlers would enjoy the status Goodman and Quine (1947) assign to nominalism as “based on a philosophical intuition that cannot be justified by appeal to anything more ultimate.” With this in mind, those unconvinced by the preceding argument are welcome to view what follows as an inquiry in to what follows from Eleaticism. I will now turn to mereological realism before presenting the Eleatic Argument.¹⁷

§3. Mereological Structure

Two questions guide much of the recent inquiry into the metaphysics of parthood:

The Special Composition Question: Under what conditions does

¹⁴ I revisit the status of the lonely idler in the Eleatic Argument in Section Five by considering whether a mereological property or relation might occupy this null causal role.

¹⁵ More carefully, no theory that accepts the existence of individuals can do without identity and distinctness. See Dasgupta (2010) and Turner (2010) on the prospects for dispensing with individuals and quantification in favor of predicate functors.

¹⁶ For example, Armstrong (1978) defends Eleaticism on the grounds that we cannot improve the explanatory power of a theory by appealing to causally inert entities. For discussion, see Colyvan (1998).

¹⁷ I have set aside examination of the implications of more general Eleatic theses for mereology. It is worth noting, however, that if one holds that every object instantiates some causally efficacious non-logical property, this apparently weaker version of Eleaticism seems to entail the stronger Eleatic thesis that there are no objects without causal powers.

composition occur?¹⁸

The Simple Question: Under what conditions is an object mereologically simple (i.e., lacking proper parts)?¹⁹

Proposed answers to each question are numerous and differ considerably. Among the proposed answers to the Special Composition Question are universalism (“under any conditions”), nihilism (“under no conditions”), organicism (roughly, “when some things participate in the life of the same organism”), and brutalism, which denies that the Special Composition Question admits of a true, finitely specifiable, non-trivial answer.²⁰

Answers to the Simple Question are similarly diverse. Among the proposed answers are the fundamental view (“when something instantiates a perfectly natural or fundamental property”), the indivisible view (“when something cannot be divided”), the MaxCon view (“when something is a maximal continuous matter-filled region”), and the brutal view, which parallels the brutalist view of composition in denying that this question admits of a useful answer.²¹ Furthermore, some deny that the conditions for being a simple are ever actually satisfied (or, more strongly, possibly satisfied). These opponents of mereological simples therefore believe the world to be *gunky*: every part of every object has further proper parts.²²

All of these answers presuppose mereological realism, according to which the world has a mereological structure—i.e., a distribution of mereological properties or relations across a class of objects.²³ Made explicit:

Mereological Realism: Objects instantiate various mereological properties.

Mereological realism does not require that the mereological structure in question be of any significant complexity. For example, the simplest form of mereological realism is monism, according to which there is a unique mereologically simple object that bears the improper parthood relation to itself.²⁴ Typically, however, defenders of mereological realism posit a rich mereological structure to the material world, affirming the existence of either infinitely many simples or limitless gunk and, in turn, infinitely many

¹⁸ See Van Inwagen (1990) on the Special Composition Question. On proposed answers, see Markosian (1998a) and Sider (2001).

¹⁹ On the Simple Question, see Markosian (1998b) and McDaniel (2007).

²⁰ Lewis (1991) and Van Cleve (2006) defend universalism. Dorr and Rosen (2001), Sider (forthcoming), and Cameron (2010) defend nihilism. Van Inwagen (1990) defends organicism, while Markosian (1998a) defends brutalism.

²¹ On answers to the Simple Question, see Markosian (1998b), McDaniel (2007), and Spencer (forthcoming).

²² On gunk, see Schaffer (2003), Sider (1993), and Zimmerman (1996).

²³ Mereological realism might be taken as a thesis regarding only the material world, if one denies that abstract entities stand in mereological relations. See Lewis (1991) for a defense of mereological relations among sets.

²⁴ See Schaffer (2007) on the relation between monism and mereological nihilism.

composite material objects.

Given certain auxiliary assumptions, monism entails another counter-intuitive but widely discussed form of mereological realism: mereological nihilism (hereafter, “nihilism”). According to nihilism, the mereological structure of the world is extremely minimal. Although there is at least one simple that bears the improper parthood relation to itself, no objects stand in the proper parthood relation.²⁵ Put differently, nihilism denies that there are any mereologically composite objects but affirms the existence of mereologically simple objects. It is therefore committed to a particular view about the mereological structure of the world.

Mereological realism is so commonly presupposed that some are likely to believe its denial—the thesis of mereological anti-realism—is incoherent, self-contradictory, or requires a commitment to ontological nihilism, according to which nothing exists. Again, made explicit:

Mereological Anti-Realism: No objects instantiate mereological properties.

The alleged incoherence of mereological anti-realism is likely held to follow from the conflict of mereological anti-realism with the thesis that everything either has or lacks proper parts. Since mereological anti-realism entails that no objects have or lack proper parts, we seem forced into the implausible thesis of ontological nihilism in order to avoid contradiction. But, upon careful consideration, any direct argument of this kind simply begs the question against mereological anti-realism, so concerns about the self-contradictory character of mereological anti-realism are misplaced. Similarly, worries about mereological anti-realism yielding ontological nihilism are premature. Mereological anti-realism does not entail *ontological* nihilism, but, at the same time, it is useful to distinguish mereological anti-realism from *mereological* nihilism.

To appreciate the difference between nihilism and mereological anti-realism, note that the nihilist accepts the existence and instantiation of mereological relations like improper parthood—the relation every mereological simple bears to itself—while mereological anti-realism denies that any mereological properties or relations are instantiated by the world. Similarly, one way to argue against nihilism is to show that it is incompatible with certain theses about mereological structure (e.g., the possibility of gunk). In contrast, mereological anti-realism is plainly incompatible with any substantive thesis about mereological structure.

Even while there is no reason to believe mereological anti-realism is self-contradictory or incoherent, it faces an important challenge: Mereology is a powerful theory for understanding the structure of the world, and, if the world lacks mereological structure, what theory about the structure of the world can take its place? In large measure, this objection has been presented to and addressed by nihilists, since nihilists must also explain the structure of the macrophysical world. To this end, several theories

²⁵ On improper parthood in classical mereology, see Simons (2000).

are plausible candidates for playing this structural role: most notably, set theory, substantivalist theories that appeal to spatiotemporal regions and their sub-regions (without, of course, understanding this relation mereologically), and the apparatus of plural quantification and plural predication. Here, I set aside this general challenge for nihilists and mereological anti-realists, but note that, for any view of this kind, some account of the structure of the world is required. Fortunately, mereological anti-realism is strictly neutral regarding what the proper conception of structure might be and whether it is ultimately an *a priori* or *a posteriori* matter.

In the next section, I offer a decidedly *a priori* argument about the mereological structure of the world. Specifically, I argue that Eleaticism provides reason to believe there is no mereological structure whatsoever.

§4. The Eleatic Argument

The Eleatic Argument against Mereological Realism (again, the Eleatic Argument) is as follows:

1. (Eleaticism) Necessarily, there are no causally inactive non-logical properties.²⁶
2. (Epiphenomenality) Mereological properties, if any, are not causally active.
3. (Non-Logicality) Mereological properties, if any, are non-logical.
4. (Mereological Anti-Realism) Therefore, no objects instantiate mereological properties.

Eleaticism supplies two jointly sufficient conditions for the nonexistence of a putative property: causal inactivity and non-logicality. Epiphenomenality affirms that mereological properties would satisfy the first of these conditions. Non-Logicality affirms that mereological properties would satisfy the second. If both Epiphenomenality and Non-Logicality hold, then Eleaticism ensures there are no mereological properties. Since the nonexistence of mereological properties entails Mereological Anti-Realism, the argument is plainly valid. In the remainder of this section, I consider the case for Epiphenomenality and Non-Logicality as well as the relation of the latter to the controversial thesis that composition is identity.

4.1. Epiphenomenality

A defense of Epiphenomenality raises difficult questions about the nature of causation. While I will attempt to sidestep many of these questions, the most straightforward

²⁶ If Eleaticism is understood as a thesis regarding actuality, mereological anti-realism could be viewed as a contingent thesis. If mereological realism is contingent, this would entail that theses regarding specific mereological structural features (e.g., views about when composition occurs) are similarly contingent. I set aside these complications here although I suspect that these matters are decidedly non-contingent.

defense proceeds by showing that there are causally indiscernible yet mereologically discernible possible worlds. So, for example, if there is a world where monism is true but such a world is causally indiscernible from a world with a plurality of mereological composites, we have strong evidence for Epiphenomenality. Unfortunately, many challenges arise in articulating a useful notion of causal indiscernibility between possible worlds.

Suppose, for example, that causal indiscernibility requires an isomorphism from the domain of a nihilist or monist world into a universalist world with myriad entities. On that understanding, the differing cardinality of the domains immediately precludes causal indiscernibility. Against this concern, I take it that the intended sense of causal indiscernibility is something like sameness of causal-nomic laws under a suitable translation (e.g., from monadic predicates of single composite objects into plural predicates of pluralities). For this reason, I believe the causal indiscernibility of mereologically discernible worlds can still be established. In order to do so, I will offer two considerations in support of Epiphenomenality. The first is broadly neutral regarding the nature of causation, while the second is decidedly partisan.

The first route for defending Epiphenomenality proceeds by noting the dissimilarity between mereological properties and relations and the sparse properties and relations discoverable through physical theory. While properties like *mass* and *charge* are needed to furnish any kind of nomologically complete and closed account of microphysics, physics textbooks assign no role to mereological simplicity. Indeed, the diversity of answers to the Simple Question suggests that there is no distinctive causal profile for simples.²⁷ For example, the conceptual coherence of composite yet point-sized objects—e.g., co-located particles—and extended yet divisible simples strongly suggest that there are no good candidates for being the characteristic causal profile of *being mereologically simple*. There is, then, no candidate causal profile to assign to *simplicity* or other mereological properties. For this reason, there is no evidence of the causal activity of either mereological simplicity or, as Rosen and Dorr (2001) argue, mereological complexity.²⁸

The second route for defending Epiphenomenality appeals to three theses about the nature of laws and causation. According to causal generalism, any instance of causation is underwritten by a law of some kind. According to the qualitative conception of sparse properties defended in Lewis (1986), sparse properties are uniformly qualitative in nature: they guarantee qualitative resemblance whenever instantiated. Finally, according to the view of laws defended in Armstrong (1978) and others, laws are relations of nomic necessitation between universals or, less

²⁷ See Markosian (1998) and McDaniel (2007) for the case against views that identify simplicity with something like indivisibility or being with spatiotemporal extension.

²⁸ This route for defending Epiphenomenality has a notable consequence for the epistemology of mereology: it strongly suggests that no empirical considerations suffice to settle facts about the world's mereological properties. For mereological realists, this is a surprising consequence, but poses no problem for the mereological anti-realist. On the epistemological status of theses regarding simples and gunk, see Schaffer (2003). Thanks here to an anonymous referee.

controversially, sparse properties. Taken together, these views place a constraint on the kinds of properties that can stand in causal relations. Most notably, they rule out the causal efficacy of non-qualitative properties since these properties cannot figure into the laws required to underwrite genuine instances of causation. Following Hawley (2009), there also seems to be good reason to believe that mereological properties like *composing something* or *being a simple* are in fact non-qualitative in nature. It seems, then, that, alongside the more general reason offered above, the conjunction of several plausible views about laws and causation support Epiphenomenality and the conclusion that mereological properties play no role in the causal story of the world.

4.2. Non-Logicity

Earlier, I defended a caveat for Eleaticism, which exempts logical properties like identity and distinctness. The remaining burden of the Eleatic Argument is therefore to show that mereological properties and relations are non-logical. But, for familiar reasons, this proves a difficult issue to settle even given the apparent absence of mereology from classical logic.²⁹

For those who identify composition with identity, mereological properties are plainly logical in nature and, for this reason, a crucial premise of the Eleatic Argument, Non-Logicity, can be denied. According to a strong version of the thesis that composition is identity (hereafter, CAI), mereological composition is one species of a generalized identity relation with a variable adicity.³⁰ In classical logic, this identity relation takes singular variables or constants as arguments, but, for the defender of CAI, the identity relation takes plural as well as singular arguments and, most significantly, it allows that identity hold between a singular argument and a plural argument.

The Eleatic Argument provides yet another reason to believe that the status of CAI is crucial for settling metaphysical issues regarding the metaphysics of the material world. Here, the truth of CAI proves especially significant since it provides a natural way to resist the Eleatic Argument and preserve mereological realism.³¹ Clearly, CAI has a pivotal role in the evaluation of the Eleatic Argument, but, given the controversial status of CAI, it is unclear whether this strategy is ultimately tenable. For my part, I see no good reason to believe the status of CAI as a settled matter so I am content to mark a commitment to CAI as a live option for addressing the Eleatic Argument.

²⁹ On the prospects for the absolute generality and topic-neutrality of mereology, see Uzquiano (2006).

³⁰ I have in mind here something close to the formulation of “strong composition as identity” in Sider (2007: 55). On composition as identity, see Cotnoir (forthcoming), Lewis (1991), and Wallace (2010).

³¹ Even those who deny CAI might hope that Non-Logicity can be rejected by showing that mereological properties are logical in some broader sense. I do not find this strategy for defending mereological realism convincing. In particular, it seems that once we stray past the logical relations of identity and distinctness, serious difficulties arise in settling debates about logicity. That said, there is a significant constraint on this strategy worth noting: for those who claim mereological properties are broadly logical in the relevant sense, the plausibility of their claim will depend significantly on the independence of their view of mereological structure on non-logical concepts. It seems, for example, that anyone who accepts an organicist view about the Special Composition Question, is poorly positioned to defend the genuinely logical character of composition when it is held to bear an intimate relation to decidedly non-logical concepts like *being alive* or *being conscious*.

I have now presented the Eleatic Argument and offered two arguments in support of Epiphenomenality. Taken together, these suffice to show that mereological properties and relations are not causally active. I have also noted that the case for Non-Logicity turns on the truth of CAI. Having left the status of CAI open, I am content with the conditional conclusion: unless composition is identity, mereological realism is false. This concludes my defense of the Eleatic Argument.

§5. Nihilism and Mereological Anti-Realism

If the Eleatic Argument is successful, there is reason to believe that the world has no mereological structure. Here, I want to consider the merits of mereological anti-realism relative to its closest competitor: mereological nihilism (again, “nihilism”).

Mereological Nihilism: Necessarily, there are only mereological simples.

Nihilism and mereological anti-realism warrant a close comparison since each denies there are composite objects. At the same time, these views differ since only the nihilist posits mereological properties like *is an improper part of* or *being a simple*. In this section, I consider a nihilist response to the preceding argument and then argue that mereological anti-realism is preferable to nihilism.

There are two lines of defense the nihilist might marshal against the Eleatic Argument. According to the first, the Eleaticist has gone wrong in precluding the existence of a lonely idle property. There is such a property—*being mereologically simple*—and its distribution fixes the world’s mereological structure. As noted above, the Eleaticist should find this objection unconvincing. Eleaticism is a thesis that precludes the existence of non-causal properties and relations, and, while causal essentialism can be formulated in a way that permits a property to occupy the null causal role, the more natural formulation of causal essentialism applies only to non-trivial causal roles. Properly understood, causal essentialism therefore leaves no conceptual room for a lonely idler. More generally, I take this point regarding causal essentialism to count against any defense of mereological realism that posits a single mereological property (e.g., overlap or parthood) as the lonely idler.

A second and more promising line of defense proceeds by exploiting a notable feature of nihilism: the analytic connection between improper parthood and identity. Specifically, the nihilist might maintain that mereological simplicity is properly logical since improper parthood is just the identity relation. For this reason, the nihilist’s minimal mereological structure is exempt from the scope of the Eleatic theses.

For this response to succeed, all instances of identity must be instances of improper parthood and *vice versa*. And, while the nihilist may be content to say that improper parthood, like identity, is an equivalence relation over concrete objects, there are instances of identity that are not plausibly taken to be instances of improper parthood. Most notably, the identity relation in plural logic is not plausibly understood to be the relation of improper parthood upon pain of taking irreducible pluralities of entities to be mereologically simple. More generally, this view seems to require a

commitment to either an austere form of nominalism or to the mereological simplicity of all abstract entities. This will be an unwelcome result for those, like Lewis (1991), who posit a rich mereological structure within set theory. It will also be objectionable to those who oppose Lewis (1991) and deny that sets have any mereological structure even while they grant that each sets is self-identical.

The nihilist has no attractive options for resisting the Eleatic Argument. And, in the remainder of this section, I argue that, since mereological simplicity is not plausibly taken to be the identity relation, there is reason to prefer mereological anti-realism to nihilism. This reason issues from concerns about mereological ideology. Indeed, it is the very same reason Sider (forthcoming) offers for preferring nihilism to views that posit composite objects.³² As Sider argues, we can improve upon our theoretical—specifically, ideological—economy by dispensing with mereological primitives like parthood and composition. But this ideological gain can only be achieved if *every* mereological primitive is dispensed with. Notice, however, that while the nihilist can avoid talk of proper parthood and need not answer the Special Composition Question, she is still committed to mereological simples and improper parthood and therefore still owes an answer to the Simple Question. For this reason, the ideological benefits Sider touts are available only to the mereological anti-realist, not the nihilist. In order to secure this gain, we should therefore endorse mereological anti-realism over nihilism.

Nihilists might attempt to resist this conclusion by arguing that nihilism is on equal ideological footing with mereological anti-realism provided that the nihilist can offer a suitable reductive analysis of mereological simplicity. Against this line of thought, McDaniel (2007) has convincingly argued, there is no correct, informative, and finitely expressible answer to the Simple Question.³³ If McDaniel is correct, facts about which objects are mereologically simple are brute facts so commitment to the instantiation of mereological simplicity incurs a significant theoretical cost for nihilists. And, since mereological anti-realism differs from nihilism by virtue of denying the existence of simples, mereological anti-realism is guaranteed to be more economical than nihilism. As a consequence, any nihilist swayed by Sider's argument for nihilism should, in fact, prefer mereological anti-realism to nihilism.

I have now argued that mereological anti-realism is preferable to nihilism. For those unconvinced by Eleaticism and sympathetic to nihilism, this suggests an alternative route to mereological anti-realism that appeals to exclusively ideological considerations. Here, I am content to have shown that mereological anti-realism is a viable alternative to the various forms of mereological realism and a leading rival to nihilism.

³² Despite defending what he calls “nihilism,” perhaps mereological anti-realism is what Sider ultimately has in mind in offering his ideological argument. If so, it is nevertheless worth making explicit the substantive difference between the commitments of the nihilist and the mereological anti-realist.

³³ Cf. Markosian (1998a) on composition. Note, also, that the significance of CAI rears its head again. As Spencer (forthcoming) argues, the defender of composition as identity can offer a reductive analysis of simplicity. See the preceding section for my general strategy of treating the present issue as conditional upon the denial of CAI suitably understood.

§6. Conclusion

I have introduced and defended mereological anti-realism, according to which there are no mereological properties and relations and therefore no mereological facts. My argument for mereological anti-realism issued from a commitment to a certain version of Eleaticism, which denies the existence of causally inert non-logical properties and relations.³⁴ This argument holds that, since mereological properties and relations are causally inert and non-logical, Eleaticists ought to reject mereological realism. I also noted the crucial role that the denial of CAI plays in this argument and marked its significance for the debate between mereological realists and anti-realists. Finally, I compared the merits of mereological anti-realism and nihilism and argued that there are independent reasons to prefer mereological anti-realism to nihilism.³⁵

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³⁴ Cf. Sider (forthcoming).

³⁵ Thanks to Ben Caplan for helpful comments and discussion.

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