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# The Metaphysics of Stoic Corporealism

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Abstract: The Stoics are famously committed to the thesis that only bodies are, and for this reason they are rightly called "corporealists." They are also famously compared to Plato's earthborn Giants in the Sophist, and rightly so given their steadfast commitment to body as being. But the Stoics also notoriously turn the tables on Plato and coopt his "dunamis proposal" that being is whatever can act or be acted upon to underwrite their commitment to body rather than shrink from it as the Giants do. The substance of Stoic corporealism, however, has not been fully appreciated. This paper argues that Stoic corporealism goes beyond the dunamis proposal, which is simply an ontological criterion for being, to the metaphysics of body. This involves, first, an account of body as metaphysically simple and hence fundamental; second, an account of body as malleable and continuous, hence fit for blending (krasis di' holou) and composition. In addition, the metaphysics of body involves a distinction between this composition relation seen in the cosmology, and the constitution relation by which the four-fold schema called the Stoic Categories proceeds, e.g. the relation between a statue and its clay, or a fist and its underlying hand. It has not been appreciated that the cosmology and the Categories are distinct - and complementary - explanatory enterprises, the one accounting for generation and unity, the other taking those individuals once generated, and giving a mereological analysis of their identity and persistence conditions, kinds, and qualities. The result is an elegant division of Plato's labor from the Battle of Gods and Giants. On the one hand, the Stoics rehabilitate the crude cosmology of the Presocratics to deliver generation and unity in completely corporeal terms, and that work is found in their Physics. On the other hand, they reform the Giants and "dare to corporealize," delivering all manner of predication (from identity to the virtues), and that work is found in Stoic Logic. Recognizing the distinctness of these explanatory enterprises helps dissolve scholarly puzzles, and harmonizes the Stoics with themselves.

# Introduction

Stoic metaphysics is a thorny topic. It corresponds to no formal branch of Stoic Philosophy (which is divided into the topics of Physics, Logic, and Ethics), and it is not entirely clear what Stoic metaphysics consists in, or even whether there is such a thing. On the other hand, there is no branch of Stoic Philosophy corresponding to theology either, and yet there clearly is such a thing as Stoic theology; indeed, it is clear that theology is *everywhere* in Stoicism, pervading all aspects of their thought.<sup>1</sup> Likewise, I suggest, metaphysics is everywhere in Stoic Philosophy, pervading their innovations in Physics, Logic, and Ethics. The absence of "Stoic Metaphysics" in the Stoic curriculum does not indicate that there is no such study, only that it is not to be sought as an isolated topic within one of the formal divisions.<sup>2</sup>

Stoic corporealism is also a thorny topic. It, too, corresponds to no formal branch of Stoic philosophy, and it is not entirely clear what Stoic corporealism consists in, or even how their various corporealist commitments hang together (if indeed they do). The Stoics are famous for saying that only bodies *are*, or have *being*; also for making soul and even the virtues corporeal by the schema that has come to be called their Categories.<sup>3</sup> And Stoic cosmology famously finds its starting point in two corporeal principles, or *archai*: divine, active *logos* (reason) and passive *hulē* (matter). But there is little agreement on how these commitments are to be understood, either on their own terms or in relation to each other. As above, however, the absence of "Stoic Corporealism" in the curriculum and disagreement about the details also does not indicate that there is no such study, only that it does not correspond to a formal topic or division in Stoic Philosophy.

A more fruitful approach than seeking some one branch with which to identify these subjects is to think of Stoic metaphysics as a considered response to Plato's *Sophist*. I am hardly the first to notice an affinity between the Stoics and the *Sophist*, particularly in the Battle of Gods and Giants between the "immaterialist" Friends of the Forms (Gods) and the "materialist" Sons of the

<sup>2</sup> Thus attempts to identify Stoic metaphysics with either the specific or the generic topics of Physics as described in DL 7.132 (43B) are at odds with each other and do not harmonize with the textual evidence, e.g. Brunschwig (2003), Long & Sedley (1987, hereon LS), and Mansfeld (2005), but it does not follow that the Stoics are not engaged in metaphysics at all, as Vogt (2009) argues, or that there must be a separate science of *being* in the manner of Aristotle, for the Stoics to be engaged in metaphysics. Parenthetical citations like (43B) refer to chapter and order of the passage in LS. <sup>3</sup> The Stoics themselves do not call their four-fold schema "Categories," and the schema is not clearly developed in response to Aristotle's *Categories*; for the sake of convenience and convention, I will continue to refer to them as Categories, but always with this important caveat.

<sup>&</sup>lt;sup>1</sup> On which see Algra (2003)

Earth (Giants).<sup>4</sup> However, it has been less appreciated that the Stoic response to Plato's *Sophist* reaches beyond the Battle of Gods and Giants to the patricide of Parmenides, by rejecting the very dichotomy of *being* and *non-being* that generates all the intractable puzzles in the *Sophist*, including the never-ending battle over whether *being* is corporeal or incorporeal.<sup>5</sup> I will begin with an overview of Stoic metaphysics as a response to the patricide, then I will carve off the central topic and argue that Stoic corporealism consists in a division of labor from the Battle of Gods and Giants, which assigns the cosmological work of Forms to physics, and their explanatory work as the identity conditions, kinds, and qualities of individual bodies to logic.<sup>6</sup> As I will argue, the metaphysics of Stoic corporealism as a formal topic in the curriculum and scholarly disagreement about what it consists in), but also in their subtle and sophisticated approach to what it is to be a body in each of these domains.

Stoic corporealism takes its start from the Giants' earthborn commitment to *being (ousia)* as body (*sōma*) ((DL 7.150, Clement, *Strom* 2.436 (SVF 2.359)), but proceeds with an entirely new conception of body, which stands apart in being neither hylomorphic (taking body to be composed of matter and form) nor atomistic (taking body to be rigid and full absolutely, and, of course, terminating in minima).<sup>7</sup> Stoic body is metaphysically simple (non-composite) and fundamental, in contrast to the hylomorphic conception, and it is entirely malleable and continuous, in contrast to atomistic presuppositions.<sup>8</sup> This sensitivity to the metaphysics of being a body (namely, its fundamentality and continuous nature) underwrites the Stoics' equally innovative corporealist cosmology, enabling them to build a single, unified cosmos (and all the individuals in it) out of two

<sup>&</sup>lt;sup>4</sup> Long (1974, 153) identifies the affinity with Plato's "materialists," Brunschwig (1988) pursues the comparison with the Gods and Giants in depth and systematically. For the view that the Stoic response to the *Sophist* is to turn away from questions of *being* and *non-being* altogether, see Vogt (2009). For recent skepticism about any influence of the *Sophist* on the Stoics, see Sellars (2010); note that by framing the topic around the *Sophist* as I do, I am not saying that the Stoics thought only about the *Sophist*, or only about Plato; for an instructive intellectual biography that shows the breadth of influences on Zeno of Citium, the founder of the Stoic school, see Selley (2003). I put scare quotes around "materialism" because this is a term not used by Plato or the Stoics, who work in terms of bodies and incorporeals; the Stoics are not, properly speaking, materialists but rather corporealists, in support of which see Brunschwig (1988, 72), though many persist in terms of "materialism" so when I describe their views I will use (but not endorse) that language. <sup>5</sup> For a notable exception, see Aubenque (1991).

<sup>&</sup>lt;sup>6</sup> Note that I am not making "meta" claims about the parts of Philosophy and their relative primacy, but claims about the way in which the Stoics divide Plato's labor between different explanatory enterprises.

<sup>&</sup>lt;sup>7</sup> By "hylomorphic" I do not mean to invoke Aristotle, or any other particular thinker or school; I mean, generically, the twin presuppositions that where there is body there is matter, and that where there is reason or quality there is an incorporeal.

<sup>&</sup>lt;sup>8</sup> For a defense of this view in greater detail in the context of Stoic blending, see de Harven (2018b).

fundamental bodies, the active and passive principles (*archai*), blended through and through (*krasis di' holou*)... with no Form of Unity required!

The Stoic Categories, by contrast, take individual bodies, once built, as their starting point, or inputs and offer a corporealist analysis of their identity conditions, kinds, and qualities — daring to say (as Plato's Giants would not) that even the virtues are bodies. This schema does the logical (as opposed to cosmological) work of Forms: to explain what it is to be a body of a certain kind, i.e. *what makes something* F. Not only do the Categories have a different *explanandum*, they proceed by a different explanans as well. The Categories proceed not in terms of the *composition* of one thing out of many as in the cosmology, but in terms of *constitution*, on the model of clay that constitutes a statue, and a hand that constitutes a fist. What makes this thing a statue is its being clay in a certain condition or arrangement; what makes this thing a fist, is that it is a hand arranged a certain way; and what makes Socrates wise, is that his soul (a body, namely *pneuma* (fiery breath) in a certain state of rarity and tension) is itself in a certain further condition or state, like a leather glove in the further state of being broken in and supple.

Crucially, this explanatory schema is not a part of Stoic cosmology or an account of how it is possible for many things to compose one, indeed, it is not a part of Physics at all. Rather, the analysis that "makes each of us four" is a self-consciously mereological account of what makes a given individual be human (a commonly qualified individual) and be Socrates (a uniquely qualified individual) through a lifetime of growth and change, and yet, at the same time, be a lump of body that never remains the same, i.e. never persisting through addition and subtraction (growth and diminution). The Categories also explain what makes Socrates be wise and walking, and how his wisdom and his walking are each a body conditioned or disposed in certain way; even what makes Socrates be the husband of Xanthippe and southwest of the agora, and how each of these is also a body in a certain state or condition. This is how the Stoics "dare to corporealize" all that the Giants could not, forging what Jacques Brunschwig has called their "inflationist somatology."<sup>9</sup> And in addressing puzzles about growth and diminution, persistence, and individuation, the Categories are clearly a part of Logic, alongside studies of the Ship of Theseus, the Sorites paradox, the Lying Argument, the Master Argument, and many more metaphysical puzzles.<sup>10</sup>

<sup>&</sup>lt;sup>9</sup> Brunschwig (1988, 72)

<sup>&</sup>lt;sup>10</sup> The division of Philosophy called "Logic" includes not only the Stoics' sophisticated propositional logic (logic proper), but also dialectic generally, the science of speaking well, i.e. saying what is true and fitting, hence, the science of yardsticks and criteria, definition, fallacy, sophism, ambiguity, and signification, which is to say, epistemology broadly speaking, as well as ontology. See LS26 for texts and discussion; see Ierodiakonou (1993) for an illuminating analysis of

The metaphysics of Stoic corporealism consists, then, in the division of Plato's labor between a corporealist cosmology and an inflationist somatology, and their metaphysically innovative accounts of body: on the one hand, as a matter of cosmology and hence Physics, body is fundamental and continuous rather than hylomorphic or atomistic, and on the other hand, as a matter of mereology and hence Logic, a qualified body is simply a corporeal substrate in a certain condition, as clay to statue, or hand to fist. It consists in a metaphysical distinction between the composition of one thing out of many and the constitution of one thing by another. Stoic corporealism is thus no separate topic, but part of a thoroughgoing reply to the Battle of Gods and Giants that distributes Plato's labor across the formal divisions of Philosophy, and metaphysics is everywhere in that reply.

#### Some Lessons from the Sophist

The Stoics famously make Something (*ti*) their highest ontological genus, set over bodies (*sōmata*), which have *being*, and incorporeals (*asōmata*), which do not (see Alexander quotation below). This move can be traced to the Parmenidean puzzles over *non-being* in Plato's *Sophist*.<sup>11</sup> The question of *being* and *non-being* (or, equivalently, *what is* and *what is not*) arises in the *Sophist* (at 237A) out of discussion of the sophist as a copy-maker: how can there be copies, if these are other than *what is* and anything other than *what is*, i.e. *what is not*, is nothing at all? It does seem that there really are copies, and, generally, that candidates on both (or all) sides of the debate over *being* and *non-being* (*ti*) must be *what is* or else nothing at all (237C-D), then however one delimits or defines *what is* will automatically banish all other candidates, real as they may seem, to the dustbin of nothing at all (or, with the Gods, to *becoming*). Hence the debate is immediately intractable, a stalemate with nowhere for either side to go in the face of entities with a legitimate claim to *what is* but that do not fit the chosen mold.

The Stoic solution is to reject the *being*-nothing dichotomy as exhaustive: to embrace (all and only) body as *being*, and to recognize in addition a kind of *non-being* that is something more than nothing at all (239D-240C). The Stoics prise apart *something* from *being* (rejecting the Visitor's

the interpretive difficulties concerning the division of Stoic philosophy, and Ierodiakonou (2005) on the status of these puzzles as thought experiments.

<sup>&</sup>lt;sup>11</sup> Again, for welcome support of this point, particularly in the detailed exposition of the Sophist, see Aubenque (1991).

repeated suggestion that "something" can only be applied to *what is*), thereby opening the way to posit Something (*ti*) as the highest ontological genus set over both *being* and *non-being*. Alexander of Aphrodisias mocks — and hence confirms — this very move:

This is how you could show that not finely do the Stoics posit Something (*to ti*) as the genus of *being (to on*); for if it is something (*ti*) then, it is clear that also it is a *being (on*); but if it is a *being,* then it should submit to the account of *being.* But those people would escape the problem by legislating for themselves its [sc. *being*'s] being said of bodies only; for through this they say that Something is more generic than it [sc. *being*], being predicated not only of bodies, but also of incorporeals.

Alexander, In Ar. Top. 301,19-25 (27B)

The Stoic patricide of Parmenides, to "force on *what is not* that in a certain respect it is, and on *what is*, in turn again, that somehow it is not" (241D), consists in the recognition of things that do not have corporeal *being*, as Something more than nothing at all, so that the *being*-nothing dichotomy is not exhaustive after all. These Stoic "*non-beings*" include, uncontroversially, the incorporeals (place, void, time, and the tantalizing *lekta*, or sayables, roughly: the meanings of our words (SE, *M*. 10.218 (27D)) and, more controversially, what is neither corporeal nor incorporeal (creatures of fiction (Seneca, *Ep.* 58.13-15 (27A)), and idealized limits of geometry, e.g. the surfaces of a geometrical cone "cut" in half (Plutarch, *Comm. not.* 1078E-1080E (50C), DL 7.135 (50E)).<sup>12</sup> To the extent that these entities are not bodies, they do not have *being* and hence *are not* and are *non-beings*; so *what is not* in a certain respect *is* (in being Something).<sup>13</sup> And to the extent that these *non-existent* entities are Something, they *are* in a certain respect and thus *what is* (Something) is also *what is not* (in including *non-beings*). The Stoics thereby expand the ontological playing field, rejecting the *beingnothing* dichotomy and, to this extent, they actively participate in Plato's patricide of Parmenides.

But, the Visitor goes on, it is not just *non-being* that will forever make us ridiculous, for *being* is just as confused. It is here that the Presocratics are caricatured, as "everyone who has ever in their judgment [about *what is*] rushed headlong into delimiting the things that are, how many and of what sort they are" (241C). For every posit that *what is* is one, two, or three, or that it is hot or cold or dry or wet, the Visitor generates equally intractable puzzles concerning *being*, unity, and wholeness (241C-245E). For example, if all things are two, e.g. hot and cold, and both *are* and each is *one*, then either they are three and not two (since there is *being* in addition), or they are one and not two (since both are *being*) (243E-244A). It turns out that these thinkers know no more about *what is*, when they

<sup>&</sup>lt;sup>12</sup> Nothing I say here about *being* and *non-being* or Stoic corporealism turns on whether we accept Long & Sedley's posit of a tripartite ontology that includes what is neither corporeal nor incorporeal; the incorporeals are sufficient to make the present point about *non-being*. For arguments against a tripartite ontology, see Alessandrelli (2016).

<sup>&</sup>lt;sup>13</sup> Pace Vogt (2009, 146-47), who argues that the Stoics do not say of anything that it is a *non-being*, taking Inwood (2007) to task; cf. Bronowski (2019, 127-28), who argues that *being* has no doctrinal purport for the Stoics.

say that hot and cold both *are* and each *one* is, than Theaetetus and the Visitor did about *what is not* in contending with the sophist. At this juncture, the Battle of Gods and Giants is introduced as a different window onto the same issue, to establish definitively that *what is* is no less confused than *what is not*.

The earthborn Giants are characterized as those who "drag all things down from the heavens and the invisible to earth by inartfully grasping at rocks and trees with their hands" (246A). The Visitor explains that this inartfulness consists in their baldly equating *being* with body (legislating that only body *is*, and therefore that everything else is nothing at all) and in their contemptuous refusal to consider any alternative (246A-B, D). So the Visitor hypothesizes more civilized Giants who are at least willing to engage in discussion (246C-E). These civilized Giants are willing to affirm that soul is a body, but they are too ashamed either to deny the existence of justice and wisdom, or to corporealize them — so they fold on their corporealism (246E-247B). In this they are contrasted with the untamed Giants, who are *so* uncivilized that they feel no shame in saying that justice and wisdom are "absolutely nothing," i.e. they are shamelessly eliminative (247C).<sup>14</sup> Having admitted something incorporeal among the things that *are*, the Visitor proposes a new account of *being* as "the power or capacity (*dunamis*) ever to do or undergo anything at all" (247C-E).<sup>15</sup> Absent a better option, the hypothetically civilized Giants grant this *dunamis* proposal that *being* is the capacity to do or undergo (247E5-6), and the Visitor goes on to question the Friends of the Forms.

According to Lesley Brown, the point of the Visitor's interrogation of the Presocratics in the guise of the Giants is that:

those who pontificate about *onta* or *ousia*, enumerating basic principles, or declaring being to be confined to a certain kind of thing, owe us an account of their theorizing. They must give at least criteria for counting something in or out, or, better still, an account of what it is to be. Now it is highly likely that most of the theorists whom Plato takes to task did not in fact conceive of themselves as giving any sort of account of being. Parmenides, and Plato himself, are the two obvious exceptions to this. It is as if Plato's message to the others is: nowadays we expect such thinkers to be more self-critical, to state and defend their criteria for being, even to say what it is to be, before plunging into extravagant theorizing on the number and nature of beings (*posa kai poia ta onta*). Metaphysics and ontology should replace cosmology.<sup>16</sup>

<sup>&</sup>lt;sup>14</sup> Thus it cannot be right to equate the Stoics to the untamed Giants as Brunschwig (1988, 72) and Vogt (2009, 142) do.

<sup>&</sup>lt;sup>15</sup> I follow Brown (1998) and Gill (2012) in calling this "the *dunamis* proposal."

<sup>&</sup>lt;sup>16</sup> Brown (1998, 204).

This, I suggest, is precisely what the Stoics do. In the first place, they introduce two distinct ontological criteria, one for *being* and another for *non-being* (in the parlance of the *Sophist*).<sup>17</sup> In fact, they co-opt the Visitor's *dunamis* proposal and use that as a causal criterion for *being*, with the result that only bodies *are* since only bodies are capable of causal interaction.<sup>18</sup> Further, they introduce a second ontological criterion, for those entities that subsist (*huphestanat*), in the parlance of the Stoics; these are *non-beings* insofar as they are incapable of causal interaction, but Something insofar as they are real features of the world that we grasp by the mind rather than the senses. Thus the Stoics are already much more civilized and self-critical than Plato's Giants, giving an account of their theorizing and defending their criteria for counting something in or out, instead of "inartfully grasping at stones and trees."

The Stoics are not only civilized and self-critical, but also inclusive about their ontology, admitting incorporeals alongside bodies; however, they are principled about their inclusiveness, not merely folding in response to the toughest cases and putting Forms alongside bodies like Plato's civilized Giants. The Stoics remain staunchly eliminative about Forms, yet inclusive of *other* entities that cannot be squeezed in the hands (the *Stoic* incorporeals, place, void, time, and the *lekta*); these entities are not other-worldly Forms, though they are other than bodies. By making these *non-beings* ontologically dependent on body, in the way that the flow of traffic depends on cars for its subsistence and properties, the corporeal and incorporeal are no longer such strange bedfellows; indeed they are no longer representative of a two worlds metaphysics at all.<sup>19</sup> Thus, the Stoics are able to meet the Visitor's further challenge, to say what entities as different as bodies and

<sup>&</sup>lt;sup>17</sup> I follow Brunschwig (1988) and Caston (1999) in taking there to be two ontological criteria, though with some important differences; see Alessandrelli (2013, 13-4) for the view that there is only one ontological criterion. <sup>18</sup> In support of syllogizing this way, se Hahm (1977, 12). For the view that the *dunamis* proposal is a criterion or definition of body rather than *being*, see Vogt (2009) and Bronowski (2019). In support of the *dunamis* proposal as a

criterion of *being*, see Alessandrelli (2013, 7-17, 2016), Aubenque (1991), and Brunschwig (1988); for the idea that the *dunamis* proposal is a measure of fundamentality, see Bailey (2014).

<sup>&</sup>lt;sup>19</sup> The dependence of the incorporeals on body is somewhat controversial; though some take it for granted (e.g. Inwood & Gerson (1988, glossary entry for "subsist")), many take one or all of the incorporeals to be independent of body, even preconditions of the cosmos. For arguments that the spatial incorporeals place, void, room, and surface are dependent on body, see de Harven (2015); for the view that the incorporeals are independent of body, see Sedley (1999); and for the view that they are co-dependent see Boeri (2001), Bronowski (2019). For the kind of ontological dependence I have in mind, illustrated by the flow of traffic, see "Feature Dependence" in Koslicki (2012). Note that I agree with Bailey (2014, 255-57) that the incorporeals are grounded in body in the manner described by Schaffer (2009), but disagree that the incorporeals are independent on bodies to be occupied; it is a testament not only to the great variety of grounding theories in contemporary analytic metaphysics, but also to the great variety of interpretations of Stoic theory, that I agree completely with Bailey that Stoic incorporeals are grounded in body, and yet disagree completely about the nature of that grounding relation.

incorporeals could possibly have in common (247C9-D4), with a sophisticated non-reductive physicalism that delivers a one-world metaphysics.<sup>20</sup>

To summarize, as *ontologists*, the Stoics reach beyond the Battle of Gods and Giants to the patricide of Parmenides, rejecting the *being*-nothing dichotomy in favor of a new Something-nothing dichotomy, with Something set over *being* and *non-being*. As *physicalists*, they bridge these two worlds. And as *corporealists*, true to their earthborn nature, we will now see that the Stoics take up the Giants' mantel and reassign the work of Plato's Forms to body; more specifically, they recognize the following two challenges and divide their labor accordingly, to achieve a thoroughgoing corporealism.

- (i) *Defend the Giants*: Maintain that all and only bodies *are*, or have *being* say what it is to be before plunging into extravagant cosmological theorizing!
- (ii) *Reform the Giants:* Dare to say that even the virtues are bodies corporealize, do not eliminate!

# **Defending the Giants**

We have already seen one important way that the Stoics take up the Giants' mantel and uphold their commitment to body as *being*, namely by turning the *dunamis* proposal into a criterion for *being* that can only be met by bodies. Thus the Stoics do just as Brown hears Plato asking: they state and defend their criteria for counting something in or out of the ontology. But that is not all there is to maintaining that only bodies *are*, or all that Brown finds Plato asking; there is, in addition, the metaphysical demand that the Presocratics say *what it is to be*, before "plunging into extravagant cosmological theorizing about the number and nature of beings." We will see here how the Stoics meet this metaphysical demand, explaining *how* body can be fundamental and, thus, *why* only bodies *are*.

What it is to be (*ousia*) is body, as we saw above in observing that Stoic corporealism takes its start in this earthborn commitment. But what is body? The Stoics define body (*sōma*) as *solid*, *three-dimensional extension with resistance*. We know this from the testimony of Diogenes Laertius that body

<sup>&</sup>lt;sup>20</sup> The fact that the phrase "non-reductive physicalism" arose in the philosophy of mind should not prevent us from applying it to other cases where something immaterial or intangible is made dependent on body or matter in resistance to a two-worlds dualism, whether of the mind or not.

is "what has three-fold extension — length, breadth and depth; this is also called solid (*sterēon*) body" (DL 7.135 (45E)); also from Galen and Sextus Empiricus, who report the Stoic definition as "what has three-fold extension with resistance (*antitupia*)" (Galen, *Qual. inc.* 19.483,13-16 (45F); SE, *M.* 11.226). This definition may seem unremarkable at first glance, like an account that is shared with their peers and predecessors, and hence no evidence of Stoic innovation. However, as we unpack and explain the Stoic conception of body, we will see just how much is in fact captured by this definition, and how it sets the Stoics apart in the field.

First of all, note that solidity is essential to the definition of body, since the Stoics also recognize the phenomenon of *non-solid* three-dimensional extension in the case of place and void (Galen, *Qual. inc.* 19.464,10-14 (49E); Cleomedes, *Cael.* 1.1.17-19 (Ziegler); Themistius *In Ar. Phys.* 104,9-19 (48F); in this the Stoics are similar to the Epicureans. Secondly, the point of specifying that body is solid is not to give a mathematical or geometrical account of body, since its being three-dimensional already makes it a geometrical solid.<sup>21</sup> Rather, solidity establishes that body is inherently capable of causal interaction — solidity is the capacity to make contact, i.e. touch (Nemesius, 81,6-10 (45D); SE, *M.* 8.409 (27E)); in this too the Stoics are similar to the Epicureans. This is *why* only bodies meet the criterion for *being*.

Thirdly, solidity and resistance are not additional, external properties to three-dimensionality, such that these together compose body; solidity *just is* the kind of three-dimensionality that is unique to body, or (better) that body *is*. Solidity, resistance, and three-dimensional extension are elements of the *definition* of body, but not components or ingredients of body itself. In this, the Stoics stand in contrast both to the Epicureans and to hylomorphic thinkers (whether Aristotelian, Academic, or Neoplatonic) for whom body is a composite of matter and form. Sextus Empiricus makes the distance from the Epicureans explicit when he contrasts their additive conception of body as a "collection (*athroismos*) of size, shape, and resistance" with the Stoic conception of extension with (*meta*) resistance (*M*. 11.226); the force of the preposition *meta*, particularly in contrast with the additive notion of *athroismos*, indicates how tight the relationship is, indeed that this is not, properly speaking, a relation between two things at all. Plotinus makes the contrast with hylomorphism transparent in his complaints about Stoic matter (*hulê*), as a corporeal principle (*archê*):

<sup>&</sup>lt;sup>21</sup> Therefore, the definition of body in DL 7.135 is not mathematical or misplaced in Diogenes' account of stoic Physics, as Gourinat (2009, 56-8), Hahm (1977, 10-1) and Mansfeld (1978, 160) worry.

(1) Next, how can matter, being a body, be a principle? For it is not a body unless it is many, i.e. every body is composed out of matter and quality. And if body be other than this [i.e. not hylomorphic], then they say that matter is a body homonymously. And if three-dimensional extension is the common characteristic of body, they speak mathematically; but if it is three-dimensional extension with resistance, then they do not speak of one thing. (2) Next, resistance is either a qualified thing or issuing from a quality. But whence resistance? And whence what is three-dimensional or what is extended? For matter is not in the definition of three-dimensional extension, nor is three-dimensional extension in the definition of matter. Now then, partaking of size it would no longer be simple. (3) Next, whence its unity? For it is certainly not itself one, but sharing in unity (itself). Plotinus, *Enn.* VI.1.26,17-28 (SVF 2.315)

Plotinus' objection (echoed by Plutarch, *Comm. not.* 1085B-C) is that (1) including resistance in the account of body as the Stoics do (hence, we can confirm, *not* speaking mathematically), they "do not speak of one thing," i.e. they speak of something composed of matter and quality (two things). Further (2), he objects that resistance and three-dimensionality are either qualities or qualified entities, so that a principle with three dimensions or size, i.e. a quality, would no longer be simple; and likewise for the unity of matter as a principle, which from Plotinus' hylomorphic perspective can only be due to its participating in the Form of Unity, never something that matter (or body) can have of itself. Now, the Stoics have a simple, but radical, response available to such criticisms: namely, to reject hylomorphism. It is an important hylomorphic presupposition among Platonists and Peripatetics alike that for something to be a body is for it to have both matter and form (and thus for it to be composite, not simple), and an equally important presupposition on the Stoics' part, I suggest, that body is non-composite and fundamental. This is the metaphysics behind the commitment that only bodies *are*, which goes beyond ontological counting by the *dunamis* proposal to the metaphysics of *what it is to be* a body: in order to hold that only bodies *are*, bodies cannot be composed of anything more basic.

From the Stoic perspective, three-dimensionality, solidity, resistance, size, shape, and even unity are not parts out of which body is built. Nothing in the definition of body as solid threedimensional extension invokes prior entities out of which it is composed (without begging the question by presupposing hylomorphism). Thus it is open to the Stoics to treat body as fundamental, always with *some* shape and size just in virtue of being solid and finite. Much as a lump of wax will have a certain size and shape even when it is otherwise amorphous, so too Stoic body, qua body, is an amorphous malleable mass that is always of some shape and size or other and none per se (Stobaeus 1.132,27-133,11+133,18-23 (28q); Calcidius, *In Tim.* 312). Stoic body is thus definite per se and fundamentally, even if it is also *in*determinate or quality-*less (apoios)* in myriad further ways (DL 7.134 (44B), 7.137 (47B)).<sup>22</sup>

Fourth, the Stoic conception of solidity stands in another marked contrast to the Epicurean conception. Epicurean bodies are composed of infinitely many minima, which are both atomic (i.e. uncuttable, indivisible) and unalterable (*ametabléta*), being full (*pleré*) by nature and incapable of dissolution in every way (Epicurus, *Ep. Hrdt.* 40 (8A1); Lucretius 1.503 (8B1)). This means that for the Epicureans body is rigid absolutely: not only completely indestructible, impenetrable, and indivisible (call this, generally, being "uncuttable") but entirely *unchangeable*, subject to no deformation of any kind and impassive in every way (Lucretius 1.525 (8B2), 1.584 (8B4); weight, size, and shape are thus absolute properties of the infinitely many atoms in the infinite void (Epicurus, *Ep. Hrdt.* 68 (7B1)). The Stoics, on the other hand, say that body is finite, completely malleable (*pathetê*), and continuous, i.e. infinitely divisible without reaching minima (Stobaeus 1.142,2-6 (50A), DL 7.150-51 (50B), Plutarch, *Comm. not.* 1078E-1080E, 50A-C, Calcidius 292 (44D), Calcidius 293 (44E)). In stark contrast to the atomistic conception of body as rigid absolutely, impassive in every way, Stoic body is not only *cuttable* (both in being penetrable without being destroyed and in being infinitely divisible without reaching minima), it is also entirely *changeable*, with no absolute shape, size, or density.<sup>23</sup>

Fifth, this Stoic conception of solidity — malleable as opposed to rigid — brings with it a correspondingly contrasted account of resistance (*antitupia*). The atomistic conception of solidity as absolute rigidity and fullness means that resistance *must* be understood as complete ricochet, or rebuffing (*apopaltikās*, SE, *M*. 222-23 (7C4)). However, the Stoic conception of body as malleable substance is not only compatible with, but in fact embraces, a weaker notion of resistance as pushback, reaction, or, in the most literal sense of *antitupia*, a mutual, responding blow, a repercussion rather than the complete rebuffing or ricochet of atomism. This conception of resistance means that any two bodies in contact with one another are *inter*acting, because when Stoic resistance takes place, it is a joint activity between two bodies, and so all action is reciprocal (all

<sup>&</sup>lt;sup>22</sup> For agreement on this point see Cooper (2009, 100-01) and Gourinat (2009, 57-8).

<sup>&</sup>lt;sup>23</sup> I use the adjective "atomistic" (in contrast to "atomic") in reference to this widespread presupposition that body is rigid absolutely, shared by Epicureans, Peripatetics, and Platonists alike independent of their commitment to the existence of atoms.

*patheia* is *sumpatheia*).<sup>24</sup> This interactive conception of resistance is indeed far from the impassive ricochet of atomism.

Despite the starkness of this contrast, the malleability of Stoic body and interactive conception of resistance have been underappreciated and even overlooked since antiquity, which has caused difficulty in coming to terms with the innovative Stoic theory of through and through blending (*krasis di' holou*).<sup>25</sup> According to this rather radical theory, two (or more) independent bodies mutually interpenetrate and become completely coextended — while remaining whole (intact) and independent (see LS48 for texts). Once it is appreciated that Stoic body is entirely malleable, with no absolute size or shape nor, therefore, any absolute density (although always of *some* non-zero degree of density), and that resistance is interaction and repercussion rather than ricochet, there is no incoherence to the Stoic posit of through and through blending. It is an unusual posit, to be sure, and through and through blending *does* commit the Stoics to the complete colocation of several distinct bodies, but this is only problematic on atomistic assumptions that solidity is rigid fullness, and that resistance is ricochet. Seen aright, the colocation of bodies that are not dense but rare, and not rigid but penetrable, is not only not problematic, it is (as we are about to see) the key to a corporealist cosmology.

Thus the Stoics do indeed say what it is to *be: being* is body, and body is solid threedimensional extension, not on hylomorphic terms but on its own terms, i.e. as simple and fundamental. As a result, the Stoics are in a legitimate position to establish their fundamental principles (*archai*) as two individual bodies: divine active reason (*logos*) and passive matter (*bulê*) (DL 7.132 (44B); Aristocles ap. Eusebius, *Pr. Ev.* 15.14.1 (45G); Alexander, *Mixt.* 224.32-225.10 (SVF 2.310); Calcidius, *In Tim.* 289). In fact, Diogenes offers confirmation that the Stoics proceeded in this way, reporting that the study of Physics begins with the topic of bodies, before even the *archai* (DL 7.132 (44B)).<sup>26</sup> Secondly, given that Stoic body is interactive malleable mass, they are also in a position to *build* their cosmos out of nothing more than these two bodies, by *krasis di' holon*. Because the Stoic principles are blended with each other in this way, through and through, they are in

<sup>&</sup>lt;sup>24</sup> For a defense of *sumpatheia* between body and soul along these lines in the context of Stoic rational impressions, see de Harven 2018.

<sup>&</sup>lt;sup>25</sup> In antiquity, see especially Alexander, *De Mixt.*, and Plutarch, *Comm. not.* Among contemporary scholars, see Frede (2005, 215), LS (294), Mansfeld (1978, 174), Marmodoro (2017a, 163, 2017b), Nolan (2006, 170-71), Scade (2013, 147-54), Sorabji (1988, 94-98), Todd (1978, 139-140), Weil (1964, 563, 566-7, 570). For an illuminating history of scholarly resistance to the possibility of colocation, and remarks about Stoic blending along the same lines, see Betegh (2016).
<sup>26</sup> The topic of bodies is set apart in being governed by its own preposition (*perl*), followed by all the other topics governed distributively by their own *peri*.

complete interactive *sumpatheia* with one another. Add to this the explicitly causal roles of the principles — the one cast as divine rational *agent* and the other as its slack *patient* — and it becomes clear how the Stoics are in a position to deliver unity and order in the cosmos without Form. There is a special unity to the agent-patient relation, in which the agent's doing and the patient's undergoing are two sides of the same coin, i.e. the two *together* constitute a single event, e.g. the activities of knife and flesh together constitute a joint event, cutting. In a total blend of agent and patient, however, the resulting *sumpatheia* is not merely a new *event* like cutting, but the generation of a new *entity* altogether (or perhaps an ongoing event): the creative, rational agent unifies and sustains the compound, tarring the ark inside and out as Philo puts it, so that a new individual is *generated* (*Quaestiones et solutiones in Genesin* 2.4 (47R)). This is how the Stoics answer the Special Composition Question, when does unity arise from plurality?<sup>27</sup>

Being focused on the *metaphysics* of Stoic corporealism, as I am here, I will bypass the mechanics of the corporealist cosmology, and give now only a very brief overview of how each world order (*diacosmesis*) unfolds.<sup>28</sup> Although the *archai* are eternal, the cosmos itself and the elements (earth, water, air, fire) are not (DL 7.134 (44B)); in fact, the Stoics are famous for their commitment to an everlasting recurrence of cosmic cycles punctuated by periods of conflagration when the world returns to this fiery blend and then starts over (see LS46E-I). The Stoic world order begins and ends with the archai in an amorphous fiery blend (DL 7.142 (46C)); at the beginning of a new world order, first the agent (God) turns the whole of this fiery blend into water, and from there generates the four elements (earth, water, air, and fire) (DL 7.135-6 (46B), Stobaeus 1.129-130,13 (47A)). These elements in turn blend with each other: the rare elements, air and fire, blend with each other to create *pneuma*, a fiery breath that is now (at this stage of the cosmogony) the divine agent of the world order, and the thick and slack elements, earth and water, blend to create the slack patient to divine pneuma, which is also called "matter" (Nemesius 163,15-18 (47D)). It is this downstream blend of agent *pneuma* and patient matter from which all individuals of the *scala naturae*, plants, animals, humans, and the cosmos itself, are generated (Stobaeus 177,21-179,17 (28D), quoted above; see also LS47A, F-J, N-R).

The details of the cosmogony are many and instructive, but the point that I am making here does not require the details, because whatever the precise order of the unfolding and combination of the elements, it is clear that the elements themselves are composed out of nothing but the two

<sup>&</sup>lt;sup>27</sup> van Inwagen (1990, 30-31) introduces this label for the question

<sup>&</sup>lt;sup>28</sup> For further detail, see Furley (1999), Salles (2009), M. J. White (2003)

fundamental principles. It need only be remembered that everything proceeds exclusively from these two principles, in entirely corporeal terms, to see that the Stoics successfully meet Plato's first challenge, Defend the (Presocratic) Giants, with a completely corporealist cosmology, delivering generation and unity without Form.

# **Reforming the Giants**

The second challenge in the Battle of Gods and Giants that the Stoics take up is to Reform the Giants, and "dare to corporealize the soul and even the virtues." The uncivilized Giants, recall, are shamelessly eliminative about the virtues, while the civilized Giants are too ashamed either to eliminate or to corporealize the virtues. The choice is put in terms of justice and wisdom, because as qualities of soul they are the most recalcitrant case for the Sons of the Earth. It is clear, though, that the challenge applies to the full scope of the theory of the Forms; whatever that may be exactly, it is not restricted to the virtues, a point the Visitor confirms (251C9-D3) in conversation with the Late Learners, who want to know how something can be one "even when we name him several things, that is when we apply colors to him, shapes, sizes, defects and virtues. In all these cases and countless others we say that he is not only a human but also is good and indefinitely many different things" (251A8-B3). Thus, the focus on virtues should not distract us from recognizing that Plato's challenge concerns not just qualities of soul, but all qualities generally. The challenge is to give a corporealist account of what makes something F, e.g. human, Socrates, wise, and southwest of the agora. The task, more precisely, is to analyze the identity conditions, kinds, and qualities of individual bodies in completely corporeal terms. What are the identity conditions of this lump of clay? What makes this clay a statue? What makes an individual body this unique individual, e.g. Socrates or this unique egg? What makes each individual the kind of thing that it is, e.g. what makes Socrates human, or this egg an egg? What makes each thing qualified in the countless other ways that it is, e.g. what makes Socrates virtuous, or this egg rotten? And if each of these is a body through and through, how is growth and diminution even possible, i.e. if Socrates is just a body, how can this body grow without the destruction of Socrates?

This *explanandum*, what it is to be a *qualified* body (in these various ways), is different from the cosmological *explanandum*, what it is to be a *unified* body; in fact, the Categories take the unified body, once generated, as the starting point of analysis, making now that one into many. And the Categories proceed by a different *explanans* as well, the *constitution* of one thing by another (*one* other);

in contrast to the composition of one thing out of many offered in the cosmology, this explanatory schema makes many out of one. According to the Categories each of us ("all people, animals, trees, furniture, implements and clothes") is four: substrate (*hupokeimenon*), qualified individual (*poion*), individual disposed (*pōs echon*), and individual relatively disposed (*pros ti pōs echon*) (Plotinus, *Enn.* VI.1.25.1-3, Plutarch, *Comm. not.* 1083A-1084A (28A), Simplicius, *In Ar. Cat.* 66.32-37 (27F)).<sup>29</sup> The qualified individual is itself of two kinds, the commonly qualified (*koinōs poion*) and the uniquely, or peculiarly qualified individual (*idiōs poion*) (Dexippus, *In Ar. Cat.* 23.25-24,4 (SVF 2.374); Simplicius, *In Ar. Cat.* 48,11-16 (28E), *In Ar. De an.* 217,36-218,2 (28I); Syrianus, *In Ar. Met.* 28,18-19 (28G)). For example, this quantity of marble is the substrate (*hupokeimenon*) of a statue (*koinōs poion*), namely the Nike of Samothrace (*idiōs poion*), which has a certain patina (*pōs echon*) and stands at the top of the stairs (*pros ti pōs echon*). In each case, to be F is to be a body in a certain state or arrangement (*schesis*).

The first Category, *hupokeimenon*, is identified with substance (*ousia*) (28A4, D8-12), which, again, we know is body, and it is exemplified by a lump of clay in relation to the statue it constitutes (28D10).<sup>30</sup> To be F in this sense is to be body in its per se state: amorphous, with no particular arrangement (28q), some quantity of solid extension for which constitution is identity: "substance neither grows nor diminishes by addition or subtraction, but simply alters, just as in the case of numbers and measures" (28D1). So what it is to be a body in this first sense, i.e. what it is to be this lump, is to be body as such, a finite quantity of solid extension that can persist through all manner of qualitative change ("alteration," including change of shape, size, and density), but survives no quantitative change whatsoever, i.e. it is incapable of growth or diminution ("addition or subtraction," 28A4, D4). It is to be the undifferentiated bulk or material constituent of the individual. The first category, *hupokeimenon*, is thus a thing's corporeal substance as such, its *corpulence*, and it is best translated as "substrate."<sup>31</sup>

Not only because the *hupokeimenon* is defined as *ousia*, which is body, but also because individuals like Socrates or the Nike of Samothrace are the starting point for this analysis, we can see that the *hupokeimenon* includes both the matter and the *pneuma* that compose the individual — it is a

<sup>&</sup>lt;sup>29</sup> I render *poion* as "qualified individual" to capture the fact that the second Category is *the qualified*, or *a qualified thing*, or *something qualified*, in contrast to a *quality (poiotes)*, in support of which see Sedley (1982) and LS (172-176). I consistently call the second Category the *poion*, in the neuter, even though it is sometimes given as *poios*, to capture that this category covers all manner of individuals.

<sup>&</sup>lt;sup>30</sup> For efficiency I cite here, while working on the details of the Categories, just the LS numbers for the relevant parts of larger passages that are cited in full above. The term "*ousia*" can be rendered "*being*" just as well as "substance," but in the context of the Categories it is typically rendered as "substance." I will follow suit, but with hesitation over Aristotelian conceptions of substance and subject of predication that muddy the Stoic waters.

<sup>&</sup>lt;sup>31</sup> Pace Menn (1999, nn. 1, 2, and 10, and 221-23) against LS, Sedley (1982) and Sorabji (1988)

thing's total corpulence that is its *hupokeimenon.*<sup>32</sup> This point requires emphasis because of the widespread, if not universal, assumption that *ousia* for the Stoics is not body, but matter (*hule*), an assumption fueled by hylomorphic presuppositions.<sup>33</sup> Through the hylomorphic lens, the *hupokeimenon* is matter awaiting its attributes, or an Aristotelian substance or subject of predication awaiting its quality, and the primary job of the second Category is to unify and create a single body. Thus, the Categories are pressed into the cosmological job of building bodies. To quote just one example, here is Menn:

For the Stoics, following the *Timaeus* against Aristotle, the odoría of a thing is its matter: the matter is purely passive, a portion of the passive  $d\rho\chi\eta$  and the thing can only become Socrates or human if there is a portion of the active  $d\rho\chi\eta$  present in it and causing it to be Socrates or human; this portion of the active  $d\rho\chi\eta$  is then the  $\pi 0i\delta\tau\eta\varsigma$  Socrateity or humanity. The odoría and the  $\pi 0i\delta\tau\eta\varsigma$  are thus two parts of the thing, a passive and an active body blended into a whole.<sup>34</sup>

Interpretive decisions concerning the *hupokeimenon* are closely related to analysis of the second Category, *poion*, long assimilated to the quality (*poiotēs*) rather than the qualified individual, e.g. Socrates. But just as the *hupokeimenon* is not to be construed as matter to the exclusion of *pneuma*, so too the *poion* is not to be construed as the form or quality to that matter; and just as the *hupokeimenon* is not to be construed as an Aristotelian substance or subject of predication, so too the *poion* is not to be construed as a property, predicate, or quality. It is essential to getting the Stoics right to respect the fact that the second category is not a *quality* (*poiotēs*), but a qualified thing or individual (*poion*); it is not, for example, the quality or property of humanity, but the human being. There is no textual evidence that reports the second Category as *poiotēs* instead of *poion*, and yet this assumption is nearly universal in the scholarship, belying the hylomorphic lens that blurs our understanding of Stoic corporealism.

Now, the Stoics *are* giving an account of what makes something qualified, i.e. F; and in an effort to reform the Giants and satisfy the Friends of the Forms (and silence the Late Learners, for

<sup>&</sup>lt;sup>32</sup> Although the *hupokeimenon* is sometimes described as unqualified matter (*apoios hule*) (Simplicius, *In Ar. Cat.* 48,11-16 (28E), Stobaeus 1.132,27-133,11+133,18-23 (28q); DL 7.137; Calcidius, *In Tim.* 290), the context in each case makes clear that the terminology is a function of the commentator's hylomorphic perspective and that the language of matter picks out a functional role, and not *hule* to the exclusion of *logos* or *pneuma*. Likewise, the term "*apoios*" does not confirm the absence of *pneuma* just because qualities *are* states of *pneuma*; rather, the *pneuma* will be there, but in its per se state of corpulence, body as such.

<sup>&</sup>lt;sup>33</sup> Bréhier (1928, 132-4); Caston (1999, 170); Cherniss (1976, 799); Collette-Dučić (2009, 196, 200); Goldschmidt (1969, 20); Gourinat (2009, 57); Hahm (1977, 40); Hunt (1976, 13-16); Irwin (1996, 469-70, n. 24 et passim); Johnson (2009, 231, 235); Lewis (1995, 100); LS, 174; Menn (1999, 221-22, 228-29); Nawar (2017, 114, 124, 132); Sedley (2002, 2018, 29-30).

<sup>&</sup>lt;sup>34</sup> Menn (1999, 221-22; cf. 228-29)

that matter), they *do* take on the hylomorphic *explanandum*. However, the explanation they give comes from an entirely different perspective, namely the *constitution* of one thing by another, rather than composition of one thing out of many. Constitution is a one-to-one relation between a thing and its constituent matter or stuff, e.g. a tree and the collection of its molecules, as David Wiggins famously exemplifies it.<sup>35</sup> That the Stoics are pursuing a constitution model is plain from the examples they use: the clay in relation to the statue it constitutes (28D11), the hand in relation to the fist (SE, *PH* 2.81 (33P2); Alexander, *In Ar. Top.* 360, 9 (*SVF* 2.379)), and corporeal substance in relation to Socrates (28D12). Their response to the ancient Growing Argument put forth by Epicharmus also establishes that it is constitution that is in question.

For the argument is indeed a simple one and these people [sc. the Stoics] grant its premises:

- (a) All particular substances are in flux and motion, releasing some things from themselves and receiving others arriving from elsewhere;
- (b) The numbers or quantities to which these are arriving and departing do not remain the same but become different as the aforementioned arrivals and departures cause the substance to be transformed;
- (c) The prevailing convention is wrong to call these processes of growth and decay: rather they should be called generation and destruction, since they transform the thing from what it is into something else, whereas growing and diminishing are affections of a body which serves as substrate and persists.

When it is stated and proposed in some such way, what is the judgement of these champions of the evident, these yardsticks of our conceptions? That each of us is a pair of twins, of a double nature and two-fold — not in the way the poets think of the Molionidae [legendary Siamese twins], unified in some parts but in others distinct, but two bodies sharing the same color, the same shape, the same weight and place, <the same but nevertheless double even though> heretofore seen by no person. [...]

l am simplifying their account, since they make four substrates (*hupokeimena*) in every individual; or rather, they make each of us four. But even the two are sufficient to expose the absurdity. Plutarch, *Comm. not.* 1083B-C, E (28A2-3, 6)

The Stoic response to the Growing Argument is to agree that if constitution is identity, then growth and diminution are impossible. Any addition to or subtraction from a certain mass, or bodily substance as such is not a case of change, but rather "transformation," i.e. the destruction of one lump or quantity, and the generation of another. The Stoic solution to the puzzle, how a body can be said to grow if it is in constant quantitative flux, is to make a distinction between the corporeal substance of an individual (the *hupokeimenon*), on the one hand, which does not persist

<sup>&</sup>lt;sup>35</sup> Wiggins (1968, 90-91). Sedley (1992) makes the comparison to Wiggins, but backs away from it in (2018). The Stoic view is in many ways akin to the constitution view of Baker (2007), with the important caveat that for Baker constitution is not a mereological relation, because the lump of clay is neither a proper part nor an improper part of the statue, and *tertium non datur*. I am warmly indebted to Lynne Baker for conversation and correspondence about these ideas.

through addition and subtraction, and the uniquely qualified individual (*idiōs poion*), on the other, which the corporeal substance underlies (i.e. constitutes), and which does persist through growth and diminution, identical and unchanging from birth to death (28A5, D6). In other words, they deny that constitution is identity for a qualified individual.

This dialectic about growth and diminution would be irrelevant if the Stoics were not working with a constitution model, and the examples of clay and statue, hand and fist would be ill suited if the objective of the Categories were to account for unity and composition along hylomorphic lines. Plutarch's complaint that the Stoics make us two, but not by the sharing of parts like Siamese twins, also makes it plain that composition is *not* what the Categories are doing, as do his complaints that the Categories have all the same physical properties and are indiscernible to perception. Indeed, there is no reason to think that a tree and its molecules *should* be discernible to perception, since this is a logical distinction being made and not a matter of picking out component parts or building blocks. To be F in this second way, then, as a qualified individual (*poion*), is to be the *hupokeimenon* in a certain state of "intrinsic suchness," i.e. a qualitative state (Simplicius, *In Ar: Cat.* 222,30-33 (28H)), including the unique, pervasive, and life-long state of being an *idios poion*, e.g. Socrates, and the life-long state of being commonly qualified, e.g. a human.<sup>36</sup> This Category thus explains the uniqueness of every individual body (individuation), its kind, and its persistence through growth and diminution.

It remains to corporealize the virtues, and explain in entirely corporeal terms what makes each thing F in the various and sundry ways that it is. This brings us to the third Category, the *pös echon*, an individual disposed. This somewhat awkward phrase means something that holds or obtains (*echon*) in a certain way (*pös*), an individual in a certain condition, hence an "individual disposed," e.g. a fist is the hand disposed or arranged a certain way. This is how the Stoics corporealize the virtues (SE, *PH* 2.81 (33P2), SE, *M*. 11.22-26 (60G), Seneca, *Ep*. 113-24 (61E)). What makes Socrates wise is that his soul, itself a body (the *idiōs poion*) has been habituated into a sort of maximal sensitivity to the world as it is.<sup>37</sup> Virtue is like the patina of a well-worn glove: it is the soul (this glove, the *poion*) in a certain state or condition of being well worn (supple and with a certain patina, *pōs echon*). To be F in this third way, then, as a *pōs echon*, is to be the *poion* in a certain

<sup>&</sup>lt;sup>36</sup> This reading allows us to dissolve the nest of puzzles that take the *idiōs poion* to be a property (or collection of properties) of the individual that can be isolated from all the others, like so many pebbles in an urn (to use Menn's evocative image), e.g. Irwin (1996), Lewis (1995), Menn (1999), Nawar (2017), Sedley (1982)

<sup>&</sup>lt;sup>37</sup> For an account of Stoic expertise along these lines, see de Harven (2018a.)

state or arrangement; the hupokeimenon is substrate to the poion, and the poion is in turn the substrate for the pos echon (28A3-8, D7).

Likewise, the pos echon will serve as substrate for the pros ti pos echon, or the individual relatively disposed, e.g. a well-worn glove held high, or a virtuous person in the agora. A full description of any body must make mention of its extrinsic relations to everything else in the cosmos (Stobaeus 177,21-179,17 (29D)); for example, Socrates is not fully described without reference to his being a brother, father, teacher, in the agora, to the left of Simmias, etc. To be F in this fourth way, then, as a pros ti pos echon, is to be a pos echon in relation to everything else in the cosmos. Thus we can see why Plutarch says, at the end of the passage quoted, that each of us is four substrates, and then corrects himself to say, "or rather, they make each of us four." The language of substrates captures the constitution relation of each Category to the next, but since the fourth Category is not itself a substrate for anything further, we are not technically four substrates, but three, though we are four distinct bodies.38

It has been overlooked in the literature that the Categories are a distinct explanatory enterprise from that of the physics, no longer a matter of composition or building one out of many as we find in the cosmology, but a logical analysis that takes an individual once built as its input. For example, as we saw above, Menn takes the first two Categories to be the active and passive archai of the cosmology, blended into a whole; likewise Sorabji, uses the schema of the Categories to avoid the "embarrassingly strange" view that bodies blend "like so many interpenetrating billiard balls;"39 and Irwin takes it that the Stoics' primary concern in the Categories is for "what makes Socrates a single organism rather than a mere collection."<sup>40</sup> However, the *explanandum*, what it is to be a qualified body (what it is to be Socrates, human, running, wise, or in the agora), is different from the cosmological explanandum, what it is to be a unified body. And the "inflationist somatology" proceeds by a different *explanans* as well, the *constitution* of one thing by another, e.g. a statue (*poion*) by its clay (hupokeimenon) or a fist (pos echon) by its hand (poion). That this is a distinct explanatory enterprise is further supported not only by the proprietary vocabulary of hupokeimenon, poion, pois echon, and pros ti  $p\bar{os}$  echon not found in the cosmology, but also by the fact that the Categories are a self-consciously

<sup>&</sup>lt;sup>38</sup> Thus we need not worry about what motivates the Stoics to posit a "doctrine of several substrates" as though a second substrate only arises out of a failure of the first, as Irwin (1996) does, with sympathy for the problem in Sedley (2018). The univocity of this relation also cuts against developmental accounts that take the first two Categories to be doing something different from the second two, e.g. Menn (1999), among many others. <sup>39</sup> Sorabji (1988, 88-89, 95-98, 103)

<sup>&</sup>lt;sup>40</sup> Irwin (1996, 469-470, n. 24), followed by Nawar (2017)

mereological analysis, where the cosmology is not. The following excerpt from Stobaeus 1.177,21-179,19 (28D) makes the mereology explicit:

But the uniquely qualified individual (*idios poion*) and the substance (*onsia*) out of which that [individual] is [constituted], are not the same thing, nor, mind you, are they different (*beteron*) either, but merely not the same, because of the fact that the substance both is a part (*meros*) and occupies the same place, while those things called different must be both separate in place and not conceived of as a part. And that what holds of the uniquely qualified individual and what holds of the substance are not the same, Mnesarchus says is clear; for it is necessary that things that are the same have the same properties. For if someone who molded a horse, for the sake of argument, were to smash it, then produce a dog, it would be reasonable for us seeing this to say that this back then did not exist, but now it exists; so, what is said in the case of the qualified individual is different. (28D9-11)

The language of parthood and being neither the same nor different is indisputably the mereological vocabulary of the time, and the *hupokeimenon* is clearly in the role of part to the *idios poion*; no such language appears in the context of Physics.<sup>41</sup> Furthermore, the working example of the statue shows that this is a one-to-one mereological relation, not a many-to-one relation, with the *hupokeimenon* persisting (as a *quantity* of corporeal substance) through all manner of qualitative change, from constituting now a horse, to now a lump, and now a dog.<sup>42</sup> In each iteration, the substrate is the only part of the statue, just as the hand is the only part now of a fist, now of a peace sign.<sup>43</sup> The move from one Category to the next is not a matter of introducing a new entity to what was there before. For example, the move from clay (*hupokeimenon*) to statue (*poion*) does not involve the *addition* of anything to the *hupokeimenon*; the sculptor generates a statue by altering the shape of the clay, and this is a case of generation by alteration (28D3-4), not the acquisition of a distinct entity, e.g. a Form (except on hylomorphic assumptions). Nor, likewise, does the hand receive anything new, any addition from outside itself, in order to constitute a fist.<sup>44</sup> The appeal in this passage to what we now call Leibniz's Law confirms that this is not the same project as the cosmology, it being necessary to appeal to distinct persistence conditions to differentiate the

<sup>&</sup>lt;sup>41</sup> For the mereology of the time see Barnes (1988). Even though the cosmos is referred to as the whole (*to holon*), the *archai*, elements, et al. are never referred to as parts or as being neither the same nor different from the whole; this does not mean there are no mereological commitments in the cosmology, it means that the cosmology is not a self-consciously mereological enterprise.

<sup>&</sup>lt;sup>42</sup> Empirical worries that a lump of clay would certainly lose some of its substance during such a molding and remolding process are out of place in a thought experiment like this; see Irwin (1996, 465).

<sup>43</sup> Plotinus, Enn. VI.1.30.24-28; Comm. not. 1077C (28O1); Philo, Aet. mund. 48 (28P)

<sup>&</sup>lt;sup>44</sup> Rather, it gets arranged as a fist by divine immanent reason, *logos* or *pneuma*, transforming itself, along with the matter with which it is blended through and through in complete *sumpatheia* (Galen, *Caus. cont.* 1.1-2.4 (55F)). The immanence of divine active reason means the Stoics have no need of an independently subsisting structure distinct from the cosmos itself, as Bailey (2014) and Bronowski (2019) both urge, albeit in very different ways.

Categories from one another, since, as we saw Plutarch put it, they share "the same shape, the same weight and place, <the same but nevertheless double even though> heretofore seen by no person."

Once it is recognized that the Categories are not aiming to build or unify bodies, and we let go of the hylomorphic urge to press the first two Categories into the roles of matter and form or subject and quality, we can see that this explanatory enterprise stands on its own. It does not compete *or* cooperate with the cosmology in trying to explain generation and unity, but rather takes those individuals, once generated, as inputs for a four-fold logical analysis of their identity conditions (for both individuation and persistence), kinds, and qualities. Thus the Categories are properly described as four distinct metaphysical aspects of an individual body, rather than as an answer to matter and form, substance and quality, or subject and predicate; nor is this an alternative to blending, or a semantic schema of meanings and reference classes.<sup>45</sup> To be F is simply to be a body in a certain state or arrangement—no Forms required! This is how the Stoics respond to Plato's challenge, Reform the Giants, and dare to corporealize the virtues, at once taming their savage eliminative predecessors and breathing life into the civilized Giants gone too soft.

In addition, this analysis resolves several interpretive puzzles that have been raised in the literature. It explains how each of us can be four distinct bodies, but with all the same physical properties, thereby neutralizing worries that the Stoics were genuinely vulnerable to charges of "incoherent dualism."<sup>46</sup> It also explains talk of a qualified individual "coming to occupy" (*genesthai epi*) substance without inviting the intuition that there are "two different items crammed in the same place;" when a lump of clay is reshaped into the form of a dog, this is simply a case of generation by alteration, and the idea of a qualified individual coming about in a substrate (as I prefer for *genesthai epi*) need not invoke any hylomorphic intuitions, or the idea that a composite comes to occupy a part of itself.<sup>47</sup> We can also dispense with concerns that there was internal disagreement over the persistence of the *hupokeimenon*, and puzzlement over why the Stoics "needed" to posit several substrates to begin with; the *hupokeimenon* is consistently (i.e. without disagreement among Stoics) an "extreme Lockean mass" subject to no quantitative change, but it is not because the *hupokeimenon* 

<sup>&</sup>lt;sup>45</sup> Interpretations of the Categories run wide, from semantic to ontological to physical. The metaphysical aspects view is endorsed by Brunschwig (2003), LS, and Sedley (1982 and, with some differences, 2018).

<sup>&</sup>lt;sup>46</sup> Sedley (1982); Collette-Dučić (2009, 194), also takes Chrysippus' "enthusiasm for difference and multiplicity" to invite many problems

<sup>&</sup>lt;sup>47</sup> Sedley (2018); nor is there any internal conflict between the mereology of the Categories, which specifies that a part must be separable in place from the whole, and the Stoic commitment to blending, which is committed to colocation — there is no conflict because blended bodies are not related to each other as part to whole, and all blended bodies are separable in principle, even if they are never in fact found apart (as with the *archai*).

fails as a substrate that another one is required.<sup>48</sup> There is in fact no "doctrine of two substrates," there is just the language of substrates as a way to capture the constitution relation between the four Categories. Finally, there is no need to worry that the *idios poion* is not fit for both individuation and persistence, either; the peculiar quality is not some single feature, or some collection of qualities that could be lost or gained or be qualitatively identical to someone else's, but a *pervasive* qualitative state (or "intrinsic suchness") present everywhere in the individual, unique and unchanging from birth to death as a certain *je ne sais quoi*. That these are metaphysical concerns should be clear.

Not only do the Categories stand on their own once they are no longer pressed into duties they are not suited or designed for, they fall into place alongside the cosmology as a complementary explanatory enterprise. The explanatory enterprise of the cosmology is unity and generation, the composition of one thing out of many; this was the challenge to defend the Presocratic commitment to body. The explanatory enterprise of the Categories, on the other hand, is to take those bodies, once built, and give a logical analysis of what makes them F in the various ways that they are, making many out of one; this was the challenge to specify the identity conditions, kinds, and qualities of all individual bodies in entirely corporeal terms. Stoic corporealism is thus an efficient division of Plato's labor in the Battle of Gods and Giants (cosmological unity and predicational plurality) between Physics and Logic.

#### The Metaphysics of Stoic Corporealism

So what is the metaphysics of Stoic corporealism? What underwrites the commitment that only bodies *are*, or have *being*? The first way the Stoics uphold this central thesis that only bodies *are* is by coopting the *dunamis* proposal to admit only bodies. This is no savage insistence that body is all there is, but part of a broader response to questions of *being* and *non-being* — only bodies *are*, but thanks to the introduction of two distinct ontological criteria, not everything that is Something *exists*. However, this is not yet metaphysics. The commitment that only bodies *are* only takes on

<sup>&</sup>lt;sup>48</sup> Irwin (1996) finds the Stoics impaled on the following dilemma: accept Mnesarchus' "more reasonable" view that the *hupokeimenon* is a relatively stable continuant (on the basis of empirical worries mentioned above, n. 42), but thereby undermine the need for a second substrate to persist through changes; or accept Posidonius' view of the *hupokeimenon* as an extreme Lockean mass, thereby justifying the call for a second substratum (the *poion*) to be what persists through change, but also thereby running afoul of common sense, forced to deny the existence of compost heaps. However, taking the *hupokeimenon* to be an extreme Lockean mass, as the Stoics indeed do, does not commit them to denying the existence of compost heaps; it commits them to distinguishing between a compost heap and its *hupokeimenon*, which they are equipped to do (Simplicius, *In Ar. Cat.* 214,24-37 (28M)).

metaphysical substance where the ontological criterion for *being* (the *dunamis* proposal) leaves off, as the endeavor to say *what it is to be* rather than merely to count as a *being*. Now, what it is to be (*ousia*) is body, to be sure, but how can body simply be? This brings us to the second way the Stoics uphold the earthborn thesis that only bodies are, namely by their conception of body as fundamental: Stoic body is neither a hylomorphic composite, nor an atomistic aggregate, and hence metaphysically simple. So the Stoics can make body fundamental, and hypothesize two corporeal archai for the cosmos, but how can they deliver unity and generation out of nothing but bodies? This brings us to the third way the Stoics uphold the thesis that only bodies *are*, namely by continuous and malleable nature of Stoic body, neither rigid nor full, which licenses the unusual posit of through and through blending by which the Stoics generate one thing out of many, with the causal complexity of agent and patient instead of the ontological complexity of matter and form. So the Stoics can deliver a corporealist cosmology, but this is hardly a complete corporealism; how can they account for the identity conditions, kinds, and qualities of bodies without reference to Forms? This brings us to the fourth way that only bodies *are* for the Stoics, by the constitution relation of the Categories, which completes their corporealism by giving a logical analysis of what makes a body F in terms only of other bodies, allowing them to deliver all manner of predication without Form. And all of this is metaphysics — fundamentality, the continuum, blending, colocation, and composition in contrast to constitution. Metaphysics is thus no separate topic or study in Stoic philosophy, or within Stoic corporealism. It is, rather, everywhere and pervasive.<sup>49</sup>

# References

- Alessandrelli, M. 2013. Il problema del lekton nello stoicismo antico: origine e statuto di una nozione controversa. Firenze: Olschki.
- 2016. L'ontologia Stoica del Qualcosa, corpi, incorporei e concetti. Roma: ILIESI digitale Memorie 2.
- Algra, K. 2003. "Stoic Theology." In *The Cambridge Companion to the Stoics*, ed. B. Inwood. Cambridge: Cambridge University Press, 153-78.
- Aubenque, P. 1991. "Une Occasion Manquée: la genèse avortée de la distinction entre l'étant' et le 'quelque chose'." In *Etudes sur le Sophiste de Platon*, ed. P. Aubenque and M. Narcy. Napoli: Bibliopolis, 365-85.
- Bailey, D. T. J. 2014. "The Structure of Stoic Metaphysics." Oxford Studies in Ancient Philosophy 46: 253-309.
- Baker, L. R. 2007. The Metaphysics of Everyday Life. Cambridge: Cambridge University Press.

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- Barnes, J. 1988. "Bits and Pieces." In *Matter and Metaphysics, Fourth Symposium Hellenisticum*, ed. J. Barnes and M. Mignucci. Napoli: Bibliopolis, 225-94.
- Betegh, G. 2016. "Colocation." In ΣΩMA. Körperkonzepte und körperliche Existenz in der antiken Philosophie und Literatur, ed. T. Buchheim, D. Meissner & N. Wachsmann. Hamburg: Felix Meiner Verlag, 393-421.
- Boeri, M. 2001. "The Stoics on Bodies and Incorporeals." The Review of Metaphysics 54: 723-52.
- Bréhier, E. 1928. La Théorie des Incorporels dans l'Ancien Stoïcisme. Paris: Vrin.
- Bronowski, A. 2019. The Stoics on Lekta: All There Is to Say. Oxford: Oxford University Press.
- Brown, L. 1998. "Innovation and Continuity: The Battle of Gods and Giants, *Sophist* 245-249." In *Method in Ancient Philosophy*, ed. J. Gentzler. Oxford: Oxford University Press, 181-208.
- Brunschwig, J. 1988. "La théorie stoïcienne du genre supreme." In *Matter and Metaphysics, Fourth Symposium Hellenisticum*, ed. J. Barnes and M. Mignucci. Napoli: Bibliopolis, 20-127.
- 2003. "Stoic Metaphysics." In *The Cambridge Companion to the Stoics*, ed. B. Inwood. Cambridge: Cambridge University Press, 206-33.
- Caston, V. 1999. "Something and Nothing: The Stoics on Concepts and Universals." Oxford Studies in Ancient Philosophy 17: 145–213.
- Cherniss, H. 1976. Plutarch: Moralia vol. XIII, part II. Cambridge, Mass.: Harvard University Press.
- Collette-Dučić, B. 2009. "On the Chrysippean Thesis that the Virtues are Poia." Proceedings of the Boston Area Colloquium in Ancient Philosophy 25: 193-241.
- Cooper, J. 2009. "Chrysippus on Physical Elements." In *God and Cosmos in Stoicism*, ed. R. Salles. Oxford: Oxford University Press, 93-117.
- de Harven, V. 2015. "How Nothing Can Be Something: The Stoic Theory of Void." *Ancient Philosophy* 35: 405-29.
- 2018a. "Rational Impressions and the Stoic Philosophy of Mind." In The History of Philosophy of Mind: Pre-Socratics to Augustine, ed. John Sisko, Vol. 1 of six-volume series The History of the Philosophy of Mind, ed. Rebecca Copenhaver and Christopher Shields. New York: Routledge. 215-35.
- 2018b. "The Resistance to Stoic Blending." Themes in Stoic Metaphysics, ed. R. Salles and A. Marmodoro, Rhizomata 6: 1-23.
- Frede, M. 2005. "La Théologie Stoïcienne." In *Les Stoïciens*, ed. G. Romeyer Dherbey and J.-B. Gourinat. Paris: Vrin, 213-32.
- Furley, D. 1999. "Cosmology." In The Cambridge History of Hellenistic Philosophy, ed. K. Algra, J. Barnes, J. Mansfeld, and M. Schofield. Cambridge: Cambridge University Press, 412-51.
- Gill, M. L. 2012. Philosophos: Plato's Missing Dialogue. Oxford: Oxford University Press.
- Goldschmidt, V. 1969. Le Système Stoïcien et l'Idée de Temps. Paris: Vrin.
- Gourinat, J.-B. 2009. "The Stoics on Matter and Prime Matter: 'Corporealism' and the Imprint of Plato's *Timaeus*." In *God and Cosmos in Stoicism*, ed. R. Salles. Oxford: Oxford University Press, 46-70.
- Hahm, D. 1977. The Origins of Stoic Cosmology. Ohio State University Press.

Hunt, H. A. K. 1976. *A Physical Interpretation of the Universe: The Doctrines of Zeno the Stoic*. Melbourne: Melbourne University Press.

- Ierodiakonou, K. 1993. "The Stoic division of philosophy." Phronesis 38: 57-74.
- ------ 2005. "Ancient thought experiments: A first approach." Ancient Philosophy 25: 125-40.
- Inwood, B. 2007. Seneca, Selected Philosophical Letters. Oxford: Oxford University Press.
- Inwood, B., and Gerson, L.P. 1988. *Hellenistic Philosophy: Introductory Readings*. Indianapolis/ Cambridge: Hackett. [IG]
- Irwin, T. 1996. "Stoic Individuals." Philosophical Perspectives 10, Metaphysics: 459-80.

- Johnson, B. 2009. "Commentary on Collette-Dučić." Proceedings of the Boston Area Colloquium in Ancient Philosophy 25: 224-39.
- Koslicki, K. 2012. "Varieties of Ontological Dependence." In Metaphysical Grounding, Understanding the Structure of Reality, ed. F. Correia and B. Schneider. Cambridge: Cambridge University Press, 186-213.
- Lewis, E. 1995. "The Stoics on Identity and Individuation." Phronesis 40: 89-108.
- Long, A. A. 1974, 1986. *Hellenistic Philosophy: Stoics, epicureans, sceptics.* Berkeley and Los Angeles: University of California Press.
- Long, A. A. and Sedley, D. 1987. *The Hellenistic Philosophers*, Vols. 1 and 2. Cambridge: Cambridge University Press. [LS]
- Mansfeld, J. 1978. "Zeno of Citium. Critical Observations on a Recent Study." *Mnemosyne* 31, 134-78. \_\_\_\_\_ 2005. "Essays on Stoicism," *The Classical Review* 55: 66-69.
- Marmodoro, A. 2017a. "Stoic Gunk." In *Everything in Everthing*. Oxford: Oxford University Press. 156-185.
- 2017b. "Stoic Blends." Proceedings of the Boston Area Colloquium in Ancient Philosophy 32: 1-24.
- Menn, S. 1999. "The Stoic Theory of Categories." Oxford Studies in Ancient Philosophy 17: 215-47.
- Nawar, T. 2017. "The Stoics on Identity, Identification, and Peculiar Qualities." Proceedings of the Boston Area Colloquium in Ancient Philosophy 32: 113-159.
- Nolan, D. 2006. "Stoic Gunk." Phronesis 51: 162-83.
- Salles, R. 2009. Ed. God and cosmos in Stoicism. Oxford: Oxford University Press.
- Scade, P. 2013. "Plato and the Stoics on limits, parts and wholes" In *Plato and the Stoics*, ed. A.G. Long. Cambridge: Cambridge University Press, 80-105.
- Schaffer, J. 2009. "On What Grounds What." In *Metametaphysics*, ed. D. Chalmers, D. Manley, and R. Wasserman. Oxford: Oxford University Press, 347-83.
- Sedley, D. 1982. "The Stoic criterion of identity." Phronesis 27: 255-75.
- 1999. "Hellenistic Physics and Metaphysics." In *The Cambridge History of Hellenistic Philosophy*, ed. K. Algra, J. Barnes, J. Mansfeld, and M. Schofield. Cambridge: Cambridge University Press, 355-411.
- 2002. "The Origins of Stoic God," in *Traditions of Theology: Studies in Hellenistic Theology, Its Background and Aftermath*, ed. D. Frede and A. Laks. Leiden: Brill, 41-83.
- 2003. "The School, from Zeno to Arius Didymus." In *The Cambridge Companion to the Stoics*, ed. B. Inwood. Cambridge: Cambridge University Press, 7-32.
- 2018. "The Stoics and their Critics on Diachronic Identity." Rhizomata 6: 24-39.
- Sellars, J. 2010. "Stoic Ontology and Plato's Sophist." In *Aristotle and the Stoics Reading Plato*, ed. M.M. McCabe and V. Harte. London: *Institute of Classical Studies* 54: 185-203.
- Sorabji, R. 1988. Matter, Space, and Motion. Ithaca: Cornell University Press.

Todd, R. B. 1978. "Stoic Monism and Immanence: The Foundations of Stoic Physics." In *The Stoics*, ed. J. Rist. Berkeley/Los Angeles/London: University of California Press, 137-60.

- van Inwagen, P. 1990. Material Beings. Ithaca: Cornell University Press.
- Vogt, K. 2009 "Sons of the Earth: Are the Stoics Metaphysical Brutes?" Phronesis 54: 135-54.
- Weil, E. 1964 "Remarques sur le matérialisme des Stoiciens." L'Aventure de l'Esprit, Mélanges A. Koyré 2: 556-72.
- White, M. J. 2003. "Stoic Natural Philosophy (Physics and Cosmology)." In The Cambridge Companion to the Stoics, ed. B. Inwood. Cambridge: Cambridge University Press, 124-52.
- Wiggins, D. 1968. "On being in the same place at the same time." The Philosophical Review 77: 90-5.