THE PRINCIPLES AND ELEMENTS OF STOIC PHYSICS

A Dissertation
Presented to the Faculty of the Graduate School
of Cornell University
in Partial Fulfillment of the Requirements for the Degree of
Doctor of Philosophy

by
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August 2016

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Cornell University, 2016

What are the basic constituents of the universe, and how do they interact to produce the complex world around us? Like contemporary materialists, the ancient Greek Stoics claim that only bodies can affect the world. They posit two groups of foundational bodies: principles and elements. This dissertation analyzes these groups and explains how the Stoics use them to build the natural world.

The state of the evidence for Stoic physics poses a problem for this project. Since no original Stoic treatises survive, the evidence for Stoicism has been transmitted by secondhand summaries and criticisms. On the principles and elements, some sources claim that the principles and elements are distinct, and others that they are the same. To solve this dilemma, I argue that our evidence is ambiguous. Just as "The President" can refer to a constitutional role or to the occupant of that role, in our sources, "the principles" and "the elements" can refer to explanatory roles or the bodies that occupy those roles. By resolving this ambiguity, I determine that although the principles and elements have distinct roles within Stoic physics, members of the same set of bodies occupy the roles of both the principles and elements.

There are two principles, which are called "matter" and "God". Matter constitutes unified natural objects. God is an immanent efficient cause, shaping matter from within by means of physical contact. There are four elemental bodies: fire, air, water, and earth. The Stoics claim that a type of fire realizes God's role. Matter's role is occupied by a changeable three-dimensional extension, which manifests exclusively as fire, air, water, or earth without being identical to these substances. Thus the Stoics explain the physical world solely in terms of bodies with concrete perceptible characteristics.

BIOGRAPHICAL SKETCH

Ian Hensley holds a Bachelor of Arts in Philosophy with Highest Distinction from the University of Virginia. He earned a Master of Arts in Philosophy from Cornell University in 2014, and he will complete a Ph.D. in Philosophy at Cornell University in 2016. During his graduate education, he was a member of Cornell University's Program in Ancient Philosophy, which is jointly administered by the Sage School of Philosophy and the Classics Department.

DEDICATION

To my mother and father, who have unwaveringly supported me throughout my life.

ACKNOWLEDGEMENTS

I would like to thank Francesca Bruno, Austin Duggan, Eric Epstein, David Kovacs, Philippe Lemoine, and Eric Rowe, who helped me get through graduate school. I would also like to thank all of the students and faculty at Cornell University's Sage School of Philosophy for their conversations, support, and intelligence, which benefited me and this project in many ways. Special thanks of a different kind to Maggie Gustafson, who helped me get through the last stage of my graduate education.

I would like to thank my committee members Charles Brittain and Gail Fine for their assistance throughout my graduate education. I would like to offer special thanks to my dissertation adviser Tad Brennan for many rounds of discussion and comments during every stage of my education in ancient philosophy and my time at Cornell University.

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Chapter One: Introduction

1. Stoic Physics: A Central Problem

In this dissertation, I will discuss the views of the first three leaders of the ancient Greek Stoics: Zeno of Citium (334/3–262/1), Cleanthes of Assos (331/0–230/29), and Chrysippus of Soli (b. 281–277, d. 208–204). I will devote more attention to Chrysippus than either of his predecessors for several reasons. First, we have more evidence explicitly reporting Chrysippus's views. Second, most scholars assume that, even when they attribute claims to the Stoics in general, sources are reporting Chrysippus's views. Finally, Chrysippus's theories appear more philosophically sophisticated than his predecessors' – perhaps because we have more evidence for them.[1] Although I will focus on Chrysippus's philosophy, in much of this dissertation, the interpretation that I advance can be consistently ascribed to each of the first three Stoics. When I ascribe an interpretation to only one of the three, I will say so explicitly.

The Stoics divided their philosophy into three parts: logic, ethics, and physics.[2] I will focus on Stoic physics. This part attempts to explain the natural world. In many ways, the Stoics' methods are similar to Aristotle's. Like Aristotle, they explain each natural object's existence and characteristics in terms of entities that play a particular explanatory role. However, the Stoics also endorse corporealism – the view that only bodies can affect the world and only bodies can be affected.[3] Thus bodies play an important role in explaining the natural world for the Stoics. I will focus on identifying the types of bodies that enter into the Stoics' explanations of the natural world at a basic level.[4]

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[1] For discussion see Sedley 2003, 17.
[2] See, e.g., Diogenes Laertius, 7.39 = LS 26A.
[3] See, e.g., Cicero, *Acad.* 1.39 = SVF 1.90 = LS 45A.
[4] Note that entities other than basic bodies might be required to give a complete explanation of the natural world. For this reason, I do not understand my project as providing a complete explanation of the natural world. See Section 3.

Before moving on, note that although the Stoics endorse corporealism, we should not attribute the view that only bodies exist or that only bodies are real to the Stoics.[5] For the Stoics posit four types of incorporeal entities: place, void, time, and "sayables" (λεκτά).[6] And while these entities likely exist in some sort of derivative way, they are still real, mind independent entities.[7] For example, the Stoics claim that an infinite void exists outside of the physical world. This void is incorporeal. Therefore, it has no effect on bodies within the world. But it still exists.[8] Likewise for place, time, and sayables.

Although the Stoics endorse corporealism, they still posit efficacious entities often thought to be incorporeal by non-Stoics. For example, the Stoics claim that every animal has a soul that endows it with the faculties of perception and impulse. Thus these souls affect animals. Yet the Stoics deny that souls are incorporeal.[9] Given the Stoics' commitment to corporealism, they claim that souls are actually made up of simple bodies called "elements" (στοιχεῖα), which compose every other complex body in the world, as well. Likewise, God, who exercises a providential plan for the world by interacting with every body on a basic level, also turns out to be corporeal, according to the Stoics. (In fact, as I will explain below, God turns out to be one of the physically basic bodies.) Thus they combine traditional psychological and theological views with a corporealist physics. And their commitment to corporealism does not entail eliminativism about efficacious entities often thought to be incorporeal by non-Stoics.

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[5] For such attributions, see, e.g., Brunschwig 2003, 210; Hahm 1977, 3; Miller 2015, 31; White 2003, 128.
[6] See, e.g., Sextus Empiricus, *M* 10.218 = SVF 2.331 = LS 27D.
[7] In future work, I would like to examine the metaphysical relationships between these incorporeal entities and bodies. However, I do not address these ideas in this dissertation.
[8] I agree with Bailey 2014, 263, that the word "exist" is "ruined" when distinguishing bodies from incorporeals. While only bodies are ὄντα, it is inaccurate to say that incorporeals do not exist. As some have argued, their existence is derivative on bodies' existence (see Bailey 2014; de Harven 2015; Totschnig 2013), but they still exist. Some have even argued that some incorporeals' existence is *not* derivative on bodies' existence. Powers 2014 argues that void does not depend on bodies. Sedley 1999 argues that all incorporeals are "independent" of body.
[9] See, e.g., Nemesius, *De Natura Hominis* 78,7–79,2 = SVF 1.518 = LS 45C; 81,6–10 = SVF 2.790 = LS 45D.

As I noted above, the Stoics posit the standard four elements: fire, air, water, and earth. These bodies are simple; they are characterized by one perceptible feature each (Diogenes Laertius 7.137 = SVF 2.580 = LS 47B). According to the Stoics, these simple bodies interact and affect each other in various ways. As a result, they are said to compose natural objects (Stobaeus, *Ecl*. 1.129,4–7 = SVF 2.413 = LS 47A). Thus the elements play one of the basic roles in Stoic physics. However, the Stoics also posit two "principles" (ἀρχαί): an active principle and a passive principle. They call the active principle "God" and the passive principle "matter". For a class of natural object, God plays the role similar to Aristotle's efficient cause, and matter plays the role of the material cause. The principles combine and interact, and as a result, objects like animals, plants, and the ordered cosmos exist.

For these reasons, the principles and elements are prior to natural objects like animals, plants, and the ordered cosmos. For the principles and elements stand in asymmetrical relations to these objects that justify existential "in virtue of" or "because" claims.[10] Matter *constitutes* natural objects. God *efficiently causes* natural objects, by causing matter to constitute them. The four elemental bodies fire, air, water, and earth *compose* natural objects. Because these relations obtain, we say that the natural world exists in virtue of the principles and elements.[11]

Several questions regarding the principles and elements arise. Do the principles and elements stand in asymmetrical relations to each other that license existential "in virtue of" claims? For example, can we say that the elements exist because of the principles or vice versa?

[10] This sort of relationship is similar to what Bennett calls a "building relation" (Forthcoming, Chapters Two and Three). Bennett claims a building relation obtains when it is directed (asymmetric and irreflexive), necessitating (minimally sufficient to bring about something, given background conditions), and generative (licenses certain "in virtue of" claims). I am arguing that the principles and elements stand in certain partial building relations to natural objects: asymmetric and generative relations. While I also believe that these relationships are necessitating, I will not defend this claim in this dissertation.

[11] Note that these claims are not meant to give complete explanations of these objects' existence. See Section 3.

Do the principles *compose* or *cause* or *ground* the elements or vice versa? If so, then what is the relationship between the principles' roles in explaining the natural world and the elements'? Do the explanatory functions of one group rely on the functions of the other? If the principles and elements are not related in such a way that licenses existential "in virtue of" claims, then are they related in any way? Is a subset of the principles identical to a subset of fire, air, water and earth?

Because of the principles and elements' basic status in Stoic physics, it is necessary to determine their relationship to each other and answer these questions. Some evidence suggests that the principles are more fundamental than the elements, and that they are related in such a way that justifies existential "in virtue of" claims of the form "the elements exist because of the principles". Matter is said to "underlie the elements" by several sources.[12] Diogenes Laertius says that "first, God produces the four elements, fire, air, water, and earth" (7.136 = SVF 2.580 = LS 46B), suggesting that God is distinct from the elements and they exist because of him.[13] Earlier in his report of Stoic physics, Diogenes notes that the Stoics distinguished the principles and elements, since the principles are ungenerated and indestructible, while the elements can be destroyed (7.134 = SVF 2.299 = LS 44B). However, other pieces of evidence suggest a different picture. Many sources identify God with a certain type of fire or with a certain type of substance called *pneuma*, which is composed of elemental bodies.[14] Likewise, Diogenes Laertius says that "the four elements together are unqualified substance – i.e. matter" (7.137 = SVF 2.580).[15] Thus our evidence seems to be split. Some sources suggest that the principles are distinct from the

[12] Plotinus, *Enn*. 2.4.1 = SVF 2.320; Galen, *De elementis* 1.469–470 = SVF 2.408; Sextus Empiricus, *M* 10.312 = SVF 2.309. See discussion in Chapter Five.
[13] See discussion in Chapter Three.
[14] See, e.g., Aetius, Plac. 1.7.33 = SVF 2.1027 = LS 46A. See discussion in Chapter Four.
[15] See discussion in Chapter Five.

elements, and that they stand in a metaphysically prior position to them. Others identify the principles with subsets of fire, air, water and earth.

Scholars have attempted to resolve this conflicting evidence in several ways. Long and Sedley 1987 admit that the evidence calling God a type of fire is genuine, but they claim that "this description should be analysed strictly as a reference to the activity of god *in matter*" and that fire "is a necessary consequence of god's constant conjunction with matter" (1.278, emphasis in original). Essentially, they seem to claim that when God acts on matter, God takes on a fiery form. However, God himself is just an "intelligent energizing power" (ibid.), which should not be identified with any particular physical embodiment of that power.

Cooper 2009 argues that Zeno and Cleanthes claim that God is fire, but that Chrysippus alters the orthodox Stoic view (103–5). While Zeno and Cleanthes thought that it was not problematic to identify God with a type of fire, Chrysippus restores the distinction between principles and elements by describing God as "light" or "flash" (αὐγή). This light is not elemental fire, but rather some prior substance similar to elemental fire. But even then, we should not identify God with the light. Rather, light is "the material substance that results from the bare presence of the active principle within the passive principle" (105). Thus Cooper maintains that the developed Stoic view was that God is not any sort of fire. Rather, God materially necessitates the proto-elemental "light" by inhering in matter. God and matter somehow together compose this light. Thus the reports that describe God as fire should be ascribed to Zeno and Cleanthes and not to Chrysippus.

Lapidge 1973 supports a different view. According to him, Zeno maintained a strict separation between the principles and elements. He identifies God with "artistic fire" (πῦρ τεχνικόν), which Lapidge argues is not the same type of substance as elemental fire (267–71).

Furthermore, Diogenes' claim that the four elements together are matter is "nonsense" (265). According to Lapidge, Chrysippus destroys the Stoic distinction between principles and elements (274–78). For Chrysippus identifies God with pneuma, which is somehow compounded out of elemental bodies. Therefore, we should ascribe the view that God is a combination of a subset of the elements to Chrysippus and not to his predecessors.

Hager 1982 disagrees with Lapidge's conclusion that Chrysippus ruins the distinction between principles and elements. He argues that because (a) the principles and elements are distinct and (b) Chrysippus identified pneuma as the active principle, (c) pneuma must be somehow prior to the elemental substances fire, air, water, and earth (104–7). Therefore, given (c), Chrysippus can consistently maintain (a) and (b). Just like Zeno, Chrysippus distinguishes the substance of God with the substance of fire, air, water, and earth.

Some scholars assert that God and matter are not identical to any subset of elemental or quasi-elemental substances. They claim that the principles and elements are asymmetrically related in such a way that justifies "in virtue of" claims of the form "the elements exist in virtue of the principles". Sedley 1999 claims that the elements "are finally resolved into the two principles matter and God" (387). God and matter somehow metaphysically determine the elements without being identical to any particular subset of them. Sedley does not describe the relations that hold between the principles and the elements. However, he claims that the principles must be bodies (384). Therefore, several possibilities emerge. Perhaps God and matter compose the elements, or perhaps God efficiently causes the elements while matter constitutes them. In any case, the structure of the view is clear. The principles stand in direct relations with the elements without being identical to them.

Other scholars, while endorsing the view that God and matter are not identical to any subset of elemental or quasi-elemental substances, reject Sedley's view that God and matter are bodies. For example, Sandbach 1975 argues that God and matter are not themselves bodies, but that when they combine, they form a body (73–4). He hypothesizes that the contradictory evidence emerges out of the Stoics' tendency to use "God" to refer to many different things.

I reject all of these interpretations. First, Sandbach's interpretation fails because the principles must be bodies. For the Stoics endorse corporealism, and they claim that God and matter act and are acted upon, respectively. So we cannot escape the puzzle in this way.

Second, those like Sedley 1999 and Cooper 2009 who claim that God and matter (a) are bodies that (b) stand in asymmetrical relations with the elements that justify existential "in virtue of" claims seem forced to claim that (c) God and matter lack any concrete, perceptible characteristics. For if God or matter were hot, wet, dry, cold, hard, or soft, then they would be elemental. This leads Frede 2005 to claim that God and matter only have the physical characteristic of three-dimensionality (222–3). Thus the principles turn out to be bodies lacking any concrete, perceptible characteristics.

Now, the Stoics' commitment to corporealism entails that any process or state of affairs in the world can be explained in terms of bodies interacting with each other. As I will argue in Chapter Two, this entails that the principles are bodies. But what sorts of bodies are they? According to interpretations like Sedley 1999 and Cooper 2009's, they are like Frede 2005's bare three-dimensional extensions. Thus, at bottom in their physical explanations of the natural world, the Stoics will assert that two bodies lacking any intrinsic physical characteristics other than three-dimensionality interact in such a way that the complex and highly organized world around us comes into existence. Yet the Stoics will be unable to cite any physical characteristics

that allow the principles to perform this function. So they will need to assert that they simply have the brute capabilities to do so. This is an unsatisfying explanation. These considerations possibly lead Sedley 2011 to claim that God and matter's interactions are replicated on the "phenomenal level" of fire, air, water, and earth. He suggests that the Stoics describe the interactions between these entities in the language of the principles to provide us with some grasp of how intrinsically qualitatively featureless extensions like the principles are able to produce the natural world (58–9). Yet this still does not explain *how* this interaction takes place at the non-phenomenal level. For this interpretation entails that the principles are dissimilar to the elements in so far as they lack the very characteristics that help us grasp the interactions occurring at the phenomenal level. Thus, again, this interpretation is unsatisfying.

Third, Lapidge's assertion that Zeno maintained a strict distinction between the principles and elements by distinguishing elemental fire and non-elemental fire is not supported by the evidence, as I will argue in Chapter Four. Thus we cannot simply blame Chrysippus for the apparent inconsistencies in the evidence. Fourth, Cooper's assertion that Chrysippus did not identify God with a type of fire or a combination of elemental substances is false, as I will argue in Chapter Four. Thus, we cannot lay the blame for the apparent inconsistency at the feet of Zeno and Cleanthes. Fifth, Hager's claim that pneuma is not somehow composed out of the elements is refuted by the evidence. Thus we cannot defend Chrysippus against the charges of inconsistency using Hager's argument.

Long and Sedley come close to endorsing the interpretation that I will endorse in this dissertation. They claim that when God acts on matter, he is fire. However, he is not identical to fire. For God is an energizing power, which takes on the form of fire when he interacts with matter. Long 1985 expands on this interpretation in an earlier work when he writes, "[w]e could

say that fire is the manifestation or form of god's activity in matter. But, from a metaphysical viewpoint, god as the active principle is prior to fire" (22). Again, Long tries to distinguish God, when he interacts with the passive principle, and God, in some other circumstances.

The problem with this interpretation is that Long does not describe "the metaphysical viewpoint" or the other circumstances in which God and fire are not identical. There are many, mutually exclusive options. First, we might claim that God stands in a determination relation with fire. He might compose fire, constitute fire, efficiently cause fire, be a determinable that is determined by fire, and so on. These are not the same relations. If the Stoics endorse one characterization of God and fire's relationship over the other, they will have a dramatically different physical theory. And, as I have argued above, Long will face the difficulty of describing the type of body that God is without ascribing characteristics to it that would make it elemental. Second, we might claim, as some scholars, that God is an incorporeal description of a physical substance – fire – when that substance stands in certain relations to other bodies.[16] This would be similar to Sandbach's interpretation, which is untenable. Third, we might claim that God has a certain physical role that is multiply realizable. Because of this, we might claim that God's role is sometimes realized by one substance, but it is not necessarily realized by that substance. Thus God is not identical to fire, since identity is a necessary relation. This is close to the interpretation that I will endorse. Because it is not clear which interpretation Long and Sedley endorse, it is unclear whether their interpretation of the relation between God and fire is true.

Finally, none of these interpretations address Diogenes' claim that, together, the four elements are matter, except to unconvincingly pronounce it as nonsense. Thus, even if they

[16] See Baltzly 2003; Lapidge 1973; 1978; Miller 2015 (note Miller does not endorse this view; he merely presents a defense of it); Sandbach 1975; Todd 1978.

resolved the inconsistencies in the evidence describing God's relationship to the elements, one half of the puzzle would remain unsolved.

Hopefully, the state of the evidence and literature has become clear. One of the central problems within Stoic physics and metaphysics concerns the relationship of the principles and elements. Some evidence suggests that they are distinct, and some evidence suggests that subsets of the elements are identical to the principles. Several interpretations have been put forth to solve this apparent inconsistency, but none have succeeded.

2. Roles and Occupants: A Primer

Let's consider a particular brand of functionalism about mental states like pain. Suppose that we accept Putnam 1967's conclusion that mental states are multiply realizable. We observe or conceive of beings with physical constitutions much different than our own behaving in ways that we behave when we experience pain. Thus we attribute the mental state pain to these beings. Because we have different physical constitutions, but we both experience pain, we conclude that pain is not identical to any physical state. Some functionalists argue that this indicates that pain is a functional state; it is the property of being caused by tissue damage, causing sudden movements, causing shouts of alarm, and so on. Different types of physical states realize this functional state in different organisms, but each organism with a physical state realizing the functional state experiences pain. Thus we can distinguish the functional property and the physical property that realizes the functional property.

Philosophers have disagreed about which property – the functional property or the physical property – is the property *pain*. As a result, linguistic ambiguities can arise. Let's assume that "pain" refers to the property or property-instance *pain*. Given this, and given the disagreement between philosophers, some people will use "pain" to refer to the functional

property, and others will use it to refer to the physical property. Each group will argue that their usage is correct.[17] One can imagine a third approach. In some contexts, "pain" can refer to the functional property or property-instance, and in other contexts, it refers to the physical property or property-instance. If we adopted this third view, then we would sometimes discuss "pain", the functional property, when we wanted to explain the particular role that different physical states must play to be characterized as pain, and we would sometimes discuss "pain", the physical property, when we wanted to discuss a particular manifestation of that functional property in a particular organism.

This third view is analogous to how I will interpret the evidence for the Stoic principles and elements. Consider Seneca's report that "a thing must be made from something, and by something: the latter is [God], the former matter" (*Ep.* 65.2 = SVF 2.303 = LS 55E, trans. Long and Sedley modified). Seneca discusses the principles. He claims that things are made by God and from matter. It's clear that Seneca is not presenting an account of the physical characteristics of the principles; he does not describe the particular bodies that we identify with the principles. Instead, he discusses the roles that the principles play within Stoic physics. God is the cause of things, and matter constitutes them. This seems to be the sense of the claim that God is that *by which* things are made, and matter is that *from which* things are made.

Now consider Aetius's report that "The Stoics declare that intelligent God is artistic fire" (*Plac*. 1.7.33 = SVF 2.1027 = LS 46A). Aetius identifies the active principle with a particular type of body: artistic fire. Or consider Sextus Empiricus's report that "the Stoics say that God is pneuma, which extends even through loathsome things" (*PH* 3.218 = SVF 2.1037). Sextus

[17] This debate is often characterized as a debate between "role-functionalists" and "realizer-functionalists". See McLaughlin 2006.

identifies God with another type of body. If we had only these reports, we would not know what role God plays in the Stoic physical system. However, we would at least know which physical substance carries out that role.

Some sources discuss the principles' roles. Others discuss the *occupants* or *realizers* of those roles. And the same goes for the elements. The roles are descriptions of relations that hold between the principles and elements and other things. For example, "compose complex objects" is one elemental role. In Stoic ontology, this is a predicate – an incorporeal sayable that, when combined with a noun, forms a complete sayable or proposition.[18] Thus adding "fire, air, water, and earth" to the predicate forms the proposition "fire, air, water, and earth compose complex objects". If this is true, then fire, air, water, and earth are the types of bodies that realize the elemental role of composing complex objects.

This is similar to how Bailey 2014 has analyzed Stoic ontology (264ff.). He claims that time, place, void, and sayables are "offices". Offices are "capable of being now occupied, now vacated by the fundamentally real [i.e. bodies]" (266). When a body stands in a certain relation to an incorporeal, it occupies that incorporeal. Like Bailey, I take the roles of the principles and elements to be incorporeal predicates that become occupied by bodies under certain conditions. When, for example, fire stands in a realization relation to God's role, it occupies that role.

Pace Bailey, we shouldn't assume that the terms that refer to the principles and elements can refer to either the roles or the occupants, just like "pain" can refer to the functional property or the physical property.[19] For it's unclear whether any source uses "God", "matter", "principles", or "elements" to refer to the role itself. Rather, sometimes these words are used to

[18] See, e.g., Diogenes Laertius, 7.64 = SVF 2.183 = LS 33G.
[19] See 2014, 264–5.

indirectly refer to the role. In the same way that "the President" in the sentence "the President selects nominees for the Supreme Court" does not necessarily refer to Barack Obama, but instead to whoever occupies the constitutional role of the Presidency, so too "God" in "God is that by which things are made" does not necessarily refer to artistic fire or pneuma, but instead to whatever realizes the role of the active principle. In the example above, adding "the elements" to the elemental role will yield the proposition "the elements compose complex objects". This is true, according to the Stoics. However, it tells us nothing informative about what types of bodies realize the role. Rather, it only tells us under what conditions a type of a body will occupy the elemental role.

In slogan form, "God", "matter", "the elements", and "the principles" can refer *de dicto* or *de re*. When the terms that refer to the principles and elements refer *de dicto*, they are being used to make general claims about any body that realizes a role *qua* realizer; when they refer *de re*, they make claims about the bodies realizing the principles and elements' roles themselves.

Given this primer, one potential solution to the interpretive puzzle described above should become clear. One could argue that although the principles and elements have different roles within Stoic physics, the same set of bodies realizes those roles. When sources report that the principles and elements differ, they mean that the principles and elements have different roles. However, the same group of substances realizes those roles. This might be Long's meaning when he says that, from a metaphysical viewpoint, God and fire are distinct.

I will not endorse this solution, as it is currently stated. First, while it might explain how the claims that the principles and elements are distinct and that the principles and elements are not distinct can be consistent, it cannot explain why some sources seem to suggest that God and matter stand in direct metaphysical priority relations to fire, air, water, and earth, while also

being identified with subsets of these elements. Second, the evidence suggests that the Stoics did not endorse a view this neat. First, there is not a single elemental role, according to Chrysippus. As I will argue in Chapter Three, Chrysippus posits three elemental roles. And not all of these roles are distinct from the principles' roles. So the bare statement that the principles and elements' roles differ is false. Second, the occupant of matter's role is *resistant space*. While this body has the accidental properties associated with fire, air, water, and earth exclusively, it is not identical to these substances. For they differ in their essential properties.

However, the distinction between roles, occupants *de dicto*, and occupants *de re* will still allow us to solve the interpretive dilemma. First, I will argue that one of Chrysippus's three elemental roles is the classic sense of "element" – that of being a primary immanent component. I will argue that this elemental role differs from both of the principles' roles. And it is in this sense that the principles and elements are distinct, as reported by Diogenes. Second, I will argue that when Diogenes says that God produces fire, air, water, and earth, he means that God causes these four substances to realize the role of being a primary immanent component; he does not bring each of them into existence from a state of nonexistence. Because of this, I will argue that the reports that state that God's role is realized by artistic fire or pneuma are genuine, and no interpretive dilemma emerges.[20] I will argue that the body that realizes matter's role possesses accidental properties associated with fire, air, water, and earth alone, even if it is not identical with these substances. Because of this, the Stoics do not need to resort to positing brute capabilities to explain the generation of the natural world.

[20] Some scholars have tried to generate an interpretive puzzle out of the claims that God produces the four elements and that God is fire or pneuma. See, e.g., White 2003.

3. Scope of this Dissertation

In this dissertation, I will identify the bodies that, according to the Stoics, physically generate the natural world. The processes of generation that I will focus on are composition, constitution, and efficient causation by means of motion and contact. I will argue that these processes are sufficient, according to the Stoics, to explain how a few basic sorts of bodies can physically interact and give rise to the complex world we find around us. No other types of bodies are required to generate these explanations, and the Stoics posit no additional types of bodies.

Some might argue that other sorts of explanations are required in order to fully explain the natural world. For example, the Stoics claim that God is provident and intelligent. As such, he will generate a good world. Yet, in this dissertation, I will only identify what type of body fulfills God's role as immanent efficient cause. I will not explain how this body is intelligent or good. Thus I do not fully explain the natural world. For a full explanation will locate God's intelligence and goodness in the world. Furthermore, it would explain how the products of God's activity are good.

For the sake of argument, I will agree that additional explanations of the sort mentioned above are required to give a complete account of the natural world. I believe that God's providence and intelligence are reducible to physical features of the body that realizes God's role as immanent efficient cause. However, I will not argue for this reduction in this dissertation. Thus my goal is not to give a complete account of the natural world. Rather, I intend to give an account of the basic physical underpinnings of the natural world. This project, though more limited, is valuable. For many would grant that even if God's intelligence and providence are not *reducible* to physical features of the body that realizes God's role as immanent efficient cause,

those divine characteristics still physically *depend* on that body in some way. Perhaps God's mental and ethical features supervene on bodies of a certain type, or perhaps they are emergent properties of those bodies. But they require physical underpinnings. My goal in this dissertation is only to identify the ultimate physical underpinnings. I will not identify the relation that holds between those underpinnings and whatever sorts of psychological or ethical properties are necessary to explain God's activities.[21]

4. Summary of Subsequent Chapters

In Chapter Two, I will argue for an interpretation of the roles of the Stoic principles. While many scholars have discussed the principles, few have attempted to define their jobs within the Stoic physical system. I will argue, contrary to what seems to be the orthodox view, that God's role is not compositional. Instead, while matter's role is to constitute unified natural objects – things like animals and plants – God's role is to efficiently cause matter to constitute those objects from within. Given this analysis of the roles of the principles, and given the Stoic theory of causation, the occupants of the principles' roles are bodies. Furthermore, I will develop and solve an interpretive dilemma regarding the separability and inseparability of the Stoic principles. I will argue that the principles are functionally inseparable and physically separable.

In Chapter Three, I will explore Chrysippus's theory of elements. While many scholars have argued that the principles and elements must be two distinct groups of objects, the evidence

[21] There is one interpretation of Stoic physics and God's providence and intelligence that is incompatible with my interpretation: the claim that God *qua* rational, intelligent, and providential being, is a type of body that stands in an asymmetrical relation with fire, air, water, or earth that licenses "in virtue of" claims of the form "fire, air, water, and earth exist because of God", and that this body realizes the role of the active principle. According to this interpretation, fire, air, water, and earth physically depend on God's reason, intelligence, or providence. That is, they are constituted by it, composed by it, or it efficiently causes them in some way. I will argue that resistant space, which exclusively manifests as fire, air, water, and earth, and a special fire called "artistic fire", are the physically basic bodies that realize the roles of the passive and active principle respectively. Thus unless we identify reason or goodness with these bodies, my interpretation is incompatible with this alternative interpretation.

suggests a more nuanced view. By examining an interpretive dilemma, I will argue that Chrysippus actually posits three elemental roles. The first is that of a primary immanent component. The second is that of an original batch of material from which the other primary immanent components condense. The third is that of a first mover, who constructs objects out of the primary immanent components. Subsets of fire, air, water, and earth are distributed among these three elemental roles. Interestingly, the third role is the same as God's role. Thus, while the first and second elemental roles are distinct from the principles' roles – and thus the principles and elements are distinct in one sense – there is some overlap in the roles of the principles and elements.

In Chapter Four, I will argue that the first three leaders of the Stoics maintained that artistic fire occupies God's role and the third elemental role. However, artistic fire is not intrinsically distinct from regular elemental fire. I will also argue that each of the first three Stoics thought that part of the conflagration's fire never extinguishes during the process by which the ordered cosmos is generated. I will also investigate the development of the Stoic theory of pneuma, and I will challenge the orthodox view that pneuma should be identified as a combination of fire and air.

In Chapter Five, I will argue that matter's role is occupied by resistant space that lacks any essential perceptible characteristics. However, I will argue that this occupant must take on one of four sets of accidental properties – those of fire, air, water, or earth. In arguing for this interpretation, I will also argue that the Stoics endorse a particular sort of monism. They view the entire world as being made up of a continuous body. This body is not identical to either of the principles, although it is the same type of body as matter. Finally, I will investigate the Stoic theory of the conflagration in light of this analysis of the passive principle.

Chapter Two: The Roles and Relationship of the Principles

1. Introduction

In this chapter, I have three main goals. The first is to define the roles of the principles within Stoic physics. The second is to set constraints on what sorts of entities can realize those roles. The third is to develop and solve a puzzle concerning the relationship of the principles to each other. In the course of solving this puzzle, I will set further constraints on the possible occupants of the principles roles.

In Section 2, I will argue for an interpretation of the roles of the principles. In Section 3, I will argue that the occupants of these roles must be bodies. In Section 4, I will develop an interpretive dilemma concerning the principles: our sources suggest that they are both inseparable and separable from each other. In Section 5, I will solve this dilemma and describe the constraints that it sets on what sorts of entities can occupy the principles' roles.

2. The Roles of the Principles

In this section, I will describe and explain the main role that the principles play within Stoic physics. God and matter enter into the Stoics' explanations of natural phenomena at a basic level. The goal of this section is to explain how they enter into these explanations. This will guide the discussion in the rest of the dissertation.

Commentators often describe the roles of the principles in compositional terms; they claim that the two principles combine to form the natural world, as parts of a whole. Vogt 2009 claims that they "together constitute physical reality" (137). Long and Sedley 1987 say something similar when they maintain that "any object, or the world as a whole, can be analysed as a composite of matter and god" (1.271).[1] Cooper 2009 states that "[t]he two principles … are

[1] However, see Sedley 2011, 57: "the role of god is not … constitutive but, very approximately, directive".

always combined with one another and thereby constitute" the world (99) and that "[t]he principles *compose*" the cosmos (105, emphasis in original).

In this section, I will offer an alternative to the claim that both of the principles' roles are compositional. While God and matter do combine, and while God is immanent within the world, I will deny that God's role is compositional. Instead, I will argue that while matter's role is to *constitute* natural objects, God's role is to *cause* matter to do so. God is an immanent efficient cause of a certain class of objects, and matter is the material basis for those objects.[2]

Let's begin with a report from Seneca. He says:

Text A: Seneca, *Epistulae Morales* 65.2 = SVF 2.303 = LS 55E

(1) Our Stoic philosophers, as you know, say that there are two things in nature from which everything is produced: cause and matter. (2) Matter lies inert, an entity ready for anything but destined to lie idle if no one moves it. (3) Cause, on the other hand, being the same as reason, shapes matter and directs it wherever it wants, and out of matter produces its manifold creations. (4) Hence a thing must be made from something, and by something: the latter is cause, the former matter (trans. Long and Sedley, modified).[3]

In A(1), Seneca claims that objects are generated out of two things: cause (God, the active principle) and matter (the passive principle).[4] In A(2) and A(3), he describes how each principle contributes to objects' generation. Matter is shaped into these objects, and the active principle

[2] On God's role within Stoicism, I agree with much of Bénatouïl 2009, 25–8. However, please note that Bénatouïl does not explicitly say that his account of God's role contrasts with the compositional accounts. For explicit discussions of the roles of the principles, see also Hahm 1977, 32–4; Scade 2010, 143–59; Sedley 2011.

[3] Dicunt, ut scis, Stoici nostri duo esse in rerum natura ex quibus omnia fiant, causam et materiam. Materia iacet iners, res ad omnia parata, cessatura si nemo moveat; causa autem, id est ratio, materiam format et quocumque vult versat, ex illa varia opera producit. Esse ergo debet unde fiat aliquid, deinde a quo fiat: hoc causa est, illud materia.

[4] In this passage, Seneca uses "cause" synonymously with "God", the active principle. Later he explicitly identifies the first cause with God (*Ep*. 65.12). See also Diogenes Laertius, 7.134, D(2) below, which calls God the "reason" in matter, echoing A(3).

shapes matter, acting with a plan in mind as it turns matter "wherever it wants" (quocumque vult). Seneca concludes in A(4) by describing the principles' roles with different prepositions: for any object *x*, the passive principle is that *from* which *x* is made and the active principle is that *by* which it is made. This means that matter constitutes *x* as its material basis, and God causes matter to be *x*'s material basis.

According to Seneca, God's primary role as a principle is not compositional. It is efficient. While matter makes things up, God is somehow distinct from those things, since it causes matter to make them up. However, God isn't separate from matter, as an artisan is separate from her products. Consider the following report from Alexander:

Text B: Alexander of Aphrodisias, *De Mixtione* 225,18–27 = SVF 2.1044

(1) One could also inquire whether it's possible to say that God, who pervades matter and is in it, is the craftsman of the things that are generated out of matter. (2) For the Stoics support this with the claim that artificial products aren't generated similarly to those that are generated by nature. For natural products are not formed and molded superficially, but totally, and their inner parts have been carefully crafted to be most precise. On the other hand, artificial products have been shaped like statues. For their inner parts are unmolded. (3) So because of this the Stoics say that the producer [τὸ ποιοῦν] of the things that are generated by art is external and separated, while in the case of the things that are generated by nature, the power that shapes and produces *them* is in their matter.[5]

[5] πρὸς δὲ τούτοις ἐπιζητήσαι τις ἄν, εἰ τῶν ἐκ τῆς ὕλης γενομένων οἷόν τε δημιουργὸν λέγειν τὸν διαπεφοιτηκότα τῆς ὕλης καὶ ὄντα ἐν αὐτῇ θεόν. φέρουσι μὲν γὰρ εἰς τὴν κατασκευὴν τοῦδε τὸ μὴ ὁμοίως τοῖς φύσει γινομένοις γίνεσθαι τὰ κατὰ τὰς τέχνας. τὰ μὲν γὰρ ἀπὸ τῆς φύσεως ἀποτελέσματα οὐκ ἐπιπολῆς, ἀλλὰ δι' ὅλων εἰδοποιεῖταί τε καὶ διαπλάττεται, καὶ τὰ ἔνδον αὐτῶν γλαφυρώτατα πεφιλοτέχνηται, τὰ δὲ τῶν τεχνῶν διαμεμόρφωται, ὡς ἐπὶ τῶν ἀνδριάντων ἔχει· τὰ γὰρ ἔνδον τούτων ἀδιάπλαστα. διὰ δὴ τοῦτό φασιν τῶν μὲν γινομένων κατὰ τέχνην ἔξωθεν εἶναι καὶ κεχωρισμένον τὸ ποιοῦν, ἐπὶ δὲ τῶν γινομένων φύσει ἐν τῇ ὕλῃ εἶναι τὴν δύναμιν τὴν μορφοῦσάν τε καὶ γεννῶσαν αὐτά.

According to B(2), the Stoics say that natural products' internal parts display craftsmanship, while artifacts' internal parts do not. From this, they infer that the cause of natural objects is in their matter. B(1) implies that the Stoics identify God with that internal, natural cause. Hence God is in natural objects' matter.[6] God differs from artisans in other ways. Consider the duration of God's activity on matter. While an artisan separates from her products once they have been generated, God continually acts on matter. We can see this from a later passage in Alexander:

> **Text C: Alexander of Aphrodisias, *De Mixtione* 226,24–30 = SVF 2.1048**
>
> (1) Isn't it unworthy of our preconception of the divine to say that God has gone through all of the underlying matter and remains in it (no matter its state), (2) and that he has as his guiding work to constantly produce and mold one of the things capable of being generated out of it, (3) and to make God a "craftsman" of grubs and gnats, (4) just like a modeler who simply devotes himself to clay and making everything that's capable of being generated out of it?[7]

C(1) confirms that God is immanent within matter. C(1) and C(2) also imply that God continually acts on matter. For he remains in it and constantly produces and molds natural objects out of it. Hence he does not separate from matter once an object is generated. Rather, he stays in matter and sustains its shape. This makes sense. For A(2) states that matter is inert on its

[6] Alexander goes on to criticize this theory. He claims that natural objects are brought into existence by external causes and not internal causes (*De Mixtione* 225,27–226,6). Since God is the first productive cause, God cannot be an internal cause (*De Mixtione* 226,6–10). As a result, Alexander concludes that the Stoic physical theory is false. For the Stoics maintain that God is a cause within matter.

[7] πῶς δ' οὐκ ἀνάξια τῆς θείας προλήψεως τό τε τὸν θεὸν διὰ πάσης τῆς ὑποκειμένης πᾶσιν ὕλης κεχωρηκέναι λέγειν καὶ μένειν ἐν αὐτῇ, ὁποία ποτ' ἂν ᾖ, καὶ τὸ προηγούμενον ἔχειν ἔργον, τὸ ἀεί τι γεννᾶν τε καὶ διαπλάσσειν τῶν ἐξ αὐτῆς γενέσθαι δυναμένων, καὶ ποιεῖν τὸν θεὸν δημιουργὸν σκωλήκων τε καὶ ἐμπίδων, ἀτέχνως ὥσπερ κορόπλαθόν τινα τῷ πηλῷ σχολάζοντα καὶ πᾶν τὸ δυνάμενον ἐξ αὐτοῦ γενέσθαι τοῦτο ποιοῦντα;

own.[8] If God is absent, then presumably matter will lose its shape. Therefore, the interaction between God and matter continues past the point of objects' generation.

Texts B and C describe God as immanent within the natural objects he creates. And this, I believe, gives rise to commentators' thought that God's role is compositional. For since God is immanent within natural objects, we are tempted conclude that he at least partially composes these objects. But while the active principle takes up space in the same area in which natural objects' matter is located, Alexander does not indicate that God is a material component of those natural objects. To make an analogy, we might think that the strong nuclear force is present within atoms, but we wouldn't claim that it partially composes atoms as a part of a whole. Rather, the force somehow non-compositionally contributes to atoms' continued existence from within by holding their nuclei intact. Likewise, God is present within natural objects, and he contributes toward their generation, but he is not a part of them. God is an immanent efficient cause, but he is not a component.

Texts B and C suggest that the products of God's activity are natural objects like animals and plants. For God is described as the immanent efficient cause of natural objects in Text B; in C(3), Alexander sarcastically describes God as the craftsman of grubs and gnats, presumably inferring this from the claim that God generates all animals. This interpretation is confirmed by Diogenes Laertius's account of the Stoic principles:

[8] See also Aetius, *Placita* 1.9,2 = SVF 2.324; Sextus Empiricus, *M* 9.75–6 = SVF 2.311 = LS 44C.

Text D: Diogenes Laertius, 7.134 = SVF 2.300 = LS 44B

(1) They believe that there are two principles of the wholes [τῶν ὅλων]: the active and the passive. (2) The passive is unqualified substance – matter – and the active is the reason in it – God. (3) For the latter, being eternal, constructs each one through all of matter.[9]

In D(1), Diogenes calls the principles "of the wholes". In D(2), he identifies God and matter as the principles, once again confirming that God is immanent within matter by calling him the "reason in matter". Then he offers an explanation for God and matter's status as principles in D(3): God constructs "each one" (ἕκαστα). This refers back to "the wholes" in D(1). So God constructs the wholes.

"Of the wholes" translates τῶν ὅλων. Others have translated this phrase with "of the universe" or "in the universe", presumably referring to the ordered cosmos.[10] However, other passages use the singular τὸ ὅλον to refer to the cosmos. For example, in describing Zeno's cosmogony, Stobaeus says, "it is necessary that, during certain periods, the cosmic order of the whole [τὴν τοῦ ὅλου διακόσμησιν] out of substance will occur" (Stobaeus, *Ecl*. 1.152,19–21 = SVF 1.102). When discussing Chrysippus's formulation of the *telos*, Diogenes Laertius represents Chrysippus as thinking that "our natures are parts of the nature of the whole [τοῦ ὅλου]" (*Lives* 7.88 = LS 63C2).[11] In both passages, "whole" seems to refer to the ordered cosmos. Since the meaning of the singular and plural might differ, I suggest we examine what τῶν ὅλων would mean in D(1), if we understand its sense plurally. Diogenes might be claiming

[9] Δοκεῖ δ' αὐτοῖς ἀρχὰς εἶναι τῶν ὅλων δύο, τὸ ποιοῦν καὶ τὸ πάσχον. τὸ μὲν οὖν πάσχον εἶναι τὴν ἄποιον οὐσίαν τὴν ὕλην, τὸ δὲ ποιοῦν τὸν ἐν αὐτῇ λόγον τὸν θέον· τοῦτον γὰρ ἀΐδιον ὄντα διὰ πάσης αὐτῆς δημιουργεῖν ἕκαστα.

[10] See Hicks 1931, ad loc.; Long and Sedley 1987, 1.268; Inwood and Gerson 1997, 132. I assume that "universe" does not refer to the compound of the cosmos and void, according to these translators. For since the Stoics thought that the void was incorporeal, they would not say that God constructs it.

[11] And, in the same passage, Diogenes refers to "the administrator of the wholes" (ὁ τῶν ὅλων διοικητής) in reference to God, the active principle (7.88 = LS 63C4). Thus, again, Diogenes treats God as related to some plurality of objects, and he refers to the ordered cosmos with a singular word.

that the principles generate a specific plurality of objects, while referencing the Stoics' distinction between a whole and a sum.

According to Plutarch, the Stoics say that "*whole* is predicated of what has been ordered" (*De Comm. Not.* 1074c). The combination of the cosmos and void only counts as a "sum" (πᾶν). For, in the same passage, Plutarch says that the combination of the cosmos and void is "indefinite and unarranged". Thus, according to the Stoics, wholes are definite objects that display some sort of order.[12] I believe that we can extract the details of the order required for wholeness from a passage in Sextus Empiricus. Sextus reports the Stoic argument that the cosmos is a unified body:

Text E: Sextus Empiricus, *M* 9.79–80 = SVF 2.1013

(1) Since the cosmos is a body, it is either a unified body, or made out of conjoined bodies, or made out of disparate bodies. (2) But it's neither made out of conjoined bodies nor out of disparate bodies, as we prove from the sympathies in it. (3) For in accordance with waxings and wanings of the moon, many land and sea animals wane and wax, and there are low tides and high tides in some parts of the sea. Likewise, in accordance with certain risings and settings of the stars, changes in the atmosphere and all sorts of turnings happen in the air – sometimes for the better, and other times pestilentially. (4) From which it's clear that the cosmos is some sort of unified body. (5) For in the case of conjoined or disparate things, the parts don't sympathize with each other.[13]

[12] On the definiteness of wholes, see Cherniss 1976, ad loc. On the distinction between wholes and sums, see Barnes 1988, 247–9 and Scade 2013, 87–92. Cf. Baltzly 2003, 21,

[13] ἐπεὶ οὖν καὶ ὁ κόσμος σῶμά ἐστιν, ἤτοι ἡνωμένον ἐστὶ σῶμα ἢ ἐκ συναπτομένων ἢ ἐκ διεστώτων. οὔτε δὲ ἐκ συναπτομένων οὔτε ἐκ διεστώτων, ὡς δείκνυμεν ἐκ τῶν περὶ αὐτὸν συμπαθειῶν. κατὰ γὰρ τὰς τῆς σελήνης αὐξήσεις καὶ φθίσεις πολλὰ τῶν τε ἐπιγείων ζῴων καὶ θαλασσίων φθίνει τε καὶ αὔξεται, ἀμπώτεις τε καὶ πλημμυρίδες περί τινα μέρη τῆς θαλάσσης γίνονται. ὡσαύτως δὲ καὶ κατά τινας τῶν ἀστέρων ἐπιτολὰς καὶ δύσεις μεταβολαὶ τοῦ περιέχοντος καὶ παμποίκιλοι περὶ τὸν ἀέρα τροπαὶ συμβαίνουσιν, ὁτὲ μὲν ἐπὶ τὸ κρεῖττον, ὁτὲ δὲ

The cosmos is a body. The Stoics present us with three options. Either it is a unified, compound, or dispersed body, according to E(1). Only unified bodies' parts are sympathetic to each other, according to E(2) and E(5). Therefore, the cosmos is a unified body. For its parts display sympathies – they undergo spontaneous and coordinated changes, described in E(3).

Earlier in this section of his treatise, Sextus names animals and plants as examples of unified bodies (*M* 9.78). The criterion for being a unified body is that it is "governed by a single *hexis*" (ὑπὸ μιᾶς ἕξεως κρατούμενα). Later, he explains that some unified bodies are held together by bare *hexis* (e.g., stones), others by nature (plants), and others by soul (animals; *M* 9.81).[14] These *hexeis* are volumes of pneuma – a substance somehow made of fire or air.[15] These volumes pervade unified bodies and coordinate their parts. This coordination results in sympathy. Thus compound artifacts like ships and dispersed bodies like armies are not unified. For they aren't governed by a single *hexis*, and thus their parts are not sufficiently coordinated to produce sympathy.

Reporting the Stoics' views, Plutarch tells us that the cosmos is a whole. He cites the fact that it is ordered and a definite object. Sextus tells us that the cosmos is a unified object. He cites the fact that its parts display sympathy. I propose that the original theory both sources are reporting is the following. The Stoics claim that "whole" is predicated of objects that are ordered

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λοιμικῶς. ἐξ ὧν συμφανές, ὅτι ἡνωμένον τι σῶμα καθέστηκεν ὁ κόσμος. ἐπὶ μὲν γὰρ τῶν ἐκ συναπτομένων ἢ διεστώτων οὐ συμπάσχει τὰ μέρη ἀλλήλοις …

[14] The original theory that Sextus reports seems to be the following. *Hexis* is a genus. Its species are bare *hexis*, nature, soul, and possibly rational soul. On this point, see Brennan 2015, 33–4 and n. 6 and n. 7.

[15] On *hexeis* being volumes of pneuma, see Galen, *Introductio seu medicus* 14.726,7–11 = SVF 2.716 = LS 47N; Plutarch, *De Stoic. Repug.* 1054b = SVF 2.449 = LS 47M. On pneuma being a compound of fire and air, see Alexander, *De Anima* 26,15–17 = SVF 2.786; *De Mixtione* 224,14-17 = SVF 2.442; 225,5-8 = SVF 2.310 = LS 47I; Galen, *De Plenitudine* 7.525,9–14 = SVF 2.439 = LS 47F; *PHP* 5.3,8 = SVF 2.841. Other passages sometimes suggest that pneuma might either be composed of air alone or is a disjunctive property of being composed by air *or* fire. On pneuma being made of air, see Plutarch, *De Stoic. Repug.* 1054a = SVF 2.449 = LS 47M; Stobaeus, *Ecl.* 1.153,24-154,3 = SVF 2.471. On pneuma being a disjunctive property, see Galen, *De Causis Continentibus* 1,3 = LS 55F and discussion by Sorabji 1988, 87. I examine these sources in Chapter Four.

such that their parts are sympathetic to each other. These are unified objects. Thus the wholes are discrete natural objects like the ordered cosmos, animals, plants, and probably inanimate things like rocks and logs. And this seems to square with Alexander's reports in Texts B and C that God is the cause of natural objects. When Diogenes calls the principles "of the wholes", he means that they generate unified natural objects.

This report agrees with a passage in Plutarch, which will also help us describe the passive principle's role more precisely.[16] Plutarch presents "the growing argument" and the Stoics' reply to it. He references Chrysippus just before at 1083a, so it seems that Chrysippus is the source of the reply. Plutarch says:

Text F: Plutarch, *De Comm. Not.* 1083b–d = SVF 2.762 = LS 28A

(1) For the argument is simple and these people [i.e., the Stoics] concede the premises: all particular substances flow and move, releasing some things from themselves and receiving other additional things from outside; the numbers or quantities to which certain things are added or subtracted do not endure but become other, and by the mentioned arrivals and departures there is a complete change of the given substance; (2) and it's not right that these changes are called "growings" and "decayings" by the prevailing custom, but rather it's fitting to name them "generations" and "destructions" because they make an established thing into another; but growing and diminishing are affections of an underlying and enduring body. (3) These claims being said and posited in something like this way, what do these defenders of the evident and standards of conceptions think? (4) That each of us is [a pair of] twins, double natured and twofold – not like the poets think

[16] In much of this section I follow Sedley 1982 and recent work by Sedley that he presented at a conference in Oxford in June 2015.

of the Molionidae, by some parts being unified and others separated – but that two bodies having the same color, shape, weight, and place are the same but nevertheless double, although they have been seen by no human being before. (5) But these men alone saw this combination, this doubling, this ambiguity that each of us is two subjects – the substance and the peculiarly qualified thing. (6) And the former is always flowing and moving, neither growing nor diminishing, nor enduring as it is at all, (7) while the latter endures, grows, diminishes, and undergoes all the opposite affects to the other, although it is united, compounded, and confounded [with it] and doesn't provide a grasp to sense perception of any difference [between them].[17]

The growing argument, reported in F(1), concludes that growth and decay are not possible, as reported in F(2). For if something is added or subtracted from a substance, then that particular substance is destroyed and another is generated. Chrysippus and the Stoics respond by positing that bodies are actually two bodies, according to F(4). And in F(5), Plutarch reports that the two bodies are substance and the peculiarly qualified thing. We have seen that "substance" is sometimes a synonym for "matter" in D(2). Peculiarly qualified things are particular natural

[17] ὁ μὲν γὰρ λόγος ἁπλοῦς ἐστι καὶ τὰ λήμματα συγχωροῦσιν οὗτοι· τὰς ἐν μέρει πάσας οὐσίας ῥεῖν καὶ φέρεσθαι, τὰ μὲν ἐξ αὐτῶν μεθιείσας τὰ δέ ποθεν ἐπιόντα προσδεχομένας· οἷς δὲ πρόσεισι καὶ ἄπεισιν ἀριθμοῖς ἢ πλήθεσι, ταὐτὰ μὴ διαμένειν ἀλλ' ἕτερα γίνεσθαι, ταῖς εἰρημέναις προσόδοις <καὶ ἀφόδοις> ἐξαλλαγὴν τῆς οὐσίας λαμβανούσης· αὐξήσεις δὲ καὶ φθίσεις οὐ κατὰ δίκην ὑπὸ συνηθείας ἐκνενικῆσθαι τὰς μεταβολὰς ταύτας λέγεσθαι, γενέσεις δὲ καὶ φθορὰς μᾶλλον αὐτὰς ὀνομάζεσθαι προσῆκον, ὅτι τοῦ καθεστῶτος εἰς ἕτερον ἐκβιβάζουσι· τὸ δ' αὔξεσθαι καὶ τὸ μειοῦσθαι πάθη σώματός ἐστιν ὑποκειμένου καὶ διαμένοντος. οὕτω δέ πως τούτων λεγομένων καὶ τιθεμένων, τί ἀξιοῦσιν οἱ πρόδικοι τῆς ἐναργείας οὗτοι καὶ κανόνες τῶν ἐννοιῶν; ἕκαστον ἡμῶν δίδυμον εἶναι καὶ διφυῆ καὶ διττόν – οὐχ ὥσπερ οἱ ποιηταὶ τοὺς Μολιονίδας οἴονται, τοῖς μὲν ἡνωμένους μέρεσι τοῖς δ' ἀποκρινομένους, ἀλλὰ δύο σώματα ταὐτὸν ἔχοντα χρῶμα, ταὐτὸν δὲ σχῆμα, ταὐτὸν δὲ βάρος καὶ τόπον <τὸν αὐτὸν ὅμως δὲ διπλᾶ καίπερ>* ὑπὸ μηδενὸς ἀνθρώπων ὁρώμενα πρότερον· ἀλλ' οὗτοι μόνοι εἶδον τὴν σύνθεσιν ταύτην καὶ διπλόην καὶ ἀμφιβολίαν, ὡς δύο ἡμῶν ἕκαστός ἐστιν ὑποκείμενα, τὸ μὲν οὐσία τὸ δὲ <ἰδίως ποιόν>**· καὶ τὸ μὲν ἀεὶ ῥεῖ καὶ φέρεται, μήτ' αὐξόμενον μήτε μειούμενον, μήθ' ὅλως οἷόν ἐστι διαμένον, τὸ δὲ διαμένει καὶ αὐξάνεται καὶ μειοῦται, καὶ πάντα πάσχει τἀναντία θατέρῳ, συμπεφυκὸς καὶ συνηρμοσμένον καὶ συγκεχυμένον καὶ τῆς διαφορᾶς τῇ αἰσθήσει μηδαμοῦ παρέχον ἅψασθαι.

* See Cherniss 1976, 850 n. 1. | ** Following Sedley.

objects like Socrates, *this* horse, *this* plant, and so on – wholes.[18] Each whole is actually two bodies: itself and its matter. What does this claim mean?

The two bodies share all of the same material bits. For, in F(4), Plutarch says they have the same "color, shape, weight, and place". Yet they have different properties, according to F(7).[19] According to the Stoics, the matter cannot survive any decay or growth. For a chunk of matter is essentially made up of a certain mass. However, the whole survives growth and decay. Socrates, for example, endures as he grows, although his matter undergoes several transformations. On the other hand, Socrates cannot survive death, but his matter endures. Therefore, although the matter and the whole share all of the same material bits, they are not identical.

Thus Plutarch describes a relation of *constitution* between matter and the wholes. [20] Constitution is a one-one relation between two bodies. These bodies share all of the same material bits and wholly occupy the same place. Yet the two bodies have different properties. Therefore, they are not identical. Furthermore, they are related in such a way that justifies existential "in virtue of" claims of the form "the wholes exist in virtue of matter". While accidental properties of matter might exist in virtue of the wholes it constitutes, matter itself does not exist in virtue of the wholes.[21]

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[18] Diogenes Laertius 7.58 = LS 33M; Syrianus, *in Met*. 28,18–19 = SVF 2.398 = LS 28G. See Armato 2005 for an argument that particular inanimate objects are not peculiarly qualified with which I disagree.

[19] That the Stoics held this view is confirmed by an Anonymous Academic treatise (Oxyrhynchus Papyrus 3008 = LS 28C).

[20] Throughout this section, I will assume that the constitution relation is instantiated, since Chrysippus believes it is instantiated. Many contemporary scholars do not think constitution is instantiated. See, e.g., Burke 1992 and 1994; Zimmerman 1995. A common objection to constitution now is the so-called "grounding problem". If two bodies share the same material bits, then what is available to explain why they have different properties? See Bennett 2004 for a clear overview of the grounding problem. For a clear presentation of the debates surrounding constitution, see Wasserman 2013.

[21] I discuss this in Chapter Five, after identifying the occupant of the passive principle's role.

Many contemporary philosophers use an example of a statue and a lump of clay or bronze to discuss constitution.[22] Imagine a statue made of clay. The statue is in the shape of a woman. Call the statue "Athena". Call the portion of clay out of which Athena is made "Clay". If Athena were squashed, she would be destroyed. However, Clay would remain. Because of this, many philosophers argue that Athena and Clay have different properties: Athena is essentially woman-shaped, while Clay is not; Clay is able to survive squashing, while Athena is not. Furthermore, Athena could have been made out of different atoms and molecules, but Clay could not. Since Athena and Clay have different properties, they are not identical.[23] They are bodies. Therefore, they are two distinct bodies. However, they share their material bits and occupy the same place.

This describes the relationship between matter and the wholes. Matter and the wholes share all of the same material bits. Yet the occupant of matter's role and the whole have different properties.[24] They are both bodies. (For I will argue in the following section that matter must be a body.) Therefore, they are distinct bodies occupying the same place.

The products of God's activity on matter are the wholes – unified natural objects. Matter constitutes these objects; God causes matter to constitute these objects, as an immanent efficient cause. These are the roles of the principles. For, as D(3) states, it's because God constructs the wholes out of matter that God and matter are the principles.[25]

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[22] Gibbard 1975 presents the classic account of this example and its philosophical import (although he does not think that constitution is instantiated).
[23] Baker 1997 and 2000; Johnston 1992; Wasserman 2002.
[24] Contra Sedley 2011, 66.
[25] Note that this understanding of the wholes entails that when God constructs the wholes, he thereby constructs all parts of the natural world. For everything in the natural world is either a unified body, a material division within a unified body, or made out of unified bodies. Consider an expanse of sky. This is not a whole, but it is a material division of the ordered cosmos. Thus God constructs this bit of the world when he constructs the world itself. Furthermore, all dispersed and conjoined bodies are made out of unified bodies. For example, a ship is made of discrete pieces of wood. Thus God's constructive activities provide the materials used to construct artifacts and

3. Causation and Constraints on the Occupants of the Principles' Roles

Consensus concerning what sorts of entities occupy the principles' roles has shifted over the past half-century. Scholars once maintained that they were incorporeal aspects of a single body.[26] Let's call this the "old orthodoxy". However, most scholars now maintain that the principles are two bodies. According to this "new orthodoxy", a complete metaphysical explanation of a natural object will make reference to two distinct things – an active body (God) and a passive body (matter).[27] In this section, I will argue that the roles of the principles can be construed according to the Stoic analysis of causation. Because of this, the new orthodoxy must be correct and the occupants of the principles' roles must be bodies.

Consider Sextus Empiricus's canonical analysis of Stoic causation:

Text G: Sextus Empiricus, *M* 9.211 = SVF 2.341 = LS 55B

(1) The Stoics say that every cause is body that is a cause to a body of something incorporeal. (2) For example, the knife – a body – [is a cause] to the flesh – a body – of the incorporeal predicate "being cut", and again, the fire – a body – [is a cause] to the wood – a body – of the incorporeal predicate "being burned".[28]

According to this passage, the Stoics analyze causal interactions using a three-place relation.[29] The first two relata are bodies, and the third relatum is an incorporeal predicate. One body is a

groups of natural objects. Thus there is still some sense in which we can say that God constructs "everything there is".

[26] Baltzly 2003; Lapidge 1973; 1978; Sandbach 1975; Todd 1978. Miller 2015 presents a defense of this view, without himself endorsing it.

[27] Cooper 2009; Frede 2005; Furley 1999; Gourinat 2009; Hahm 1977; Long and Sedley 1987; Reydams-Schils 1999; Salles 2015a; Sedley 1999; Vogt 2009; White 2003.

[28] οἱ Στωικοὶ μὲν πᾶν αἴτιον σῶμά φασι σώματι ἀσωμάτου τινὸς αἴτιον γίνεσθαι, οἷον σῶμα μὲν τὸ σμιλίον, σώματι δὲ τῇ σαρκί, ἀσωμάτου δὲ τοῦ τέμνεσθαι κατηγορήματος, καὶ πάλιν σῶμα μὲν τὸ πῦρ, σώματι δὲ τῷ ξύλῳ, ἀσωμάτου δὲ τοῦ καίεσθαι κατηγορήματος.

[29] Totschnig 2013, 122–4 argues that the Stoics think that causation is a relation between four things. He cites Clement as his evidence for this. Clement says, "Sometimes, things are said to be causes to each other of the same things, as the merchant and the retailer are causes to each other of 'making a profit'. But sometimes one thing is the cause of one thing and the other a cause of another, just as the knife and the flesh. For the knife is the cause to the

cause *to* another body *of* an incorporeal. I will draw on other sources to evaluate each relatum in the Stoic analysis of causation and describe the conditions under which a causal interaction takes place. According to Sextus, all causes are bodies. Multiple sources confirm this. Arius Didymus reports that "Zeno says that a cause is that because of which … And the cause is a body" (Stobaeus, *Ecl*. 1.138,14–15). He attributes this same view to Chrysippus (138,23–139,2). Aetius says "all causes are bodily" (*Plac*. 1.11,5 = SVF 2.340). The Stoics think that all causes are bodies.

According to G(2), it seems clear that causes must also do something to something else. That is, a cause affects something. The knife is a cause because it cuts the flesh, and the fire is a cause because it burns the wood. Causes are active, and their activity consists in affecting something else.[30] (Note that this does not imply that causes must change something else. A cause might be a cause of some continuing state in something else.)

Seneca confirms this. He says, "The Stoics believe that there is one cause: what acts" (*Epistulae Morales*, 65.4). Some think that Seneca means that there is a single token cause in the world – God. Katja Vogt 2009 endorses this interpretation when she says, "there is only one cause, the active principle" (39).[31] If the active principle is directly involved in every causal

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flesh of 'being cut', while the flesh is the cause to the knife of 'cutting'" (*Strom.* 8.9,30 = SVF 2.349 = LS 55D3). Totschnig infers from Clement's report that all causal relationships are tetradic relationships in which each body causes something else to the other one.
Totschnig's evidence does not support the generalization. Even if the flesh is also a cause to the knife, this does not entail that all causal relationships have that form. In fact, Clement qualifies this type of causal interaction by saying that it occurs "sometimes", and it's clear that Clement is discussing reciprocal causation as a special sort of causation in this passage. Furthermore, no other source suggests a tetradic relationship of the sort that falls out of Clement's account. So we should be skeptical of Clement's proposal that the flesh is the cause to the knife of "cutting". Finally, even if Totschnig is correct and all causal interactions can be construed tetradically, it seems that such a relationship could (and perhaps should) easily be reanalyzed into two triadic relationships. So we should reject Totschnig's claim that Stoic causation is tetradic.

[30] It seems that the Stoics' reasons for claiming that causes must affect something arise from an interest in determining responsibility. See Frede 1980, 225–29.

[31] Cf. Sedley 2002, 41; Bobzien 1999, 197.

interaction such that it takes the place of the first relatum in the analysis of every causal interaction, then this would be the correct interpretation of Seneca's statement.

But this is not the correct interpretation of this passage. Immediately after stating that the Stoics say that there is a single cause, Seneca presents Aristotle's fourfold division of causes (65.4–6), and then he presents an interpretation of Plato in which there is a fivefold division of causes (65.7–10). But these divisions are in terms of *types* of causes. Aristotle does not claim that there are only four causes in the world, but rather that there are four types of causes. Likewise, the Stoics do not claim that there is a single cause in the world, but a single type: active and efficient causes. So "there is one cause" means that there is a single *type* of cause; it does not mean that there is a single token cause in the world – the active principle.[32] The passage from Seneca confirms that causes must be active entities and that their activity consists in affecting something.[33]

The second relatum in the analysis of causal interactions is that to which the first relatum is a cause. It is denoted by using the dative case. According to Sextus, it is also a body. Cicero confirms this in his *Academica*. When the speaker Varro distinguishes Zeno from Xenocrates, he says that Zeno maintains that "neither what affects something nor what is affected is able to be an incorporeal" (1.39 = SVF 1.90 = LS 45A). Thus Cicero again confirms that the active entity (the first relatum) must be a body, and he confirms that the affected, or passive, entity must be a body. For the second relatum in the analysis from G(1) is an affected entity. At any rate, the flesh

[32] See Frede 1980, 228

[33] Note that the knife *per se* is not a cause. Rather, the knife is a cause when it does something to something else. That being said, the Stoics do not identify the knife doing something as the cause; they say that the knife itself is the cause. This reflects the fact that the Stoics do not identify *events* as causes and effects; they identify *things* as the relata of causal interactions, where things are either bodies or incorporeals. These things are the relata of causal interactions only when they stand in certain relations to other things, but the things themselves stand in those relations and not the things doing something. Thanks to Gail Fine for discussion.

is affected by the knife, and the wood is affected by the fire. Furthermore, since the cause must affect something, it seems that there must be a place in the analysis of causal interactions for something that gets affected. That place is the second relatum. So the second relatum is a body and passive, and its passivity consists in being affected by the first relatum.

Finally, the third relatum is not a body. It is an incorporeal predicate. Arius confirms this when he says "that of which [the cause] is a cause is a predicate" (Stobaeus, *Ecl.* 1.138,15–16). Predicates are contained within the class of incorporeal things called "sayables" (λεκτά), which are the meanings of words. Predicates are "what is said of something" (Diogenes Laertius, 7.64). Examples include "hears" (Ἀκούει), "to think" (Φρονεῖν), and "to sail through the rocks" (διὰ πέτρας πλεῖν). When predicates appropriately attach to subjects, they form "complete sayables" (αὐτοτελῆ λεκτά) and "propositions" (ἀξιώματα). The Stoics claim that propositions are capable of being true and false. Using Sextus's example, when one attaches the predicate "is cut" to the noun "the flesh" (which is another sayable), one forms the complete sayable and proposition "the flesh is cut", which can be true or false.

While discussing Zeno's position, Arius Didymus says the following:

Text H: Stobaeus, *Ecl.* 1.138,18–22 = SVF 1.89 = LS 55A

> A cause is that because of which something happens [γίνεται]. For example, "being prudent" happens because of prudence, "living" happens because of the soul, and "being moderate" because of moderation. For when moderation is present to someone, it's impossible that he is not moderate, or when the soul is present that he is not living, or when prudence is present that he is not prudent.[34]

[34] αἴτιόν ἐστι δι' ὃ γίνεταί τι, οἷον διὰ τὴν φρόνησιν γίνεται τὸ φρονεῖν καὶ διὰ τὴν ψυχὴν γίνεται τὸ ζῆν καὶ διὰ τὴν σωφροσύνην γίνεται τὸ σωφρονεῖν. ἀδύνατον γὰρ εἶναι σωφροσύνης περί τινα οὔσης μὴ σωφρονεῖν, ἢ ψυχῆς μὴ ζῆν, ἢ φρονήσεως μὴ φρονεῖν.

"Being prudent", "living", and "being moderate" are predicates. So they are candidates for being the third relata of causal analyses. Zeno uses three causal interactions to make his point that "it's impossible that the cause is present, while that of which it is a cause doesn't belong [ὑπάρχειν]" (Stobaeus, *Ecl*. I 138,16–17). For example, the soul is a cause to an animal's body of "living". And it's impossible that "living" – the predicate – doesn't belong to the body when the soul is present. So "living" happens and belongs to the body because of the soul; the soul affects the body in such a way that "living" comes to be truly predicated of it. Sextus's analysis confirms this structure. For the knife affects the flesh in such a way that "is cut" is truly predicated of the flesh, and the fire affects the wood in such a way that "is burned" is truly predicated of the wood. Or, in other words, "is cut" happens and belongs to the flesh because of the knife, and "is burned" happens and belongs to the wood because of the fire. If we generalize from these examples, causes affect bodies in such a way that predicates are truly predicated of them. These predicates are the third relata in causal interactions.

To summarize, the Stoics analyze the relata of causal interactions using a three-place relation. An active body affects a passive body such that an incorporeal predicate becomes truly predicated of the passive body.

From this analysis of the roles of the principles and the Stoic theory of causation, it follows that the old orthodoxy is false. For this interpretation claims that the principles are not bodies; rather, they are two incorporeal aspects of a single body. Yet the causal nature of the principles' roles entails that the occupants of those roles must be corporeal. For the evidence

suggests that one when one thing affects another, both are bodies. God affects matter. Therefore, the occupants of the principles' roles must be bodies.[35]

4. The Dilemma

The principles are two bodies that causally interact. As a result of their causal interaction, the natural world is generated. This interaction continues for as long as there are natural objects. Presumably, there will always be natural objects. So, one might conclude, God and matter are inseparable from each other.

This interpretation of the principles' relationship has become common. And for good reason. Many sources ascribe the claim that God and matter are inseparable to the Stoics. In this section, I will present and analyze these sources. However, I will also examine evidence that suggests that the Stoics thought the principles are *separable* from each other. To my knowledge, this latter body of evidence has not been examined in relation to the Stoic theory of principles. I will conclude this section by describing the interpretive dilemma that emerges.

Let's begin with the sources that suggest that the principles are inseparable from each other. Proclus says:

[35] At this point, a member of the old orthodoxy might retort: "Yes, the principles are corporeal, but they are *the same body*. One body acts as a cause to itself". For such a view, consider Baltzly 2003, 10 and Sorabji 1988, 93–8. Such a view seems coherent to me. Yet the burden of proof lies with the old orthodoxy at this point. For Texts A, B, C and other passages I have not discussed (such as Sextus Empiricus, *M* 9.75–6 = SVF 2.311 = 44C and Philo, *De opificio mundi* 8–9 = SVF 2.302), all seem to describe one thing (God) acting on another, distinct thing (matter). Thus we need some account of how an incorporeal aspect or description of a single body can be said to *act on* another aspect or description, and I am skeptical that such an account could be consistent with the Stoic analysis of causation. Sorabji 1988, 96–7 claims that a body *somehow disposed* can act on that same body. Thus he suggests that matter disposed (God) can act on matter. Yet this is a misuse of the Stoic category theory, which the Stoics did not seem to develop in order to explain how one body can act on itself (see Menn 1999 and Chapter Five, Section 4). For Sorabji's account would be analogous to claiming that the fist, which the Stoics claim is the hand somehow disposed, acts on the hand. But this is not a correct analysis. And while it seems perfectly acceptable to claim that a part of one body can act on another part of that same body, it's difficult to see how one whole body could act on itself *qua* one whole body.

Others have cited the principles' causal nature in refuting the old orthodoxy. See, e.g., Long and Sedley 1987, 1.273–4. Others have criticized the old orthodoxy for other reasons. See those cited in n. 27.

Text I: Proclus, *in Tim*. 1.266,25–267,4 = SVF 2.307

(1) The Epicureans deny that a craftsman exists and state that there is no cause of the universe at all. (2) The Stoics say that he exists, although he is inseparable [ἀχώριστον] from matter. (3) The Peripatetics state that a separated entity exists, but that it is a final rather than efficient cause … (4) Plato and the Pythagoreans, however, have celebrated the craftsman of the universe as separate and transcendent and founder of all things and the providence of the whole (trans. Runia and Share, slightly modified).[36]

Proclus distinguishes the ancient schools based on whether they posit a cause of the universe, and, if they do, whether they think that it is productive and separate. According to I(2), the Stoics claim that there is a productive cause of the universe, a "craftsman", but they claim that it is inseparable from matter.[37] According to the Stoics, the cause or craftsman of the universe is God. For, as we have seen, God's role is to be the efficient cause of all unified natural objects, including the cosmos itself. Therefore, according to Proclus, the Stoics think that God and matter are inseparable.

Both Syrianus and Alexander of Aphrodisias describe God and matter's relationship similarly. Syrianus says:

Text J: Syrianus, *in Met*. 8,2–6 = SVF 2.308

(1) Some physicists saw matter alone (meaning "water", "air", or "fire"); (2) among the others, some also admit a productive cause (3) (which is inseparable from matter), like

[36] οἱ μὲν γὰρ Ἐπικούρειοιοί καὶ πάντη τοῦ παντὸς αἴτιον οὐκ εἶναί φάσκοντες, οἱ δὲ ἀπὸ τῆς Στοᾶς εἶναι μέν, ἀχώριστον δὲ ὑφεστάναι τῆς ὕλης, οἱ δὲ Περιπατητικοὶ χωριστὸν μὲν εἶναί τι, ποιητικὸν δὲ οὐκ εἶναι, ἀλλὰ τελικόν· … Πλάτων δὲ καὶ οἱ Πυθαγόρειοι τὸν δημιουργὸν ὕμνησαν τοῦ παντὸς ὡς χωριστὸν καὶ ἐξῃρημένον καὶ πάντων ὑποστάτην καὶ πρόνοιαν τῶν ὅλων …

[37] "Inseparable" translates ἀχώριστον, which could also be translated non-modally as "unseparated" (see Smyth 1956, §472). In §4, I will argue that the Stoics do think that the principles are inseparable. Thus I adopt the modal translation, following Runia and Share.

the later Stoics, (4) but others before them admit a cause that is separate from matter, like Aristotle and Plato…[38]

According to J(2), the Stoics posit something beyond matter when explaining the natural world: a productive cause. According to J(3), this productive cause is inseparable from matter. As we have seen, other sources identify God as the productive cause in matter. Thus, assuming that God is the referent of "productive cause" for the Stoics, Syrianus suggests that God is inseparable from matter. Alexander says something similar:

Text K: Alexander of Aphrodisias, *in Met.* 178,15–19 = SVF 2.306

(1) But if there is also a per se cause beyond matter, Aristotle says it's necessary to examine something else as well: (2) whether this is separate from matter and subsists by itself (3) or whether it's in matter, of the sort which an enmattered form is, (4) and like God seems to the Stoics to also be a productive cause in matter.[39]

Alexander presents two conflicting options. Either the *per se* cause beyond matter is (a) separate from matter or (b) in matter. In K(4), he states that the Stoics accept (b). If (a) and (b) contrast completely, and (a) states that the cause is separate from matter, then presumably (b) implies that the cause and matter are not separate. So if the Stoics accept (b), they accept that God is not separate from matter, and Alexander lends support to the interpretation of the Stoics according to which God and matter are inseparable.

Finally, Calcidius also suggests that God and matter are inseparable. Reporting the Stoic position, he says:

[38] Τῶν φυσικῶν τὴν ὕλην μόνην ὁρώντων καὶ ταύτην ὕδωρ ἢ ἀέρα ἢ πῦρ εἶναι λεγόντων, ἄλλων δὲ καὶ ποιητικὴν μὲν αἰτίαν ἀπολειπόντων, ἀχώριστον δὲ ταύτην τῆς ὕλης, καθάπερ οἱ Στωϊκοὶ μὲν ὕστερον, ἄλλοι δέ τινες πρὸ αὐτῶν, τῶν δὲ χωριστὸν αἴτιον τῆς ὕλης ἀπολειπόντων, ὡς αὐτός τε καὶ Πλάτων …

[39] ἀλλ' εἰ καὶ ἔστι τι καθ' αὑτὸ αἴτιον παρὰ τὴν ὕλην, καὶ ἄλλο τί φησι δεῖν ἐπισκέψασθαι, πότερον τοῦτό ἐστι κεχωρισμένον ὕλης καὶ αὐτὸ καθ' αὑτὸ ὑφεστώς, ἢ ἐν τῇ ὕλῃ, ὁποῖόν ἐστι τὸ ἔνυλον εἶδος, καὶ ὡς τοῖς ἀπὸ τῆς Στοᾶς ἔδοξεν ὁ θεὸς καὶ τὸ ποιητικὸν αἴτιον ἐν τῇ ὕλῃ εἶναι.

Text L: Calcidius, *in Tim.* 294 = SVF 1.87

God is what matter is, or God is even an inseparable quality of matter.[40]

On the basis of Texts I, J, K, and L, many scholars have maintained that the principles are inseparable from each other.[41] Now I will examine sources that suggest an opposing interpretation: that the principles are separable from each other.

Matter constitutes natural objects. God is the immanent, efficient cause of these natural objects, acting on matter to shape it. According to the Stoics, this is a causal interaction. For they claim that whenever one body acts on and affects another, a causal interaction takes place. And since, as Alexander describes above, God continually acts on matter, God and matter continually causally interact. The Stoics also claim that causal interactions require physical contact.[42] Therefore, the principles make continual physical contact. When two bodies make continual physical contact, the Stoics would say that they are mixed.[43] Chrysippus puts forth a detailed chemical theory to account for the different types of mixtures in the world.[44] To summarize, he claims that mixtures come in three varieties: juxtaposition, fusion, and blending.

Juxtaposition should be familiar. Two or more bodies are juxtaposed when they are placed side by side, making surface contact with each other. They do not interpenetrate, and each

[40] deum scilicet hoc esse quod silua sit uel etiam qualitatem inseparabilem deum siluae.
[41] Collette-Dučić and Delcomminette 2006, 25; Hunt 1976, 18, 21; Lapidge 1973, 244; Mansfeld 1979, 161; Salles 2015a, 30–1 and 30 n. 30; Todd 1978, 139. Lapidge 1973, 244 also cites passages from Origen in support of this interpretation. See Origen, *De Oratione* 27.8 = SVF 2.318 and *in Evang. Ioannis* 13.21 = SVF 2.1054. Yet these passages do not seem to suggest that the principles are inseparable from each other.
[42] Plutarch, *De Comm. Not.* 1080f; Simplicius, *in Cat.*, 302,29–32 = SVF 2.342. See Sedley 1999, 385.
[43] Long and Sedley 1987, 1.273. Cf. White 2003, 132–3.
[44] The most complete presentations of the Stoic theory of mixture come from Alexander of Aphrodisias's *De Mixtione* and a fragment of the doxographer Arius Didymus's *Epitome of Physics* recorded by Stobaeus, 1.153,24–155,14 = SVF 2.471. See also Diogenes Laertius, 7.151 = SVF 2.479 = LS 48A; Philo, *De Confusione Linguarum* 184–7 = SVF 2.472; Plotinus, *Enn*. 2.7.1 = SVF 2.478; Plutarch, *De Comm. Not.* 1077e–1078e = SVF 2.465; 2.480 = LS 48B; 48E. For discussion of the Stoic theory of mixture see Collette- Dučić and Delcomminette 2006; Lewis 1988; Long and Sedley 1987, 1.290–4; Nolan 2006; Sandbach 1975, 75–6; Todd 1976; White 1982; 1986; 2003.

ingredient in the juxtaposition retains its structural integrity and own particular quality. The example often cited in our sources is a mixture of beans and grains of wheat.

Fusions are likely a bit less familiar. A fusion occurs when two or more bodies interpenetrate one another such that these bodies are destroyed and replaced by a new body, distinct from the precursors. Philo cites the fusion of pitch, wax, resin, and fat, each of which goes out of existence, replaced by a drug (*De Confusione Lingarum* 187 = SVF 2.472). We might also consider the mixture of eggs, sugar, butter, and flour, each of which goes out of existence and is replaced by a cake by means of a baking process; this might be a fusion, as well.[45]

Blends are the third type of mixture. Unlike fused things, blended ingredients remain after the blending process. Unlike juxtaposed things, the ingredients interpenetrate each other and completely coextend. Hence they occupy the same place, and both are actually present within the blend. Our sources describe many examples of blends – most commonly mixtures of water and wine and mixtures of soul and body. A volume of water and a volume of wine will completely interpenetrate each other, but both the wine and the water remain present in the mixture. Likewise for souls and bodies.[46]

Since the Stoics claim that God and matter are bodies that continually make contact, the principles must be mixed in one of these three ways.[47] The language that our sources use to

[45] Thanks to Karen Bennett for this example. See also Annas 1992, 47.
[46] On water and wine, see Alexander, *De Mixtione* 217,31–2 = SVF 2.473 = LS 48C9; Arius Didymus in Stobaeus, 1.155,8–11 = SVF 2.471 = LS 48D; Diogenes Laertius, 7.151 = SVF 2.479 = LS 48A; Philo, *De Confusione Linguarum* 186 = SVF 2.472; Plutarch *De Comm. Not.* 1078e = SVF 2.480 = LS48B. On soul and body, see Alexander, *De Mixtione* 217,32–6 = SVF 2.473 = LS 48C10; Arius Didymus in Stobaeus, 1.154,19–21 = SVF 2.471; Hierocles 4,4–10. Note that the Stoics think that the soul is corporeal.
[47] See Alexander, *De Mixtione* 225,1–2 = SVF 2.310 = LS 45H and discussion by Long and Sedley 1987, 1.273. On the relationship between the Stoic theory of mixture and the principles, see also Collette-Dučić and Delcomminette 2006, 24–5; Sellars 2006, 88–9.

describe how God is physically related to matter seems to exclude juxtaposition. For they describe God pervading matter. Consider Galen, who criticizes the Stoic theory of principles. He says:

Text M: Galen, *De Qualitatibus Incorporeis* 19.478 = SVF 2.323a

Nor do they say that Zeus is a composer like some sort of artisan, but rather that since he has totally gone through matter, God has become the craftsman of everything.[48]

Galen contrasts the Stoics' God, or Zeus, with an artisan. While the artisan is external to the materials that she works on, God totally pervades his materials. When an artisan makes contact with her materials, she becomes juxtaposed to them for some period of time. However, God makes contact with matter from within. In fact, he pervades the matter totally. This is confirmed by Alexander at B(1) when he says that God "pervades matter", and at C(1) when he says that God has gone through all of matter. Thus the language that our sources use to describe the physical relationship between God and matter seems to exclude the principles from merely being juxtaposed.

The remaining options are fusion and blending. It is difficult to understand how God and matter could be fused. For fused bodies are destroyed in the fusion process. But God and matter continually causally interact, which would be impossible if they were destroyed. Furthermore, Alexander compares God and matter's relationship with the relationship between a body and soul. He says:

[48] οὐδὲ γὰρ ποιητὴν εἶναί φασι καθάπερ τινὰ χειροτέχνην τὸν Δία, ἀλλ' ὅλον δι' ὅλης τῆς ὕλης διεληλυθότα πάντων δημιουργὸν γεγονέναι.

Text N: Alexander of Aphrodisias, *De Mixtione* 226,10–12 = SVF 2.1047

(1) Based on their statements, they seem to say that God is the form of matter. (2) For if, according to them, God is mixed with matter in such a way as, in animals, the soul is mixed with body, (3) and God is also the power of matter, … (4) then they might mean that God is somehow the form of matter.[49]

Alexander offers an interpretation of the Stoics, which he states in N(4): they think that God is the form of matter. This doesn't concern us. What's relevant is Alexander's evidence for this interpretation: the Stoics' statements, seemingly reported in N(2). The Stoics posit an analogy between God and matter on the one hand and soul and body on the other: God and matter are mixed in the same way that the soul and body are mixed. The Stoics say that souls and bodies are blended. Therefore, God and matter are blended as well.

At two other points, Alexander explicitly states that God and matter are blended. After criticizing the Stoics by arguing that natural objects are brought about by external causes, he asks, "If the things that are generated from matter are generated in this way [i.e. by external causes], how could God still be the cause by means of being mixed and blended with matter?" (*De Mixtione*, 226,6–8) Later, he infers from the Stoic claim that God goes through matter, and the claim that bodies that go through one another are blended, that, according to the Stoics, "God is blended with matter" (*De Mixtione* 226,33a). Thus Alexander explicitly states twice that God is blended with matter, and he ascribes an analogy to the Stoics that entails that God is blended with matter.[50] While it is possible that Alexander does not faithfully represent the Stoics, all of

[49] ἐοίκασι δὲ δι' ὧν λέγουσιν εἶδος τῆς ὕλης λέγειν τὸν θεόν. εἰ γὰρ οὕτως ὁ θεὸς μέμικται τῇ ὕλῃ κατ' αὐτούς, ὡς ἐν τοῖς ζῴοις ἡ ψυχὴ τῷ σώματι, καὶ ἡ δύναμις τῆς ὕλης ἐστὶ ὁ θεὸς … εἶδός πως ἂν λέγοιεν αὐτῆς τὸν θεόν.
[50] Contra Collette-Dučić and Delcomminette 2006, 24–5.

the evidence suggests that God and matter are blended and not juxtaposed or fused. Thus the Stoics likely maintained that the principles are blended.

Recall, the components of blends are actually present in them. Therefore, it is possible to separate blended bodies, according to the Stoics. For example, when one lowers an oiled sponge into a blend of water and wine, the Stoics say that the sponge will absorb the water and leave the wine – thus separating the blended components.[51] Similarly, when a human being dies, her soul physically separates from her body and exists on its own for a time.[52] Hence the Stoics maintain that "it is a defining characteristic [ἴδιον] of blended things that they are capable of being separated from each other again" (Alexander of Aphrodisias, *De Mixtione* 216,32–217,1 = SVF 2.473 = LS 48C4). The ability of blended components to separate distinguishes blends from fusions.

Since the ability to separate is a defining characteristic of blended things, and since God and matter are blended, God and matter must be able to separate from each other.[53] And here lies the interpretive dilemma. We have good textual evidence for thinking that the principles must be inseparable from each other. However, we have equally good evidence for thinking that they must be separable from each other. These claims appear to be inconsistent. Unless the Stoics put forth an inconsistent theory, we are left with a puzzle. How can the principles be both separable and inseparable?

[51] See Philo, *De Confusione Linguarum* 186 = SVF 2.472; Stobaeus, *Ecl.* 1.155,8–11 = SVF 2.471 = LS 48D. Cf. Sorabji 1988, 103 n. 101.
[52] See, e.g., Aetius, *Placita* 4.7,3 = SVF 2.810; Diogenes Laertius, 7.157 = SVF 2.811; Eusebius, *Praep. ev.* 15.20.4 = SVF 2.821; 15.20.6 = SVF 2.809 = LS 53W.
[53] Contrast this interpretation with Collette-Dučić and Delcomminette 2006, 25, who argue that because God and matter are bodies and *because they are inseparable*, they must be blended.

5. Resolving the Dilemma

To solve this dilemma, I will argue that the Stoics can consistently maintain that the principles are both separable and inseparable. Furthermore, I will argue that the resulting interpretation of the Stoics' physical theory is compelling and makes sense of the evidence surveyed in the previous section.

Recall the distinction between roles and occupants or realizers. The principles have particular roles within Stoic physics. One role is to efficiently cause natural objects, acting from within their matter. Another role is to constitute natural objects. There is no *a priori* connection between any particular type of body and these roles. Rather, different types of bodies will carry out these tasks in different physical contexts, if sufficiently different physical contexts ever arise.[54] In turn, a type of body that realizes God's role does not necessarily always realize that role. God may cease construction for a time. Thus we can talk of the *roles* of the principles and of the *occupants* or *realizers* of those roles.

I admit that this argument seems obviously sound to me. Throughout Section 2, I made many claims about the roles of the principles, without referencing any type of body that carries out those roles. No matter which physical theory the Stoics adopt, it seems likely that they and our sources sometimes talk about principles in terms of their roles and sometimes in terms of particular types of bodies that carry out those roles. Thus I will assume that we can analyze the Stoic theory of principles in terms of both roles and realizers.

Now I will make a semantic argument. Consider the Presidency of the United States. This is a constitutional role, occupied by one human being at a time. Like the role of pain and its

[54] This does not entail that sufficiently different physical contexts ever actually exist. As I will argue below, it might be the case that both principles' roles are always realized by the same type of bodies.

realizers, there is no essential connection between any given human being and his or her occupying the Presidency. Thus we can talk about the role independently of talking about the occupant of the role. Furthermore, we can talk about the occupant in two different ways, which I discussed in Chapter One. Consider the sentence "The President will select the next Supreme Court Justice". The phrase "The President" can be understood in two ways. It might refer to Barack Obama, the current occupant of the Presidency. Thus this sentence might be true or false. For, at the time when I write this, it is unclear whether Barack Obama will be able to nominate someone to fill a Supreme Court vacancy whom the United States Senate will confirm. If he fails to do so, the sentence is false. However, we can also understand "The President" to refer to *whoever* occupies the office of the Presidency. And then the sentence will be necessarily true, at least given certain assumptions about the continued existence of the United States and its Constitution. For whenever a Supreme Court nominee is successfully confirmed, he or she will be nominated by *someone* occupying the Presidency – Barack Obama or otherwise.

The upshot of this is that when there is some functional role, some occupant or occupants of that role, and the role and the occupants are distinct, certain ambiguities arise. The terms that refer to the occupants of the role can refer to some particular occupants at some particular time (that is, to the occupants *de re*) or to whatever occupies the role (that is, to the occupants *de dicto*).[55] We use the former understanding to make claims about realizers *per se* ("The President

[55] One might be tempted to assert that the same terms can refer to the *roles*, as well. For example, Bailey 2014, 265 suggests that the term "my watch" refers to an incorporeal description, somewhat akin to a causal role. I am unsure of this. For we seem to distinguish "the President" from "the Presidency", where the former refers to the occupant and the latter to the role. However, some functionalists argue that mental properties should be identified with particular causal roles and not the things realizing those roles. See discussion by Block 1980, defense by Melnyk 2003, and criticism by McLaughlin 2006. Perhaps, given this view, people within the functionalist debate would say that words referring to mental states, such as "pain", "belief", "desire", might refer to roles and might refer to realizers.

has two daughters"), and we use the latter referent to make claims about the realizers *qua* realizers ("The President can veto bills passed by the Legislative Branch").

Let's assume that the Stoic principles have roles. Let's also assume that the bodies that occupy those roles are distinct from the roles themselves.[56] It follows that the terms that refer to those bodies ("principles", "God", "matter") can refer *de re* or *de dicto* – that is, to particular occupants at particular times, or to *whatever* occupies the roles of the principles. Thus our sources can ascribe the following two claims to the Stoics consistently:

Inseparability: God and matter are inseparable from each other.

Separability: God and matter are separable from each other.

The Stoics accept *Inseparability* when "God" and "matter" refer to *whatever* occupies the principles roles. The Stoics accept *Separability* when the terms refer to some particular occupant at a particular time. How should we understand this? Perhaps the Stoics accept the following two claims:

Inseparability at a Time : Necessarily, for all bodies x and y, and for all times T, if x occupies God's role at T and y occupies matter's role at T, then x and y are conjoined (i.e. not separated) at T.

Separability Through Time: For all bodies x and y, and for some distinct times T1 and T2, if x occupies God's role at T1 and y occupies matter's role at T1, then it is possible that x and y are separated at T2.

[56] Where do these roles belong within Stoic ontology? Following Bailey 2014, I think we should say that they are incorporeal descriptions about bodies. Certain bodies come to stand in certain realization relations to these incorporeal descriptions – e.g., a certain volume of fire might realize God's role with respect to the cosmogony, and thus "efficiently causes this portion of matter to constitute the world" becomes truly predicated of that volume of fire. When it becomes truly predicated, that volume of fire occupies God's role. See discussion in Chapter One.

These two claims entail the following metaphysical and physical theory. Two bodies that are presently carrying out the principles' roles must be in contact with each other. For they must causally interact, and causal interaction requires contact. However, this does not entail that those two bodies cannot physically separate from each other. Granted, if they separate, they will cease carrying out the principles' roles. However, the bodies themselves can physically separate.

This is a plausible view. When I say "The President always lives in the White House", I do not make a claim about Barack Obama; I make a claim about *whoever* occupies the Presidency. Likewise, when I say "The President is a lawyer", I do not make a claim about anyone who occupies the Presidency; I claim something about the current occupant. A similar phenomenon occurs with respect to *Inseparability* and *Separability*. *Inseparability* makes a claim about conditions for occupying the principles' roles: any bodies actively carrying out the principles roles must be conjoined with another body. However, *Separability* makes a claim about particular bodies, independent of their functional status: those particular bodies can exist in physical isolation from each other. We can also represent this with the following two claims:

> *Inseparability de dicto*: Necessarily, for all bodies x and y, if x occupies God's role and y occupies matter's role, then x and y are conjoined.
>
> *Separability de re*: It's not the case that for all bodies x and y, if x occupies God's role and y occupies matter's role, then x and y are necessarily conjoined.

These claims entail the following metaphysical theory. The bodies that carry out the principles' roles are not essentially conjoined. When they carry out the principles' roles, they are by definition conjoined. But the bodies *per se* are independent, and they can exist in isolation from each other.

Note that both ways of fleshing out *Inseparability* and *Separability* are consistent with several different physical theories. The Stoics might think that several different types of bodies carry out both principles' roles. They might think that one of the principles' roles is carried out by different types of bodies, while another only has one occupant. They might think that both principles' roles are always carried out by a single type of body. Each of these is consistent with the combination of *Inseparability at a Time* and *Separability Through Time* and the combination of *Inseparability de dicto* and *Separability de re*. Thus adopting this interpretation of the Stoics does not require us to also adopt any particular account of the Stoic physical system.

The evidence from the previous section confirms this interpretation. The sources that suggest that the principles are inseparable refer to the principles *de dicto*. That is, they refer to whatever bodies happen to occupy the principles' roles, and they make claims about the realizers of the principles' roles *qua* realizers. Consider Text I. Proclus discusses the craftsman and cause of the universe. In I(3) and I(4), he states that the Peripatetics, Pythagoreans, and Plato think that such a cause exists, but that it's separate. His point is that these groups think that the craftsman can carry out his causal role without being in physical contact with the world. The Stoics, on the other hand, deny this. God *qua* productive cause must be in contact with matter. For causes and the things to which they are causes are necessarily in contact, when the causal interaction is taking place. God's role is construed causally: God is a cause to matter of its constituting the natural world. Thus Proclus refers to whatever is occupying God's role and not a specific type of body that occupies the role. Both Syrianus and Alexander in Texts J and K agree with this analysis.

Finally, let's consider Calcidius's report in Text L. He calls God an "inseparable quality" in matter. Qualities are causal entities, according to the Stoics. They cause objects to be

qualified.[57] Thus Calcidius's claim that God is inseparable from matter refers to God *qua* cause to matter. Whenever God is qualifying matter, he is conjoined with matter. For since qualification is a causal relation, it requires contact. Therefore, according to this evidence, the Stoics accept something like *Inseparability at a Time* or *Inseparability de dicto*.

In turn, the evidence that suggests that the Stoics accept *Separability* was extracted out of the claim that God and matter share a certain physical relationship. God pervades matter and blends with it. The Stoic laws of chemistry entail that any two bodies that instantiate such a relationship are separable. Thus the evidence seems to be talking about God and matter *qua* bodies instantiating a particular physical relationship. And whatever is true of such bodies can be understood independent of whether they also realize the functional roles of the principles. Therefore, the bodies that occupy the principles' roles are physically separable.[58] For other blended bodies are physically separable. Thus the evidence used to ascribe *Separability* to the Stoics seems to suggest that the Stoics accept something like *Separability Through Time* or *Separability de re*.

The new orthodoxy maintains that the principles are bodies. Members of the new orthodoxy can be divided into two denominations. Let's call the first "traditionalists". Traditionalists maintain that, although the principles are bodies, they are metaphysically

[57] See e.g., Galen, *De Constitutione Artis Medicae* 1.252,10–14 = SVF 2.405; Plutarch, *De Stoic. Repug.* 1054a = SVF 2.449. See Menn 1999, 219–23. See discussion in Chapter Five.

[58] Some have argued that the principles are merely separable in thought. See Hunt 1976, 21; Sedley 1999, 384. While I would agree that one can conceive of the bodies occupying the principles roles separately, I claim that this does not go far enough. The principles are physically separable according to the Stoic laws of chemistry, in addition to being conceptually separable. For every other blended pair is not merely conceptually separable; they are physically separable. For every other blended pair actually physically separates. There is no reason to suspect, in so far as they are blended, that the principles are anomalous in this regard.

inseparable from each other. That is, they are unable to exist in isolation from each other.[59] I have argued that this interpretation is incorrect. What follows from this?

Thus far I haven't speculated on the nature of the bodies that realize the principles' roles. However, the analysis from the previous section at least sets constraints on what sorts of bodies are able to do so. They must be capable of independent existence. And this is surprising. For many within the new orthodoxy have maintained that the bodies realizing the principles' roles are incapable of existing outside of their causal relationship. Essentially, scholars corporealize the roles of the principles in claiming that the God-body is *essentially* active or acting and the matter-body is *essentially* passive or acted-upon.[60] They claim that if the God-body had nothing to act on, it would cease to exist. And if the matter-body was not acted-upon, it would cease to exist.

If my argument from the previous section is sound, then this interpretation of the nature of the bodies that realize the principles roles is incorrect. If the body occupying God's role had nothing to act on, it would cease to occupy God's role. But the body itself would still exist. Likewise for matter. Therefore, we do not need to maintain that the principles are some sort of anomalous bodies, only capable of existing in conjunction with one another.

Let's consider the other denomination of the new orthodoxy: "reformists". Reformists maintain that the principles never actually separate.[61] This position is consistent with *Separability Through Time* and *Separability de re*. For even if the bodies occupying the

[59] See Collette-Dučić and Delcomminette 2006, 25; Hunt 1976, 18, 21; Scade 2010, 145; Salles 2015a, 30–1. See also Long and Sedley 1987, 1.278, who call God abstracted from matter "an impossibility". Though see 1.271, where they use non-modal language to describe God and matter's relationship.
[60] See Bénatouïl 2009, 29; Salles 2005, 67 n. 15.
[61] For interpretations in this vicinity, see Cooper 2009, 102; Frede 2005, 224; Gould 1970, 99; Hahm 1977, 33; Long and Sedley 1987, 1.278; Sedley 1999, 384. These scholars all use non-modal language to describe God and matter's relationship. Of course, they might also think that God and matter are inseparable, but they do not say so explicitly.

principles' roles are separable, they might never actually separate. And even if there is no essential connection between the principles, this does not entail that they are ever actually found in isolation.

In this dissertation, I will defend a version of the reformist view. However, arguing for this interpretation will require us to describe more of the Stoics' physical theory than we have at this point. Thus I delay my argument for the claim that the occupants of the principles' roles never separate until the final section of the final chapter. First, we need to discuss the elemental substances fire, air, water, and earth, their relations to the principles, and to the natural world.

Chapter Three: Elements

1. Introduction

In this chapter, I will examine the Stoic theory of "elements" (στοιχεῖα). To frame this discussion, I will develop and solve an interpretive dilemma. According to Diogenes Laertius, while the Stoics follow their predecessors in treating fire, air, water, and earth (hereby "FAWE") as elements, they also define "element" in such a way that excludes these substances. Either the Stoics put forth an inconsistent theory, or Diogenes has misrepresented their view somehow.

I will argue for the latter. Diogenes has oversimplified the Stoic theory, which produces an apparent contradiction. To see this, we must examine Chrysippus's elemental theory. To that end, I will analyze a fragment from Arius Didymus – a later Stoic who wrote treatises summarizing Peripatetic and Stoic ethics and physics.[1] In this fragment, which has been preserved in Stobaeus's *Eclogae*, Arius presents Chrysippus's account of the elements, which turns out to be more nuanced than Diogenes suggests.[2] Using this fragment, I will argue that the original Stoic theory is consistent, and Diogenes is responsible for the initial apparent contradiction.

In Section 2, I will examine the Stoics' definition of "element", as it is reported by Diogenes Laertius. I will develop the interpretive dilemma described above. In Section 3, I will describe my interpretive methodology for approaching the fragment from Arius Didymus. I will argue that he describes three elemental roles and three sets of occupants for those roles. I will

[1] See Diels 1879, 69–88; 447–472; Kahn 1983; Long 1983, 41–43; Sedley 2003, 32. The years in which Arius lived are uncertain. Most identify "Arius", the source of the fragments in Stobaeus and Eusebius, with Arius Didymus, a philosopher from Alexandria and member of Augustus's court. Others deny this. See, e.g. Göransson 1995, 203–26. In this paper, I will assume Arius is Arius Didymus and that he is the source of the fragment.

[2] The passage is from Stobaeus, *Eclogae*, 1.129,1–130,20 (Wachsmuth). SVF 2.413 reprints it, and Long and Sedley 1987, 1.280, 2.277–78 reprint and translate most of it. Recent analyses of the fragment include Cooper 2009 and Salles 2015a. For briefer discussions, see Diels 1899, 37–41; Gould 1970, 119–20; Hahm 1977, 246–7; 1985, 44; Lapidge 1973, 270–1; Long and Sedley 1987, 1.286–87, 2.278; Salles 2009a, 127–9.

argue that the first elemental role is that of a primary immanent component, which is occupied by fire, air, water, and earth. In Section 4, I will argue that the second elemental role is that of the original material out of which air, water, and earth condensed. This role is occupied by fire. In Section 5, I will argue that the third elemental role overlaps with God's role. Therefore, whatever occupies God's role, occupies the third elemental role. In Section 6, I will use this account to solve the initial interpretive dilemma. Finally, in Section 7, I will describe how the elemental roles fit into the Stoic physical system more broadly.

2. The Stoic Definition of "Element" and an Interpretive Problem

In his presentation of Stoic physics, Diogenes Laertius discusses the Stoic account of the elements. He says:

> **Text A: Diogenes Laertius, 7.136 = SVF 2.580 = LS 46B**
>
> (1) In the beginning, when [God] was by himself, he turned the whole substance through air into water. (2) And just as the seed is enveloped in the seminal fluid, so too he, the seminal reason of the cosmos, stays behind as such in the moisture, making matter malleable to himself with respect to the generation of the subsequent things. (3) Next, [God] first produces the four elements: fire, water, air, and earth. (4) Zeno talks about them in his *On the Whole*, Chrysippus in the first book of his *Physics*, and Archedemus in a book of his *On Elements*. (5) An element is the primary thing from which generated things are generated and the final thing into which they are resolved.[3]

Diogenes describes how the world is generated in A(1) and A(2). This is clear from A(1), which

[3] (1) κατ' ἀρχὰς μὲν οὖν καθ' αὑτὸν ὄντα τρέπειν τὴν πᾶσαν οὐσίαν δι' ἀέρος εἰς ὕδωρ· (2) καὶ ὥσπερ ἐν τῇ γονῇ τὸ σπέρμα περιέχεται, οὕτω δὲ καὶ τοῦτον, σπερματικὸν λόγον ὄντα τοῦ κόσμου, τοιοῦτο ὑπολείπεσθαι ἐν τῷ ὑγρῷ, εὐεργὸν αὑτῷ ποιοῦντα τὴν ὕλην πρὸς τὴν τῶν ἑξῆς γένεσιν· (3) εἶτ' ἀπογεννᾶν πρῶτον τὰ τέσσαρα στοιχεῖα, πῦρ, ὕδωρ, ἀέρα, γῆν. (4) λέγει δὲ περὶ αὐτῶν Ζήνων τ' ἐν τῷ Περὶ τοῦ ὅλου καὶ Χρύσιππος ἐν τῇ πρώτῃ τῶν Φυσικῶν καὶ Ἀρχέδημος ἔν τινι Περὶ στοιχείων. (5) ἔστι δὲ στοιχεῖον ἐξ οὗ πρώτου γίνεται τὰ γινόμενα καὶ εἰς ὃ ἔσχατον ἀναλύεται. (Text: Dorandi)

contains language that shows up in other cosmogonic passages.[4] A(5) expresses the Stoics' definition of "element", which Diogenes attributes to Zeno, Chrysippus, and Archedemus in A(4).[5] The definition states that an element is something that bears a relation to "generated things" (τὰ γινόμενα). Namely, generated things are generated from elements and they "are resolved" (ἀναλύεσθαι) into elements.

First let's discuss generation and resolution. According to the Stoics, things are generated when they come into existence. Things are destroyed when they stop existing. Resolution is the species of destruction in which the destroyed thing is replaced by something else. The Stoics do not think that bodies can be generated from nothing or destroyed into nothing. This is clear from Arius Didymus's report that "they rejected as unreal any destruction into or generation from what is not, as we said before" (Stobaeus, Eclogae 1.178,2–4, trans. Kidd modified).[6] Thus all destruction of bodies is resolution.

The definition also requires that an element is "primary" or "first" (πρῶτον) and "final" or "last" (ἔσχατον). This means that elements are not generated and do not resolve. Consider a transitive, finite series of generations. C is generated from B, B is generated from A, and A is ungenerated. While C is generated from B, B is not the first entity in the series. Thus it isn't basic enough to be an element. Since A is ungenerated, it is basic enough. It is primary in so far

[4] See Diogenes Laertius, 7.142 = SVF 2.581 = LS 46C (Text N, translated and discussed in Section 6); Plutarch, *Stoic. Repug.* 1053a = SVF 2.579; Stobaeus, *Ecl.* 1.152,19–153,6 = SVF 1.102. I discuss this aspect of the passage below in Section 6.

[5] I agree with Cooper 2009, 105 that this is a genuine Stoic definition. See also Salles 2015a, 3–6. Lapidge 1973, 263 argues that Diogenes has incorrectly attributed an Aristotelian definition of "element" to the Stoics (see *Metaph.* 1.3, 983b8–9). I agree with Cooper, against Lapidge, that the attribution at A(4) makes it likely that the early Stoics endorsed this definition.

[6] In this fragment, Arius continues by explaining that the later Stoic Posidonius identifies four types of generation out of something and destruction into something: "dismemberment" (διαίρεσις), "transmutation" (ἀλλοίωσις), "fusion" (σύγχυσις), and "resolution" or "dissolution" (ἀνάλυσις) (Stobaeus, *Eclogae* 1.178,4–6; see the attribution to Posidonius at 1.177,21–178,2). Chrysippus and Posidonius appear to have differed slightly in both their terminology and their theory of generation and destruction. For I will argue that Chrysippus posits three types of destruction or resolution.

as it grounds this series of generations. Therefore, it is an element. Therefore, elements are ungenerated. An analogous argument holds with respect to "final" and resolution. Therefore, elements must be unresolving. Let's call the requirement that the elements are primary and final in these ways the "Ultimacy Requirement".[7]

Ultimacy Requirement [UR] : Elements are ungenerated, and they do not resolve.

Thus we should analyze the definition of "element" in A(5) in the following way:

Definition of "Element" : ungenerated thing from which generated things are generated and unresolving thing into which generated things resolve.

An interpretive problem arises when we try to determine what satisfies this definition. In A(3) Diogenes calls FAWE "elements". So they should fit the definition and satisfy UR. The definition entails that elements are ungenerated. But A(3) also states that God "produces" (ἀπογεννᾶν) FAWE. If God produces FAWE, then they are generated. At least, in A(2), Diogenes says that God molds matter with an eye toward "the generation of the subsequent things" (ἡ τῶν ἑξῆς γένεσις). Immediately following this, in A(3), he says that God produces FAWE. This implies that FAWE are the subsequent things and that they are generated when God produces them. Therefore, according to Diogenes, FAWE are generated, they do not satisfy UR, and thus they cannot be elements.

The problem also applies to the second conjunct of UR. Prior to A, Diogenes describes how the Stoics distinguish "principles" (ἀρχαί) and elements. He says:

[7] Cooper 2009, Diels 1899, and Salles 2015a do not analyze "primary" or "final" in their accounts of the definition. Comments made by Cooper might suggest that he thinks the words are context sensitive (see 2009, 107 n. 30). I will ultimately agree that "primary" and "final" are context sensitive, although Cooper and I disagree on the nature of the context. See my account in Section 3.

Text B: Diogenes Laertius, 7.134 = SVF 2.299 = LS 44B

(1) They say that the principles and the elements differ. (2) For the former are ungenerated and undestroyed, while the elements are destroyed during the conflagration.[8]

During a period called the "conflagration", the elements are destroyed.[9] Let's assume that "elements" refers to FAWE. Thus Diogenes states that FAWE are destroyed. Since the Stoics think that all destruction is resolution, FAWE resolve. But according to UR, elements do not resolve. Thus, again, FAWE do not satisfy UR, and they do not fit the definition of "element".[10]

We are left with an interpretive dilemma. On the one hand, the Stoics claim that FAWE are elements. On the other hand, these four substances don't satisfy UR, and thus they don't fit the Stoic definition of "element". Because they are generated and resolve, they are not basic enough to be elemental.[11]

One could object. In B(2), Diogenes says that the elements are destroyed. In A(3), he says that they are produced and thus generated. Thus there must be a way to understand A(5) such that "primary" and "final" are somehow relative or context sensitive. FAWE do not need to be ungenerated and undestroyed *absolutely*; they only need to be more basic than the generated things that they generate. To suppose otherwise is to read Diogenes unfairly.[12]

Ultimately, I will agree. There must be a way to understand "primary" and "final"

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[8] (1) διαφέρειν δέ φασιν ἀρχὰς καὶ στοιχεῖα· τὰς μὲν γὰρ εἶναι ἀγενήτους καὶ ἀφθάρτους, (2) τὰ δὲ στοιχεῖα κατὰ τὴν ἐκπύρωσιν φθείρεσθαι.

[9] I discuss the conflagration in Sections 4 and 6.

[10] I assume that "elements" refers to FAWE here, in accordance with how Diogenes often uses the term. However, even if we assume that "elements" refers to some other group of substances, the problem still arises. For he calls *these* substances elements, while also maintaining that they are destroyed.

[11] White 2003, 135 mentions a different version of this problem (see also Sandbach 1975, 72). Token portions of FAWE are mutable. For example, some portion of air can totally transform into a portion of water. Thus one could argue that the elements are not immutable and therefore not truly elemental. This version of the problem assumes that if a portion of fire, air, water, or earth can resolve, then that type of substance is not elemental. However, another option is that if *all* portions of fire, air, water, or earth resolve, then that type of substance is not elemental. I will assume this latter claim in this paper rather than the former.

[12] I thank an anonymous reviewer for raising this objection.

relatively such that FAWE do not need to be absolutely ungenerated and undestroyed. However, note that Diogenes does not describe what FAWE's basicness is relative *to*. In Text A and its immediate context, he does not talk about the way in which FAWE generate generated things,[13] and he does not discuss how FAWE are more basic than the things that they generate except to say that they are "primary" and "final". Since Diogenes only discusses generation and resolution *simpliciter*, these are the only processes to which FAWE's basicness might be relative.

While I agree that the original *Stoic* view was likely consistent, *Diogenes*' text appears inconsistent. My claim is that, given the information Diogenes has provided, the interpretive dilemma developed above emerges naturally and we must look to other texts to understand how "primary" and "final" can be understood relatively within the Stoic physical system.

3. Composition, Dissolution, and the First Type of Element

The strategy for resolving this interpretive dilemma comes in two steps. First, I will examine Chrysippus's elemental theory and show that he posits three types of element. Given this, I will reinterpret the definition of "element" and UR and argue that Diogenes oversimplifies Chrysippus's theory of elements.

Let's turn to Arius Didymus's report.[14] In this fragment, Arius says, "according to Chrysippus, 'element' is said in three ways" (Stobaeus, *Ecl*. 1.130,1–2). Here is an uncontroversial summary of the fragment. Arius describes three sets of entities that Chrysippus calls "elements". He explicitly identifies two of those sets; he only implicitly identifies the third.[15]

[13] In 7.142 Diogenes says that FAWE generate plants and animals by mixing. See n. 24 below. I use this claim in Section 3 to support the conclusion that FAWE *compose* complex objects while they themselves are *uncomposed*. It is in this sense that FAWE are "primary".
[14] I follow Diels 1879, 458–9 in attributing this passage to Arius. I will assume that Arius is the author from which Stobaeus copies his text, and I will use phrases like "Arius says" instead of "Stobaeus says".
[15] These sets do not necessarily include distinct members. The sets might be at least partially coextensive.

Here is a more controversial summary of the fragment. Arius describes three ways that bodies can satisfy the Stoic definition of "element", according to Chrysippus. For Chrysippus thinks that generation and resolution are genera with three species each. Recall, elements and generated things are related by generation and resolution. Because there are three types of generation and resolution, there are three ways that elements and generated things can be related. In his report, Arius describes these species of generation and resolution, he determines what group of generated things is generated and resolved in accordance with each pair,[16] he explicitly identifies two sets of elements, and he implicitly identifies the third set.[17]

An element and a group of generated things are related by generation and resolution. Thus we can posit elemental roles in a framework used to explain how things are generated and destroyed; the occupants of these roles are called "elements". Since, as I will argue, Chrysippus posits three species of generation and resolution, he also posits three elemental roles and three sets of bodies that occupy those roles. These roles specify the type of generation and resolution by which the elements are related to generated things, and the occupants instantiate those relations. Arius describes these roles, and then he identifies their occupants. About Chrysippus's first elemental role, Arius says:

[16] Each species of generation is correlated with one species of resolution. For Chrysippus thinks that generation and resolution are symmetrical, related processes. Thus he posits three *pairs* of generation and resolution; he does not mix and match one species of generation with each species of resolution and vice versa.

[17] I will briefly note some alternative frameworks for interpreting this fragment. Cooper 2009 argues that Arius presents three "applications of the term ['element']" (93). By this, he means that Chrysippus puts forth three different sets of referents of the term "element", but each set satisfies the definition in the same way (see 2009, 107 n. 30). Diels 1899, 37–41 claims that Arius puts forth six definitions of the term "element", and that the definition from A(5) "deckt sich" (40) with Chrysippus's first two definitions in Arius's report. For criticism of this interpretation, see Cooper 2009, 94 n. 6 and Lapidge 1973, 271 n. 160. Salles 2015a, 5–6 argues that Arius presents three "sentidos del término 'elemento'" (5) that share a common necessary condition, which A(5) describes. Long and Sedley 1987, 2.278 also state that Arius presents three senses of "element", though they do not comment on the relation between these senses and A(5). I assume that both Salles and Long and Sedley think that Arius presents three distinct meanings of the term "element", which might be independent from one another. Contrast this with my view: I think that Arius presents three ways in which bodies can satisfy a single definition of the term "element".

Text C: Stobaeus, *Ecl.* 1.129,2–7[18]

[Chrysippus] states something like this concerning the elements out of substance, while following the leader of the school Zeno, in saying that there are four elements out of which everything – animals, plants, the whole cosmos, and the things contained in it – is composed and that they are dissolved into these.[19]

This passage describes a relationship between a group of generated things and four elements. It states that complex objects like animals, plants, and the cosmos are composed out of and dissolve into four elements. Arius later identifies FAWE as the occupants of this role:

Text D: Stobaeus, *Ecl.* 1.130,4–10

(1) And ["element"] is said in accordance with another [way], according to which the four elements – fire, air, water, and earth – are so called, (2) since through these – one of them, some, or all – the remaining are composed: (3) sometimes through all four, as in the case of animals and all of the composites on the earth, (4) sometimes through two, as the moon is composed through fire and air, (5) and sometimes through one, as with the sun. (6) For the sun [is composed] through fire alone because the sun is pure fire.[20]

According to these passages, complex objects are composed out of FAWE and they dissolve into FAWE.[21] FAWE are called "elements" on this basis. For D(2) says it is "since" (ἐπεί) they compose complex objects that they are called "elements". According to A(4), Chrysippus

[18] I will use the text from Wachsmuth 1884, noting any changes that I make.

[19] Περὶ δὲ τῶν ἐκ τῆς οὐσίας στοιχείων τοιαῦτά τινα ἀποφαίνεται, τῷ τῆς αἱρέσεως ἡγεμόνι Ζήνωνι κατακολουθῶν, τέτταρα λέγων εἶναι στοιχεῖα <ἐξ ὧν συνίστασθαι πάντα καὶ ζῷα>* καὶ φυτὰ καὶ τὸν ὅλον κόσμον καὶ τὰ ἐν αὐτῷ περιεχόμενα καὶ εἰς ταῦτα διαλύεσθαι. (*I adopt only part of an addition proposed by Diels.)

[20] (1) καθ' ἕτερον δέ, καθὸ λέγεται τὰ τέσσαρα στοιχεῖα, πῦρ, ἀήρ, ὕδωρ, γῆ, (2) ἐπεὶ διὰ τούτων τινὸς ἢ τινῶν ἢ καὶ πάντων τὰ λοιπὰ συνέστηκε, (3) διὰ μὲν τῶν τεττάρων, ὡς τὰ ζῷα καὶ τὰ ἐπὶ γῆς πάντα συγκρίματα, (4) διὰ δυοῖν δέ, ὡς ἡ σελήνη διὰ πυρὸς καὶ ἀέρος συνέστηκε, (5) δι' ἑνὸς δέ, ὡς ὁ ἥλιος, (6) διὰ πυρὸς γὰρ μόνου, ὁ γὰρ ἥλιος πῦρ ἐστιν εἰλικρινές·

[21] In Test D, Arius uses the construction "is composed through" (συνεστηκέναι διὰ) rather than "is composed out of" (συνίστασθαι ἐκ). Despite the change in verb forms and prepositions, the meanings of the phrases are the same. On the material use of διά, see *LSJ* s.v. διά A.III.2.

endorses the definition of "element" in A(5). So Texts C and D should describe how some group of things is generated from and resolves into FAWE. It seems clear that the relevant generated things are complex objects, that they are generated out of FAWE by means of composition, and that they will resolve into FAWE by means of dissolution. Pseudo-Justin confirms this:

Text E: Pseudo-Justin, *De Resurrectione* 592a = SVF 2.414

(1) Moreover, according to the Stoics, since the body is generated out of a blend of the four elements, (2) and into the four it will dissolve, while the elements remain undestroyed, (3) it is possible that the four elements, taking the same mixture and blend from God extending through them, will make the body that they made before.[22]

According to E(1), the Stoics say that a body is generated when FAWE form a blend. "Blend" (κρᾶσις) refers to a particular sort of mixture. It occurs when two or more bodies completely coextend but remain present together in the mixture they form.[23] Thus blended bodies are immanent within the mixtures they form. According to Pseudo-Justin, the Stoics think that certain bodies are generated when FAWE blend. Therefore, FAWE are the immanent components of these bodies, and composition is type of generation.[24]

Dissolution occurs when something breaks down into its components. In E(2) Pseudo-

[22] (1) Ἀλλὰ μὴν κατὰ τοὺς Στωϊκούς, ἐκ τῆς τῶν τεσσάρων στοιχείων κράσεως γινομένου τοῦ σώματος, (2) καί διαλυομένου τούτου εἰς τὰ τέσσαρα, παραμενόντων τούτων ἀφθάρτων, (3) δυνατόν ἐστι πάλιν τὰ τέσσαρα στοιχεῖα, τὴν αὐτὴν μῖξιν καὶ κρᾶσιν λαβόντα ἀπὸ τοῦ διήκοντος δι' αὐτῶν θεοῦ, ποιῆσαι ὃ πρότερον πεποιήκει σῶμα· (Text: SVF)

[23] This distinguishes blending from two other types of mixture: juxtaposition and fusion. Juxtaposed bodies do not completely coextend; they only make surface contact. Fused bodies coextend, but they are destroyed in the process. The following sources provide evidence for Chrysippus's theory of blending and mixture: Alexander of Aphrodisias, *De Mixtione* 216,1–228,4; Arius Didymus in Stobaeus, *Ecl*, 1.153,24–155,14 = SVF 2.471; Diogenes Laertius, 7.151 = SVF 2.479 = LS 48A; Philo, *De Confusione Linguarum* 184–7 = SVF 2.472; Plotinus, *Enn*. 2.7.1 = SVF 2.478; Plutarch, *De Comm. Not*. 1077e–1078e = SVF 2.465; 2.480 = LS 48B; 48E. For discussion of the Stoic theory of mixture see Collette- Dučić and Delcomminette 2006; Lewis 1988; Long and Sedley 1987, 1.290–4; Nolan 2006; Sandbach 1975, 75–6; Todd 1976; White 1982; 1986; 2003.

[24] See Diogenes Laertius, 7.142: "Next, plants, animals, and the other genera [are produced] by a mixture out of [fire, air, water, and earth]" (εἶτα κατὰ μίξιν ἐκ τούτων φυτά τε καὶ ζῷα καὶ τὰ ἄλλα γένη). Diogenes confirms that complex objects are generated by FAWE mixing. E(1) specifies the type of mixture.

Justin says that a body dissolves into FAWE, while FAWE are undestroyed. This implies that dissolution is a form of destruction. As we know, the Stoics say that all destruction of bodies is resolution. Therefore, dissolution is a form of resolution, and FAWE do not dissolve.

Thus FAWE satisfy one part of the definition of "element": a group of generated things is generated from them and resolves into them. Do FAWE also satisfy UR? Are they ungenerated and unresolving?

We should modify UR. It requires that FAWE are ungenerated and unresolving *simpliciter*. However, since Chrysippus thinks that there are different types of generation and resolution,[25] we ought to make UR relative to these types.[26] Consider UR*:

Ultimacy Requirement* [UR*] : Elements are ungenerated according to the species of generation by which generated things are generated from them, and they do not resolve according to the species of resolution by which generated things resolve into them.

UR* requires elements to ground series of generations and resolutions. Different generative and

[25] At this point, I have only argued that Chrysippus posits one pair of generation and resolution: composition and dissolution. In the following section, I will argue that he posits another pair: condensation and diffusion. These two pairs are distinct. Thus Chrysippus posits multiple types of generation and resolution. For the moment, I will assume that this analysis is correct, in order to justify the modification of UR.

[26] If we do not modify our understanding of the definition of "element", explanations of how certain objects are generated and resolved will not be valid. Here is my argument for this claim. Chrysippus thinks that if such explanations are valid, then the processes of generation and resolution referenced by them must be grounded by elements. The current definition of "element" requires elements to be ungenerated and unresolving simpliciter. Therefore, some of the primary components of complex objects like animals and plants will not be elements. For they are generated by means of condensation and resolved by means of diffusion, as I will argue in the next section. Objects like animals and plants are related to primary components by composition, these primary components are related to an elemental substance by condensation, but condensation and composition are not intertransitive. (Two relations R1 and R2, which are species of a generic relation R, are intertransitive iff for three entities x, y, and z, if xR1y and yR2z, then xRz.) Therefore, animals and plants will not be related to truly elemental substances, and their generation will not be grounded by elements. Therefore, explanations of how objects like animals and plants are generated by means of composition won't be valid. But Chrysippus thinks that they are valid. Therefore, we need to understand UR in a different way.

resolutional processes might have different foundations. UR* captures this thought. If this is what Chrysippus means by calling elements "primary" and "final" in A(5), then it's possible for things to be elements even if they are not ungenerated and unresolving *simpliciter*. However, they must be ungenerated and unresolving by the species of generation and resolution according to which they are foundational. This is the sense in which elemental substances remain basic in some way.

Composition is a species of generation, and dissolution is a species of resolution. Complex objects are composed out of FAWE, and they dissolve into FAWE. According to UR*, if FAWE are elements, they must be uncomposed and undissolving. Are FAWE uncomposed and undissolving?

They are. "Uncomposed" and "undissolving" here mean "uncomposed by anything different in form" and "undissolving into anything different in form". Chrysippus follows Aristotle on this point. For Aristotle does not say that elements are indivisible *simpliciter*; he says that they are indivisible into other kinds.[27] For example, a portion of fire only divides into further portions of fire and nothing else. Chrysippus endorses this view. FAWE are the basic qualitative bodies within Stoic physics; they are homogeneous.[28] Thus any division of FAWE only yields FAWE.

According to Chrysippus, FAWE are not composed out of anything different in form.

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[27] This condition is built into Aristotle's definitions of "element" at *De Caelo*, 302a15–18 and *Metaph*. 5.3, 1014a26–7. A report from Arius Didymus confirms that Chrysippus denies that composition is a relation between a body and all of its material divisions. He claims that bodies are infinitely divisible. However, he denies that bodies have an infinite number of parts (Stobaeus, *Ecl*. 1.142,2–3 = SVF 2.482 = LS 50A). If he thought that bodies were composed by all of their material divisions, he would claim that bodies have an infinite number of parts. Therefore, he doesn't think that bodies are composed of all of their material divisions. Instead, Chrysippus thinks that composition is a relation between qualitative units and a whole (see Barnes 1988; Scade 2013, 88–92). FAWE are the basic qualitative units within Stoic physics.

[28] See Diogenes Laertius, 7.137 = SVF 2.580 = LS 47B.

Therefore, they cannot be dissolved into anything different in form. They satisfy UR* and the definition of "element", when we take composition and dissolution to be the relevant species of generation and resolution.

4. Condensation, Diffusion, and the Second Type of Element

Chrysippus posits three species of generation and resolution. Therefore, he also posits three elemental roles and three sets of bodies that occupy those roles. I have shown that FAWE occupy the first elemental role. Now I will argue that fire alone occupies the second elemental role, and that air, water, and earth are generated from fire and resolve into it.

Before proving this, I will explain why Chrysippus needs this second type of element. The Stoics think that the world cycles between two distinct periods. During one period, called a "conflagration", only fire exists.[29] During another period, called a "cosmic order", FAWE exist – as well as the complex bodies built out of these. Because the world alternates between these periods, and because the Stoics prohibit generation out of nothing and into nothing, they must posit processes of change by which air, water, and earth are generated from fire and resolve into fire.

Consider the processes of condensation and diffusion. Less dense substances condense into denser substances. Denser substances diffuse into less dense substances. Several sources confirm that FAWE have different densities relative to one another: fire is the least dense, then air, then water, and earth is the densest.[30] Thus they change into each other by means of

[29] On the Stoic theory of the conflagration, see Cicero, *De Natura Deorum* 2.118 = SVF 2.593; Eusebius, *Praep. ev.* 15.14.2 = SVF 1.98 = LS 46G; 15.18.1–3 = SVF 2.596 = LS 46K; 15.19.1 = SVF 2.599; Philo, *De aeternitate mundi* 90 = SVF 1.511 = LS 46M; 94 = SVF 2.618; *De Specialibus Legibus* 1.208 = SVF 2.616; Plutarch, *Stoic. Repug.* 1053b = SVF 2.605 = LS 46F; Stobaeus, *Ecl.* 1.171,2–7 = SVF 2.596. See discussion by Furley 1999; Long 1985; Mansfeld 1979; Salles 2005. On the cosmic order, see Aetius 2.4.13 = SVF 2.597; Diogenes Laertius, 7.155 = SVF 2.558, 651.

[30] Hahm 1985, 42–7 offers a clear and persuasive argument for this claim while gathering evidence from various sources. See also Long and Sedley 1987, 1.287.

condensation and diffusion. Galen confirms this when he says that the Stoics "ascribe the change of even the elements themselves into each other to certain diffusions and compressions" (*De Nat. Fac.* 1.3,8 = SVF 2.406 = LS 47E).[31]

Air, water, and earth are generated from fire and resolve into fire by means of condensation and diffusion. Fire is ungenerated and unresolving according to these processes. Arius Didymus confirms this in his presentation of Chrysippus's elemental theory. About the second elemental role, Arius says:

> **Text F: Stobaeus, *Eclogae* 1.129,7–11**
>
> The element *par excellence* is so called because of the fact that from it, the first thing, the remaining are composed by a change and into it, the last thing, they all dissolve by diffusing. But this [i.e. the element *par excellence*] does not admit of diffusion [χύσιν] or resolution [ἀνάλυσιν] into something else.[32]

Before Text F, Arius has just described the first elemental role in Text C. In Text C, he stated that there are four occupants of that role. In Text F, he picks out one of these four and calls it the "element *par excellence*" (τὸ κατ' ἐξοχὴν στοιχεῖον). He calls the other three "the remaining" (τὰ λοιπὰ). While all four of these substances occupy the first elemental role, only one occupies the second. According to Chrysippus, the remaining are "composed by a change" (συνίστασθαι κατὰ μεταβολὴν) and "dissolve by diffusing" (χεόμενα διαλύεσθαι) into the element *par excellence*.

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[31] "Compression" (πίλησις) and "compress" (πιλεῖν) are not the same words as "condensation" (σύστασις) and "compose" or "condense" (συνίστασθαι), However, they seem to refer to the same process by which less dense substances change into denser substances.

[32] τὸ δὲ* κατ' ἐξοχὴν στοιχεῖον λέγεσθαι διὰ τὸ ἐξ αὐτοῦ πρώτου τὰ λοιπὰ συνίστασθαι κατὰ μεταβολὴν καὶ εἰς αὐτὸ ἔσχατον πάντα χεόμενα διαλύεσθαι, τοῦτο δὲ μὴ ἐπιδέχεσθαι τὴν εἰς ἄλλο χύσιν ἢ ἀνάλυσιν· (*Wachsmuth prints <πῦρ καὶ> after δὲ. This distorts the structure of the fragment. See Long and Sedley 1987, 2.278 n. 5. [Note: I do not accept all of an earlier emendation by Diels in Text C for similar reasons, though Long and Sedley do not discuss that emendation. See n. 19.])

"Compose by a change" refers to condensation, and "dissolve by diffusion" refers to diffusion.[33] This is clear from what follows:

Text G: Stobaeus, *Eclogae* 1.129,15–23

(1) According to this account, fire is called an "element" independently. (2) For it is not with another. (3) According to the prior account it is compositional with others, (4) since the first change comes about from fire by condensation into air, the second from [air] into water, and the third by proportion even further when water condenses into earth. (5) In turn, the first diffusion occurs when this dissolves and diffuses into water, the second from water into air, and the third and last into fire.[34]

In G(1) and G(2), Arius states that fire is the sole element in accordance with "this account". This refers to the second elemental role. In G(3), fire is one element among many in accordance with "the prior account". This refers to the first elemental role according to which FAWE compose complex objects and receive their dissolution. Then in G(4) and G(5), he describes two processes of change: condensation and diffusion.[35]

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[33] One might question why Arius uses the word "compose" to refer to condensation when he earlier used it to refer to immanent composition. συνίστημι is more ambiguous than the English word "compose". It could describe the relation that parts have to a whole (*LSJ* s.v. συνίστημι B.IV), the process by which a creator puts something together (A.III), or the solidifying and condensing sort of change that I am calling "condensation" (B.V). Arius or Chrysippus seems to be playing on the ambiguity of the term to posit multiple types of element, which are all defined in terms of a sort of "composition". Just as they are all στοιχεῖα, so too they all συνίστασθαι in some way. I have tried to remain consistent by translating all forms of συνίστημι with "compose" to highlight the pun.

[34] (1) κατὰ μὲν τὸν λόγον τοῦτον αὐτοτελῶς λεγομένου τοῦ πυρὸς στοιχείου, (2) οὐ μετ' ἄλλου γάρ· (3) κατὰ δὲ τὸν πρότερον καὶ μετ' ἄλλων συστατικὸν εἶναι, (4) πρώτης μὲν γιγνομένης τῆς ἐκ πυρὸς κατὰ σύστασιν εἰς ἀέρα μεταβολῆς, δευτέρας δ' ἀπὸ τούτου εἰς ὕδωρ, τρίτης δ' ἔτι μᾶλλον κατὰ τὸ ἀνάλογον συνισταμένου τοῦ ὕδατος εἰς γῆν· (5) πάλιν δ' ἀπὸ ταύτης διαλυομένης καὶ διαχεομένης πρώτη μὲν γίγνεται χύσις εἰς ὕδωρ, δευτέρα δ' ἐξ ὕδατος εἰς ἀέρα, τρίτη δὲ καὶ ἐσχάτη εἰς πῦρ.

[35] Rhetorically, G(4) and G(5) are related to G(3) in the following way. G(2) refers to the cosmic period called the "conflagration", which I discuss below. During this period, only fire exists. Yet G(3) states that other elemental substances exist along with fire at some point. For fire is "compositional" or "such as to compose" (συστατικὸν) along with other substances. So G(4) and G(5) describe the processes by which these other substances come into existence from a state of the world in which only fire exists. Hahm 1977, 81-2, 246-7; 1985, 44 argues that G(4) and G(5) describe Chrysippus's theory of how the cosmos is generated. This is incorrect. Descriptions of Chrysippus's cosmogony can be found at Diogenes Laertius, *Lives*, 7.136 = SVF 2.580 = LS 46B, 7.142 = SVF 2.581 = LS 46C, and Plutarch, *Stoic. Repug*., 1053a = SVF 2.579. They do not resemble the descriptions found in G(4) and G(5).

According to Chrysippus, fire condenses into air, air into water, and water into earth. In turn, earth diffuses into water, water into air, and air into fire. Nothing condenses into fire, and fire does not diffuse into anything. For this reason, Arius identifies fire as the occupant of the second elemental role:[36]

Text H: Stobaeus, *Eclogae* 1.130,2–4

… according to one way ["element" is said] of fire because of the fact that from it the remaining compose by a change and into it they resolve [λαμβάνειν τὴν ἀνάλυσιν].[37]

Throughout the world's neverending cycle between conflagrations and cosmic orders, fire remains. Out of it, air, water, and earth are generated by means of condensation.[38] Into it, air, water, and earth resolve by means of a series of diffusions. Yet fire persists throughout the conflagration, the cosmic order, and the processes linking the two periods. Therefore, fire is ungenerated and unresolving by condensation and diffusion. It satisfies UR*, and it is the occupant of the second elemental role.[39]

5. Construction, Dismantling, and the Third Type of Element

According to Arius, Chrysippus posits a third elemental role. In this section, I will argue

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Instead, these sections describe abstracted processes of change which are required for these cosmogonical changes to take place. On this point, see Salles 2015a, 14–18.

[36] Other scholars have recognized that fire is the element *par excellence*. See, e.g., Gould 1970; Hahm 1977; Lapidge 1973; Long and Sedley 1987; Salles 2015a.

[37] … καθ' ἕνα μὲν τρόπον τοῦ πυρός, διὰ τὸ ἐξ αὐτοῦ τὰ λοιπὰ συνίστασθαι κατὰ μεταβολὴν καὶ εἰς αὐτὸ λαμβάνειν τὴν ἀνάλυσιν·

[38] This takes place by means of the Stoic cosmogony (see n. 4 and n. 35). I discuss the cosmogony in Section 6. One might argue that air is generated by means of diffusion and not condensation during cosmogonies. Furthermore, they might argue that fire does go out of existence for a moment during the cosmogony, and is then regenerated by means of diffusion. Both claims are false. While the elemental layers that compose the cosmos are generated by diffusion, the elemental substances air and fire exist prior to these diffusions. Furthermore, fire is never totally destroyed. See Section 6.

[39] Cooper 2009, 110 claims that a substance called "proto-fire" occupies the second elemental role. It's clear from Texts G and H that fire, and not proto-fire, occupies the second elemental role. For the fire of G(1) and the fire of G(3) are meant to be the same. But if, as Cooper claims (see 2009, 109–10), the referent of the implied "fire" in G(3) is regular elemental fire, then the referent of "fire" in G(1) is also regular elemental fire. So proto-fire would not be the occupant of the second elemental role. For other criticisms of Cooper's interpretation, see Salles 2015a, 14–19.

that this role is identical to the role of the Stoics' active principle, which they call "God".

First, I will explain Chrysippus's reasons for positing this third type of element. We must examine the structure of complex objects' primary parts. Consider a plant. According to Texts C and D, its primary components are FAWE. These substances blend with each other. Recall, blended ingredients completely coextend. Thus, according to Chrysippus, any portion of a blend contains bits of each blended component, no matter how small one divides the blend. Alexander of Aphrodisias testifies to this:

> **Text I: Alexander of Aphrodisias, *De Mixtione* 217,9–12 = SVF 2.473 = LS 48C7**
>
> [Chrysippus] assumes that such a coextension of blended things happens when blended bodies go through each other such that no portion in them fails to have a share of all of the constituents in the blend. For unless this is the case, what comes about would no longer be a blend, but a juxtaposition.[40]

Chrysippus thinks that all blended components "have a share" of all other blended components. This means that all portions of a blend contain bits of each blended component. Otherwise, the mixture would be a juxtaposition, which is characterized by surface contact only. Since FAWE blend to compose a plant, for any portion of the plant, that portion contains bits of FAWE. This is true no matter how small one divides the plant. Therefore, in every division of a plant, there are portions of FAWE.[41]

Every complex object shares this same internal structure. For the structure of blends

[40] τὴν δὲ τοιαύτην ἀντιπαρέκτασιν τῶν κιρναμένων ὑπολαμβάνει γίνεσθαι χωρούντων δι' ἀλλήλων τῶν κιρναμένων σωμάτων, ὡς μηδὲν μόριον ἐν αὐτοῖς εἶναι μὴ μετέχον πάντων τῶν ἐν τῷ τοιούτῳ κεκραμένῳ μίγματι. οὐκέτι γὰρ ἄν, εἰ μὴ τοῦτο εἴη, κρᾶσιν, ἀλλὰ παράθεσιν τὸ γινόμενον εἶναι. (Text: Todd)

[41] Chrysippus believes that bodies are infinitely divisible (see n. 27). Thus, no matter how small one divides a body, there will be no indivisible atoms, parts of which are not in contact with other atoms.

entails that any portion of any complex object contains bits of FAWE.[42] For example, the fire within an object does not all congregate in one spot. Rather, all portions of the object are composed of the same four constituents. Here, Chrysippus is faced with an explanatory challenge. If each complex object has the same basic parts, which are structured in the same way, what distinguishes one complex object from another? Why is one thing an animal, while another is a plant? Objects' compositional structure cannot explain their distinctness.

FAWE compose complex objects. However, composition isn't sufficient to generate a particular complex object. Rather, composition produces a material basis – an unqualified lump of FAWE – and then something else qualifies the material basis such that a particular animal or plant comes into existence. Thus Chrysippus posits another type of element to explain how distinct objects are generated. This elemental role is that of a creator – of an active entity that builds particular objects out of an unqualified lump of material.

To see this, let's return to Arius's report. Arius describes the third elemental role, but he does not explicitly identify the occupant of that role.[43] He says:

Text J: Stobaeus, *Eclogae* 1.130,10–20

(1) And in accordance with the third account, an element is said to be the first thing that is composed in such a way as to give generation from itself in an orderly manner up to an end and from that [end] receive the resolution into itself in a similarly orderly manner. (2) And he said that there were these sorts of expressions about "element": (a) that it is the most mobile thing through itself, (b) the principle, (c) reason, and (d) the eternal power,

[42] Here, I am referring to all of the compounds on earth and not celestial objects. For Text D suggests that celestial objects are only composed of fire and air or fire alone, while earthly compounds are composed of FAWE. Still, since celestial objects differ from each other, the point of this argument can still hold within that group, as well.
[43] Some have argued that Arius does not describe the third type of element at all. See Gould 1970, 119; Lapidge 1973, 271. Bréhier 1951, 138 n. 1 abstracts a third elemental role that doesn't seem to be in the text.

which has such a nature that it moves downward toward the turning and from the turning upward in the whole circle, consuming everything into itself and in turn restoring everything from itself regularly and in an orderly manner.[44]

In J(1), Arius describes the role of the third type of element, but he does not identify the occupant of that role or the group of generated things of which it is an element. Then in J(2), Arius presents several "expressions" (ἀποδόσεις) of the word "element". The relationship between J(1) and J(2) is crucial to understanding Chrysippus's third type of element.

First, let's analyze J(1). Arius describes the third type of element by saying that it is "the first thing that is composed in such a way" (πρῶτον συνέστηκεν οὕτως). He then specifies how the third type of element is composed: it "gives generation from itself" (γένεσιν διδόναι ἀφ' αὑτοῦ). Despite the complicated phrasing, the meaning seems clear: the third type of element generates things in an active way. The fact that it *gives* generation implies that the element itself is activating the generative process. And the phrase "from itself" implies that it is the source of the process.

Arius continues by describing the generation as taking place "in an orderly manner" or "on a path" (ὁδῷ) and "up to an end" (μέχρι τέλους). When the third type of element generates, not only does it generate actively, but it also generates according to some plan and toward some goal. The third element is thus a teleological and orderly generator. Likewise, the resolution is also described as being orderly. Hence, while Arius doesn't name the third type of element or the group that is generated from it, he does describe the third species of generation in some detail. It

[44] (1) κατὰ τρίτον λόγον λέγεται στοιχεῖον εἶναι ὃ πρῶτον συνέστηκεν οὕτως ὥστε γένεσιν διδόναι ἀφ' αὑτοῦ ὁδῷ μέχρι τέλους καὶ ἐξ ἐκείνου τὴν ἀνάλυσιν δέχεσθαι εἰς ἑαυτὸ τῇ ὁμοίᾳ ὁδῷ. (2) Γεγονέναι δ' ἔφησε καὶ τοιαύτας ἀποδόσεις περὶ στοιχείου, (a) ὡς ἔστι τό τε δι' αὑτοῦ εὐκινητότατον (b) καὶ ἡ ἀρχὴ (c) <καὶ ὁ*> λόγος (d) καὶ ἡ ἀΐδιος δύναμις φύσιν ἔχουσα τοιαύτην, ὥστε αὐτήν τε κινεῖν κάτω πρὸς [γῆν] τὴν τροπὴν καὶ ἀπὸ τῆς τροπῆς ἄνω πάντῃ κύκλῳ, εἰς αὐτήν τε πάντα καταναλίσκουσα καὶ ἀφ' αὑτῆς πάλιν ἀποκαθιστᾶσα τεταγμένως καὶ ὁδῷ. (*Wachsmuth supplies καὶ ὁ σπερματικὸς following Usener. I accept Meineke's more concise addition.)

is active, orderly, goal-directed generation. And while his description of resolution is terse, it seems to be active and orderly resolution.[45]

This description of the third species of generation suggests that the third elemental role and the role of God, the Stoics' active principle, overlap. We have already examined the roles of the principles in the previous chapter. There are two principles: God and matter. God affects matter. As a result, matter constitutes the world and every unified natural object in it. For the Stoics, being active consists in something's affecting something else.[46] Thus God is active.[47]

God coordinates the creation and growth of all unified natural objects in the world and the world itself. The Stoics signal this by calling God the "seminal reason" (σπερματικὸς λόγος) of the cosmos, which encompasses all of the "seminal reasons" of particular natural objects.[48] This means that God acts as a seed within bodies, coordinating their growth toward some end.[49] Thus God acts teleologically and methodically in his production of unified, natural objects. Arius describes the third elemental role as being active, teleologically focused, and methodical. Therefore, God's role and the third elemental role overlap.[50]

If this is not conclusive, then J(2) should settle the matter. In J(2), Arius reports

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[45] See Salles 2015a, 20.
[46] See Sextus Empiricus, *M* 9.211 = SVF 2.341 = LS 55B.
[47] This is not a controversial claim. For example, Diogenes Laertius simply calls God "the active [principle]" (τὸ ποιοῦν) (7.134 = SVF 2.300 = LS 44B).
[48] See A(1).
[49] For evidence supporting this analysis of seminal reasons, see: Origen, *Contra Celsum* 1.37 = SVF 2.739; Stobaeus, *Ecl.* 1.153,18–22; 2.82,12–15 = SVF 3.141. In effect, the evidence suggests that seminal reasons cause coordinated growth. Calling them "seminal" or "seed-like" connotes their causing growth, and calling them "reasons" connotes their coordinated, methodical nature. They don't cause rapid, insatiable growth. They produce the right growth at the right time to sustain the type of being in which they are embedded. See Furley 1999, 436–7; Hahm 1977, 75–6; Hunt 1976, 37–8; Long and Sedley 1987, 1.277.
[50] Salles 2015a, 19–28 argues that the third elemental role (or the third sense of "element", in Salles' terminology) is broader than I have presented. He thinks that things other than God can count as the third type of element. Thus the third type of element *includes* but *is not limited to* God. However, Salles does not analyze Arius's description of the third type of element as being the "first" (πρῶτον) constructing cause. Because of this, Salles thinks that there can be many occupants of the third elemental role. However, given this statement and UR*, only the unconstructed thing from which natural objects are constructed is capable of occupying this role.

Chrysippus's claim that there are several expressions of "element". It's not clear what these are. The term "expression" shows up in the evidence for Stoic definitions. For example, a scholiast to Dionysius Thrax says, "[Chrysippus] says that a definition is an expression of a peculiarity" (SVF 2.226). A peculiarity of *F*'s is something that all and only *F*'s have. So perhaps what follows in J(2) are expressions of peculiarities of whatever occupies the third elemental role. We do not need to rely on this suggestion, though. It's clear that J(2) is supposed to clarify the third elemental role in some way.[51] If something is clearly the subject of the expressions in J(2), then we can use this to understand the third elemental role.

I will argue that J(2a), J(2b), J(2c), and J(2d) describe God. Let's begin with J(2a). The first expression states that the third type of element is the most mobile thing through itself. In *De Natura Deorum,* Cicero's Balbus discusses the mobility of the heat that pervades the world. He states:

> **Text K: Cicero, *ND* 2.30–1**
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> Moreover that glowing heat of the world is far purer and more brilliant and far more mobile [mobiliorque multo]... than this warmth of ours by which the things that we know are preserved and vitalized … [the world] is possessed by an intense heat that is stainless, free and pure, and also penetrating and mobile in the extreme [mobilissimo] (trans. Rackham).[52]

He also says that the heat is "self-moved and spontaneous" (*ND* 2.31). In this passage, there is an obvious parallel with J(2a). Balbus describes the cosmic heat as "extremely mobile" and "self-

[51] Salles 2015a, 21–5 seems to think that J(2) presents an example (or some examples) of what occupies the third elemental role, but that it isn't an exhaustive list. I claim that the four expressions in J(2) refer to the same thing, which is the only thing that occupies the third elemental role.

[52] Atque etiam mundi ille fervor purior perlucidior mobiliorque multo … quam hic noster calor, quo haec quae nota nobis sunt retinentur et vigent … qui integro et libero et puro eodemque acerrimo et mobilissimo ardore teneatur. (Text: Rackham)

moved", and J(2a) states that the third type of element is the most mobile thing that moves through itself. Arius and Cicero likely report the same original theory.

Balbus stops short of explicitly identifying the all-pervasive heat with God. However, he says that it "is interfused with the whole of nature in such a way as to constitute the male and female generative principles, and so to be the necessary cause of both the birth and growth of all living creatures" (2.28, trans. Rackham).[53] The language clearly resembles descriptions of seminal reasons. Balbus also calls it the "divine nature" (2.30). Thus he suggests that there is a strong connection between God and the pervasive heat. The heat is divine. Therefore, it's likely that, according to Balbus, heat occupies God's role.[54] Hence there is a strong connection between God and J(2a).

Let's move on to J(2b) and J(2c). These expressions state that the element is "the principle" (ἡ ἀρχὴ) and "reason" (ὁ λόγος). We should read these two expressions together such that "reason" clarifies "principle". For there are two principles in Stoicism: the active principle and the passive principle. No single thing is *the* principle. Rather, Arius specifies one principle by placing J(2b) and J(2c) next to each other: the active principle. "Reason" is sometimes used as a name for the active principle. For example, Diogenes calls the active principle "the reason in [matter]" (ὁ ἐν αὐτῇ λόγος, 7.134). If we read J(2c) in conjunction with J(2b), then "principle" refers to God. Thus J(2b) and J(2c) suggest that God's role and the third elemental role intersect.

Finally, let's examine J(2d), which describes the element as the "eternal power" (ἡ ἀΐδιος δύναμις). The phrase "eternal power" is used in another source to describe God.[55] Sextus

[53] in omni fusum esse natura, ut in eo insit procreandi vis et causa gignendi, a quo et animantia omnia … et nasci sit necesse et augescere.
[54] In Chapter Four, I will argue that artistic fire and pneuma occupy God's role. Balbus's heat seems to play the same role as these substances. Therefore, J(2a) seems to refer to the occupant of God's role.
[55] Also note that Diogenes calls God "eternal" (7.134 = SVF 2.300 = LS 44B).

Empiricus reports a Stoic argument, the conclusion of which is:[56]

Text L: Sextus Empiricus, *M* 9.76 = SVF 2.311 = LS 44C

> Therefore, the power that moves matter is eternal and regularly leads it [i.e. matter] into generations and changes resulting in the fact that this [i.e. the power to move matter] is God.[57]

Note three things in this passage. First, according to Sextus, the Stoics think that the power that moves matter is eternal and that it is God. If there is no more appropriate referent for "eternal power" in Stoic thought, then we ought to say that the eternal power of J(2d) is the power to move matter. The power to move matter is God. Therefore, the eternal power is God, and God is identified by J(2d). Second, "regularly" (τεταγμένως) is also used in J(2d) to describe how the eternal power restores everything, and the word shows up in Text L to describe God. Third, Sextus says that the eternal power leads matter into "generations", and in J(1) Arius says that the third type of element gives generation. Thus it seems that the thing that Sextus discusses in this passage – God – is the same thing that Arius discusses in J(1) and J(2d).

Hence the expressions in J(2) confirm my interpretation of J(1). The third elemental role and God's role are the same.[58] We know that the species of generation according to which God is an element is active, orderly, and teleological generation. Let's stipulate that "construction" refers to this sort of generation.

Note a key difference between the third type of element and the first two types. Generated things are *made out of* occupants of the first two elemental roles. FAWE immanently compose

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[56] For discussion of the argument as a whole, see Sedley 1999, 385–6.

[57] ἀίδιος τοίνυν ἐστὶν ἡ κινοῦσα τὴν ὕλην δύναμις καὶ τεταγμένως αὐτὴν εἰς γενέσεις καὶ μεταβολὰς ἄγουσα. ὥστε θεὸς ἂν εἴη αὕτη. (Text: Bury)

[58] Cooper 2009, 113–15 also states that the third type of element is God, but he does not understand "God" to refer to the active principle. He thinks it is a compound of the active and passive principles.

complex objects, and fire is the original material out of which air, water, and earth are produced. But Chrysippus does not claim that generated things are made out of God.[59] There is only a tenuous sense in which God is that from which bodies are generated: he causes them to come into existence, but he is not their material basis or immanent component.[60]

Likewise, there is only a tenuous sense in which God is that into which these unified whole objects are resolved. For while complex objects are replaced by their component bits of FAWE, and while air, water, and earth eventually change into fire during the conflagration, God is merely the cause of an object's resolution. Wholes do not turn into God when they resolve; they are destroyed by God. Thus God causes whole objects to resolve teleologically and methodically. Let's call the process by which these objects are resolved "dismantling".

6. Solution to the Dilemma

At this point, I will not describe the occupant of the third elemental role. For Arius does not explicitly identify the occupant, and the argument that a particular substance occupies the third elemental role and God's role requires its own chapter. Therefore, I delay that discussion until the following chapter. For now, let's return to the original puzzle. In A(3), Diogenes attributes the view that God produces FAWE to the Stoics. However, elements must be ungenerated according to UR. Furthermore, in B(2), Diogenes says that FAWE are destroyed during the conflagration. But elements must be unresolving according to UR. Thus a puzzle arises.

We modified UR. According to UR*, elements can be generated and resolved in some

[59] Why, then, does Chrysippus call this a type of element? Isn't it central to the concept of an element that it is an ingredient in a larger whole? These questions presuppose the Aristotelian understanding of "element", according to which elements are immanent components. What I have tried to show is that Chrysippus is not wedded to this Aristotelian understanding of "element". Although God exists within compounds, as an immanent efficient cause, he is not one of their immanent components.

[60] I argued for this claim in Chapter Two, Section 2.

way; they simply cannot be generated and resolving according to the processes of generation and resolution that they ground. I have shown that the Stoics think that air, water, and earth are resolved and generated during the conflagration and cosmogony respectively. With our modified understanding of UR, we can grant that three occupants of the first elemental role – that of primary immanent components – are generated and resolved according to the processes of condensation and diffusion. For only fire is elemental according to these processes.

But this won't solve the original problem. For fire is never generated, but A(3) states that God produces FAWE. So we still need to clarify Diogenes' claim that fire is generated.[61] Furthermore, in B(2), Diogenes says that the elements are destroyed. This seems to refer to FAWE. Thus Diogenes suggests that fire is destroyed. But we know that fire is never totally destroyed. For it persists throughout the world's cycle from conflagrations to cosmic orders. So we still need to clarify Diogenes' claim that fire is destroyed. Thus we can't use our modified understanding of UR to solve the problem in this way.

However, UR* permits multiple elemental roles. For it allows that some elements are not ungenerated and unresolving *simpliciter*. We can use this feature to solve the problem. I will argue that when Diogenes says "FAWE are produced" and "the elements are destroyed", this means that the first elemental role becomes occupied and unoccupied respectively. It does not mean that FAWE are all generated and destroyed.

I will begin with the claim that the elements are destroyed during the conflagration. Clearly, Diogenes cannot mean that all portions of FAWE stop existing during conflagrations. For Chrysippus thinks that *only* fire exists during conflagrations. So fire is not destroyed. What

61 Furthermore, A(1) places FAWE's production at a time when three of them – fire, air, and water – already exist. I explain this below.

else could Diogenes mean?

Consider the first type of element. These are the primary immanent components of complex objects. Animals and plants do not exist during conflagrations. For fire consumes everything during this period. Celestial objects like the stars and planets are consumed, as well. The cosmic order itself does not exist either. For the cosmic order, according to Chrysippus, is constituted by four stratified elemental layers: earth is at the center, then water, then air, and then fire is at the periphery. Diogenes confirms this:[62]

Text M: Diogenes Laertius, 7.155 = SVF 2.558

> They think that the cosmic order is like this. The earth is the middle, playing the role of a center, beyond which there is a spherical body of water, which has the same center as earth. Thus the earth is in the water. Air is beyond water, having been made into a sphere. Then there are five circles in heaven.[63]

Three out of four of the elemental constituents of the cosmic order do not exist during conflagrations. So the cosmic order does not exist. The cosmic order is the referent of "cosmos" in Text C.[64] So none of the complex objects listed in Texts C and D exist during conflagrations. If there are no complex objects, FAWE do not compose anything. Therefore, nothing occupies the first elemental role during conflagrations; that is, nothing is a primary immanent component during conflagrations.

This is the sense in which "the elements" are destroyed in B(2). Diogenes treats

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[62] See also Eusebius, *Praep. ev.* 15.15. Diogenes confirms that the heavenly spheres are made of fire at 7.137 = SVF 2.580.

[63] Ἀρέσκει δ' αὐτοῖς καὶ τὴν διακόσμησιν ὧδε ἔχειν· μέσην τὴν γῆν κέντρου λόγον ἐπέχουσαν, μεθ' ἣν τὸ ὕδωρ σφαιροειδές, ἔχον τὸ αὐτὸ κέντρον τῇ γῇ, ὥστε τὴν γῆν ἐν ὕδατι εἶναι· μετὰ τὸ ὕδωρ δ' ἀέρα ἐσφαιρωμένον. κύκλους δ' εἶναι ἐν τῷ οὐρανῷ πέντε … (Text: Dorandi)

[64] See Diogenes Laertius, 7.138 = SVF 2.526 = LS 44F. The Stoics sometimes use the term "cosmos" to refer to the cosmic order.

"elements" as being synonymous with "primary immanent components". No composition occurs during the conflagration. So the elements, according to Diogenes' use of the word "elements", are destroyed during this stage.

One might object that the cosmos still exists during a conflagration, and it is immanently composed out of fire. So something still occupies the first elemental role. But this isn't correct. The Stoics think that complex objects like animals, plants, the cosmos, rocks, and celestial objects are distinct from their ultimate qualitative parts. For they require an active cause – God – to turn them from an unformed lump into a particular natural body. Even the sun, which D(6) describes as "pure fire", needs God to construct it out of fire. Thus the sun is composed out of fire, but it is not identical to its fire. The Stoics do not think that composition is the same relation as identity; a whole is not identical to the sum of its parts. Since the fire present during a conflagration is identical to the cosmos, the fire does not compose the cosmos during conflagrations.

Only fire exists during conflagrations. There are no complex objects. Composition is a relation between complex objects and their primary immanent components. Since no complex objects exist during conflagrations, no primary immanent components exist during conflagrations. Therefore, there are no occupants of the first elemental role during conflagrations.[65]

Throughout his presentation, Diogenes does not distinguish elements in general from Chrysippus's first type of element. This is understandable. The first elemental role – that of a primary immanent component – is the classic Aristotelian sense of "element". However, if you

[65] That is, with respect to the first elemental role, there are no "elements" *de dicto* even if there are "elements" *de re*, in so far as a type of substance exists that will occupy the first elemental role at another time.

only read Diogenes' account, you would not know that Chrysippus posits three types of element, and you would think that all portions of FAWE pass out of existence during the conflagration. Once we see that Chrysippus's elemental theory is more complicated than Diogenes lets on, it's clear that this is not the case. Fire persists throughout the conflagration and the cosmic order. At some times, it occupies the first elemental role, along with air, water, and earth. When nothing occupies this role, there are no primary immanent components. And it is in this sense that "the elements" are destroyed during the conflagration.

Now I will argue that when Diogenes claims that FAWE are produced at A(3), he means that the first elemental role becomes occupied. The claim is contained in an account of the Stoic theory of cosmogony – how a period of cosmic order comes about from a conflagration. A(1) through A(3) describes Zeno and Chrysippus's theory of cosmogony. "The beginning" in A(1) refers to the conflagration, during which only fire exists.[66] The cosmic order is made up of four stratified elemental layers: earth is at the center, then water, then air, and then fire is at the periphery. When Diogenes says that God produces FAWE in A(3), "fire, water, air, and earth" elliptically references the elemental layers that compose the cosmic order and not the elemental substances themselves. For the production of these layers completes the cosmic order. Since the cosmic order is the end of the cosmogony, and since this passage is cosmogonic, the context of this passage recommends this interpretation.

Later Diogenes fully describes how these layers are produced in a structurally similar passage, which also describes Zeno and Chrysippus's theory of cosmogony. A comparison with

[66] See the other passages referenced in n. 4 and n. 35. All of these sources, except for the passage above, begin by describing a change "from fire through air into water". Fire begins the process. Diogenes describes this as the process by which "the cosmos is generated" in N(1) below. So it's clear that he describes the process by which the cosmos goes from conflagration to cosmic order in both Texts A and N.

this passage confirms the interpretation above. Diogenes says:

Text N: Diogenes Laertius, *Lives* 7.142 = SVF 2.581 = LS 46C

(1) The cosmos is generated whenever substance changes from fire through air into moisture. (2) Next, when the thicker part of it condenses, earth is completed. (3) The thinner part of it rarefies [and becomes air], (4) and when this becomes even thinner, fire is produced. (5) Next, plants, animals, and the other genera [are produced] from these by mixture. Zeno talks about the generation and destruction of the cosmos in his *On the Whole*, and Chrysippus in the first book of his *Physics* …[67]

N(1) describes three changes: part of fire changes into air, and part of air changes into water. At this stage, portions of fire, air, and water exist. Fire and air blend with the water and hold it together.[68] This is clear from Plutarch's quotation of Chrysippus:

Text O: Plutarch, *Stoic. Repug.* 1053b = SVF 2.605 = LS 46F

(1) "For when the cosmos is totally fiery, it is directly also its own soul and ruling part. (2) But when, changing into the moisture and the soul that has been left behind, (3) it

[67] (1) Γίνεσθαι δὲ τὸν κόσμον ὅταν ἐκ πυρὸς ἡ οὐσία τραπῇ δι' ἀέρος εἰς ὑγρότητα, (2) εἶτα τὸ παχυμερὲς αὐτοῦ συστὰν ἀποτελεσθῇ γῆ, (3) τὸ δὲ λεπτομερὲς ἐξαραιωθῇ, (4) καὶ τοῦτ' ἐπὶ πλέον λεπτυνθὲν πῦρ ἀπογεννήσῃ. (5) εἶτα κατὰ μίξιν ἐκ τούτων φυτά τε καὶ ζῷα καὶ τὰ ἄλλα γένη. (6) περὶ δὴ οὖν τῆς γενέσεως καὶ φθορᾶς τοῦ κόσμου φησὶ Ζήνων μὲν ἐν τῷ Περὶ ὅλου, Χρύσιππος δ' ἐν τῷ πρώτῳ τῶν Φυσικῶν … (Text: Dorandi)

[68] Sellars 2006, 97–8 endorses this description of Chrysippus's cosmogony. Lapidge 1973, 266 claims that only part of the conflagrationary fire changes into water, according to Zeno. He does not discuss Chrysippus's theory. However in his 1978, he attributes the same general theory to each of the first three Stoics in which part of the conflagrationary fire remains during the "into water" stage (166). Hahm 1977, 57–62 and 58 n. 2 might suggest that some fire and air remain in the water, according to Chrysippus, but his view is not clear (see also Hunt 1976, 49; Long and Sedley 1987, 1.279). Salles 2015b, 17 argues against the claim that fire or air exists at the "into water" stage of the cosmogony. He thinks that all of the fire from the conflagration is extinguished and changes into water (see also Gould 1970, 121 and n. 1; Todd 1978, 143–5). I argue against this alternative interpretation in Chapter Four.

changed in some way into body and soul so that it is composed out of these, it had another role."[69]

Chrysippus describes the cosmogony. O(1) refers to the conflagration. During this stage, the cosmos is only the fiery, ruling part of the soul. O(2) refers the same process as N(1): fire changes through air into water or moisture. Note that Chrysippus claims that there is a "soul that has been left behind" at this stage. Souls, according to Chrysippus, are made of pneuma. Pneuma is a compound of fire and air. Therefore, fire and air exist at this stage of the cosmogony.

Then the elemental layers that compose the cosmos are produced. The earthen layer condenses from the water (N(2)), the airy layer evaporates from the water (N(3)), and a watery layer remains. Then N(4) describes how the fiery, outer layer rarefies from the airy layer.

Texts A and N describe the same events. Both A(1) and N(1) describe the partial changes of fire into air and air into water. A(3) describes the same process as N(2)–(4). For several sources confirm that this series of changes occurs after the "into water" stage.[70] Since fire, air, and water exist prior to the changes referenced by A(3), Diogenes does not mean that God generates the substances fire, air, water, and earth.[71] Therefore, we shouldn't take A(3) as evidence that the Stoics think that fire is generated. Rather A(3) describes the changes that produce the cosmic layers characterized by certain elements.

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[69] (1) "διόλου μὲν γὰρ ὧν ὁ κόσμος πυρώδης εὐθὺς καὶ ψυχή ἐστιν ἑαυτοῦ καὶ ἡγεμονικόν· (2) ὅτε δέ, μεταβαλὼν εἵς τε τὸ ὑγρὸν καὶ τὴν ἐναπολειφθεῖσαν ψυχήν, (2) τρόπον τινὰ εἰς σῶμα καὶ ψυχὴν μετέβαλεν ὥστε συνεστάναι ἐκ τούτων, ἄλλον τινὰ ἔσχε λόγον." (Text: Cherniss)

[70] Again, see n. 4 and n. 35.

[71] Even if one rejects the claim that the series of changes referenced in A(1) and N(1) is a series of partial changes (see n. 68), one would still need to explain why Diogenes says *water* is generated at A(3). On this point, see Salles 2015b, 17–18. Cooper 2009, 105–7 argues that all of the elemental substances fire, air, water, and earth are generated at this stage. Cooper thinks that certain "proto-elements" which are "somewhat *like* in being fiery, airy, and watery respectively …, but lack the determinate structure of, the three actual material elements called fire, air, and water respectively" (107) exist prior to this stage (see also Frede 2005, 228–9; Gourinat 2009, 60–1). However, there is no evidence that the Stoics posited anything like proto-elements, and they had the language to do so, had they wished to describe such entities (See Plato, *Timaeus* 53b2). Cooper's interpretation is not convincing. Salles 2015b, 17–18 agrees.

Until the cosmic order is generated, there are no complex bodies in the cosmos. For, as I have just argued, during conflagrations, there are no complex objects. The cosmic order is the first complex object that is generated. A cosmic order consists of four stratified elemental layers. N(3), N(4), and N(5) describe how these layers are produced. A(3) summarizes these processes by saying that FAWE are produced. In A(3), Diogenes calls these layers "the elements", making reference to the first elemental role of the primary immanent components. For when the elemental layers are produced, FAWE begin to occupy the first elemental role. Thus the first elemental role goes from being unoccupied to occupied, and it is in this sense that "the elements" are generated.[72]

Diogenes and Arius Didymus's accounts of Stoic elemental theory differ. According to Arius, Chrysippus posits three elemental roles. If we judge from Diogenes alone, the Stoics think that "elements" always refers to FAWE, conceived as the primary immanent constituents of bodies. One might explain the discrepancy in several ways. Perhaps Arius Didymus had access to source texts that Diogenes did not. Perhaps Diogenes decided to condense and simplify his presentation of Stoic physics. Perhaps Diogenes skipped over disagreements between individual Stoics and only attempted to present claims to which most Stoics would agree. In any case, Diogenes clearly treats Stoic elemental theory as being simpler than it actually is. Because of this, an interpretive dilemma arises. Once we have Chrysippus's full elemental theory in view, the dilemma is resolved. Chrysippus did not put forth an inconsistent theory.[73]

[72] Note the similarity between this proposal and a suggestion apparently made by André Laks to Ricardo Salles cited in Salles 2015b, 18 n. 10.

[73] I would like to note one additional interpretive strategy. If, for some reason, we wanted to read "the elements" in "the elements are generated" and "the elements are destroyed" *de re* instead of *de dicto*, the Stoics still might have a consistent theory. "The elements" might refer to the set of elemental substances fire, air, water, and earth. During the conflagration, this set is destroyed because air, water, and earth do not exist. During cosmogonies, this set is generated because air, water, and earth are generated. Thanks to Adam Bendorf for this suggestion.

7. Elements and Principles

The Stoics do not put forth an inconsistent theory of elements. According to their definition of "element", elements must be ungenerated and unresolving according to the species of generation and resolution by which they are related to generated substances. FAWE compose complex objects like animals and plants, and animals and plants dissolve into them. However, FAWE are uncomposed and undissolving. Air, water, and earth condense out of fire, and into it they diffuse. However, fire never condenses out of anything, and it never diffuses into anything. The occupant of the third elemental role constructs complex objects, and he teleologically dismantles them. However, he is unconstructed and is never dismantled.

What is the relationship between the roles of the principles and elements within Stoic physics? Imagine you are a Stoic. You look around and see a world populated by various objects with coordinated, sympathetic parts: animals, plants, inanimate objects, and the world itself. You endorse corporealism – the view that only bodies are capable of affecting the world. Therefore, you posit two bodies – the principles – that generate each of these unified objects. Furthermore, you infer on the basis of perception that heat and the coordination of unified objects are related. Thus you think that heat is present throughout the world. Knowing that heat and fire require fuel, you theorize that periodic conflagrations must occur.[74]

Imagine that these are your theoretical givens: unified, natural objects are generated by means of an interaction between two bodies, and the world experiences periodic dissolutions into and reconstitutions out of fire. You formulate explanations of these phenomena. Let's begin with the conflagration. What prevents the conflagration from continuing indefinitely? The world diffuses into fire. It seems conceivable that the fire could continue to diffuse indefinitely. This

[74] See Furley 1999, 439; Mansfeld 1979; Salles 2005.

doesn't happen. For there have been conflagrations in the past from which the world order was reconstituted. So the Stoics posit a grounding entity – something capable of explaining a process of resolution that itself is not subject to the process. Since fire does not diffuse into anything, the diffusion process giving rise to the conflagration does not continue indefinitely. Because it does not condense out of anything, it is able to begin the process of condensation that generates air, water, and earth. The Stoics need a ground for processes of diffusion and condensation in order to explain the cosmos's periodic cycle. They posit the second elemental role as that ground. Using some sort of empirical inferential process, they infer that fire occupies that role.

Now let's consider the interaction between the principles. Consider a human being. Chrysippus says that she is "roughly" composed out of "head, trunk, and limbs".[75] One might ask what the head, trunk, and limbs are composed out of. And so on. If the series of composition relations does not terminate at some body capable of composing qualitatively distinct bodies without itself being so composed, then the Stoics say the series will never "get started". And if that occurs, the Stoics think that explanations of complex objects will not be complete. Thus they posit a ground to the process of composition: the first elemental role. One does not need to explain how an occupant of the first elemental role is composed by more basic entities. For it can only be divided into a type of body similar to itself.

Matter constitutes unified natural objects. As I will argue in Chapter Five, it does this through its relationship with FAWE. Matter somehow disposed is FAWE, and aggregates of FAWE constitute unified natural objects.[76] Matter is not identical to FAWE, just as the hand is not identical to the fist. However, matter is also not intrinsically qualitatively distinct from

[75] See Plutarch, *De Comm. Not.* 1079b.
[76] See Text C, which says that the four elements are "out of substance". "Substance" here is a synonym for matter.

FAWE. Therefore, matter is not an element of FAWE, according to the processes of composition and dissolution. It constitutes unified natural objects because it manifests as intrinsically qualitatively basic bodies. But if there were no uncomposed composers, then matter would not be related to unified natural objects. For there would be no basic qualitative unit for it to manifest as, aggregates of which then constituted unified natural objects. So matter's nature and role within Stoic physics requires bodies to occupy the first elemental role.

There is a cause of the fact that complex objects are composed out of fire, air, water, and earth: God. One might ask: what caused God to have the ability and inclination to create these complex natural objects? Again, the Stoics posit a grounding entity: the third elemental role. God is unconstructed by a further creator. He is able to explain processes of construction without himself needing to be constructed. For, as I will argue in Chapter Four, he is a self-moving mover, and motion is the means by which construction occurs.[77] Therefore, the third elemental role grounds the process of generation required by the role of the active principle.

The roles of the elements ground the processes of generation and resolution that are required by Stoic physics. In order to formulate valid explanations of the natural world, the Stoics must posit entities that are capable of beginning series of generations and ending series of resolutions. Otherwise, these series would continue indefinitely. In this case, explanations of natural phenomena would not be complete. For, given the Stoics' commitment to corporealism, the Stoics would never be able to identify the basic bodies from which the rest of the world was generated.

[77] One might argue that this still does not explain God's goodness or intelligence. This is beyond the scope of this dissertation, as I explain in Chapter One, Section 3.

Chapter Four: God

1. Introduction

In this chapter, I will argue that the first three leaders of the Stoics claim that artistic fire occupies God's role. I will argue that Zeno and Cleanthes identify artistic fire with the substance pneuma. I will argue that Chrysippus thinks that "pneuma" is a word that can refer either to artistic fire or air. Thus the first three leaders of the Stoics also think that pneuma occupies God's role.

In Section 2, I will argue for an interpretation of the Stoic theory of cosmogony. Each of the first three Stoics endorses a similar physical theory of the cosmogony according to which a portion of fire persists throughout the conflagration to the cosmic order. They identify this portion of fire with the occupant of God's role. In Section 3, I will argue that Zeno and Cleanthes seem to identify artistic fire and pneuma, but the evidence does not suggest that either provided a detailed physical theory about the internal physical makeup of this substance. In Section 4, I will argue for an interpretation of Chrysippus's theory of artistic fire and pneuma. Finally, in Section 5, I will reiterate the conclusion that artistic fire occupies God's role, and I will respond to an objection to this view.

2. Cosmogony

In Chapter Two, I argued that God's role is to efficiently cause the wholes from within. The wholes are unified natural objects. According to Sextus Empiricus, the cosmos is included in this set (*M* 9.79–80 = SVF 2.1013). Therefore, God's role includes being the immanent efficient cause of the cosmos and generating it.

This claim is ambiguous. In one sense, the Stoics claim that the cosmos is never generated or produced.[1] While the cosmos cycles between different periods, this cycle continues forever. Thus the cosmos is everlasting.[2] However, in another sense, the Stoics claim that the cosmos is generated. For "the cosmos" sometimes refers to "the cosmic order" (ἡ διακόσμησις).[3] The cosmos cycles between cosmic orders and conflagrations. So there is a process by which the cosmic order comes into existence from a state of nonexistence. So there is a process by which the cosmic order is generated. God's role includes producing the cosmos, understood as the cosmic order.

Philo contrasts the cosmos during a period of conflagration with the cosmos during a period of cosmic order. He says:

Text A: Philo, *De Specialibus Legibus* 1.208 = SVF 2.616

> "Conflagration" is said in accordance with the domination of God, after he has prevailed over the others; "cosmic order" in accordance with the equality of the four elements [τὴν τῶν τεττάρων στοιχείων ἰσονομίαν], which they exchange with each other.[4]

During a conflagration, God dominates. He does not build any complex objects. During a cosmic order, the elements equalize. We should understand "equality of the four elements" in the following way. During the cosmic order, the cosmos is arranged in concentric elemental spheres. Consider Diogenes' report:

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[1] See Long 1985, 17.
[2] See Eusebius, *Praep ev.* 15.18.2 = SVF 2.596 = LS 46K.
[3] See, e.g., Diogenes Laertius, 7.137–8 = SVF 2.526 = LS 44F.
[4] ἐκπύρωσιν μὲν κατὰ τὴν τοῦ θεοῦ* δυναστείαν τῶν ἄλλων ἐπικρατήσαντος, διακόσμησιν δὲ κατὰ τὴν τῶν τεττάρων στοιχείων ἰσονομίαν, ἣν ἀντιδιδόασιν ἀλλήλοις.
* θέρμου R. (Cf. Colson 1937, 218 n. 1.) The context recommends θεοῦ. Philo does not explicitly mention the Stoics in this passage, but it seems clear that he has their view in mind.

Text B: Diogenes Laertius, 7.155 = SVF 2.558

> They think that the cosmic order is like this. The earth is the middle, playing the role of a center, beyond which there is a spherical body of water, which has the same center as earth. Thus the earth is in the water. Air is beyond water, having been made into a sphere. Then there are five circles in heaven.[5]

Diogenes says that the cosmic order consists of four concentric spheres, and three are described using the names of the elements. The earth sphere is the center, the water shell is outside of earth, and the air shell is outside of water. Heaven is outside of the air shell, and it can be divided into smaller shells. Although Diogenes does not explicitly say so in this passage, the outer heavenly shell is made of fire.[6]

Thus Philo's "equality" should be understood in this way: while the cosmos during conflagrations contains only one of the four elements,[7] the cosmos during cosmic orders contains each of the four elements. Furthermore, the cosmic order contains other natural wholes. Arius Didymus ascribes the following account of the cosmos to the Stoics: "the cosmos is said to be a compound of heaven, air, earth, sea, and the natures in these" (Eusebius, *Praep ev.* 15.15 = SVF 2.528). "Heaven, air, earth, and sea" refers to the four concentric spheres that are present during cosmic orders. "The natures in these" refers to natural objects contained within the elemental

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[5] Ἀρέσκει δ' αὐτοῖς καὶ τὴν διακόσμησιν ὧδε ἔχειν· μέσην τὴν γῆν κέντρου λόγον ἐπέχουσαν, μεθ' ἣν τὸ ὕδωρ σφαιροειδές, ἔχον τὸ αὐτὸ κέντρον τῇ γῇ, ὥστε τὴν γῆν ἐν ὕδατι εἶναι· μετὰ τὸ ὕδωρ δ' ἀέρα ἐσφαιρωμένον. κύκλους δ' εἶναι ἐν τῷ οὐρανῷ πέντε …

[6] See Diogenes Laertius, 7.137 = SVF 2.580.

[7] Note that Philo says that the conflagration is in accordance with the domination of God over "the others". He contrasts the conflagration with the cosmic order in which there is an equality of the four elements. Thus Philo suggests that God is one of the four elements. However, this argument relies on accepting one manuscript of Philo's text over another, since manuscript R states that the conflagration is in accordance with the domination of the hot (θέρμου) over the others (see n. 4). Thus I will not rely on this passage in order to argue that one of the elements occupies God's role.

spheres. Hence the cosmos during a period of cosmic order is composed of four elemental spheres and every unified natural object contained in them. Since God's role includes producing the cosmic order, God's role includes producing these spheres and every natural whole contained in them.

Zeno and Chrysippus agree on how the elemental spheres are generated after a conflagration. Arius Didymus, Plutarch, and Diogenes provide evidence for their theory. We should read these reports in conjunction to fully grasp the account, since each source emphasizes different aspects. For ease of interpretation, I have inserted section numbers within each quotation that indicate the same stage in the process. Let's begin with Arius Didymus, who says:

Text C: Stobaeus, *Ecl.* 152,19–153,6 = SVF 1.102

> Zeno declared the following. It is necessary that, during certain periods, the cosmic order of the whole out of substance will occur, when there is a change (1a) from fire (1c) into water (1b) through air. (2a) One part will settle down and earth will condense, (2b) and from what's left, another part will remain water, (2c) and from the vaporized part, air will come about. (3) And when air thins, fire ignites. (4) And mixture becomes a blend, as well, by means of a change of the elements into each other, when one body totally goes through another body.[8]

Plutarch says:

[8] Ζήνωνα δὲ οὕτως ἀποφαίνεσθαι διαρρήδην· τοιαύτην δὲ δεήσει εἶναι ἐν περιόδῳ τὴν τοῦ ὅλου διακόσμησιν ἐκ τῆς οὐσίας, ὅταν ἐκ πυρὸς τροπὴ εἰς ὕδωρ δι' ἀέρος γένηται, τὸ μέν τι ὑφίστασθαι καὶ γῆν συνίστασθαι, [καὶ] ἐκ τοῦ λοιποῦ δὲ τὸ μὲν διαμένειν ὕδωρ, ἐκ δὲ τοῦ ἀτμιζομένου ἀέρα γίγνεσθαι, λεπτυνομένου δὲ τοῦ ἀέρος πῦρ ἐξάπτεσθαι, τὴν δὲ μῖξιν <καὶ> κρᾶσιν γίγνεσθαι τῇ εἰς ἄλληλα τῶν στοιχείων μεταβολῇ σώματος ὅλου δι' ὅλου τινὸς ἑτέρου διερχομένου.

Text D: Plutarch, *Stoic. Repug.* 1053a = SVF 2.579

For [Chrysippus] says in the first book of his *On Nature*: "The change (1a) of fire is like this: it turns (1b) through air (1c) into water. And from this, (2a) earth settles down and (2c) air evaporates. (3) When the air becomes thinner, the aether is poured around in a circle. And the stars are ignited from the sea along with the sun."[9]

Diogenes says:

Text E: Diogenes Laertius 7.142 = SVF 2.581 = LS 46C

The cosmos is generated whenever substance changes (1a) from fire (1b) through air (1c) into moisture. Next, (2a) when the thicker part of it condenses, earth is completed. (2c) The thinner part of it rarefies, and when this becomes even thinner, (3) fire is produced. (5) Next, plants, animals, and the other genera [are produced] from these by mixture. Zeno talks about the generation and destruction of the cosmos in his *On the Whole*, and Chrysippus in the first book of his *Physics* …[10]

According to these three sources, Zeno and Chrysippus describe the generation of a cosmic order in the following way. During the conflagration, there is only fire. That fire changes into air, and then that air changes into water. I have marked these stages as (1a), (1b), and (1c) respectively. Let's call the water at Stage (1c) the "cosmogonic water". Part of the cosmogonic water condenses into earth at Stage (2a), another part remains water at Stage (2b),[11] and another

[9] λέγει γὰρ ἐν τῷ πρώτῳ περὶ Φύσεως· 'ἡ δὲ πυρὸς μεταβολή ἐστι τοιαύτη· δι' ἀέρος εἰς ὕδωρ τρέπεται· κἀκ τούτου γῆς ὑφισταμένης ἀὴρ ἀναθυμιᾶται· λεπτυνομένου δὲ τοῦ ἀέρος ὁ αἰθὴρ περιχεῖται κύκλῳ· οἱ δ' ἀστέρες ἐκ θαλάσσης μετὰ τοῦ ἡλίου ἀνάπτονται.'

[10] Γίνεσθαι δὲ τὸν κόσμον ὅταν ἐκ πυρὸς ἡ οὐσία τραπῇ δι' ἀέρος εἰς ὑγρότητα, εἶτα τὸ παχυμερὲς αὐτοῦ συστὰν ἀποτελεσθῇ γῆ, τὸ δὲ λεπτομερὲς ἐξαραιωθῇ, καὶ τοῦτ' ἐπὶ πλέον λεπτυνθὲν πῦρ ἀπογεννήσῃ. εἶτα κατὰ μίξιν ἐκ τούτων φυτά τε καὶ ζῷα καὶ τὰ ἄλλα γένη. περὶ δὴ οὖν τῆς γενέσεως καὶ φθορᾶς τοῦ κόσμου φησὶ Ζήνων μὲν ἐν τῷ Περὶ ὅλου, Χρύσιππος δ' ἐν τῷ πρώτῳ τῶν Φυσικῶν …

[11] Salles 2015b, 17–18 analyzes how water can be said to be *generated* at this stage, since it already existed.

part evaporates into air at Stage (2c). Stages (2a), (2b), and (2c) occur roughly simultaneously. Then a part of this air becomes even thinner and turns into fire at Stage (3).

The concentric spheres are produced at Stages (2a), (2b), (2c), and (3). The condensation of earth from water produces the earth sphere. Part of water remains and constitutes the water sphere. Air evaporates from water, and it constitutes the air sphere. Fire rarefies from the air, and it constitutes the fiery sphere. Then the natural wholes contained in the spheres are produced at Stage (5).[12] The cosmic order consists of these four concentric spheres and the natural wholes within them. Hence the cosmic order is generated by this process. It is part of God's role to efficiently cause the cosmic order. Therefore, to determine the occupant of God's role, we should determine what actively directs this process.

At first glance, nothing seems to actively direct this process; the process seems automatic. One might conclude that nothing occupies God's role. However, in another description of the Stoic cosmogony, Diogenes explicitly states that God controls this process.[13] He says:

> **Text F: Diogenes Laertius 7.136 = SVF 2.580 = LS 46B**
>
> In the beginning, when [God] was by himself, he turned the whole substance (1b) through air (1c) into water. And just as the seed is surrounded in the seminal fluid, so too he, the seminal reason of the cosmos, stays behind as such in the moisture, making matter malleable to himself with respect to the generation of the subsequent things. (2a-2c, 3) Next, [God] first produces the four elements: fire, water, air, and earth.[14]

[12] I discuss the curious Stage (4) below.
[13] Salles 2015b, 21–2 argues that the emphasis on God's activity in this description comes from Chrysippus. His argument is unconvincing.
[14] κατ' ἀρχὰς μὲν οὖν καθ' αὑτὸν ὄντα τρέπειν τὴν πᾶσαν οὐσίαν δι' ἀέρος εἰς ὕδωρ· καὶ ὥσπερ ἐν τῇ γονῇ τὸ σπέρμα περιέχεται, οὕτω καὶ τοῦτον σπερματικὸν λόγον ὄντα τοῦ κόσμου, τοιόνδε ὑπολείπεσθαι ἐν τῷ ὑγρῷ,

According to Diogenes, God directs Stages (1a)–(1c). He also "produces the four elements" (ἀπογεννᾶν … τὰ τέσσαρα στοιχεῖα), which is an abbreviated reference to Stages (2a), (2b), (2c), and (3).[15] Thus God directs the cosmogony, and something must occupy God's role.

To identify the occupant of God's role, I must first argue for the following claim: the series of changes from Stages (1a) to (1c) is a series of *partial* changes. By this I mean that part of fire changes into air and part of air changes into water; all of the fire does not extinguish and turn into water during the cosmogony. After Stage (1c) is complete, there are portions of fire, air, and water. I will use this claim to identify the occupant of God's role.

There are three reasons to believe that the first cosmogonic changes are partial. First, according to the Stoics, some elemental changes require fire.[16] Cicero's Balbus states:

Text G: Cicero, *De Natura Deorum* 2.26–7

(1) Indeed, air itself, which is the coldest element, is by no means devoid of warmth. In fact, it is mixed with a great amount of warmth. (2) For it itself originates from a vaporization of water. (3) For air must be considered like a certain water vapor, (4) and it exists in virtue of the motion of the warmth that is contained in the waters.[17]

According to G(4), the process by which water transforms into air requires "warmth" (calor). Heat contained in water causes part of the water to vaporize, as G(2) and G(4) suggests. This vaporized water turns into air. During the cosmogonic process, water changes into air during Stage (2c). According to Balbus, there must be heat present in the water of Stage (1c) in order for

εὐεργὸν αὑτῷ ποιοῦντα τὴν ὕλην πρὸς τὴν τῶν ἑξῆς γένεσιν· εἶτ' ἀπογεννᾶν πρῶτον τὰ τέσσαρα στοιχεῖα, πῦρ, ὕδωρ, ἀέρα, γῆν.

[15] See Chapter Three, Section 6.

[16] See Hahm 1985, 47.

[17] Ipse vero aer, qui natura est maxime frigidus, minime est expers caloris; ille vero et multo quidem calore admixtus est: ipse enim oritur ex respiratione aquarum; earum enim quasi vapor quidam aer habendus est, is autem existit motu eius caloris qui aquis continetur …

the change into Stage (2c) to occur. This seems to be confirmed by the following report from Galen:

Text H: Galen, *De Nat. Fac.* 1.3 = SVF 2.406 = LS 47E

(1) Although, since they ascribe even the change of the elements into each other to certain diffusions and compressions, (2) it was reasonable for [the Stoics] to make the hot and the cold efficient principles.[18]

According to H(1), a change in elemental identity supervenes on a change in density. Thus, in H(2), Galen says it was reasonable for the Stoics to make hot and cold efficient principles. For, presumably, heat causes a decrease in density, and coldness causes an increase in density. The change from water into air at Stage (2c) is a decrease in density. Thus fire causes the change.

The Stoics think that fire is the only hot element.[19] Thus heat is present by the presence of fire. Therefore, fire is present in the cosmogonic water.[20] For part of the cosmogonic water changes into air at Stage (2c), and fire must be the cause of this change.

We can explain the presence of fire in the cosmogonic water in this way. Only part of the fire at Stage (1a) changes into air at Stage (1b). When air changes into water at Stage (1c), there is still some portion of fire contained in the water. Hence at least the first change of fire into air at Stage (1b) is a partial change.

I will now present the second reason. The Stoics think that any portion of water or earth must be blended with fire and air. Galen says:

[18] καίτοι τούτοις μέν, ὡς ἂν καὶ αὐτῶν τῶν στοιχείων τὴν εἰς ἄλληλα μεταβολὴν χύσεσί τέ τισι καὶ πιλήσεσιν ἀναφέρουσιν, εὔλογον ἦν ἀρχὰς δραστικὰς ποιήσασθαι τὸ θερμὸν καὶ τὸ ψυχρόν …
[19] See, e.g., Diogenes Laertius, 7.137.
[20] I discuss the relationship between warmth, heat, and fire in *De Natura Deorum* in more detail in Section 3.

Text I: Galen, *De Plenitudine* 3 = SVF 2.439 = LS 47F

(1) The Stoics make the thing that holds together one thing, and the thing that gets held together another. (2) For the thing that holds together is pneumatic substance, and the thing that gets held together is material [substance], (3) which is why they say that air and fire hold together, and earth and water are held together.[21]

Fire and air hold together earth and water. This is confirmed by Plutarch:

Text J: Plutarch, *De Comm. Not.* 1085c–d = SVF 2.444 = LS 47G

(1) While calling the four bodies – earth, water, air, and fire – "primary elements", I don't know how, (2) they make some simple and pure, while making others compound and mixed. (3) For they say that earth and water neither hold themselves nor anything else together, (4) but that they preserve their unity by having a share of a pneumatic and fiery power. (5) But air and fire, because of their cohesion [εὐτονίαν], maintain their own tension [ἐκτατικά], (6) and through being blended with those two, they provide tension, stability, and substantiality to them.[22]

According to J(3), the Stoics claim that earth and water cannot hold themselves together. For these elements lack their own tension, and they receive unity, tension, stability, and substantiality from blending with air and fire, according to J(6).[23] Galen's report conforms with this claim, when he says that air and fire hold together earth and water in I(3). Earth and water will not

[21] οἱ Στωϊκοὶ, τὸ μὲν συνέχον ἕτερον ποιοῦσι, τὸ συνεχόμενον δὲ ἄλλο· τὴν μὲν γὰρ πνευματικὴν οὐσίαν τὸ συνέχον, τὴν δὲ ὑλικὴν τὸ συνεχόμενον, ὅθεν ἀέρα μὲν καὶ πῦρ συνέχειν φασὶ, γῆν δὲ καὶ ὕδωρ συνέχεσθαι.
[22] Τά γε μὴν τέσσαρα σώματα, γῆν καὶ ὕδωρ ἀέρα τε καὶ πῦρ, πρῶτα στοιχεῖα προσαγορεύοντες οὐκ οἶδ' ὅπως τὰ μὲν ἁπλᾶ καὶ καθαρὰ τὰ δὲ σύνθετα καὶ μεμιγμένα ποιοῦσι. γῆν μὲν γὰρ φασι* καὶ ὕδωρ οὔθ' αὑτὰ συνέχειν οὔθ' ἕτερα, πνευματικῆς δὲ μετοχῇ** καὶ πυρώδους δυνάμεως τὴν ἑνότητα διαφυλάττειν· ἀέρα δὲ καὶ πῦρ αὐτῶν τ' εἶναι δι' εὐτονίαν ἐκτατικά***, καὶ τοῖς δυσὶν ἐκείνοις ἐγκεκραμένα τόνον παρέχειν καὶ τὸ μόνιμον καὶ οὐσιῶδες.
*Following von Arnim. MSS have ἴσασι. | **Following Wyttenbach. MSS have μετοχῆς. | ***MSS have ἐκτατικά. Pohlenz's emends to συνεκτικά; von Arnim emends to ἑκτικά.
[23] See also Alexander of Aphrodisias, *De Mixtione* 218,2-6 = SVF 2.473 = LS 48C12.

cohere in any way unless fire and air blend with them. Without fire and air, a portion of earth or water would be unstable, and it would disperse.[24] This is why Plutarch sneers at the Stoics' attempt to call all four elements "primary" in J(1). If earth and water exist, then they don't exist in a pure state; they must be mixed with air and fire. So, Plutarch asks, how can earth and water be "primary"?

According to these reports, unless air and fire blend with earth and water, earth and water lose tension, fall apart, and disperse. They would not form any particular body, nor would they form a mass of earth or water. On a cosmic scale, at Stage (1c), this would have the following effect. If fire and air did not exist at Stage (1c), then the cosmogonic water would not be held together. If the cosmogonic water were not held together, then it would disperse. The cosmos would lose its unity, the cosmic order would not be generated, and the cosmic cycle would come to an end. (One might imagine, at this point, bits of water falling aimlessly through the void – not unlike a version of Epicurus's universe.) Since this does not happen, air and fire exist at Stage (1c), they hold the cosmogonic water together, and by the agency of fire, other elemental

[24] One might also conceive of the relation between the elements like this. Water and earth are only held together as a coherent object by means of mixing with air and fire. Without air and fire, they will be an unqualified lump; with air and fire, they will be a qualified *object*. I think the passage from Plutarch suggests that this analysis is too conservative. Plutarch seems concerned that water and earth are not capable of existing in any coherent state without air and fire – not even as lumps. Thus I adopt a more radical analysis.

On the other hand, one might accuse my analysis as being too conservative. Perhaps the Stoics think that earth and water cannot exist at all – not even in a dispersed state – without air and fire. We know that the four elements differ based on their relative densities. Perhaps the Stoics think that the dense elements earth and water naturally tend to expand and change into less dense elements, but that fire and air counteract this expansive tendency. Without air and fire, one could argue, earth and water would change into air and fire. This view was suggested to me by Ricardo Salles.

I adopt the more moderate interpretation because it is the least radical view that is required to make sense of the textual evidence, and it seems *prima facie* more plausible than the more radical interpretation. It seems implausible that all elements would tend to expand without the presence of fire. For, fire converts the other elements into fire, and thus the *presence* of fire causes the other elements to expand. The tendency of fire to burn things would be redundant if all elemental substances naturally tended to convert into fire.

changes occur. In order for air and fire to be present at Stage (1c), the first two changes of fire into air and air into water must be partial. Therefore, these changes are partial.

Let's move on to the third reason. Chrysippus claims that something called "pneuma" pervades the entire cosmos.[25] Consider Alexander of Aphrodisias's exasperated question:

Text K: Alexander of Aphrodisias, *De Mixtione* 223,6–9

> How is it not absurd to also say that the entire substance is unified by some pneuma that pervades through all of it, by which "the sum" is held together, co-endures, and is sympathetic with itself?[26]

Pneuma is somehow compounded out of fire and air.[27] Therefore, there is a substance compounded out of fire and air that is present in the entire cosmos. Given the account of the cosmogonic process discussed above, when does pneuma come to be present in the entire cosmos?

Let's assume that the first series of cosmogonic changes is total. It follows that only water is present at Stage (1c). The elemental spheres are generated at Stages (2a), (2b), (2c), and (3). There is no fire present in the cosmos until Stage (3), according to this account. So there can be no pneuma, which is somehow compounded out of fire and air, until after this stage. However, there is no reason for pneuma to come about at this time. For pneuma is meant to unify and order the cosmos. But Stage (3) completes the cosmic order, and it occurs without pneuma. So there is no reason for pneuma to be generated; its role has already been carried out.

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[25] I will transliterate πνεῦμα instead of translating it. Long and Sedley and others translate the term with "breath".

[26] Πῶς δ' οὐκ ἄτοπον καὶ τὸ λέγειν ἡνῶσθαι τὴν σύμπασαν οὐσίαν πνεύματός τινος διὰ πάσης αὐτῆς διήκοντος, ὑφ' οὗ συνέχεταί τε καὶ συμμένει τὸ πᾶν καὶ συμπαθές ἐστιν αὑτῷ;
Note how Alexander misuses τὸ πᾶν. Totalities' parts are not sympathetic to each other because they are *not* held together by a volume of pneuma. (Cf. Chapter Two, Section 2.) Alexander seems to use τὸ πᾶν as if it referred to τὸ ὅλον.

[27] I discuss how pneuma is compounded out of fire and air in detail in Section 4.

On the other hand, if the first series of cosmogonic changes is partial, then pneuma could be generated early in the cosmogonic process. According to this account, there are portions of fire and air at Stage (1b). So both of pneuma's ingredients are present at this stage. At some point in between Stage (1b) and (1c), the fire and air combine to form pneuma. Then the pneuma blends with the water, holds it together, and directs subsequent elemental changes. During Stages (2a), (2b), (2c), and (3), pneuma pervades each elemental sphere as soon as it is generated. Thus pneuma comes to pervade the entire cosmic order.

Plutarch provides a quotation by Chrysippus that confirms this interpretation. Chrysippus says:

Text L: Plutarch, *Stoic. Repug.* 1053b = SVF 2.605 = LS 46F

(1) "For when the cosmos is totally fiery, it is directly also its own soul and ruling part. (2) But when, changing into the moisture and the soul that has been left behind, (3) it changed in some way into body and soul so that it is composed out of these, it had another role [λόγον]."[28]

Chrysippus describes the cosmogony. L(1) refers to the conflagration. During this stage, the cosmos is only the fiery, ruling part of the soul. L(2) refers to the move from Stage (1a) to (1c): fire changes through air into water or moisture. Note that Chrysippus claims that there is a "soul that has been left behind" at this stage.[29] According to Chrysippus, souls are made of pneuma.[30] Pneuma is somehow compounded out of fire and air. Therefore, fire and air are present at Stage

[28] "διόλου μὲν γὰρ ὧν ὁ κόσμος πυρώδης εὐθὺς καὶ ψυχή ἐστιν ἑαυτοῦ καὶ ἡγεμονικόν· ὅτε δέ, μεταβαλὼν εἴς τε τὸ ὑγρὸν καὶ τὴν ἐναπολειφθεῖσαν ψυχήν, τρόπον τινὰ εἰς σῶμα καὶ ψυχὴν μετέβαλεν ὥστε συνεστάναι ἐκ τούτων, ἄλλον τινὰ ἔσχε λόγον."
[29] See also Arius Didymus in Eusebius *Praep. ev.* 15.20.5 = SVF 2.821, who calls the soul of the cosmos immortal.
[30] See, e.g. Hierocles, 1,15–19 = LS 53B2; Calcidius, *in Tim.* 220 = SVF 2.879 = LS 53G1; Alexander, *De anima libri mantissa* 115,6–7 = SVF 2.785; Plotinus, *Enn*. 4.7.3 = SVF 2.443.

(1c). But fire and air can be present at Stage (1c) only if the initial two changes were partial. Therefore, the initial two changes are partial.

Now I will argue that Cleanthes' cosmogony is roughly similar to Zeno and Chrysippus's cosmogonies. Because of this, a correct interpretation of Cleanthes' cosmogony confirms the interpretation of his predecessors' according to which the initial cosmogonic changes are partial. Arius Didymus reports Cleanthes' cosmogony:

Text M: Stobaeus, *Ecl.* 1.153,8–13 = SVF 1.497

(1) After the universe [τοῦ παντὸς][31] has been scorched, first, its middle collapses. (2) Next, the adjacent portions are totally extinguished. (3) And once the universe has been liquefied, (4) the last of the fire, after the middle has resisted it, (5) is turned in the opposite direction. (6) Next, [Cleanthes] says that, being turned upward, the fire increases and begins to order the whole.[32]

Imagine the cosmos during a period of conflagration. At some point, the conflagrationary fire will be extinguished. Cleanthes describes this process. The middle part of the cosmos "collapses" (συνίζειν). This word connotes a falling inward process accompanied by a decrease in volume.[33] So the middle part of the cosmos falls inward and decreases in volume. This describes the

[31] Note that Arius or Cleanthes does not abide by the standard Stoic distinction between *wholes* and *totalities*. The cosmos is a whole; it is not a totality. The compound of the cosmos and the external void is a totality. Yet this *totality* is not scorched; the *whole* – the cosmos – is scorched. For the void cannot be scorched. Thus I translate "τοῦ παντὸς" with the somewhat ambiguous phrase "the universe", although Arius seems to be reporting Cleanthes' view of how the cosmos, a whole, is generated.

[32] ἐκφλογισθέντος τοῦ παντὸς συνίζειν τὸ μέσον αὐτοῦ πρῶτον, εἶτα τὰ ἐχόμενα ἀποσβέννυσθαι δι' ὅλου. Τοῦ δὲ παντὸς ἐξυγρανθέντος τὸ ἔσχατον τοῦ πυρός, ἀντιτυπήσαντος αὐτῷ τοῦ μέσου, τρέπεσθαι πάλιν εἰς τοὐναντίον, εἶθ' οὕτω τρεπόμενον ἄνω φησὶν αὔξεσθαι καὶ ἄρχεσθαι διακοσμεῖν τὸ ὅλον·

[33] See Plato, *Timaeus* 72d3. I have chosen to translate "συνίζειν" with "collapse" rather than "sink" or "settle". Perhaps this begs the question in favor of my analysis. However, given the Stoic theory of elemental change, I think the choice is correct. For, if elemental change requires a change in underlying density, then when fire is extinguished and changes into another element, it must increase in density. This increase in density, when it begins at the center of a spherical object, appears as a falling inward movement accompanied by a decrease in volume. "Settle" does not clearly connote such a process, while "collapse" does.

process by which part of the conflagrationary fire turns first into air, and then into water. For elemental changes supervene on changes in density. Water is denser than air, and air is denser than fire. So the changes of fire into air and air into water are changes of less dense substances into denser substances, and the volumes of these substances *shrink* during these changes.

The center of the cosmos collapses, and thus becomes denser and made of water.[34] Then portions adjacent to the center do the same thing, according to M(2). One should imagine cascading elemental changes from fire through air into water, beginning from the center of the cosmos and moving gradually toward the periphery until the cosmos is almost entirely constituted by water. Hence Cleanthes says, according to M(3), that the cosmos "is liquefied" [ἐξυγραίνεσθαι] after these cascading changes.[35]

According to M(4), a portion of peripheral fire remains.[36] This fire makes contact with the center of the cosmos. David Hahm 1977 questions how fire could reach the center of the cosmos, since it was never in motion (241). However, thinking about the mechanics of the cosmogony provides an answer. During this extinguishing process, the cosmos loses volume. The peripheral fire stays "attached", as it were, to the rest of the cosmos. Therefore, as the cosmos loses volume, the peripheral fire is moved. For as the cosmos shrinks, the peripheral fire

[34] Salles 2015b, 23–5 argues that the middle collapsing is a process by which the center of the cosmos turns into *earth* and not water. He argues that the Stoics use the verb συνίζειν to refer to the production of earth. While I agree that sometimes the sources for Stoicism use the verb in this way, the induction to the claim that this is how the sources for Stoicism must always use the term is not well supported. Salles cites only two examples. Furthermore, Arius's use of the genitive absolute Τοῦ δὲ παντὸς ἐξυγρανθέντος in the next sentence suggests that the entire cosmos has been turned into water during the process by which the middle collapses and by which the adjacent parts are extinguished. Salles' explanation for this phrase is speculative and unconvincing.

[35] In Theophrastus, *De Lapidus* 10, the verb ἐξυγραίνεσθαι seems to mean "to be dried out" or "to be deprived of moisture". Could it mean something similar in this fragment? If so, Cleanthes' cosmogony would differ dramatically from Zeno and Chrysippus's theory, or this passage would describe a different phase in the cosmogony.

[36] Gould 1970, 121 n. 1 claims that only Cleanthes posits residual fire.

One might object that if the cosmos has liquefied, then there should be no remaining fire. However, Cleanthes clearly thinks that some fire remains, according to this report from Arius. Thus when the cosmos is liquefied, according to Cleanthes, it is constituted by *mostly* water.

is brought along for the ride. Eventually, it begins to move *through* the cosmos by continuing to move in the direction that was initiated by the extinguishing process. Thus it moves through the cosmos and makes contact with its center, according to M(4). Once it makes contact with the center of the cosmogonic water, the fire then moves in the opposite direction, back toward the periphery, according to M(5). This seems to describe the process by which the cosmogonic water and the peripheral remainder of the conflagrationary fire blend.[37] According to Cleanthes, the fire then directs subsequent changes by ordering the whole.[38]

Cleanthes and Chrysippus have different theories of pneuma. However, Cleanthes' cosmogonic theory supplies a model to explain how Chrysippus accounts for the presence of pneuma in the cosmos. According to Cleanthes, in the process leading up to Stage (1c), some portion of fire remains. That fire blends with the cosmogonic water and then directs subsequent stages. Likewise, Chrysippus should claim that when the cosmogonic water has been generated, there is still some fire and air that moves through the cosmogonic water and begins to order the cosmos. Thus we should use Cleanthes' account of the cosmogony to understand Chrysippus's view.

We should also note that this account of the first series of cosmogonic changes makes sense of the puzzling Stage (4) mentioned in Arius's presentation of Zeno's cosmogony in Text C. Arius says, "And blending happens by means of a change of the elements into each other". At first glance, it is unclear what this claim has to do with cosmogony. It is also unclear how a change of elements is the means by which blending happens. Blending does not require

[37] Compare Philo's account of the motion of pneuma (*Quod deus sit immut.* 35-6 = SVF 2.458 = LS 47Q). I discuss this passage in Section 4.
[38] See Hahm 1977, 240–8 for an alternative account of this passage.

elemental change. At least, no elemental change seems to occur when some water and some wine blend with each other.

However, this account can make sense of the claim. The blend of pneuma with the rest of the elemental spheres occurs by means of the conflagrationary fire partially changing into air and water. As the peripheral fire is dragged along during the cosmic collapse, it moves through the air, and then the pneuma moves through the cosmogonic water and blends with it. Thus cosmogonic blending of pneuma with the cosmic order occurs by means of the conflagrationary fire changing into air and water, which is an elemental change.

Thus there are three reasons for believing that the first two cosmogonic changes are partial. Part of fire transforms into air at Stage (1b). Part of air transforms into water at Stage (1c). The remaining fire and air blend to form pneuma. That pneuma blends with the water to hold it together. Then the concentric elemental spheres that make up the cosmic order are produced. This is the correct account of Chrysippus's developed cosmogony.[39]

Ricardo Salles 2015b argues that the first two cosmogonic changes must be total, and only water is present at Stage (1c) (17). He argues that all of fire changes into air, and all of that

[39] Cooper 2009 argues that the first series of changes – (1a) through (1c) – are not elemental changes. Rather, he posits something called "proto-elements", which are "somewhat *like*, in being fiery, airy, and watery respectively … but lack the determinate structure of, the three actual material elements called fire, air, and water respectively" (107). He argues that these "actual material elements" only come about in Stages (2a), (2b), (2c), and (3). He claims that Chrysippus's cosmogony proceeds from the conflagration, through proto-elements, into actual elements. Cooper's account is likely incorrect. His only consideration against my interpretation of these sources, according to which the standard four elements are discussed throughout, is that "[i]t is obvious that the fire, air, and water or moisture referred to [in Stages (1a), (1b), and (1c)] cannot be any version of the four elements out of which the world and its contents are subsequently constructed" (106–7). However, not only is this not obvious, but there are strong reasons to think that this *must* be the case, since no source suggests that Chrysippus, or any of the Stoics, posited anything like a proto-element. Cooper laments the fact that Chrysippus had no "such linguistic device at his disposal" to indicate the difference between proto-elements and elements (96). But he did: Plato's "traces" (ἴχνη) of the elements (*Timaeus* 53b2). Timaeus uses this word to refer to objects that are almost exactly similar to Cooper's proto-elements. Therefore, if Chrysippus posited proto-elements, it seems likely he would have used this word; none of our sources suggest that he did. Therefore, we shouldn't accept Cooper's interpretation without further justification.

air changes into water. His evidence for this claim is Diogenes Laertius's statement that God turns "the whole substance" (τὴν πᾶσαν οὐσίαν) through air into water, reported in Text F. Salles claims that if the whole substance is turned into water, then fire and air cannot remain in the cosmos. For "the whole substance" seems to encompass everything there is.

Given the weight of the three considerations above, I think this piece of evidence should not force us to accept Salles' conclusion. However, I will offer an alternative interpretation of Diogenes' statement to bolster my case.

In this account of the cosmogony, Diogenes divides God's activity into three stages. First, he turns "the whole substance" into water. Next, he stays behind in the moisture and he "makes matter malleable to himself with respect to the generation of the subsequent things" (εὐεργὸν αὑτῷ ποιοῦντα τὴν ὕλην πρὸς τὴν τῶν ἑξῆς γένεσιν). Finally, he generates the elemental spheres out of the cosmogonic water. My hypothesis is that "the whole substance" anticipates the fact that God will soon act on the water in order to produce the elemental spheres. After Stage (1c), all of God's constructive activity is directed toward the cosmogonic water. He makes it suitable for the next stage in the cosmogony – the generation of the elemental spheres. Then he produces the earth sphere, water sphere, and air sphere by acting on it. Because of this, immediately after Stage (1c), the cosmogonic water is the only passive substance. Assume that Diogenes is using "substance" synonymously with "matter" in this sentence. It follows that, after Stage (1c), the cosmogonic water is "the whole substance", i.e., the only occupant of matter's role.[40] By saying that God turns the whole substance into water, Diogenes anticipates the fact that, once produced,

[40] This is perhaps too quick. In the following chapter, I will argue for an interpretation that entails that the water at this stage is constituted by the occupant of matter's role. However, it is not identical to the occupant of matter's role. So perhaps I should say that the cosmogonic water is the only substance constituted by the occupant of matter's role at this stage.

water will be the only occupant of matter's role. Given this alternative interpretation of Salles' evidence, and given the three considerations above, it's more plausible that the first series of cosmogonic changes is partial.[41]

Given this account of the cosmogony, we can now determine the immanent efficient cause of the cosmos. According to Cleanthes, fire occupies this role. For M(6) states that the peripheral fire begins to order the whole cosmos after it blends with the cosmogonic water. Its blending with the water makes it immanent within the cosmos. Therefore, the peripheral fire that remains after most of the cosmos has liquefied occupies God's role, according to Cleanthes.

Chrysippus seems to agree with Cleanthes. For quotations from Plutarch imply that Chrysippus thinks that a fiery substance present during the conflagration remains behind in the cosmogonic water. Chrysippus says that the soul of the cosmos has consumed the cosmos's body during the conflagration (Plutarch, *Stoic. Repug.* 1052c = SVF 2.604 = LS 46E). He uses "soul of the cosmos" interchangeably with "God".[42] Later, he claims that the soul of the cosmos, i.e., God, remains behind in the cosmogonic water during the cosmogony. For L(1) entails that only a fiery soul is present in the cosmos during the conflagration. In L(2), Chrysippus says that that soul "is left behind in" (ἐναπολειφθεῖσαν) the cosmogonic water. Since Chrysippus treats "soul of the cosmos" and "God" interchangeably, he seems to claim that a type of substance – fire – is present during the conflagration, and this substance becomes immanent in the cosmos during the cosmogony. Once is becomes immanent, this fire occupies the active principle's role in this

[41] One might also cite Seneca, *Naturales Quaestiones* 3.13 in support of Salles' interpretation, as Hahm 1977, 83 n. 2 does. Again, my initial reaction to such texts is to assert that the weight of evidence, including quotations of Chrysippus, supports the interpretation that some fire remains after the conflagration.
[42] See Chapter Five, Section 5.

process. It is called "God" because it takes on God's role during the cosmogony, even if it doesn't presently occupy that role during the conflagration.

I will note two additional sources that seem to confirm this interpretation. In Text F, Diogenes claims that God "remains behind in the moisture" (ὑπολείπεσθαι ἐν τῷ ὑγρῷ) after he changes the conflagration's fire through air into water. Given the passages from Plutarch, the substance that seems like the best candidate for what remains behind is fire. So Diogenes' claim that God remains behind, immanent in the cosmogonic water, agrees with my analysis of Chrysippus's claim that the soul of the cosmos remains behind in the cosmogonic water.

After Sextus Empiricus presents the Stoics' argument that the cosmos is a unified body, he says, "since some unified bodies are held together by bare *hexis*, some by nature, and some by soul … certainly, the cosmos is also governed by one of these" (*M* 9.81). He rules out the possibility that the cosmos is held together by bare *hexis*. Instead, he says:

Text N: Sextus Empiricus, *M* 9.84–5 = SVF 2.1013

(1) If [the cosmos is not held together] by [bare *hexis*], then certainly it is held together by nature. (2) For even the bodies controlled by soul were, for the most part, first held together by nature. (3) Thus it's necessary that it is held together by the best nature, since it also contains the natures of everything. But what contains the natures of everything also contains rational natures. Moreover, the nature containing rational natures is certainly rational. For the whole couldn't be worse than a part. (4) But if the nature governing the cosmos is the best, then it's intelligent, excellent, and immortal. Being such, it is God.[43]

[43] εἰ δὲ μὴ ὑπὸ ταύτης, πάντως ὑπὸ φύσεως· καὶ γὰρ τὰ ὑπὸ ψυχῆς διακρατούμενα πολὺ πρότερον ὑπὸ φύσεως συνείχετο. ἀνάγκη ἄρα ὑπὸ τῆς ἀρίστης αὐτὸν φύσεως συνέχεσθαι, ἐπεὶ καὶ περιέχει τὰς πάντων φύσεις. ἡ δέ γε τὰς πάντων περιέχουσα φύσεις καὶ τὰς λογικὰς περιέσχηκεν. ἀλλὰ καὶ ἡ τὰς λογικὰς περιέχουσα φύσεις πάντως ἐστὶ

Sextus claims that the cosmos is held together by a nature. Then, in N(2), he invokes the Stoics' claim that embryos are held together by natures while they develop (cf. Hierocles, 1.11–19 = LS 53B). He also claims that the cosmos is held together by a rational nature in N(3). Now, the Stoics did not claim that natures could be rational. For natures are the controlling *hexeis* of plants, and plants are not rational. So Sextus seems to be misrepresenting the Stoics somehow. Most likely, the Stoics claimed that the cosmos was held together by a rational soul, but they sometimes called this rational soul "Nature".[44] In any case, whether the Stoics claim that the cosmos is held together by a soul or a nature, the Stoics identify this governing *hexis* with God, according to N(4). But all *hexeis* are somehow compounded out of fire and air. For they are volumes of pneuma. Therefore, a substance that at least contains fire is identified as the occupant of God's role.

According to the evidence, fire occupies God's role, at least with respect to God's task of efficiently causing and generating the ordered cosmos. In the following sections, I will determine what type of body occupies God's role with respect to the other wholes.

3. Artistic Fire and Pneuma: Zeno and Cleanthes

Consider the following passage from Aetius, which seems to explicitly identify the occupant of God's role. Aetius says:

Text O: Aetius, *Plac*. 1.7,33 = SVF 2.1027 = LS 46A

(1) The Stoics declare that intelligent God is artistic fire, proceeding in an orderly manner toward the generation of the cosmos, encompassing all of the seminal reasons according

λογική· οὐ γὰρ οἷόν τε τὸ ὅλον τοῦ μέρους χεῖρον εἶναι. ἀλλ' εἰ ἀρίστη ἐστὶ φύσις ἡ τὸν κόσμον διοικοῦσα, νοερά τε ἔσται καὶ σπουδαία καὶ ἀθάνατος. τοιαύτη δὲ τυγχάνουσα θεός ἐστιν.

[44] See, for example, how Diogenes Laertius, 7.156 describes nature in the same way as God is described below in Text O.

to which everything comes about according to fate. (2) [They] also [declare] that he is pneuma that completely pervades the cosmos, and which changes its name because of the variations of the matter through which it passes.[45]

According to O(1), the Stoics seem to identify the occupant of God's role as a type of fire – artistic fire.[46] This would agree with my argument in the previous section. However, in O(2), Aetius claims that the Stoics also identify pneuma as the occupant of God's role. This is surprising. For pneuma is somehow compounded out of fire and air. Therefore, Aetius suggests that the Stoics identified two occupants of God's role: a type of fire and something somehow compounded out of fire and air.

Other sources attribute these views to the Stoics. Servius claims that the Stoics defined God as "intelligent fire" (πῦρ νοερὸν) (*in Verg. Aen.* 6.727 = SVF 2.1031). Eusebius attributes the view that God is "nothing other than the power of fire" to the Stoics (*Praep ev.* 3.9.9 = SVF 2.1032). On the other hand, Sextus Empiricus says, "the Stoics say that God is pneuma, which extends even through loathsome things" (*PH* 3.218 = SVF 2.1037). Clement reports something similar: "The Stoics say that God is a body and pneuma by substance" (*Stromata* 5.14 = SVF 2.1035). Clement seems to explicitly refer to the Stoics' distinction between a role and an

[45] οἱ Στωικοὶ νοερὸν* θεὸν ἀποφαίνονται, πῦρ τεχνικόν, ὁδῷ βαδίζον ἐπὶ γενέσει κόσμου, ἐμπεριειληφὸς <τε> πάντας τοὺς σπερματικοὺς λόγους καθ' οὓς ἅπαντα καθ' εἱμαρμένην γίνεται, καὶ πνεῦμα μὲν ἐνδιῆκον δι' ὅλου τοῦ κόσμου, τὰς δὲ προσηγορίας μεταλαμβάνον κατὰ τὰς τῆς ὕλης, δι' ἧς κεχώρηκε, παραλλάξεις. (Text: Long and Sedley 1987, 2.271–2)
*Ps.-Plutarch *Plac.* 881F νοερὸν E : κοινότερον (A)BC. Cf. Diels (1879), 9–10; 305–6. Diels compiles Aëtius' *Placita Philosophorum* from Ps.-Plutarch and Stobaeus. Stobaeus's text has νοερὸν (*Ecl.* 1.137,20). I have adopted Diels and Long and Sedley's νοερὸν instead of the textual variant κοινότερον from some manuscripts of Ps.-Plutarch.

[46] To what does "intelligent God" (νοερὸν θεὸν) refer? Does the use of this phrase entail that there is an unintelligent God? I speculate that "intelligent God" might have been a standard Stoic way to distinguish God, the active principle, from the gods that reside in the heavens. "Intelligent God" might refer to the active principle, but it does not necessarily mean that other gods are not intelligent. For example, see Stobaeus, *Ecl.* 1.214,1-3, which reports that Chrysippus called the sun "νοερὸν". Chrysippus does not think that the sun is the active principle. Therefore, there are some intelligent things which are not the active principle. Thanks to Tad Brennan for discussion.

occupant when he calls God "pneuma by substance" (πνεῦμα κατ' οὐσίαν). Finally, Alexander calls God "intelligent and eternal pneuma" (πνεῦμα … νοερόν τε καὶ ἀίδιον) on behalf of the Stoics (*De Mixtione* 225,3–4).

Thus there is strong evidence that some of the Stoics accepted some combination of the views that (a) fire occupies God's role and (b) pneuma occupies God's role. In the following two sections, to determine how these views were divvied up among the first three leaders of the school, I will analyze the nature and physical makeup of both artistic fire and pneuma. Once we have a clear picture of these substances, we will be in a better position to evaluate the Stoics' views.

First, let's examine artistic fire. Zeno posits a distinction between artistic fire and inartistic fire. Arius Didymus describes this distinction:

> **Text P: Stobaeus, *Ecl.* 1.213,17–20 = SVF 1.120 = LS 46D**
>
> (1) For [Zeno says] that there are two kinds of fire: (2) inartistic [ἄτεχνον], which changes its fuel into itself, (3) and artistic [τεχνικόν], which is increasative and preservative, (4) like [the fire] in plants and animals, which, of course, is nature and soul respectively.[47]

Zeno distinguishes two types of fire. Inartistic fire burns its fuel and converts it into fire; artistic fire preserves things. It seems clear why Zeno would claim artistic fire occupies God's role. God's role includes continually sustaining matter in the shape of natural objects. Artistic fire is preservative. Thus it is suited for carrying out God's functions.[48]

[47] Δύο γὰρ γένη πυρός, τὸ μὲν ἄτεχνον καὶ μεταβάλλον εἰς ἑαυτὸ τὴν τροφήν, τὸ δὲ τεχνικόν, αὐξητικόν τε καὶ τηρητικόν, οἷον ἐν τοῖς φυτοῖς ἐστι καὶ ζῴοις, ὃ δὴ φύσις ἐστὶ καὶ ψυχή·

[48] See also Cicero, *De Natura Deorum* 2.57-8.

According P(4), Zeno says that the fire "in plants and animals" (ἐν τοῖς φυτοῖς ἐστι καὶ ζῴοις), which is "nature and soul" (φύσις … καὶ ψυχή), is artistic fire. Arius identifies artistic fire with two species of the genus *hexis*. *Hexeis* are responsible for organizing and coordinating unified bodies' parts. Souls are the governing *hexeis* of animals, and natures of plants.

Sources ascribe two apparently distinct views to Zeno about the physical makeup of souls. In several works, Cicero attributes the claim that souls are made of fire to Zeno.[49] This agrees with Arius's report in P(4). According to other sources, Zeno claims that souls are made of pneuma.[50] If Zeno thinks that pneuma and artistic fire are distinct, we would infer that these sources conflict. At that point, we might arrive at an interpretive impasse. For neither set of sources is more reliable than the other. However, another option is available. Since no source explicitly describes Zeno's theory of the physical constitution of pneuma or artistic fire, Zeno could have identified the two substances. If so, then the sources present a consistent theory. Zeno used two terms to refer to the same substance: "artistic fire" and "pneuma".

Note that this latter interpretive option would make sense of Text O, at least with respect to Zeno. For Aetius claims that the Stoics identified both artistic fire and pneuma as the occupant of God's role. If artistic fire and pneuma are the same substance, then this claim is easy to understand. Thus I adopt this interpretation of the relationship between artistic fire and pneuma, at least with respect to Zeno.

What is the nature of artistic fire, in Zeno's view? Some scholars have argued that inartistic fire is elemental fire and artistic fire is non-elemental fire.[51] Michael Lapidge 1973

[49] See *Acad.* 1.39; *De Fin.* 4.12; *Tusc. Disp*. 1.19 (all reported in SVF 1.134).
[50] Diogenes Laertius, 7.157 = SVF 1.135; Galen *Hist. Phil.* 24 = SVF 1.136; *PHP* 2.8 = SVF 1.140; Tertullian, *De Anima* 5 = SVF 1.137; Calcidius *in Tim.* 220 = SVF 1.138. Bakhouche 2011, 849 n. 1005 claims, unconvincingly, that Zeno did not use the term "pneuma".
[51] Hager 1982, 101; Lapidge 1973, 267–73; 1978, 167; Long 1996b, 43; Sellars 2006, 98–9; White 2003, 134.

argues that because the principles and elements are distinct, and because Zeno says that God is artistic fire, artistic fire must be non-elemental.

However, there are reasons why we should resist identifying inartistic fire with elemental fire. Elemental fire partly constitutes complex objects like animals and plants.[52] Therefore, if inartistic fire were elemental fire, inartistic fire would carry out this task. However, inartistic fire burns things. Thus, if inartistic fire partly constitutes complex objects, it would ignite the other elements, and complex objects would be consumed by fire. Therefore, inartistic fire is not a suitable candidate for being elemental fire. Indeed, if either artistic or inartistic fire is elemental fire, then artistic fire seems like the better candidate; for it preserves things. Therefore, Zeno likely does not think that the distinction between inartistic and artistic fire is a distinction between elemental fire and the principle fire.

In the previous chapter, I argued that the classic elemental role of being a primary immanent component is distinct from the principles' roles. In particular, it is distinct from God's role. Hence "the elements", in Diogenes' use of the term, are distinct from the principles, in so far as they have unique roles within Stoic physics. But this does not entail that different types of substances occupy their roles. In some physical contexts, a type of substance might carry out preservative tasks, while in other contexts, that same substance might be destructive. Thus we cannot use Diogenes' distinction between principles and elements to infer that artistic fire is intrinsically distinct from elemental fire.

Thus Zeno likely did not distinguish the type of substance that is a primary immanent component and the type of substance that constructs unified natural objects. In fact, at this point, we have no reason to think that artistic fire and inartistic fire are intrinsically distinct types of

[52] See, e.g., Stobaeus, *Ecl*. 1.129,4–7;130,4–10 and my discussion in Chapter Three, Section 3.

substances. Instead, they might be two ways of describing the same type of body under different conditions.[53] On this point, our sources are silent with respect to Zeno's view. Text P merely says that artistic fire preserves, while inartistic fire consumes. But neither Arius Didymus nor another source explains why both of these substances are called "fire" and whether or what physical differences account for their different powers.[54] Furthermore, no source explains why Zeno identified pneuma – which Aristotle had described as "hot air" (*GA* 736a1) – with a type of *fire*.

Perhaps we lack this evidence because Zeno did not fully develop his theory. Perhaps he never worked out exactly what sort of substance artistic fire was, how it differed physically from inartistic fire, and why it should be identified with pneuma. Thus while Zeno consistently maintains that a certain sort of fire – artistic fire – is the occupant of God's role, he did not put forward a detailed physical account of how this substance carries out this role. The fact that Cleanthes and Chrysippus apparently expanded on Zeno's theory might confirm this hypothesis.

Cleanthes similarly distinguishes two types of fire. Consider the following passage from the *De Natura Deorum*:

Text Q: Cicero, *ND* 2.40–1 = SVF 1.504

(1) "Therefore", [Cleanthes] says, "since the sun is made of fire and is nourished by the vapors exhaled from the ocean (because no fire could continue to exist without some sort of fuel), it is necessary that it resembles either that fire which we employ in ordinary life

[53] On this point, see Furley 1999, 440; Mansfeld 1979, 155; Sorabji 1988, 95 n. 68.

[54] Arius Didymus, reporting Chrysippus's view, states that "everything fiery is called fire" (Λέγεσθαι … πῦρ τὸ πυρῶδες πᾶν) (Stobaeus, *Ecl*. 1.129,23–4). Thus one might argue that artistic and inartistic fire are both fire because they're both fiery. But this does not help. What is it to be fiery, and how are these two substances fiery without being the same type of substance? We still need a physical explanation of the differences. Cooper 2009, suggests that this remark by Arius is meant to open the door to distinguish elemental fire from non-elemental fire (107; 109 n. 35). However, he does not attempt to explain what being fiery is. He says that non-elemental fire "lacks the determinate structure" of elemental fire (107). He cites no evidence for this analysis, nor does he explain its meaning further.

> or that which is contained in the bodies of living creatures. (2) Now our ordinary fire that serves the needs of daily life is a destroyer and a consumer of everything, and wherever it spreads it routs and scatters everything. (3) On the other hand, the fire of the body is the glow of life and health; it is the universal preservative, giving nourishment, fostering growth, sustaining, and bestowing sensation." (4) He therefore denies that there is a doubt regarding which of the two kinds of fire the sun resembles, since the sun also causes all things to flourish and to grow each according to its kind. (5) Hence since the sun resembles those fires which are contained in the bodies of living creatures, the sun also must be alive; and so too the other heavenly bodies, since they have their origin in the fiery heat of heaven [ardore caelesti] that is called "aether" or "sky" (trans. Rackham modified).[55]

Cleanthes claims that there are two kinds of fire: ordinary fire and preservative fire. According to Q(2), ordinary fire destroys. Presumably, it does so by consuming fuel and converting the fuel into fire. Thus ordinary fire resembles Zeno's inartistic fire in this respect. According to Q(3), preservative fire fosters growth, sustains, and provides sensation. Thus preservative fire resembles Zeno's artistic fire in this respect.

According to Q(4), Cleanthes claims that the sun preserves things and fosters growth. So, according to Q(5), Cleanthes claims that the sun is made of preservative fire. However, Q(1) also

[55] "ergo" inquit "cum sol igneus sit Oceanique alatur umoribus (quia nullus ignis sine pastu aliquo possit permanere) necesse est aut ei similis sit igni quem adhibemus ad usum atque victum, aut ei qui corporibus animantium continetur. atqui hic noster ignis, quem usus vitae requirit, confector est et consumptor omnium idemque quocumque invasit cuncta disturbat ac dissipat; contra ille corporeus vitalis et salutaris omnia conservat alit auget sustinet sensuque adficit." negat ergo esse dubium horum ignium sol utri similis sit, cum is quoque efficiat ut omnia floreant et in suo quaeque genere pubescant. quare cum solis ignis similis eorum ignium sit qui sunt in corporibus animantium, solem quoque animantem esse oportet, et quidem reliqua astra quae oriantur in ardore caelesti qui aether vel caelum nominatur.

states that the sun consumes fuel.[56] In fact, fire is incapable of existing without using fuel, according to Cleanthes. Thus the sun has one capacity in common with ordinary fire: the capacity to consume (and thus destroy) its fuel. Therefore, according to Cleanthes, the distinction between preservative fire and ordinary fire does not entail that for any capacity that ordinary fire has, preservative fire lacks that capacity. If Cleanthes assimilated Zeno's distinction between fires, then perhaps Zeno endorsed a similar claim: the distinction between artistic fire and inartistic fire does not entail that, for any capacity that inartistic fire has, artistic fire must lack it.[57]

Cleanthes asserts that the sun is made of preservative fire, since it causes things to flourish and grow. It does so by imparting heat and warmth to the things in the world.[58] In an earlier passage, Balbus discusses heat. He says:

Text R: Cicero, *De Natura Deorum* 2.30–31

(1) Moreover, that glowing heat of the world [mundi ille fervor] is far purer and more brilliant and far more mobile, and therefore more stimulating to the senses, than this warmth of ours [hic noster calor] by which the things that we know are preserved and vitalized. (2) Since human beings and animals are held together [teneatur] by this warmth [calore] (3) and owe to this their motion and sensation, it is therefore absurd to say that the world is devoid of sensation, (4) considering that it is held together by a fiery heat [ardore] that is stainless, free, and pure, and also penetrating and mobile in the extreme;

[56] See Salles 2005 and 2009a for discussion. See also Furley 1999, 439.
[57] See Sorabji 1988, 95 n. 68.
[58] See *ND* 2.50. Balbus says that the moon "emits many streams of influence, which supply animal creatures with nourishment and stimulate their growth and which cause plants to flourish and attain maturity" (multaque ab ea manant et fluunt quibus et animates alantur augescantque et pubescant maturitatemque adsequantur quae oriuntur e terra). The moon is made of the same type of substance as the sun (*ND* 2.39). If the moon causes things to flourish by emitting some sort of substance, then presumably the sun is able to do so as well. It seems clear that the sun emits heat.

(5) especially since this fiery heat [ardor] does not derive its motion from the operation of some other force from outside, but it is self-moved and spontaneous in its activity. (6) For how can there be anything more powerful than the world to impart motion and activity to the warmth [calorem] by which the world is held together? (trans. Rackham modified).[59]

Balbus says that the world and the animate creatures in it are held together by heat, warmth, or fiery heat in R(1), R(2), and R(4). Cleanthes describes being held together throughout this passage. The heat is that by which things are preserved, vitalized, and moved; it is also that by which they perceive. From this, we should conclude that Cleanthes endorses the following account. The sun and other celestial objects are made out of preservative fire. For they foster growth and preservation to the world and the things in it by imparting warmth and heat to them. Warmth and heat radiate off of the celestial objects as byproducts, come to reside in the world and objects in it, and then hold those objects together and preserve them. Hence preservative fire fosters preservation and growth by imparting heat and warmth to unified natural objects in the world.

We can interpret this account in two ways. Either this heat and warmth which emanates from the sun is or is not fire. The latter option seems implausible.[60] In Q(3), Cleanthes states that there is fire contained in our bodies which fosters growth and sustains. In R(1) and R(2), Balbus states that heat and warmth in our bodies preserves us. Thus Cicero's Balbus sometimes uses

[59] Atque etiam mundi ille fervor purior perlucidior mobiliorque multo ob easque causas aptior ad sensus commovendos quam hic noster calor, quo haec quae nota nobis sunt retinentur et vigent. absurdum igitur est dicere, cum homines bestiaeque hoc calore teneantur et propterea moveantur ac sentiant, mundum esse sine sensu, qui integro et libero et puro eodemque acerrimo et mobilissimo ardore teneatur, praesertim cum is ardor qui est mundi non agitatus ab alio neque externo pulsu sed per se ipse ac sua sponte moveatur; nam quid potest esse mundo valentius, quod pellat atque moveat calorem eum quo ille teneatur.

[60] Thanks to Tad Brennan for discussion of this topic.

"heat" and "warmth" to refer to Cleanthes' preservative fire, and this substance unifies and preserves natural wholes, just like Zeno's artistic fire.

The sun is made of preservative fire, and it emanates preservative fire. As I noted above, it also consumes a portion of its fuel. Likewise many ordinary fires emanate preservative heat while also consuming and destroying fuel. For example, a campfire warms and sustains people, while it consumes wood. According to Cleanthes and Balbus, one fire is preservative because it has mostly preservative effects; another fire is destructive because it has mostly destructive effects. Hence the sun is made of preservative fire because, although it does consume and destroy some water vapor, it preserves many things. A forest fire is made of ordinary, destructive fire because its preservative effects are few compared to the destruction it causes. Thus Cleanthes distinguishes preservative fire from ordinary fire on the basis of extrinsic factors.

Like Zeno, Cleanthes claims that souls are made of pneuma. Tertullian suggests that Cleanthes also follows Zeno by claiming that pneuma is preservative (or artistic) fire:

Text S: Tertullian, *Apol.* 21.10 = SVF 1.533

(1) This [logos] Zeno defined as the maker who molded everything into an arrangement. (2) And this is called fate, God, the mind of Jupiter, and necessity of all things. (3) Cleanthes collected those things into spirit, which he claims permeates the universe.[61]

Tertullian reports Zeno's theory of the active principle. The active principle, as we have seen in Chapter Two, is also called "reason" (λόγος). And it goes by many names, which Tertullian lists. Then Tertullian claims that Cleanthes "collected" (congerit) all of the names of the active principle into spirit. This presumably means that Cleanthes thought that the active principle was

[61] Hunc enim Zeno determinat factitatorem, qui cuncta in dispositione formaverit; eundem et fatum vocari et deum et animum Iovis et necessitatem omnium rerum. Haec Cleanthes in spiritum congerit quem permeatorem universitatis affirmat.

made out of spirit. Therefore, since the active principle is omnipresent, spirit is omnipresent, according to Cleanthes. "Spirit" is our Latin sources' translation of "pneuma". We know that Cleanthes thinks preservative fire occupies the role of the active principle. So it seems that Cleanthes identifies pneuma and preservative fire.

Therefore, the first two leaders of the Stoics held similar theories. Both Zeno and Cleanthes distinguish preservative, artistic fire from ordinary, inartistic fire. They also call this preservative, artistic fire "pneuma", and they claim that this substance occupies God's role. Zeno does not explain why the two fires differ. Cleanthes distinguishes them on the basis of extrinsic factors.

4. Artistic Fire and Pneuma: Chrysippus

Chrysippus's theory of pneuma differs from his predecessors'. Chrysippus claims that air plays a compositional role in pneuma. In this section, I will examine Chrysippus's theory. Plutarch quotes Chrysippus in the following passage:

> **Text T: Plutarch, *Stoic. Repug*. 1053e–f = SVF 2.429; 2.449 = LS 47M**
>
> (1) Furthermore, he says that air is naturally dark, and he uses this as evidence of the fact that it is also primarily cold. (2) For its darkness is opposed to fire's brilliance, and its coldness to fire's heat. (3) Putting forward these claims in the first book of his *Physical Investigations* and again in his *On Hexeis*, he says that *hexeis* are nothing but airs. (4) "For bodies are held together by these. (5) And the cohesive air [ὁ συνέχων ἀήρ] is the cause of the fact that each thing is qualified (among things held together by *hexis*) – (6)

cohesive air which people call hardness in iron, denseness in stone, and whiteness in silver."[62]

Plutarch and Chrysippus use the term *hexis* in this passage. *Hexis* is a type of pneuma, along with nature and soul. Thus Chrysippus claims that at least one type of pneuma is made of air.[63] For Plutarch's paraphrase in T(3) – "*hexeis* are nothing but airs" (οὐδὲν ἄλλο τὰς ἕξεις πλὴν ἀέρας) – seems to exclude any other elements from making up the pneuma of *hexeis*. Furthermore, Chrysippus himself seems to call *hexis* a type of "cohesive air" in T(5). For the moment, let's suppose that all forms of pneuma have the same compositional structure. It follows that all pneuma is air. Let's name this thesis:

Pneuma-Air : If something is pneuma, then it is air.

Two other passages support Pneuma-Air. First, Plutarch describes the Stoic theory of qualities. He says:

Text U: Plutarch, *Stoic. Repug.* 1054a = SVF 2.449 = LS 47M

(1) Yet everywhere they state that per se idle and unmoved matter supports qualities, (2) and that qualities, which are volumes of pneuma and aeriform tensions, (3) give form and shape each of the parts of matter in which they come to be.[64]

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[62] ἔτι* τὸν ἀέρα φύσει ζοφερὸν εἶναι λέγει, καὶ τούτῳ τεκμηρίῳ χρῆται τοῦ καὶ ψυχρὸν εἶναι πρώτως· ἀντικεῖσθαι γὰρ αὐτοῦ τὸ μὲν ζοφερὸν πρὸς τὴν λαμπρότητα τὸ δὲ ψυχρὸν πρὸς τὴν θερμότητα τοῦ πυρός. ταῦτα κινῶν ἐν τῷ πρώτῳ τῶν Φυσικῶν Ζητημάτων πάλιν ἐν τοῖς περὶ Ἕξεων οὐδὲν ἄλλο τὰς ἕξεις πλὴν ἀέρας εἶναί φησιν· 'ὑπὸ τούτων γὰρ συνέχεται τὰ σώματα· καὶ τοῦ ποιὸν ἕκαστον εἶναι τῶν ἕξει συνεχομένων αἴτιος ὁ συνέχων ἀήρ ἐστιν, ὃν σκληρότητα μὲν ἐν σιδήρῳ πυκνότητα δ' ἐν λίθῳ λευκότητα δ' ἐν ἀργύρῳ καλοῦσι.'
*Following Sandbach.

[63] "*Hexis*" also refers to the genus of which soul, nature, and (bare) *hexis* are species. It seems that Chrysippus means "bare *hexis*" by "*hexis*" in this passage, however. For, his examples of the objects held together by *hexis* are inanimate objects, and bare *hexeis* hold together inanimate objects.

[64] καίτοι πανταχοῦ τὴν ὕλην ἀργὸν ἐξ ἑαυτῆς καὶ ἀκίνητον ὑποκεῖσθαι ταῖς ποιότησιν ἀποφαίνουσι, τὰς δὲ ποιότητας πνεύματ' οὔσας καὶ τόνους ἀερώδεις, οἷς ἂν ἐγγένωνται μέρεσι τῆς ὕλης, εἰδοποιεῖν ἕκαστα καὶ σχηματίζειν.

Plutarch attributes to the Stoics the claim that "qualities are volumes of pneuma and aeriform tensions" (τὰς δὲ ποιότητας πνεύματ' οὔσας καὶ τόνους ἀερώδεις). What is the relationship between the volumes of pneuma and aeriform tensions? Perhaps "aeriform tensions" is a gloss on "volumes of pneuma". If so, then Plutarch suggests that pneuma and aeriform tensions are the same thing. What are aeriform tensions? Given the previous passage from Plutarch, the reader is primed to think that they are just some particular sort of air – air that has some sort of tension. So this passage supports Pneuma-Air.[65]

Finally, Arius Didymus suggests that pneuma is made out of air. He says:

Text V: Stobaeus, *Ecl.* 153,24–154,3 = SVF 2.471

(1) Chrysippus maintained something like this: (2) that the being[66] is pneuma moving itself toward itself and away from itself, or pneuma moving itself forward and backward. (3) And he has used the word "pneuma" on the grounds that it is said to be moving air.[67]

There is a substance that moves in a certain way, according to V(2). Chrysippus calls it "pneuma". According to V(3), the reason why he calls it pneuma is that "pneuma" is taken to mean "moving air". Chrysippus would only use this term if he also thought that pneuma was a certain sort of air.[68] Of course, he refines the common definition by describing the air's

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[65] Cf. Plutarch *De Comm. Not.* 1085d. Plutarch says that earth and water "preserve their unity by having a share of a pneumatic and fiery power". It seems that there are two ways to interpret this claim. First, Plutarch might describe a single power as being pneumatic and fiery, and thus identify pneuma and fire. Second, Plutarch might describe two powers: a pneumatic power and a fiery power. According to this interpretation, "pneumatic power" refers to air and "fiery power" refers to fire. The latter interpretation would support Pneuma-Air. The former would support a different interpretation.

[66] It is difficult to know what Arius intends by saying "the being" or "being" (τὸ ὄν) is pneuma. What is the being that he refers to? Surely he does not intend to say that every being is pneuma. For there are some beings which are not identical to volumes of pneuma – beings like animals, plants, and so on. While these beings are somehow dependent on the volume of pneuma within them, they are not identical to the pneuma. The context in this passage, does not help us understand what Arius could mean. Thus I leave the question unanswered. Thanks to Tad Brennan for discussion.

[67] Χρύσιππος δὲ τοιοῦτόν τι διεβεβαιοῦτο· εἶναι τὸ ὂν πνεῦμα κινοῦν ἑαυτὸ πρὸς ἑαυτὸ καὶ ἐξ αὑτοῦ, ἢ πνεῦμα ἑαυτὸ κινοῦν πρόσω καὶ ὀπίσω· πνεῦμα δὲ εἴληπται διὰ τὸ λέγεσθαι αὐτὸ ἀέρα εἶναι κινούμενον·

[68] Cf. Aëtius, *Plac.* 3.7.2 = SVF 2.697.

movement. Specifically, the movement is "toward itself and away from itself" and "forward and backward". In any case, Arius seems to confirm that Chrysippus endorses Pneuma-Air.

The evidence that Chrysippus endorses Pneuma-Air is strong. However, other sources suggest that pneuma is not a type of moving air. Alexander pointedly asks:

> **Text W: Alexander of Aphrodisias, *De Mixtione* 224,14–17 = SVF 2.442 = LS 47I**
>
> (1) In addition to these things, if pneuma, having been generated out of fire and air, (2) pervades all bodies by means of being blended with all of them, (3) and if the existence of each of [the bodies] depends on it, how could it still be a simple body?[69]

Alexander goes on to argue that these views commit the Stoics to absurdities. This isn't what concerns us presently. Instead, note that Alexander assumes that pneuma "is generated out of fire and air" (γεγονὸς ἐκ πυρός τε καὶ ἀέρος).[70] One way to understand this claim is that pneuma is composed of both fire and air. But if pneuma is composed of two elements, then it can't be made of one element. So this passage from Alexander seems to conflict with the earlier passages from Plutarch and Arius Didymus.

Galen also claims that pneuma is a compound of two elements, and he specifies how the two elements are compounded. He says:

[69] πρὸς δὲ τούτοις, εἰ τὸ πνεῦμα γεγονὸς ἐκ πυρός τε καὶ ἀέρος διὰ πάντων πεφοίτηκε τῶν σωμάτων <τῷ> πᾶσιν αὐτοῖς κεκρᾶσθαι καὶ ἑκάστῳ αὐτῶν ἐκ τούτου ἠρτῆσθαι τὸ εἶναι, πῶς ἂν ἔτι ἁπλοῦν τι εἴη σῶμα;
[70] See also Alexander, *De Anima* 26,15–17 = SVF 2.786; *De Mixtione* 225,5-8 = SVF 2.310.

Text X: Galen, *PHP* 5.3.8 = SVF 2.841 = LS 47H

(1) So this pneuma possesses two parts and elements, or conditions, which are totally blended with each other: the cold and the hot. (2) But if one also wished to call these by other names taken from their substances: air and fire.[71]

Galen seems to confirm that pneuma is a compound of fire and air, and he states that they are blended in X(1). Hence, according to Alexander and Galen, the Stoics – presumably meaning Chrysippus and later Stoics – endorse the following claim:

Pneuma-Blend : If something is pneuma, then it is a blend of fire and air.

However, Pneuma-Blend and Pneuma-Air are incompatible. Something cannot be a blend of two substances while also being only one of those blended substances. Therefore, our sources seem to contradict each other.[72] To make matters worse, Galen also attributes a third position to the Stoics. He says:

Text Y: Galen, *De Causis Continentibus* 1 = LS 55F

(1) Of the elements themselves, some they call material and some active and dynamic. (2) They maintain that the material elements are held together by those that are dynamic, fire and air being dynamic and active in their view, while earth and water are material. (3) They say that in compounds the dynamic elements pervade the material totally, that is to say, air and fire penetrate water and earth. (4) Air is cold and fire is hot. (5) The natural

[71] τοῦτ' οὖν τὸ πνεῦμα δύο μὲν κέκτηται μόριά τε καὶ στοιχεῖα καὶ καταστάσεις, δι' ὅλων ἀλλήλοις κεκραμένα, τὸ ψυχρὸν καὶ θερμόν, εἴπερ δ' ἑτέροις ὀνόμασι καὶ ἀπὸ τῶν οὐσιῶν ἐθέλοι τις αὐτὰ προσαγορεύειν, ἀέρα τε καὶ πῦρ·

[72] Most scholars who have discussed the composition of pneuma assume Chrysippus and later Stoics endorse Pneuma-Blend without addressing the passages from Plutarch and Arius Didymus. See Bénatouïl 2009, 34; Collette-Ducic and Delcomminette 2006, 24–8; Furley 1999, 440; Gould 1970, 100; Hahm 1977, 158; Hahm 1985, 41–2, 49; Long and Sedley 1987, 1.277–8; Sambursky 1959, 2; Scade 2010, 156; Sedley 1999, 388; Sellars 2006, 90, 96–9; Todd 1976, 36; White 2003, 134–5. Lapidge 1973, 276 n. 190 and Verbeke 1945, 68 accept this orthodox interpretation, but they at least mention the passages that suggest that Chrysippus endorses Pneuma-Air. See also Duhot 1989, 85–6. Hager 1982, 102–3 argues that pneuma is somehow more basic than the elements fire and air. For he claims that pneuma directly causes all properties in the natural world, including the properties of fire and air. Yet Hager's argument is unconvincing.

effect of air is to consolidate and thicken a substance, whereas fire naturally causes expansion, loosening, and widening. (6) The two active elements have fine parts and the other two thick parts. (7) All the substance with fine parts the Stoics call "pneuma" (trans. Long and Sedley, modified).[73]

Consider Y(6). Galen states that the active elements have fine parts. According to Y(2), fire and air are the active elements. Therefore, fire and air have fine parts. In Y(7), Galen states that anything with fine parts is pneuma, according to the Stoics. Therefore, fire and air are both pneuma. Thus Text Y seems to attribute the following claim to the Stoics:

Pneuma-Disjunct : If something is pneuma, then it is fire or it is air.

Pneuma-Disjunct is inconsistent with both Pneuma-Air and Pneuma-Blend. To adjudicate these interpretations, we must examine Chrysippus's theory of the internal makeup of pneuma. To that end, I will examine Chrysippus's reasons for modifying the orthodox Stoic view of the composition of pneuma.

If Chrysippus endorses either Pneuma-Air, Pneuma-Blend, or Pneuma-Disjunct, then he has modified the earlier Stoic theory of pneuma (and indeed aligned himself more with Aristotle than the earlier Stoics). For these claims entail that air makes up pneuma: either it totally constitutes pneuma – sometimes according to Pneuma-Disjunct, and always according to Pneuma-Air – or it partially composes pneuma along with fire. But Zeno and Cleanthes deny this. For Zeno and Cleanthes claim that pneuma is a type of fire. Let's assume that Chrysippus

[73] Elementorum autem quedam quidem materialia nuncupant, quedam autem activa et virtuosa, et contineri dicunt a virtuosis materialia, et esse ignem quidem et aerem activa, terram vero et aquam materialia, et pertransire tota per tota in concrecionibus, scilicet virtuosa per materialia, ut aerem et ignem per aquam et terram, et esse aerem quidem frigidum, ignem uero calidum, et congregari et impilari substantiam ab aerea natura, extendi vero et effundi et multum accipere locum ab ignea et esse leptomerea quidem elementa activa, grossiparcia vero reliqua. Spiritum autem vocant leptomeream substantiam omnem, et eius opus esse continere alia corpora physica et ea que animalium … (Text: Long and Sedley).

would not modify the original Stoic position without reason. What causes Chrysippus to modify the theory?

Air is the coldest element. This is confirmed by multiple sources. In T(1) and T(2), Plutarch states that Chrysippus maintains that air is cold, and its coldness is opposed to fire's heat. In another work, Plutarch again reports that "Chrysippus thinks that air is preeminently cold" (*De Primo frigido* 952c = SVF 2.429). In Y(2), Galen identifies air as being cold.[74] Diogenes Laertius and Cicero confirm that air is the coldest element.[75]

Air has a characteristic function related to its coldness. According to Text H, the Stoics make fire and air efficient causes. Fire causes expansion, and air causes contraction, as Galen confirms in Y(5). Since the Stoics analyze many changes in terms of expansion and contraction, they identify fire and air as efficient causes. Plutarch describes an instance of water's compressive faculty:

Text Z: Plutarch, *De Primo Frigido* 949b = SVF 2.430 = LS 47T

(1) Moreover, freezing, which is the most intense and forceful among all the things that happen to bodies because of coldness, is an affection of water and a function of air. (2) For water is per se fluid, and not firm nor solid, (3) but when it is bound by coldness, it is tightened and gathered together by air.[76]

Air's coldness causes water to freeze. When it freezes, water is "tightened" (ἐντείνεται) and "gathered together" (συνάγεται). This seems like compression. So air's characteristic function is compression, which is a process by which things are solidified and gathered together.

[74] See also Galen, *PHP* 5.3.8 = SVF 2.841 = LS 47H.
[75] Diogenes Laertius, 7.137 = SVF 2.579 = LS 47B; Cicero, *De Natura Deorum* 2.26-7.
[76] Καὶ μὴν ἁπάντων γε τῶν γινομένων ὑπὸ ψυχρότητος ἐν τοῖς σώμασι σφοδρότατον καὶ βιαιότατον ἡ πῆξις οὖσα πάθος μέν ἐστιν ὕδατος ἔργον δ' ἀέρος· αὐτὸ μὲν γὰρ καθ' ἑαυτὸ τὸ ὕδωρ εὐδιάχυτον καὶ ἀπαγὲς καὶ ἀσύστατόν ἐστιν, ἐντείνεται δὲ καὶ συνάγεται τῷ ἀέρι σφιγγόμενον ὑπὸ ψυχρότητος.

Chrysippus likely composes pneuma out of air in light of its compressive faculty. Recall, pneuma holds bodies together; it gives them unity and identity. Fire does not have the tendency to unify bodies and hold them together; fire burns things. For fire causes things to expand, and changes in elemental identity supervene on changes in density. Because fire causes things to expand, it causes things to turn into fire. That is, it burns things. Thus Chrysippus brings in air to counteract fire's burning tendencies. Air's coldness counteracts fire's heat, and air's compressive faculty counteracts fire's expansive faculty.

But this does not completely explain Chrysippus's theory of pneuma. Alexander reports that pneuma's *motion* is that "by which [pneuma] holds together the things in which it is present" (*De Mixtione* 224,24). So the unifying and cohesive activity of pneuma is not achieved merely by the presence of air. Air counteracts fire's destructive nature, but it does not fully explain how pneuma generates and sustains natural objects.

To fully explain Chrysippus's theory of pneuma, we must examine his theory of pneumatic motion. In V(2), Arius Didymus reports Chrysippus's view when he says, "the being is pneuma, which moves itself toward itself and away from itself, or pneuma moves itself forward and backwards". Alexander confirms this account when he asks, "Also, what *is* [pneuma's] simultaneous motion in opposite directions, by which it holds together the things in which it is present, being, as they say, pneuma moving simultaneously out of itself and into itself?" (*De Mixtione* 224,23–5).

Alexander's exasperation reflects his confusion about pneuma's motion. According to our sources, pneuma moves simultaneously in opposite directions: forward and backward, toward itself and away from itself, or out of itself and into itself. Yet how can one thing move in opposite directions simultaneously? It will be helpful to consider a report from Philo:

Text Aa: Philo, *Quod deus sit immut.* 35–6 = SVF 2.458 = LS 47Q

(1) For [God] bound some bodies by *hexis*, some by nature, some by soul, and some by rational soul. (2) Now, for stones and logs, which have been separated from their source of growth [συμφυΐας], he fashioned the strongest bond: *hexis*. (3) This is pneuma that turns back on itself. (4) For it begins by extending from the middle to the extremes, and after touching the furthest surface, it bends back again, until it arrives at the same place from which it was first set in motion. (5) This continuous double course of *hexis* is unceasing [ἄφθαρτος].[77]

Philo names four types of pneuma in Aa(1): *hexis*, nature, soul, and rational soul. According to Aa(2), *hexis* is the type of pneuma that binds inanimate objects. Philo describes its motion as following a course or track in Aa(4). The pneuma begins from the center of the object. Then it moves to the extremes. Then it returns to the center. Therefore, *hexic* pneuma moves along three-dimensional tracks within the boundaries of a discrete object.

Although Philo specifically describes state's motion in the passage above, in another passage he suggests that the other types of pneuma move in this way, as well. He says:

Text Bb: Philo, *Quaestiones in Genesim* 2.4 = SVF 2.802 = LS 47R

(1) Now our body, which is composed of many parts, is united externally and internally, and it holds firm by its own *hexis*. (2) And the higher *hexis* of these parts is the soul: (3) being at the center, it moves everywhere, right to the surface and from the surface it returns to the center (trans. Long and Sedley with modifications).

[77] τῶν γὰρ σωμάτων τὰ μὲν ἐνεδήσατο ἕξει, τὰ δὲ φύσει, τὰ δὲ ψυχῇ, τὰ δὲ λογικῇ ψυχῇ. λίθων μὲν οὖν καὶ ξύλων, ἃ δὴ τῆς συμφυΐας ἀπέσπασται, δεσμὸν κραταιότατον ἕξιν εἰργάζετο· ἡ δέ ἐστι πνεῦμα ἀναστρέφον ἐφ' ἑαυτό· ἄρχεται μὲν γὰρ ἀπὸ τῶν μέσων ἐπὶ τὰ πέρατα τείνεσθαι, ψαῦσαν δὲ ἄκρας ἐπιφανείας ἀνακάμπτει πάλιν, ἄχρις ἂν ἐπὶ τὸν αὐτὸν ἀφίκηται τόπον, ἀφ' οὗ τὸ πρῶτον ὡρμήθη· ἕξεως ὁ συνεχὴς οὗτος δίαυλος ἄφθαρτος …

Philo describes the motion of a soul in Bb(3). It begins at the center, moves to the extremes, and returns to the center. As in the case of *hexis*, a soul moves along a track. Although he does not describe the motion of natures, it seems plausible that they move like *hexeis* and souls. Therefore, according to Philo, all members of the genus *hexis* move along three-dimensional tracks within the boundaries of discrete objects.[78]

Philo describes the pneuma as extending, touching, bending back, and arriving on this course. Let's distinguish a volume of pneuma from particular portions of pneuma within that volume. The entire volume of pneuma does not follow this course at once. For the entire volume of pneuma, taken as a whole, is stationary (at least when the object in which it is contained is stationary). Rather, portions of the volume move along their own tracks. That is, local portions of pneuma begin from the middle, move to the extremes, and then return to the middle. Different portions move along different courses at different speeds. The entire volume of pneuma is stationary, but its local portions move. This is how the pneuma moves in opposite directions simultaneously: its *parts* move in opposite directions simultaneously.

Scholars have resisted this analysis. David Hahm 1977 says that pneuma "has no local motion" (167). In agreement with this claim, Sambursky 1959 argues that pneuma's motion is "unlike the change of place occurring when a body moves" (29). They provide Philo's

[78] See also Hierocles, 4,25–35; Sextus, *M* 9.149 = SVF 2.454: "For if [the divine] is held together by soul, it is certainly held together by movement from the centers to the limits and from the limits to the centers" (εἰ γὰρ ὑπὸ ψυχῆς συνέχεται, πάντως ἀπὸ τῶν μέσων ἐπὶ τὰ πέρατα καὶ ἀπὸ τῶν περάτων ἐπὶ τὰ μέσα φερόμενον συνέχεται, trans. Bury). Here Sextus seems to describe the Stoic theory of the soul's motion, which mirrors Philo's account. Hahm 1977, 182 n. 77 argues that this passage does not report the Stoics' view. He claims that "it is capable of too many interpretations to prove anything at all". While I would not claim that this passage from Sextus proves anything by itself, when it is read in conjunction with other passages, it confirms that the Stoics think that pneuma moves along three-dimensional tracks within the boundaries of discrete objects. Sextus uses the verb "hold together" (συνέχειν) to refer to the effect of soul's movement; this word often occurs in our sources for Stoicism. For example, above, I quoted a passage from Alexander in which he attributes an object's being *held together* to the motion of pneuma. Hence Sextus seems to have the Stoic theory in mind. Furthermore, Sextus's account resembles the passages from Philo, which are probably inspired by the Stoics. So it is justifiable to use the passage from Sextus as evidence for the Stoics.

distinction between moving "transitively" (μεταβατικῶς) and "tonic motion" (κίνησις τονική) as support for this. According to Philo, transitive motion involves the leaving of one place and the occupying of another, while tonic motion does not (Philo, *De Sacrificiis Abelis et Caini* 68 = SVF 2.453). According to Nemesius, the Stoics attribute tonic motion to the soul (*De Natura Hominis* 2,44–49 = LS 47J3). The soul is pneuma. Hence Hahm and Sambursky claim that pneuma does not change places, either in whole or part.

If pneuma does not move transitively, either in whole or in part, then we need an alternative model of pneumatic motion. However, the proposed models are unsatisfactory. Sambursky 1959 claims that pneuma's movement should be understood analogously to the propagation of a wave (21–33). Some sort of qualitative alteration within a local portion of a volume of pneuma moves transitively throughout the pneuma, while the physical substance of the pneuma remains stationary. Other scholars, such as Long and Sedley 1987 (1.288) and Paul Scade 2010 (157), have argued that pneuma's motion should be understood counterfactually. Forces within a volume of pneuma pull against one another, and this produces tension. If one of these forces were removed, the pneuma itself would change places, but it actually remains stationary. Hence pneuma's motion is only counterfactual.

Long and Sedley and Scade's counterfactual model fails for two reasons. First, our sources state that pneuma moves. Chrysippus defines "motion" as "a change in place either in whole or part" (Stobaeus, *Ecl.* 1.165,16 = SVF 2.492). Counterfactual movement involves no change in place. Therefore, the counterfactual model is not consistent with our sources. Second, Philo's description of pneuma's motion in Aa(4) and Bb(3) is not a description of counterfactual movement. He describes a change in place; as the pneuma moves along the three-dimensional

track, it leaves one place behind and occupies a new place. Therefore, the counterfactual model is not consistent with our evidence for Stoicism.

Sambursky's wave-propagation model is also incorrect. Sambursky might argue that something like local motion takes place within a volume of pneuma. He might say that a qualitative alteration changes places along three-dimensional tracks within the pneuma. Hence there is local motion. However, Philo says that the *hexis* itself or the soul itself moves; it is unnatural to interpret him as claiming that there is an alteration within the *hexis* or soul that moves throughout the pneuma. Therefore, we should not accept Sambursky's wave-propagation model either.

Instead, we should endorse my model, which I described above. Local portions of a volume of pneuma move by changing places. They follow three-dimensional tracks, which extend from the center of an object to its surface. Philo's distinction between transitive and tonic motion and Nemesius's claim that a soul moves tonically are not inconsistent with my account. For, in one sense, pneuma's motion *is* tonic.[79] The entire volume of pneuma remains stationary; its motion consists in its local components' transitive motion. This analysis lets us have it both ways.

Now we should consider the cause of pneumatic motion. Consider the following report from Nemesius:

Text Cc: Nemesius, *De Natura Hominis* 2,44–49 = LS 47J3

(1) If they say, just as the Stoics do, that there is some tonic motion around bodies which moves simultaneously inward and outward, (2) and the outward motion is productive of

[79] Note that tonic motion is only described in terms of its *not* being transitive motion. Efforts by Sambursky 1959, 29–30 to argue that a model similar to wave-propagation is implied by this negative definition are unconvincing.

> magnitudes and qualities, while the inward motion is productive of unity and substance, (3) we must ask them, since every motion is from some power, what is this power and in what is its being?[80]

Nemesius references pneuma's motion. He ascribes certain productive capacities to its directions in Cc(2). Pneuma's outward motion produces qualities and magnitudes; its inward motion produces unity and substance. He does not use standard Stoic terminology. For example, the Stoics would not say that pneuma produces qualities; rather, they would say that pneuma is a quality that causes some other thing to be qualified.[81] But we can still use this report as evidence for the original Stoic view. In effect, according to Nemesius, pneuma's outward motion produces observable, qualitative features, while its inward motion causes an object to cohere and stabilize.[82]

We should not claim, like some scholars, that fire produces pneuma's outward motion and air its inward motion.[83] For there is no evidence that air moves inward. In fact, while some sources characterize fire as moving upward and outward, fire is also characterized as moving spontaneously – that is, in whatever direction it wants. Furthermore, air is also described as moving upward and outward.[84] So fire is not the source of pneuma's outward motion, and air is not the source of its inward motion. However, there must be a cause of pneuma's motion. According to my account, local portions of a volume of pneuma move along their own three-

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[80] εἰ δὲ λέγοιεν καθάπερ οἱ Στωϊκοὶ τονικήν τινα εἶναι κίνησιν περὶ τὰ σώματα εἰς τὸ εἴσω ἅμα καὶ εἰς τὸ ἔξω κινουμένην, καὶ τὴν μὲν εἰς τὸ ἔξω μεγεθῶν καὶ ποιοτήτων ἀποτελεστικὴν εἶναι, τὴν δὲ εἰς τὸ εἴσω ἑνώσεως καὶ οὐσίας, ἐρωτητέον αὐτοὺς ἐπειδὴ πᾶσα κίνησις ἀπό τινός ἐστι δυνάμεως τίς ἡ δύναμις αὕτη καὶ ἐν τίνι οὐσίωται;
[81] Following Menn 1999, 221–3. See also Text U.
[82] See Verbeke 1945, 73.
[83] Collette-Ducic and Delcomminette 2006, 28; Long and Sedley 1987, 1.288; Scade 2010, 156 and n. 41; Sedley 1999, 389.
[84] On fire's movement, see below. On air's characteristic outward motion, see Cicero, *ND* 2.117 and Plutarch, *Stoic. Repug.* 1053e = SVF 2.434.

dimensional tracks at their own speeds. They stop at precise points along those tracks and turn the other way. This redirection of each local portion's movement determines the boundary of the object; by reversing its movement and turning inward, the pneuma creates a tense surface, which marks the boundary at which an object is separated from the outside world. What causes this precise motion?

No source presents Chrysippus's opinion concerning the cause of pneuma's characteristic motion. Thus my reconstruction of his view is speculative. I will argue that Chrysippus had the following theory ready to hand, and he could have endorsed it. Chrysippus endorses Pneuma-Disjunct. Pneuma is either fire or air. Specifically, it's fire or air that moves in this precise way. However, when fire or air moves pneumatically, each element is required to blend with the other. That is, fire moving pneumatically must blend with air, and air moving pneumatically must blend with fire.

Fire is self-moved. Consider the following passage from *De Natura Deorum*, part of which we have already discussed as Text R:

Text Dd: Cicero, *De Natura Deorum* 2.31–2

(1) Since human beings and animals are held together by this warmth and owe to this their motion and sensation, it is therefore absurd to say that the world is devoid of sensation, considering that it is held together by a fiery heat that is stainless, free, and pure, and also penetrating and mobile in the extreme; (2) especially since this fiery heat does not derive its motion from the operation of some other force from outside, but it is self-moved and spontaneous in its activity. (3) For how can there be anything more powerful than the world to impart motion and activity to the warmth by which the world is held together? (4) For, let us hear Plato, who is nearly a god among philosophers. (5)

> He thinks there are two types of motion: one is one's own and the other is external. (6) But what moves itself out of itself spontaneously is more divine than what is set in motion by an alien impulse. (7) Moreover, he puts that former motion only in souls, and he thinks that motion is formed from that source. (8) Therefore, because all motion originates from the heat of the world, while this heat is not moved by an alien impulse, but spontaneously, it is necessarily a soul. It follows from this that the world is animate.[85]

In Dd(5), Balbus draws on Plato to contrast two kinds of motion: self-motion and motion from external sources. In Plato's *Phaedrus*, Socrates argues that the principle of all motion is a self-mover; so it must be a soul (245c5–246e2). Drawing on this conclusion, in Dd(8), Balbus argues that the heat of the world is the self-moving source of all motion. From this, he concludes that the world possesses a soul, and it is an animal.

Balbus states twice, in Dd(2) and Dd(8), that the world's heat moves itself spontaneously. Furthermore, in Dd(1), he says that the fiery heat of the world is "mobile in the extreme". Thus the world's heat is a self-mover. Like Plato's self-moving soul, which moves itself and thereby moves other things, Balbus's cosmic heat moves itself and thereby moves other things. Philo confirms that fire is the source of the world's motion:

[85] absurdum igitur est dicere, cum homines bestiaeque hoc calore teneantur et propterea moveantur ac sentiant, mundum esse sine sensu, qui integro et libero et puro eodemque acerrimo et mobilissimo ardore teneatur, praesertim cum is ardor qui est mundi non agitatus ab alio neque externo pulsu sed per se ipse ac sua sponte moveatur; nam quid potest esse mundo valentius, quod pellat atque moveat calorem eum quo ille teneatur? Audiamus enim Platonem quasi quendam deum philosophorum; cui duo placet esse motus, unum suum alterum externum, esse autem divinius quod ipsum ex se sua sponte moveatur quam quod pulsu agitetur alieno. hunc autem motum in solis animis esse ponit, ab isque principium motus esse ductum putat. quapropter quoniam ex mundi ardore motus omnis oritur, is autem ardor non alieno inpulsu sed sua sponte movetur, animus sit necesse est; ex quo efficitur animantem esse mundum.

Text Ee: Philo, *De Aeternitate Mundi* 89

(1) For since fire is the cause of motion, and motion is the source of generation, and nothing comes about without motion, (2) [the Stoics] said that after the conflagration, when the new cosmos is about to be constructed, the whole of fire is not quenched, but a certain amount of it remains (trans. Long 2008 modified).[86]

According to Philo, fire is the cause of motion. Through its motion, it moves everything else. As a result, according to Ee(1), things are generated.

Chrysippus claims that if fire preserves objects in the world, its destructive effects are counteracted by cold air. Thus it must blend with air in order to perform its preservative function. If a volume of fire performs preservative functions within a unified natural object, then it is blended with air. Otherwise it will consume the object. Therefore, pneumatic, artistic fire is fire that has blended with air. It is fire that is using air "artistically", as a tool.

If air moves pneumatically, then its local portions move along precise tracks within the boundaries of an object. Since it is the cause of motion, fire moves air pneumatically. Through its motion, fire positions itself and air in such a way that condensation and rarefaction takes place within natural objects to produce the right motions of fire, air, water, and earth. Thus fire needs to direct this motion at a precise, local level. Thus fire must blend with air to cause it to move pneumatically. For only blending will give fire the control that pneumatic motion requires.

If fire is artistic and pneumatic, then it is blended with air. For air must counteract fire's effects. If air is pneumatic, then it is blended with fire. For fire must direct air's characteristic pneumatic motions as the cause of motion. This explains why Pneuma-Blend is often attributed

[86] ἐπειδὴ γὰρ αἴτιον κινήσεώς ἐστι τὸ πῦρ, κίνησις δὲ γενέσεως ἀρχή, γενέσθαι δ' ἄνευ κινήσεως ὁτιοῦν ἀδύνατον, ἔφασαν ὅτι μετὰ τὴν ἐκπύρωσιν, ἐπειδὰν ὁ νέος κόσμος μέλλῃ δημιουργεῖσθαι, σύμπαν μὲν τὸ πῦρ οὐ σβέννυται, ποσὴ δέ τις αὐτοῦ μοῖρα ὑπολείπεται·

to Chrysippus. For if any volume of pneuma requires a blend of fire and air, then it seems plausible that either later Stoics or sources for Stoicism would treat "blend of fire and air" as being synonymous with "pneuma".

A volume of pneuma is the organizing *hexis* for some unified natural object. Inanimate wholes like rocks, logs, and chunks of silver are organized in so far as they are solidified and held together. A mound of earth and water becomes a rock when it is prevented from dispersing. Air is directly responsible for these functions. Thus bare *hexeis* are made of air, as T(3) suggests. Note that Chrysippus only refers to these sorts of inanimate objects when he refers to "cohesive air" in T(5) through T(7).

For more complex objects like animals, their organizing *hexeis* are made of fire. For animals are distinct from other unified natural objects in so far as they perceive.[87] A particular perceptive faculty is what unifies an animal body such that it becomes some particular animal. As Dd(1) suggests, fire enables perception. So fire carries out the functions that unify animals. So the organizing pneuma for animals is made of fire. Still, fire requires the presence of air in order to conduct this activity. Otherwise, it would consume the animals' bodies.

Thus Chrysippus thinks that pneuma can be either fire or air. He seems to use "pneuma" generically to refer to the organizing *hexis* of an object. In some objects, the relevant pneuma is made of air; in others, it is made of fire. In either case, the pneumatic element must blend with another element. Hence many sources attribute Pneuma-Blend to Chrysippus. Likewise, because pneuma is sometimes made of air, sources attribute Pneuma-Air to Chrysippus.

[87] Galen, *Medical Introduction*, 726,7–11 = SVF 2.716 = LS 47N. Philo, *Allegories of the laws* 2.22–3 = SVF 2.458 = LS 47P.

5. Chrysippus's God

The upshot of this analysis is that the sources that claim that pneuma occupies God's role do not necessarily conflict with the sources that claim that fire occupies God's role. Zeno and Cleanthes treat artistic fire and pneuma as identical. Therefore, the claim that pneuma occupies God's role and the claim that artistic fire occupies God's role are equivalent, since "pneuma" and "artistic fire" refer to the same type of body.

Chrysippus does not think that pneuma and artistic fire are identical. For some pneuma is air. However, some pneuma is artistic fire. This allows us to make sense of the discrepancy in the evidence. For example, in O(1), Aetius says that God is artistic fire. In O(2), Aetius says that God is pneuma. If we take Aetius as providing evidence for Chrysippus's view, then this interpretation does not entail that Aetius ascribes contradictory claims to Chrysippus. While O(1) focuses on what occupies God's role in the period immediately following the conflagration, O(2) focuses on what occupies God's role once the cosmic order has been generated and God constructs other unified natural objects. In order for fire to carry out those tasks, it must blend with air. For air must counteract fire's destructive effects.[88] But, as Text N suggests, God is the world's soul during the cosmic order. I have just argued that souls are characterized by fire, rather than air. So God is pneumatic fire during the cosmic order – fire that has blended with air.

[88] Additional questions regarding the mechanics of God's interaction with the world remains. *Which* portion of fire occupies God's role? O(2) suggests that God is present throughout the world as a single volume of pneuma. Text N treats God as the soul of the world, as well (see also Chapter Five, Section 5). If this is true, then we might ask what the relation is between any particular animal's soul and the soul of the world, i.e. God. Is the animal's soul a portion of God? Is a plant's nature a portion of God? And what about stones' *hexeis*? Alternatively, we might think that volumes of fire and pneuma can be "stacked" on top of each other. God is the soul of the world, in the form of pneumatic fire, and he interacts with other, distinct volumes of artistic fire. So animals' souls would not be portions of God, in this analysis. Rather, God would act on these souls. I will not argue for an interpretation of these issues in this dissertation, though I intend to investigate these questions in future work.

Note that fire turns out to be the first moving cause, according to Texts Dd and Ee. It begins to move during the cosmogony, and its motion continues during the cosmic order. It moves through compound objects, thereby moving air and the rest of the elements. Thus motion is the means by which God carries out his constructive activities. This agrees with Philo's report in Ee(1) that motion is the source of generation. In Chapter Three, I argued that God must be the unconstructed constructor. We can now analyze this in terms of motion: God moves other things without himself being moved by anything else. Thus this interpretation agrees with Sextus's report that "there is a *per se* self-moving power, which is divine and eternal" (*M* 9.76 = SVF 2.311 = LS 44C). Fire is this *per se* self-moving power, and thus it occupies God's role.[89]

I will consider an objection to this view. One could argue that artistic fire cannot occupy God's role. One could claim that the principles and the elements must be distinct. If artistic fire is intrinsically the same type of substance as elemental fire, then artistic fire cannot be God.[90] In support of this argument, we might cite Diogenes' contention that the principles are "shapeless" (ἄμορφοι) (7.134 = SVF 2.299 = LS 44B). Artistic fire has some form or shape. Thus it isn't a suitable candidate for occupying God's role.

Diogenes' report is puzzling. Immediately before calling the principles shapeless, he identifies them as bodies. And since bodies are three-dimensional extensions with resistance, the principles cannot be totally shapeless.[91] For in so far as they are extended in three dimensions, they must have *some* shape.

[89] See also Stobaeus, *Ecl*. 1.139,12: "The Stoics define the first cause as the moving [cause]".
[90] For arguments in this vicinity, see Long 1985, 21–2; Long and Sedley 1987, 1.278; Sandbach 1975, 73; White 2003, 134.
[91] See *De Qualitatibus Incorporeis* 19.483,13–14 = SVF 2.381 = LS 45F. I discuss this definition of "body" in Chapter Five, Section 2.

Diogenes intends to contrast the occupants of the first elemental role of being a primary immanent component with whatever occupies the principles' roles. For example, a portion of water that immanently composes some complex object will only take the form of water. And likewise for the other four elements. However, as O(2) notes, the artistic fire and pneuma that occupies God's role gets called by different names. Perhaps in some compounds, it takes the form of a soul; in others, it takes the form of a nature. Thus no particular type of artistic fire or pneuma carries out God's role in all instances, although some particular type must in each case.

Likewise, I have already responded to claims that the occupants of the principles' roles must be distinct from the occupants of the elemental roles. First, God's role and the third elemental role of being the unconstructed constructor of natural objects are the same. So the occupants of these two roles will be the same. Second, the first and second elemental roles – of being a primary immanent component and an original stock of material from which air, water, and earth condense – are distinct from God's role and matter's role. Thus the principles and elements can be functionally distinct without the occupants of their roles being distinct. And given Diogenes' tendency of treating "the elements" as referring to fire, air, water, and earth under the description of "primary immanent components", we ought to take his distinction between principles and elements as a distinction between Chrysippus's first elemental role of being a primary immanent component and the roles of the principles.

Chapter Five: Matter

1. Introduction

In this chapter I will describe the body that occupies the passive principle's role. In Section 2, I will argue that a three-dimensional extension that lacks any essential perceptible characteristics occupies the passive principle's role. In Section 3, I will describe how this body is able to realize the role of the passive principle. In Section 4, I will consider an objection to this view and respond to it. In Section 5, I will reexamine the question of whether the occupants of the principles' roles ever separate, which I initially raised at the end of Chapter Two. I will argue that even during the conflagration, the bodies that realize the principles' roles do not separate. I will also argue against an objection to the claim, defended in Chapter Two, that the realizers of the roles of the principles are physically separable.

2. The Realizer of Matter's Role

In this section, I will defend the following interpretation of the body that realizes matter's role.[1] A three-dimensional extension that lacks any essential set of perceptible characteristics realizes matter's role. Let me clarify this interpretation. For any set of perceptible characteristics, this body does not necessarily have them. The essential features of matter do not include any perceptible features, and we can discuss it without referencing any of them. However, each portion of the body that realizes matter's role possesses some set of perceptible characteristics. Given matter's essential features, it must have some set of perceptible characteristics.[2] This interpretation will help us reconcile several pieces of evidence that seem to conflict with each other.

[1] In this chapter, I will use the construction "realize matter's role" rather than "occupies matter's role". I will do this because I will sometimes talk about the "occupation of space" in this chapter, and I would like to avoid confusion.
[2] Thanks to Gail Fine for discussion.

Calcidius describes the body occupying the passive principle's role in the following passage:

Text A: Calcidius, *in Tim.* 289

(1) And as a statue, which, although it is a formed body, nevertheless has the prior substance of bronze as its subject, (2) so too they say that that bronze, which is an unformed body (although not without quality), has a preceding substance as subject, (3) and it is a continuous body without quality, totally passive and changeable, (4) which they call both "matter" and "essence", while defining it thus: (5) essence and matter is what is subject for all bodies, or that out of which all bodies are, or that in which the changes of sensible things appear, while it remains in its own condition, and the subject for bodies that have qualities, while it itself is by its own nature without quality.[3]

Calcidius draws an analogy. We say that bronze underlies the statue. Likewise, the Stoics say that a continuous, qualityless, changeable body underlies the bronze, according to A(2) and A(3). The Stoics call this body "matter" (silua) and "essence" (essentia). In A(5), Calcidius seems to describe the role of the passive principle: it is the material basis of all bodies "that have qualities", while it itself has no qualities.

How should we understand the claim that the passive principle lacks qualities? Perhaps this means that the body realizing matter's role has no properties. But this is untenable. For Text

[3] Atque ut statua, quae, cum sit formatum corpus, habet tamen subiectam sibi aeris antiquiorem substantiam, sic aes informe corpus, conpos tamen qualitatis, habere dicunt subiectam praeeuntem substantiam, eamque esse corpus cohaerens sine qualitate, patibile totum et communabile, quod siluam simul et essentiam adpellant hactenus definientes: essentia et silua est quod subiacet corpori cuncto, uel ex quo cuncta sunt corpora, uel in quo proueniunt rerum sensibilium commutationes ipso statu proprio manente item: quod subditum est corporibus qualitates habentibus, ipsum ex natura propria sine qualitate.

A lists several of matter's properties: it is passive, changeable, subject for all bodies, and so on. Thus the bald claim that matter is propertyless is false.[4]

Perhaps there is a select group of properties that the passive principle lacks. Calcidius claims that it is "without quality" (sine qualitate) in A(3). This is confirmed by many sources, which call matter "unqualified".[5] "Quality" (ποιότης) is a technical term in Stoic physics; it refers to volumes of pneuma present within natural objects. Consider Plutarch's report:

Text B: Plutarch, *De Stoic. Repug.* 1054a–b = SVF 2.449 = LS 47M2

(1) [The Stoics claim that] qualities, which are volumes of pneuma and aeriform tensions, (2) form and shape each of the parts of matter in which they arise.[6]

Plutarch describes a relation between parts of matter and qualities. Namely, qualities "form and shape" parts of matter. Earlier in his treatise, he quotes Chrysippus, who describes some particular examples of qualities and the forms and shapes they provide.

Text C: Plutarch, *De Stoic. Repug.* 1053f = SVF 2.449 = LS 47M2

(1) "For bodies are held together by [*hexeis*]. (2) For the cohesive air [ὁ συνέχων ἀήρ] is the cause of the fact that each thing is also qualified among things held together by hexis – (3) cohesive air which people call hardness in iron, denseness in stone, and whiteness in silver."[7]

[4] Sedley 1999, 385 claims that God endows matter with "whatever properties it may have". If by "properties", Sedley means *any* property, then this claim is false. For God does not endow matter with the property of being changeable, for example. See also Sedley 2011, 62: "[matter] does not have any properties".

[5] See Diogenes Laertius, 7.134 = SVF 2.300 = LS 44B; Plotinus *Enn.* 2.4.1 = SVF 2.320; Simplicius, *in Phys.* 227,23–25 = SVF 2.326.

[6] τὰς δὲ ποιότητας πνεύματ' οὔσας καὶ τόνους ἀερώδεις, οἷς ἂν ἐγγένωνται μέρεσι τῆς ὕλης, εἰδοποιεῖν ἕκαστα καὶ σχηματίζειν.

[7] 'ὑπὸ τούτων γὰρ συνέχεται τὰ σώματα· καὶ τοῦ ποιὸν ἕκαστον εἶναι τῶν ἕξει συνεχομένων αἴτιος ὁ συνέχων ἀήρ ἐστιν, ὃν σκληρότητα μὲν ἐν σιδήρῳ πυκνότητα δ' ἐν λίθῳ λευκότητα δ' ἐν ἀργύρῳ καλοῦσι.'

Hexeis are qualities for things held together by *hexis*, according to C(2). *Hexeis* are volumes of cohesive air or pneuma. In iron, people call this type of *hexis* "hardness", in stone "denseness", and in silver "whiteness". Thus qualities cause portions of matter to have perceptible, physical characteristics – characteristics like color and solidity. (Note that these characteristics are not the qualities themselves. The qualities *cause* matter to have these characteristics.)

Matter is unqualified. Qualities cause matter to possess perceptible, physical characteristics.[8] Thus we might infer that matter lacks perceptible, physical characteristics. It is not totally without properties; it is totally without perceptible, physical properties. Yet this is puzzling. How can qualities cause matter to possess perceptible characteristics, while matter also lacks those perceptible characteristics?

Calcidius says something else puzzling. In A(5), he claims that the changes of sensible things take place in matter, while it "remains in its own condition" (statu proprio manente). This conflicts with the passive principle's role. For God acts on and affects matter. As a result, predicates become truly predicated of matter. But a predicate could not become truly predicated of matter, if it failed to take on qualities. Furthermore, Plutarch says that the parts of matter are formed and shaped by qualities in B(2). But matter's parts couldn't be formed and shaped, if they remained in their own condition. For their own condition lacks any form or shape. Thus Calcidius's claim cannot be taken literally.[9] The following passage from Sextus Empiricus confirms this:

[8] Qualities also provide non-perceptible characteristics. For example, there is a peculiar quality in each human being. This quality provides mental characteristics to a human that are not directly perceptible. Thus matter lacks these characteristics, as well. See, e.g., Lewis 1995, 107–8, who argues that certain mental characteristics are the peculiar quality of human beings. Presumably, matter lacks these mental characteristics. However, note that minds are corporeal. So they are, in principle, perceptible. Thanks to Charles Brittain for discussion.

[9] Contra Long and Sedley 1987, 1.271: "[God] does not furnish the matter that must underlie anything with characteristics".

Text D: Sextus Empiricus, *M* 9.75 = SVF 2.311 = LS 44C1–2

(1) They say that the substance of beings, which is unmoving and shapeless by itself, needs to be moved and shaped by some cause. (2) And because of this, just as when we look at a beautiful bronze statue, we yearn to know the artisan, given that the matter is by itself unmoving, (3) so too when we look at the matter of the wholes moving and being in a shape and order, we shall reasonably look for the cause which moves it and shapes it into various forms.[10]

Like Calcidius, Sextus reports that the Stoics draw an analogy between statues and matter. According to D(2), we see bronze, which is per se motionless, in the shape of a statue. We know that the bronze could not have arranged itself. Thus we inquire about the cause of the statue. Likewise, according to D(3), we see matter, which D(1) reports as being per se motionless and shapeless, having been arranged into various natural objects. Thus we inquire into the cause of these natural objects.

According to Sextus, matter cannot give itself perceptible properties. For it is "unmoving by itself" (ἀκίνητος ἐξ αὑτῆς). Matter gets shaped and is set in motion by some cause, according to D(3). Later, Sextus claims that God is that cause, identifying God with the "power that moves matter and regularly leads it into generations and changes" (*M* 9.76). Thus Sextus confirms that matter does not remain in its original state, once it is acted on by God. Rather, it takes on perceptible properties because of God's activity on it. It could not provide itself with these characteristics, but it does not totally lack them. Rather, it lacks them essentially.

[10] ἡ τοίνυν τῶν ὄντων οὐσία, φασίν, ἀκίνητος οὖσα ἐξ αὑτῆς καὶ ἀσχημάτιστος ὑπό τινος αἰτίας ὀφείλει κινεῖσθαί τε καὶ σχηματίζεσθαι· καὶ διὰ τοῦτο, ὡς χαλκούργημα περικαλλὲς θεασάμενοι ποθοῦμεν μαθεῖν τὸν τεχνίτην ἅτε καθ' αὑτὴν τῆς ὕλης ἀκινήτου καθεστώσης, οὕτω καὶ τὴν τῶν ὅλων ὕλην θεωροῦντες κινουμένην καὶ ἐν μορφῇ τε καὶ διακοσμήσει τυγχάνουσαν εὐλόγως ἂν σκεπτοίμεθα τὸ κινοῦν αὐτὴν καὶ πολυειδῶς μορφοῦν αἴτιον.

We know from Chapter Two that the realizer of matter's role must be a body. For only bodies are capable of being affected, and God affects matter. The evidence presents two Stoic definitions of "body". The first is attributed to Apollodorus. He defines "body" as "what has threefold extension – in length, width and depth" (Diogenes Laertius, 7.135 = LS 45E). Ultimately, this is not a satisfactory definition of "body".[11] For the Stoics also thought that the incorporeal void was extended in three dimensions.[12] Another definition of "body" is available. According to Galen, the Stoics define "body" as "what has threefold extension with resistance" (*De Qualitatibus Incorporeis* 19.483,13–14 = SVF 2.381 = LS 45F). Void lacks resistance. Therefore, it will not fall under this definition. So let's treat this as the correct Stoic definition of "body".[13]

Combining the claims that matter is a body and that matter lacks any essential perceptible characteristics, we can infer that a three-dimensional extension with resistance that lacks any essential perceptible characteristics realizes the role of the passive principle.[14] Two problems immediately arise from this claim. First, resistance seems to be a perceptible characteristic. Second, if matter is extended in three dimensions, then it has a shape. But shape is a perceptible characteristic, and indeed Sextus claims that matter lacks shape in D(1).

In response to the second problem, we should claim that the body occupying matter's role does not possess any particular shape necessarily. It's true that it must have a shape, since it is a

[11] Pace Frede 2005, 223 who claims that matter is a body only in so far as it is extended in three dimensions.
[12] On void, see Galen, *De Qualitatibus Incorporeis* 19.464,10–14 = SVF 2.502 = LS 49E; Sextus Empiricus, *M* 10.3 = SVF 2.505 = LS 49B1.
[13] Gourinat 2009, 56 argues that this cannot be the correct Stoic definition of "body", since the reverse is not the definition of "incorporeal". For some incorporeals have dimensionality, as I have just argued. But Gourinat's assumption that "body" must be defined such that the reverse of its definition is the definition of "incorporeal" is unmotivated and not compelling. Thus I reject his argument.
[14] Frede 2005, 223 asserts that the body occupying matter's role lacks resistance.

body. But it's not true that it must have any particular shape.[15] It can take on many different types of shapes. In fact, it must take on some shape.[16]

In response to the first problem, we should deny that resistance must be a perceptible property. John Cooper proposes that resistance is the property of occupying space and taking up room, which is non-perceptual (2009, 98). He also claims that resistance cannot be analyzed as any sort of property that would impose limits on God's creative power (2009, 98 n. 12). However, matter's nature must limit God's activity somewhat. For God cannot annihilate matter, but God can annihilate void. Suppose that God moves through some void. The void does not thereby undergo a change; the void is annihilated and place is generated *ex nihilo*.[17] However, God cannot annihilate matter or generate it *ex nihilo*. He can alter it in many ways. But none of these alterations will destroy or generate matter. Therefore, matter's resistance – the characteristic that makes it a body – limits God's creative power.

We should deny Cooper's claim that resistance does not set limits on God's activity. However, we should accept his claim that resistance is the property of "occupying space" and "taking up room". If something takes up room, it excludes the presence of other things. Therefore, to alter something taking up room, one must make contact with it. Furthermore, if

[15] For similar responses, see Gourinat 2009, 57.
[16] *Having shape* is essential to matter. But *having shape* is not a perceptible characteristic. *Having a particular shape* is a perceptible characteristic. *Having shape* just means *being extended in three-dimensions*.
[17] The Stoics define "place" as what is occupied by a body or some number of bodies. See Sextus Empiricus, *M* 10.3 = SVF 2.505 = LS 49B2; Stobaeus, *Ecl.* 1.161,8–11 = SVF 2.503 = LS 49A1. Thus when God moves through some void, God begins to occupy something: his place. Thus his place is generated. In agreement with this analysis, see Brunschwig 2003, 213; Long and Sedley 1987, 1.296. Against this analysis, see Bailey 2014, 271–8. Inwood 1991 suggests that Chrysippus posited an entity that Inwood calls "extension", which is "what is able to be occupied" (see especially 247–9). Thus Chrysippus posits fully occupied extension (place), partly occupied extension (room), and totally unoccupied extension (void). Inwood proposes to analyze occupation as a primitive relation between body and extension (246). Instead, I would analyze occupation as a relation between a resistant extension and an extension. An extension E1 is occupied by an extension E2 iff E2 is resistant and E2 is wholly co-located with E1. Resistance is then analyzed in terms of changeability, the ability to be annihilated, and the ability to be generated *ex nihilo*. These concepts would primitive, according to this analysis.

something takes up room, then it will not cease taking up room. One can alter it in many ways, but one cannot cause a resistant extension to no longer take up room.

Thus the analysis of resistance according to which resistance is the property of taking up room and excluding the presence of other extensions yields the theoretical results we desire. Resistance is the property of three-dimensional extensions that makes them capable of undergoing change and incapable of being annihilated or being generated *ex nihilo*.[18] A three-dimensional extension has resistance if and only if it cannot be annihilated or generated *ex nihilo*. Incorporeal three-dimensional extensions lack resistance. Therefore, they can be annihilated or generated *ex nihilo*, and they cannot be changed by physical contact. Bodies have resistance. Therefore, they cannot be annihilated or generated *ex nihilo*. Since matter is a body, matter has resistance.[19]

Matter is a body. Therefore, matter is a three-dimensional extension that takes up room and excludes the presence of other bodies. It cannot be generated *ex nihilo* or annihilated. It can be changed. To change matter, God makes contact with it. This does not require us to attribute any particular set of perceptible characteristics to matter. Thus far we have analyzed it without any particular set of perceptible characteristics. We have attributed *determinable* characteristics to it: it must have some shape.[20] But we have attributed no particular determinate characteristic to it.

Thus the following type of body realizes matter's role. It is *resistant space* – three-dimensional extension that can be changed by contact. It does not possess any essential

[18] Cf. Powers 2014, 431.
[19] However, see Plotinus, *Enn*. 6.1.28 = SVF 2.319: "For they [i.e. the Stoics] did not rightly give resisting to it. For this is a quality". I do not think Plotinus is accurately representing the Stoics in this passage. For the Stoics would not claim resistance is a quality. But this seems to be his premise in denying matter resistance in the previous sentence.
[20] It must also have density, and further characteristics supervene on its density. See below.

perceptible characteristics. It is not completely propertyless, and it limits God's creative activity. Furthermore, God alters it; as a result, it possesses determinate sets of physical characteristics. In the following section, I will examine how such a body realizes the role of the passive principle.

3. The Realization of the Passive Principle's Role

Recall the roles of the principles from Chapter Two. God is an immanent efficient cause of unified natural objects. He acts on and affects matter. Matter constitutes those unified natural objects in virtue of God's activity on it. In this section, I will explain how a three-dimensional extension with resistance realizes the passive principle's role.

We might be tempted to endorse the following analysis of how the principles' roles are realized. God, which I have argued is a type of fire, acts on a three-dimensional extension with resistance. As a result, fire imbues this extension with shape, order, and motion. For this extension is totally changeable and it can take on any forms that the fire wishes it to have. This extension thereby constitutes the wholes – unified natural objects.

This analysis is unsatisfying. It says that artistic fire imbues matter with shape, order, and motion. But what are the mechanics of this process? We have denied that matter has any essential perceptible characteristics. So how does it have the capability to take on the characteristics of a complex object like an animal or plant? We normally require the constitution basis of a body to have a set of features that allow it to serve as such. For example, the bronze that constitutes a statue has certain potentialities that allow it to be shaped into various sorts of statues and prevent it from being shaped into others. A different sort of material might not be able to constitute the statue that the bronze constitutes. But we have not explained how any feature of the body realizing matter's role makes it suitable to constitute complex objects. Thus while the analysis above might be true, it is not explanatory.

Let's consider Diogenes' claim that "the four elements are together [ὁμοῦ] unqualified substance – i.e. matter" (7.137 = SVF 2.580 = LS 47B). "The four elements" refers to fire, air, water, and earth. These substances do not lack essential perceptible characteristics. I have argued that they each have a density – fire is the least dense, followed by air, water, and earth, in that order. Other characteristics supervene on their density – fire is hot, air is cold, and so on. When Diogenes claims that these substances are together the passive principle, he might mean that some combination of fire, air, water, and earth realizes the passive principle's role. And this seems to directly contradict the reports from Calcidius and Sextus above. For the elements have particular perceptible characteristics essentially – fire is hot, air is cold, and so on. This leads Michael Lapidge 1973 to declare that Diogenes' report "makes nonsense of" the Stoic account of the passive principle (265).[21]

However, we should not discard Diogenes' report so quickly. For, as Lapidge notes (ibid.), other sources confirm that there is a direct relationship between the passive principle and fire, air, water, and earth. Consider Plotinus's report:

Text E: Plotinus, *Enn*. 2.4.1 = SVF 2.320

(1) Those who also posit that only bodies are beings and that substance in these is one and matter, (2) say that [matter] both underlies the elements and is substance. (3) All other things are like affections of matter, and even the elements are matter somehow disposed. (4) In fact, they also dare to lead matter even up to the gods and finally even proclaim that God himself is matter somehow disposed.[22]

[21] See also Hahm 1977, 30.

[22] Καὶ οἱ μὲν σώματα μόνον τὰ ὄντα εἶναι θέμενοι καὶ τὴν οὐσίαν ἐν τούτοις μίαν τε τὴν ὕλην λέγουσι καὶ τοῖς στοιχείοις ὑποβεβλῆσθαι καὶ αὐτὴν εἶναι τὴν οὐσίαν, τὰ δ' ἄλλα πάντα οἷον πάθη ταύτης καί πως ἔχουσαν αὐτὴν καὶ τὰ στοιχεῖα εἶναι. Καὶ δὴ καὶ τολμῶσι καὶ μέχρι θεῶν αὐτὴν ἄγειν καὶ τέλος δὴ καὶ αὐτὸν ἀυτεῖν τὸν θεὸν ὕλην ταύτην πως ἔχουσαν εἶναι.

E(1) identifies the Stoics as Plotinus's subject. In E(2), he says that matter "underlies the elements" (τοῖς στοιχείοις ὑποβεβλῆσθαι). The same language is used by Galen and Sextus Empiricus to describe matter's relationship to the four elements.[23] This means that matter is somehow directly related to fire, air, water, and earth. In E(3), he describes this relationship using the Stoic theory of categories: fire, air, water, and earth are matter somehow disposed. The Stoics use this category to explain how a body can be F without needing to posit an additional quality of Fness causing it to be F. For example, the hand is a fist not in virtue of some quality of fistedness causing it to be such.[24] For, as we have seen, qualities are bodies, which cause other bodies to possess certain characteristics. And we do not want to say that fistedness is a body within the hand causing it to be a fist. Rather, the fist *just is* the hand *somehow disposed*.[25] In more familiar language, the hand, when it is arranged in a particular way, constitutes the fist. Likewise, fire, air, water, and earth are matter somehow disposed.

In what way are fire, air, water, and earth matter somehow disposed? Recall, resistant space realizes matter's role. It lacks essential perceptible characteristics. It is resistant in so far as it takes up room. Now, a quantity of this body could take up more or less room. When it takes up more room, it is the rarer elements: fire and air. When it takes up less room, it is the denser elements: earth and water. Matter *somehow disposed* is fire, air, water, and earth. When it is disposed in a denser way, it is the denser elements; when it is disposed in a rarer way, it is the rarer elements.[26]

[23] See Galen, *De elementis* 1.469–470 = SVF 2.408; Sextus Empiricus, *M* 10.312 = SVF 2.309.
[24] For analysis, see Menn 1999.
[25] Sextus Empiricus, *PH* 2.81; Alexander of Aphrodisias, *in. Top.* 360,12-13 = SVF 2.379.
[26] This is essentially the view put forth by Hahm 1985, 49.

Diogenes' statement that fire, air, water, and earth are together matter does not mean that these substances are identical to the passive principle. Read in combination with Plotinus and Galen's reports, the following is likely the original Stoic theory that he reports. Fire, air, water, and earth are exhaustive ways in which matter can be disposed. Just as the hand can be a fist or unclenched, so too matter can either be rare or dense. There are no portions of matter disposed in a way other than as the four elemental bodies. Therefore, if one gathered together all of the matter in the world, one would have an armful of fire, air, water, and earth. Therefore, taken together, these substances are coextensive with the passive principle. But just as the hand is not identical to the hand clenched or the hand unclenched, since they have different essential properties or persistence conditions, so too matter is not identical to fire, air, water, and earth. For matter persists when any of these bodies are destroyed.

The body realizing matter's role must be able to perform the functions assigned to the passive principle. Resistant space realizes matter's role. God acts on matter. Therefore, God acts on resistant space. Whenever God acts on this body, he will act on fire, air, water, or earth. For it is impossible that space should be occupied without one of these four substances occupying that space. Compare this to a sculptor acting on a statue. She acts on the bronze in virtue of acting on the statue. (Furthermore, she acts on the particles composing the bronze in virtue of acting on the statue, which might be more analogous to matter and God's relationship.) Likewise, God acts on the body realizing matter's role in virtue of acting on fire, air, water, or earth. God arranges the various elements within a particular location so that a particular unified natural object is generated. For, because he is artistic fire, he is able to condense and rarefy the various locations within matter by positioning himself and air in particular areas. By doing so, he creates elemental changes in the matter.

God acts on matter. As a result, matter constitutes unified natural objects. Therefore, resistant space must be able to constitute unified natural objects. In Chapter Three, I argued that fire, air, water, and earth are the primary immanent components of complex natural objects. Consider Socrates. Socrates' primary immanent components are fire, air, water, and earth. When these are moved and positioned correctly, Socrates is generated. Now, the combination of fire, air, water, and earth that is moved correctly should be analyzed as matter somehow disposed. That is, the various locations within Socrates are taken up by resistant space, which has a certain density. The sum of all local portions of resistant space within Socrates is the sum of all of the elemental bodies within Socrates. The sum of all of Socrates' immanent components is his material basis – what he is constituted by. Therefore, the local portions of matter *somehow disposed* within Socrates constitute Socrates. The body that realizes matter's role with respect to Socrates is resistant space in a local portion of the world. Because this body constitutes fire, air, water, and earth, it also constitutes Socrates.

This interpretation reconciles the seemingly conflicting reports from Calcidius, Sextus, Plotinus, and Diogenes. Resistant space realizes the role of the passive principle. It has no particular set of perceptible characteristics essentially. However, each location within resistant space must manifest as one of four sets of perceptible characteristics. Thus matter somehow disposed is fire, air, water, and earth, combinations of which constitute unified natural objects in virtue of God's activity on them.

4. The Priority of Matter over God and God over Matter

In this section, I will examine two objections to this interpretation. They both stem from the relationship of the active and passive principles. First, resistant space realizes the role of the passive principle. However, God is also a body, according to the Stoics. In fact, he is a particular

type of fire. Fire is least dense of the elemental substances. But, as I have just argued, fire is just space being occupied less densely. But if the body that realizes matter's role is just resistant space, and if the body that realizes God's role is a particular manifestation of resistant space, then matter is somehow metaphysically prior to God. But the principles are supposed to be metaphysical equals. Therefore, either we shouldn't identify fire as the realizer of God's role, or we shouldn't identify resistant space as the realizer of matter's role.

I reject the premise that the principles are supposed to be metaphysical equals. I do not think there is textual evidence that supports this assertion. One might claim that both God and matter are meant to be *principles*, and their status as principles entails that they are the fundamental entities – the things that depend on nothing else. However, no source claims this. Indeed, as I argued in Chapter Two, Diogenes claims that God and matter's status as principles is tied to their metaphysical and physical roles within Stoic physics. God is a principle because he is the immanent efficient cause of natural objects. Matter is a principle because it constitutes those natural objects. The explanation for God and matter's status as principles is not described in terms of their metaphysical independence, but rather in their metaphysical priority to a certain class of objects.[27]

Furthermore, several pieces of evidence seem to explicitly claim that matter is somehow metaphysically prior to God in some way. Consider E(3) and E(4). Plotinus first claims that fire, air, water, and earth are matter somehow disposed. Above, I analyzed this to mean that resistant space has four basic dispositions dependent on how densely space is being occupied. Then in E(4), Plotinus claims that the Stoics' God is matter somehow disposed, as well. Thus Plotinus

[27] Indeed we should note that Diogenes Laertius lists "bodies" before "principles" in his division of Stoic physics (7.132 = LS 43B). If we understand this list as providing some sort of priority ranking, then *body*, understood as resistant space, will be metaphysically prior to the particular bodies that realize the principles' roles.

seems to claim that matter is somehow metaphysically prior to God. And, given his report in E(3) and my analysis of it, it seems clear *how* it is prior: God's role is realized by one of the four basic dispositions of the type of body that realizes matter's role. For God's role is realized by fire.

Plotinus confirms matter and God's relationship in another treatise. He says:

Text F: Plotinus, *Enn*. 6.1.27 = SVF 2.314

(1) And besides, since they maintain the principle of everything in a place of honor, they should not have posited a principle that was lacking shape, passive, unintelligent, dark, and indeterminate, and attribute even substance to this thing. (2) For they bring in God for the sake of appearances, (3) who, having his being from matter, being compound, and being posterior, (4) is matter somehow disposed.[28]

Plotinus criticizes the Stoics. For they posit the passive principle, which F(1) describes as shapeless, passive, lacking intelligence, and so on. However, he recognizes they posit an additional principle – God – in F(2). Yet he claims that God is somehow metaphysically posterior in F(3). Thus he attributes the claim in F(4) to the Stoics: God is matter somehow disposed. Thus, again, Plotinus provides evidence that God and matter are not metaphysical equals.

Plutarch and Alexander put forth similar arguments against the Stoics, which describe God as being posterior to matter.[29] However, one might question the reliability of these sources. First, one could claim that, in F(4), Plotinus is not *reporting* the Stoics' view. Rather, he is

[28] Ἐχρῆν δὲ καὶ ἄλλως τηροῦντας τὴν ἀρχὴν τῶν πάντων ἐν τῷ τιμίῳ μὴ τὸ ἄμορφον μηδὲ τὸ παθητὸν μηδὲ τὸ ζωῆς ἄμοιρον καὶ ἀνόητον καὶ σκοτεινὸν καὶ τὸ ἀόριστον τίθεσθαι ἀρχήν, καὶ τούτῳ ἀναφέρειν καὶ τὴν οὐσίαν. Ὁ γὰρ θεὸς αὐτοῖς εὐπρεπείας ἕνεκεν ἐπεισάγεται παρά τε τῆς ὕλης ἔχων τὸ εἶναι καὶ σύνθετος καὶ ὕστερος, μᾶλλον δὲ ὕλη πως ἔχουσα.

[29] Plutarch, *De Comm. Not*. 1085b–c = SVF 2.313; Alexander, *De Mixtione* 225,13–18.

making in inference about what the Stoics are committed to. Thus F(4) is not good evidence for the Stoics' position.[30] However, Plotinus does seem to report the Stoics' view in E(4). And while Plotinus does adopt the phrase "somehow disposed" for his own purposes at times, he does use it correctly with respect to the Stoic theory of the soul.[31] Thus it seems reasonable to attribute the claim that God is matter somehow disposed to the Stoics, unless it contradicts some other well-attested aspect of Stoic physics.

To this end, one could put forth another objection against the view that God's role is realized by fire and matter's role is realized by resistant space. Let's assume that the body that realizes God's role is the body that realizes matter's role somehow disposed. Now, we know that God acts on matter. As a result, matter constitutes the natural world. This interaction is accomplished when matter constitutes fire, air, water, and earth – combinations of which thereby constitute natural objects. But if God *just is* matter somehow disposed, then how can God act on matter? After all, other examples of somehow disposed objects do not causally interact with their constitution basis. The fist is the hand somehow disposed. But the fist does not act on the hand. Likewise, the soul is pneuma somehow disposed. But the soul does not act on the pneuma that constitutes it. At least, the entire soul does not act on itself *qua* entire soul, even if different parts of the soul can act on other parts. Likewise, we have assumed that God is matter somehow disposed. Therefore, God does not act on matter. But, as we know, God must act on matter. Therefore, something has gone wrong: either God isn't fire or matter isn't resistant space.[32]

[30] Thanks to Tad Brennan for discussion.
[31] Plotinus, *Enn*. 4.7.4 = SVF 2.443.
[32] This paragraph serves as my objection to Frede 2005, 224–225 and Sorabji 1988, 93–98, both of whom seem to argue that (a) God is the realizer of matter's role *somehow disposed* and (b) God acts on matter. This view is ultimately incorrect, although a related view is likely correct, as I argue below.

Distinctions must be made. The body that realizes matter's role is resistant space. The body that realizes God's role is fire – one of four possible manifestations of resistant space. The fire that realizes God's role must act on resistant space. That is, one portion of resistant space – the God portion – must act on surrounding portions of resistant space – the matter portions, which manifest as each of the four elements. Thus far, the unwelcome consequences described above have not arisen. They only arise when we assert that the portion of resistant space that realizes God's role must act on that very portion *qua* portion of resistant space that realizes matter's role. But we do not need to assert this. Therefore, the unwelcome consequences never arise.

In the objection above, we assumed that some token body that realizes matter's role constitutes a body that realizes God's role. We should deny this claim. A token of the *type* of body that realizes matter's role – resistant space – constitutes a body that realizes God's role. However, no token body that realizes matter's role also constitutes a body realizing God's role.

But if that's true, then in what sense is God *matter* somehow disposed, as Plotinus asserts in E(4) and F(4)? To answer this question, I will draw on an interpretive tradition in Stoic scholarship. Consider the following analysis of Stoic physics by Hunt 1976:

> A particular problem involved in the postulation of a store of primary matter from which must be drawn the material needed to sustain the cosmos was to explain how the quantity of the primary matter could suffice if the cosmos was to be permanent. Zeno met this by supposing the universe to be a system composed of a substance which was constant in quantity … In [Stobaeus, *Ecl.* 1.132,27–133,5 = SVF 1.87] we see that the term *ousia* is used for 'substance'. … *As will be shown, it had two aspects, the active and the passive,*

> *but since these were regarded as inseparable aspects of one substance, the Stoic theory was a form of monism* (18, emphasis mine).

Hunt and others claim that the Stoics are *monists*.[33] In its contemporary guises, monism is understood as the view that there is either a single token concrete thing (existence monism) or a single token concrete fundamental thing (priority monism).[34] The Stoics are not existence monists. They might be some sort of priority monists. However neither of these views is the monism that, I think, Hunt attributes to the Stoics. Instead, let's consider the following thesis:

> *Corporeal Monism* : There is one continuous body in which all other bodies are contained.[35]

The Stoics deny that any void exists within the world.[36] They think there is only one world. Therefore, there is a continuous quantity of corporeal stuff, and all bodies are contained within it. That is, for any body, that body is present within the limits of the one continuous body. Thus they accept *Corporeal Monism*. This quantity of corporeal stuff is what Hunt calls "substance". It is the "store of primary matter" that is sufficient to explain all natural processes in the world. Let's call this continuous quantity of corporeal stuff "Body".

Note Hunt's claim that the active and the passive principles are "aspects" of Body. Hunt's interpretation is unclear. But there is a clear sense in which God and matter are aspects of Body: the principles are two *parts* of Body. That is, the principles are two local portions of Body.

Body is resistant space. For the world and the external, incorporeal void are distinguished by the fact that the world is made up of a type of space that cannot be annihilated and can

[33] See Gould 1970, 96; Hager 1982, 99–100; Lapidge 1973; Miller 2015; Todd 1978.
[34] These are defined by Schaffer 2010, 65–66. For a contemporary defense of existence monism, see Horgan and Potrč 2000. For a conetmporary defense of priority monism, see Schaffer 2010.
[35] This is similar to the second conjunct of the view that Miller 2015, 26 calls "holistic monism".
[36] Galen, *De Diff. Puls*. 8.674,13–14 = SVF 2.424 = LS 49D.

undergo change. As I have argued above, this is what the property of resistance guarantees. Therefore, given my argument from the previous sections, Body and the body realizing matter's role are of the same type. Because of this, it seems likely that the Stoics and their sources were often imprecise in their use of terminology. Matter gets called "Body" at times, and Body "matter". A survey of the sources seems to confirm this hypothesis. For the terms ὕλη and οὐσία seem to be used by our sources sometimes to refer to the passive principle and sometimes to Body.[37] But we should keep in mind that Body is not identical to the bodies realizing matter's role; for matter is a proper part of Body.

Now we can see how (a) Plotinus correctly calls God "matter somehow disposed", (b) matter is metaphysically prior to God, (c) God is still able to causally interact with matter. Let's begin with (a). My interpretive hypothesis is that "matter" sometimes refers to Body and sometimes to matter. In Plotinus's reports, we should understand it to refer to Body. Therefore, God is a portion of *Body* somehow disposed. Body is resistant space. When portions of it are occupied less rarely, it is the body that realizes God's role – fire.

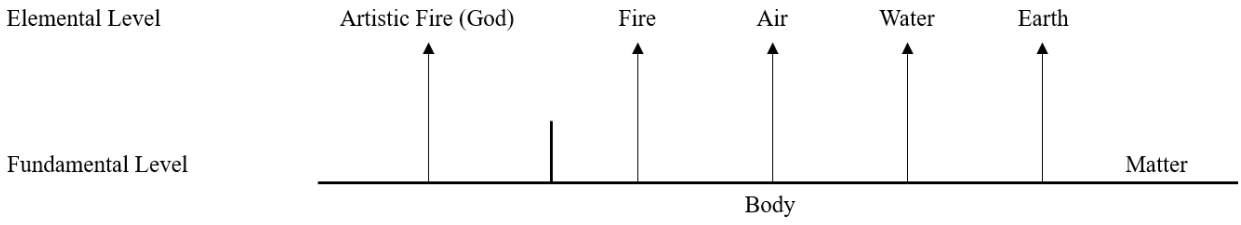
Now let's turn to (b). Body is of the same type as the body that realizes matter's role. God is metaphysically derivative on that type of body. For God is a portion of Body somehow disposed. Therefore, matter is more fundamental than God, in so far as it is a token of the type of body on which God depends. Consider an analogy. Quarks are more fundamental than protons, since quarks compose protons. But some quarks in a sodium atom on earth will not share a direct

[37] See Calcidius *in Tim.* 290 = SVF 1.86, who seems to prefer to use "siluam" to refer to a broad category of underlying substrates and "essentia" to refer to Body; *in Tim.* 292 = SVF 1.88 = LS 44D, who seems to refer to Body with "essentia"; *in Tim.* 293 = LS 44E, who seems to switch between talking about Body and the passive principle, using "essentia" and "silva"; Diogenes Laertius, 7.134 = SVF 2.300 = LS 44B, who refers to the passive principle with ὕλη and ἄποιος οὐσία; Sextus Empiricus *M* 9.75–6 = SVF 2.311 = LS 44C, who refers to the passive principle with ὕλη and οὐσία; Stobaeus *Ecl.* 1.132,26 – 133,5 = SVF 1.87, who uses πρώτη ὕλη to refer either to Body or to the passive principle. Claims by Lapidge 1973 that the sources consistently and clearly use different words to refer to the passive principle and substance are false.

metaphysical priority relation with some protons in an oxygen atom at the other end of the universe. But we can still say that the sodium atom's quarks are more fundamental than the oxygen atom's protons. For the sodium atom's quarks compose the same type of particle as the oxygen atom's protons. Likewise, even though matter and God do not share a direct metaphysical priority relation, matter is still more fundamental than God.

Now let's turn to (c). God's role is realized by a portion of Body that does not realize matter's role. For only portions of Body that constitute unified natural objects realize matter's role. And artistic fire does not jointly compose unified natural objects. Therefore, God and matter are located in distinct portions of Body. Therefore, they are able to interact with each other, just as different parts of a human body can interact with each other.

The key assertion that justifies this interpretation is the claim that God and matter are two distinct portions of one body. This is my way of understanding how the principles are two "aspects" of one body. To clarify the relationship between Body, God, and matter, consider the following figure:



Vertical arrows represent constitution or *somehow disposed* relations. The vertical divider on the bottom line represents the distinction between the portion of Body that constitutes the substance that realizes God's role (the left side of the bottom line) and the portion of Body that realizes

matter's role (the right side of the bottom line). Body is represented by the entire horizontal line. There is a material portion of Body. This portion realizes matter's role. There is a non-material portion of Body. This portion constitutes a body – fire – that realizes God's role. Not all fire realizes God's role; some fire is material. Although the figure represents the material and non-material portions of Body as being juxtaposed, we know from the previous chapters that they are actually blended.

Some evidence seems to confirm this interpretation. Consider Calcidius:

Text G: Calcidius, *in Tim.* 289

(1) The Stoics also reject the birth of matter. (2) Rather, they assume that it's better that matter and God are the two principles of everything – God as the artisan, matter as what is subjected to the work. (3) They think that the maker and what is made and affected possess one essence, they are body, although with a different power; (4) because it makes, God is [body], and because it is made, matter is [body].[38]

G(1) and G(2) are standard fare. G(3) states that God and matter "possess one essence" (una essentia praeditos). Namely: "they are body" (corpus esse). Now, of course, we might understand this report as stating that since God acts and matter is acted upon, they both fulfill a sufficient condition for being corporeal. However, Calcidius's use of the word "essence" should give us pause. For later he describes how the Stoics distinguish "matter" from "essence" and "substance" (substantia) (*in Tim*. 290; 291). By saying that God and matter possess one essence, perhaps he alludes to the view that God and matter are parts of a single body that the Stoics sometimes

[38] Stoici quoque ortum siluae reiciunt, quin potius ipsam et deum duo totius rei sumunt initia, deum ut opificem, siluam ut quae operationi subiciatur: una quidem essentia praeditos, facientem et quod fit ac patitur, corpus esse, diuersa uero uirtute: quia faciat, deum, quia fiat, siluam fore.

called "substance".[39] And in saying that God and matter are "body" in G(4), perhaps he identifies the two principles as being parts of Body. Body can be divided into active and passive parts. Thus Text G might confirm my interpretation.

Therefore, while in some sense, the body realizing God's role is less fundamental than the body realizing matter's role, they do not share a direct metaphysical priority relation. Therefore, they are still able to causally interact. Furthermore, they are not related in such a way that justifies existential "in virtue of" claims of the form "God exists because of matter".

Finally note that if this interpretation is correct, then there is a sense in which matter depends on God. For I have argued that artistic fire determines what manifestations of resistant space are located in what locations and how they move. By positioning itself and air within natural objects, artistic fire rarefies and condenses resistant space. As a result, resistant space manifests as fire, air, water, or earth. Thus some of matter's intrinsic characteristics (density, perceptible features) are determined by artistic fire's activity. Therefore, matter depends on God. However, none of matter's essential features depend on God. For only resistance and three-dimensionality is essential to matter, and resistant space is metaphysically prior to God. Therefore, God and matter are not related asymmetrically in such a way that justifies existential "in virtue of" claims of the form "matter exists because of God".

5. Final Questions about the Conflagration

At the end of Chapter Two, I recommended waiting until this chapter to answer some final questions. I argued that the realizers of God and matter's roles must be physically separable and functionally inseparable. In order to realize the principles' roles, these bodies must make contact with each other; but nothing about the bodies themselves requires that they be in contact

[39] This is similar to Frede 2005, 225's interpretation of this passage.

with each other. Furthermore, the Stoic laws of chemistry entail that the bodies realizing their roles must be capable of separating. A question naturally arises: do the occupants of the principles roles ever actually physically separate?

In this section, I will answer this question negatively. There is never a period during which a body that once realized God or matter's role exists in isolation from a body that once realized the other principle's role.[40] To explain this, we will consider the conflagration and the metaphysics of the principles during that period. For if the occupants of the principles ever separate, it would be during this period.

Consider the following passage from Seneca:

Text H: Seneca, *Epistulae Morales* 9.16 = SVF 2.1065 = LS 46O

(1) What kind of life will a wise man have if he is abandoned by his friends and hurled into prison or isolated in some foreign country or detained on a long voyage or cast out onto a desert shore? (2) It will be like the life of Zeus, at the time when the world is dissolved and the gods have been fused into one, (3) when nature comes to a stop for a while; (4) he reposes in himself given over to his thoughts (trans. Long and Sedley, modified).[41]

The Stoics claim that the world experiences an alternating cycle of distinct periods. During one period called a "conflagration", only fire exists. During another period called a "cosmic order", each of the four elements exists in a stratified arrangement on a cosmic level, and they combine

[40] I say "once realized" for the following reason. If a body that realizes a principle's role at time T1 separates at time T2 from a body that realizes the other principle's role at T1, then at time T2, those bodies do not realize the principle's roles. In order to realize the roles of the principles, bodies must be in contact with each other. If they separate, they will not be in contact.

[41] Qualis tamen futura est vita sapientis, si sine amicis relinquatur in custodiam coniectus vel in aliqua gente aliena destitutus vel in navigatione longa retentus aut in desertum litus eiectus?' Qualis est Iovis, cum resoluto mundo et dis in unum confusis paulisper cessante natura adquiescit sibi cogitationibus suis traditus.

to form complex objects.[42] H(2) describes the conflagration. According to H(3), during conflagrations, the body that occupied God's role ceases his constructive activities. God thinks, but he does not build. What happens to the body occupying matter's role during this time? Quotations of Chrysippus provided by Plutarch seem to provide an answer:

> **Text I: Plutarch, *De Stoic. Repug*. 1052c = SVF 2.604 = LS 46E**
>
> (1) So here Chrysippus declares that all the other gods are nourished except for the cosmos and Zeus, (2) but in the first book of *On Providence,* he says that Zeus grows until he consumes everything into himself. (3) "For since death is the separation of the soul from the body, (4) but the soul of the cosmos is not separated, (5) but rather it continually grows until it has consumed matter [τὴν ὕλην] into itself, (6) we shouldn't say that the cosmos dies".[43]

Chrysippus describes the process by which the cosmos goes from a period of cosmic order to a period of conflagration in terms of the interaction between the world's soul and body. Let's call this the "cosmolysis".[44] I(5) states that the cosmos's soul consumes "matter" (τὴν ὕλην) during this process. "Matter" refers to the passive principle. For Plutarch uses "Zeus" and "soul of the cosmos" interchangeably, and Chrysippus uses "matter" and "body of the cosmos"

[42] On the Stoic theory of the conflagration, see Cicero, *De Natura Deorum* 2.118 = SVF 2.593; Eusebius, *Praep. ev.* 15.14.2 = SVF 1.98 = LS 46G; 15.18.1–3 = SVF 2.596 = LS 46K; 15.19.1 = SVF 2.599; Philo, *De aeternitate mundi* 90 = SVF 1.511 = LS 46M; 94 = SVF 2.618; *De Specialibus Legibus* 1.208 = SVF 2.616; Plutarch, *Stoic. Repug.* 1053b = SVF 2.605 = LS 46F; Stobaeus, *Ecl.* 1.171,2–7 = SVF 2.596. See discussion by Furley 1999; Long 1985; Mansfeld 1979; Salles 2005. On the cosmic order, see Aetius 2.4.13 = SVF 2.597; Diogenes Laertius, 7.155 = SVF 2.558, 651.

[43] ἐνταῦθα μὲν ἀποφαίνεται πάντας τοὺς ἄλλους θεοὺς τρέφεσθαι πλὴν τοῦ κόσμου καὶ τοῦ Διός· ἐν δὲ τῷ πρώτῳ περὶ Προνοίας τὸν Δία φησὶν αὔξεσθαι, μέχρι ἂν εἰς αὐτὸν ἅπαντα καταναλώσῃ·'ἐπεὶ γὰρ ὁ θάνατος μέν ἐστι ψυχῆς χωρισμὸς ἀπὸ τοῦ σώματος, ἡ δὲ τοῦ κόσμου ψυχὴ οὐ χωρίζεται μὲν αὔξεται δὲ συνεχῶς μέχρι ἂν εἰς αὐτὴν καταναλώσῃ τὴν ὕλην, οὐ ῥητέον ἀποθνήσκειν τὸν κόσμον.'

[44] Thanks to Tad Brennan for this word.

interchangeably. So Chrysippus claims that the body occupying the active principle's role consumes the body occupying the passive principle's role during the cosmolysis.[45]

In I(6), Chrysippus concludes that the cosmos does not die. For death is the separation of the soul from the body, according to I(3). He assumes that if one body consumes another, they do not separate. Therefore, the soul of the cosmos (God) and its body (matter) do not separate.

What is Chrysippus's reason for asserting that if one body consumes another, they do not separate? Ricardo Salles 2009a suggests one possibility: "[w]hen A is consumed by B (but not when it separates from B) A is transformed into B" (127). According to this interpretation, if A and B separate, they exist in isolation from each other. But if A transforms into B, they do not exist in isolation from each other. For A ceases to exist. Therefore, transformation excludes separation and vice versa.[46]

If we adopt Salles' interpretation of Chrysippus's reasoning, then I(5) suggests that the body occupying matter's role transforms into the body occupying God's role. Thus the former body goes out of existence and increases the latter body. Hence the principles do not separate because they both do not exist in isolation from each other. Consider another quotation of Chrysippus from Plutarch that might support this interpretation:

Text J: Plutarch, *De Stoic. Repug*. 1053b = SVF 2.605 = LS 46F

(1) He says in the first book of *On Providence*, "For when the cosmos is totally fiery, (2) it is directly also its own soul and ruling part. (3) But when, changing into the moisture

[45] Perhaps we should understand "Zeus" and "matter" to refer to something other than the active and passive principles in this passage. I am not sure to what else they might refer. For the Stoics identify Zeus and God, the active principle (Diogenes Laertius, 7.135). And when spoken of in combination with Zeus, the most likely candidate for the referent of "matter" is the passive principle. Scade 2010, 149 analyzes a similar passage from Calcidius, *in Tim*. 293 = LS 44E in a similar way.

[46] Please note that Salles 2009a does not explicitly accept that "the soul of the cosmos" refers to God and "the body of the cosmos" refers to matter. I am using his analysis of the passage, in which he only discusses the soul and body of the cosmos, for my purposes, where the soul and body of the cosmos are the active and passive principles.

and the soul that has been left behind, (4) it changed in some way into body and soul so that it is composed out of these, (5) it had another role".[47]

Again, J(1) refers to the conflagration. During the conflagration, the cosmos is identified with its soul, according to J(2). We have seen that "soul of the cosmos" and "Zeus" and "God" seem to be used interchangeably in this passage. Therefore, one might conclude that Chrysippus thinks that only a body that once occupied God's role exists during the conflagration.[48]

However, this interpretation is not consistent with our evidence concerning the passive principle. For example, Diogenes Laertius calls both of the principles ungenerated and indestructible (7.134). Several sources seem to describe the passive principle as being static in quantity, undergoing neither increase nor decrease.[49] This evidence contradicts the theory that the passive principle is gradually consumed by the active principle until the body once occupying the passive principle's role is transformed and destroyed. For the body that occupies the passive principle's role is incapable of being destroyed. This makes sense intuitively. For matter's role is realized by resistant three-dimensional space, and resistant space is not destroyed during the conflagration; it merely changes form.

Thus the evidence conflicts. Here is how we should resolve it. We should adopt Salles' understanding of Chrysippus's reasoning with respect to the claim that the soul and body of the cosmos do not separate. However, we should not adopt his reasoning with respect to the claim

[47] λέγει δ' ἐν τῷ πρώτῳ περὶ Προνοίας· 'διόλου μὲν γὰρ ὤν ὁ κόσμος πυρώδης, εὐθὺς καὶ ψυχή ἐστιν ἑαυτοῦ καὶ ἡγεμονικόν· ὅτε δέ, μεταβαλὼν εἴς τε τὸ ὑγρὸν καὶ τὴν ἐναπολειφθεῖσαν ψυχήν, τρόπον τινὰ εἰς σῶμα καὶ ψυχὴν μετέβαλεν ὥστε συνεστάναι ἐκ τούτων, ἄλλον τινὰ ἔσχε λόγον.'

[48] Sellars 2006, 99 seems to endorse this interpretation. In support of this claim, one could cite Diogenes Laertius's statement that, during the conflagration, God is "by himself" (καθ' αὑτὸν; 7.136). For an argument against this interpretation, see Cooper 2009, 102.

[49] See Calcidius, *in Tim*. 289; 292 = SVF 1.88 = LS 44D4; 293 = LS 44E4; Stobaeus, *Ecl*. 1.132,27–133,3 = SVF 1.87; 1.133,6–11 = SVF 2.317. See discussion by Sedley 1999, 386.

that the realizers of God and matter's roles do not separate. Instead, "consume" means something else with respect to the claim that God consumes matter.

The world's soul consumes its body. The body of the world is made up of the four stratified elemental layers. The world's soul is made up of fire. Fire consumes the four stratified elemental layers by converting them into fire. Therefore, the body of the cosmos does not separate from its soul because the body does not come to exist in isolation from the world's soul.

In accordance with our analysis of Diogenes' claim that the four elements taken together are matter, note that these four stratified elemental layers are coextensive with the body realizing the passive principle's role. The passive principle manifests as these substances. When the world's soul – the fiery substance realizing God's role – consumes its body, God acts on the passive principle. After this activity, no part of Body is passive. For the cosmos during the conflagration is only a fiery soul. When we say that God consumes matter during the conflagration, this means that the body realizing the active principle's role acts on the body realizing the passive principle's role such that no body comes to realize the passive principle's role. Matter *de dicto* is destroyed, even if matter *de re* remains.

Of course, God *de dicto* is destroyed, as well. For if there is no passive entity for God to act on, God cannot carry out his constructive tasks. During the conflagration, there are no complex objects to organize and govern. The conflagration's fire is capable of thought, as H(4) suggests. Thus, in some sense, we can still treat the conflagration's fire as divine and psychic. For it exercises forethought about how it will act in the time following the conflagration.[50] However, *qua* active principle, God ceases to exist.

[50] Chrysippus says that Zeus "withdraws into providence" (ἀναχωρεῖν ἐπὶ τὴν πρόνοιαν) during the conflagration (Plutarch, *De Comm. Not.* 1077d–e = LS 28O).

Because of this, the principles do not separate. Neither God nor matter *de dicto* exists during the conflagration. Both God and matter *de re* exist during the conflagration. So at this stage in the cosmic cycle, there is some fire. Neither principle's role is realized. However, both future realizers of the principles' roles are present. For fire is present, and resistant three-dimensional space is present. Therefore, in accordance with either understanding of "the principles", neither principle exists in isolation from the other during the conflagration. Thus the principles do not separate, and we don't need to adopt Salles' understanding of "separation" to understand how the principles do not separate.

Once the cosmogony begins – the process by which the cosmic order is generated from the conflagration – the mass of fire present during the conflagration acts on itself.[51] That is, part of the fire becomes active and part of it becomes passive. For part of the conflagration's fire changes into other elemental substances, which are acted on by the remaining fire. This is what Chrysippus references in J(3), when he says that the fire of the conflagration changes into a combination of moisture and "the soul that has been left behind" in the moisture.[52] Once the conflagration's fire divides into active and passive parts at the beginning of the cosmogony, the principles' roles are occupied. One part of the fire occupies the active principle's role and the other part is constituted by resistant space that gets acted on by the active principle. Therefore, that part of Body occupies the passive principle's role.

Thus the manifestation of resistant space present during the conflagration is capable of taking on both principles' roles. By "consuming" the body realizing the passive principle's role –

[51] For similar thoughts, see Sorabji 1988, 96–7; Todd 1978, 144–5.
[52] For further details of the Stoic cosmogony, see Diogenes Laertius 7.136 = SVF 1.102 = LS 46B; 7.142 = SVF 1.102 = LS 46C; Plutarch, *De Stoic. Repug*. 1053a = SVF 2.579; Stobaeus, *Ecl*. 1.152,19–153,6 = SVF 1.102; 1.153,7–22 = SVF 1.497; See discussion in Chapter Four.

the process described in I(5) – the active principle does not thereby destroy the passive principle. Rather, the body realizing the active principle's role destroys *the bodies that the occupant of the passive principle constitutes*. The type of body that will go on to occupy the passive principle remains. And so the principles do not separate.

In Chapter Two, I argued that the realizers of the principles' roles must be physically separable. One might object on the basis of this claim. Resistant space realizes matter's role; fire realizes God's role. Yet fire is one manifestation of resistant space. Therefore, the realizer of God's role cannot exist separately from the realizer of matter's role. Therefore, the realizers of the principles' roles are not physically separable.

I will respond in two ways. First, consider the following state of affairs. Resistant space manifests in two ways: materially and divinely. The divine resistant space acts on the material resistant space. Thus they are combined and in contact. It seems conceivable to physically separate the two volumes of resistant space. In doing so, they will no longer be divine and material. Yet they are the same volumes of resistant space. Thus material resistant space and divine resistant space are physically separable. God is not physically separable from the type of body that realizes matter's role, but he is physically separable from the token body that realizes matter's role.

One might claim that the principles *de re* must be physically separable in a different way. The *types* of bodies that realize the principles' roles must be physically separable. Since, as I argued in Section 4, the type of body that realizes God's role is the type of body that realizes matter's role somehow disposed, the types of bodies that realize the principles' roles are not physically separable. For God cannot exist without being resistant space somehow disposed.

I grant that the body realizing God's role cannot exist without being resistant space somehow disposed. However, resistant space can exist without being artistic fire. Imagine a world composed of only air. In such a world, the body realizing matter's role exists but the body realizing God's role does not. On the basis of such a scenario, we can assert that the realizers of the principles' roles are physically separable. For one can come to exist without the other. Therefore, the principles remain physically separable and functionally inseparable, although they never actually separate.

BIBLIOGRAPHY

Algra, K., J. Barnes, J. Mansfeld, and M. Schofield (1999) (eds.), *The Cambridge History of Hellenistic Philosophy*. Cambridge: Cambridge.

Annas, J. (1992), *Hellenistic Philosophy of Mind*. Berkeley: University of California.

von Arnim, H. (1905) (ed.), *Stoicorum veterum fragmenta*, 4 volumes. Leipzig: Teubner. ["SVF"]

Armato, G. (2005), "Stoics on Bodies, Identity and *Idiōs Poios*", *Classica et Mediaevalia* 56: 129–154.

Bailey, D. T. J. (2014), "The Structure of Stoic Metaphysics", *Oxford Studies in Ancient Philosophy* 46: 255–311.

Baker, L. (1997), "Why Constitution is not Identity", *Journal of Philosophy* 94: 599–621.

—. (2000), *Persons and Bodies: A constitution view*. Cambridge: Cambridge.

Bakhouche, B. (ed. and trans.) (2011), *Commentaire au Timée de Platon*, 2 volumes. Paris: Librairie Philosophique J. Vrin.

Baltzly, D. (2003), "Stoic Pantheism", *Sophia* 42: 3–33.

Barnes, J. (1988), "Bits and Pieces", in J. Barnes and M. Mignucci (1988) (eds.), *Matter and Metaphysics*, 223–294. Napoli: Bibliopolis.

Bénatouïl, T. (2009), "How Industrious can Zeus be? The Extent and Objects of Divine Activity in Stoicism" in R. Salles (2009b), 23-45.

Bennett, K. (2004), "Spacio-temporal Coincidence and the Grounding Problem", *Philosophical Studies* 118: 339–371.

—. (Forthcoming), *Making Things Up*. Oxford: Oxford.

Block, N. (1980), "What Is Functionalism?" In N. Block (1980) (ed.), *Readings in the Philosophy of Psychology*, Volume 1, 171–184. Cambridge, Mass: Harvard University Press.

Bobzien, S. (1999), "Chrysippus' Theory of Causes" in K. Ierodiakonou (1999) (ed.), *Topics in Stoic Philosophy*, 196–242. Oxford: Oxford.

Brennan, T. (2015), "The Stoic Theory of Virtue" in L. Besser-Jones and M. Slote (2015) (eds.), *The Routledge Companion to Virtue Ethics*, 31–50. New York: Routledge.

Bréhier, É. (rev. 1951; org. 1910), *Chrysippe et l'Ancien Stoïcisme.* Paris: Presses Universitaires de France.

Brunschwig, J. (2003), “Stoic Metaphysics” in Inwood (2003): 206–232.

Burke, M. (1992), “Copper Statues and Pieces of Copper: A Challenge to the Standard Account”, *Analysis* 52: 12 – 17.

— (1994), “Preserving the Principle of One Object to a Place: A Novel Account of the Relations among Objects, Sorts, Sortals and Persistence Conditions,” *Philosophy and Phenomenological Research* 54: 591–624.

Bury, R. G. (1936) (ed. and trans.), *Sextus Empiricus: Against the Physicists*; *Against the Ethicists*. Cambridge, Mass.: Harvard. [“Bury”]

Cherniss, H. (1976) (ed. and trans.), *Plutarch: Moralia*, Volume 13. Cambridge, Mass.: Harvard. [“Cherniss”]

Collette-Dučić, B. and S. Delcomminette (2006), “La Théorie Stoïcienne du Mélange Total”, *Revue de Philosophie Ancienne* 24.2: 5–60.

Colson, F. H. (1937) (ed. and trans.), *Philo Volume VII: De Decalogo; De Specialibius Legibus*. Cambridge, Mass: Harvard University Press.

Cooper, J. M. (2009), “Chrysippus on Physical Elements” in R. Salles (2009b): 93-117.

Diels, H. (1879) (ed.), *Doxographi Graeci*. Berlin: De Gruyter.

—. (1899), *Elementum*. Leipzig: Teubner.

Dorandi, T. (2013) (ed.), *Diogenes Laertius: Lives of Eminent Philosophers*. Cambridge: Cambridge. [“Dorandi”]

Duhot, J.-J. 1989. *La Conception Stoïcienne de la Causalité*. Paris: Vrin.

Fortenbaugh, W. W. (1983) (ed.), *On Stoic and Peripatetic Ethics: The Work of Arius Didymus*. New Brunswick: Transaction.

Frede, M. (1980), “The Original Notion of Cause,” in J. Barnes, M. F. Burnyeat, M. Schofield (1980) (eds.), *Doubt and Dogmatism: Studies in Hellenistic Epistemology*, 217–249. Oxford: Oxford.

—. (2005), “La Théologie stoïcienne” in J.-B. Gourinat and G. Dherbey (2005) (eds.), *Les Stoïciens* (Paris: Vrin): 213–32.

Furley, D. (1999), “Cosmology” in Algra et al. (1999): 412–451.

Gibbard, A. (1975), “Contingent Identity,” *Journal of Philosophical Logic* 4: 187–221.

Göransson, T. (1995), *Albinus, Alcinous, Arius Didymus*. Göteburg: Acta Universitatis Gothoburgensis.

Gould, J. B. (1970), *The Philosophy of Chrysippus*. Leiden: Brill.

Gourinat, J.-B. (2009), "Matter and Prime Matter: 'Corporealism' and the Imprint of Plato's *Timaeus*" in R. Salles (2009b): 46–70.

Gummere, R. M. (1917) (ed. and trans.), *Seneca Ad Lucilium Epistulae Morales*. Cambridge, Mass: Harvard. ["Gummere"]

Hager, P. (1982), "Chrysippus' Theory of Pneuma", *Prudentia* 14: 97–108.

Hahm, D. E. (1977), *The Origins of Stoic Cosmology.* Columbus, OH: Ohio State University Press.

—. (1985), "The Stoic Theory of Change", *The Southern Journal of Philosophy* 23.Suppl.: 39–56.

de Harven, V. (2015), "How Nothing Can Be Something: The Stoic Theory of Void", *Ancient Philosophy* 35: 405–429.

Hicks, R. D. (1931) (ed. and trans.), *Diogenes Laertius, Lives of Eminent Philosophers*, Volume 2. Cambridge, Mass.: Harvard.

Horgan, T. and M. Potrč (2000), "Blobjectivism and Indirect Correspondence," *Facta Philosophica* 2: 249–270.

Hunt, H. A. K. (1976), *A Physical Interpretation of the Universe*. Melbourne: Melbourne.

Inwood, B. (1991), "Chrysippus on Extension and the Void", *Revue Internationale de Philosophie* 45: 245–266.

—. (2003) (ed.), *The Cambridge Companion to the Stoics*. Cambridge: Cambridge.

Inwood, B. and L. P. Gerson (1997) (eds. and trans.), *Hellenistic Philosophy*, Second Edition. Indianapolis: Hackett.

Johnston, M. (1992), "Constitution is not identity", *Mind* 101: 89–106.

Kahn, C. H. (1983), "Arius as a doxographer" in Fortenbaugh (1983): 3–14.

Kidd, I. G. (1999) (trans.), *Posidonius, Volume III: The Translation of the Fragments*. Cambridge: Cambridge University Press. ["Kidd"]

Lapidge, M. (1973), "ἀρχαί and στοιχεῖα: A Problem in Stoic Cosmology", *Phronesis* 18: 240–278.

—. (1978), “Stoic Cosmology” in Rist (1978): 161–185.

Lewis, E. (1988), “Diogenes Laertius and the Stoic Theory of Mixture”, *Bulletin of the Institute of Classical Studies* 35:1: 84–90.

—. (1995), “The Stoics on Identity and Individuation”, *Phronesis* 40: 89–108.

Liddell, H. G., R. Scott, and Sir Henry Stuart Jones, (1996) (eds.), *A Greek-English Lexicon.* Oxford: Clarendon Press. [“*LSJ*”]

Long, A. A. (1983), “Arius Didymus and the exposition of Stoic ethics” in Fortenbaugh (1983): 41–66.

—. (1985), “The Stoics on World-Conflagration and Everlasting Recurrence”, *The Southern Journal of Philosophy* 23.Suppl.: 13-37.

—. (1996), “Heraclitus and Stoicism” in Long (1996) (ed.), *Stoic Studies*, 35–57. Cambridge: Cambridge.

—. (2008), “Philo on Stoic Physics” in F. Alesse (2008) (ed.), *Philo of Alexandria and Post-Aristotelian Philosophy*, 121–140. Leiden: Brill.

Long, A. A. and D. N. Sedley (1987) (eds. and trans.), *The Hellenistic philosophers*, 2 volumes, Cambridge: Cambridge University Press.

Mansfeld, J. (1979), “Providence and the Destruction of the Universe in Early Stoic Thought” in M. J. Vermaseren (1979) (ed.), *Studies in Hellenistic Religion*, 129–188. Leiden: Brill.

McLaughlin, B. (2006), “Is Role-Functionalism Committed to Epiphenomenaliam?”, *Consciousness Studies* 13: 39–66.

Melnyk, A. (2003), *A Physicalist Manifesto: Thoroughly Modern Materialism*. Cambridge: Cambridge.

Menn, S. (1999), “The Stoic Theory of Categories”, *Oxford Studies in Ancient Philosophy* 17: 215–247.

Miller, J. (2015), *Spinoza and the Stoics*. Cambridge: Cambridge.

Nolan, D. (2006), “Stoic Gunk”, *Phronesis* 51: 162–183.

Powers, N. (2014), *Journal of the History of Philosophy* 52: 411–432.

Putnam, H. (1967), “Psychological Predicates,” in W. H. Capitan and D. D. Merrill (1967) (eds.), *Art, Mind, and Religion*, 37–48. Pittsburgh: University of Pittsburgh Press.

Rackham, H. (1951), (ed. and trans.), *Cicero: De Natura Deorum*; *Academica*. Cambridge, Mass: Harvard. ["Rackham"]

Reydams-Schils, G. (1999), *Demiurge and Providence: Stoic and Platonist Readings of Plato's* Timaeus. Turnhout: Brepols.

Rist, J. (1978) (ed.), *The Stoics*. Berkeley: University of California Press.

Runia, D. T. and M. Share (2008) (ed. and trans.), *Proclus: Commentary on Plato's* Timaeus, Volume 2. Cambridge: Cambridge. ["Runia and Share"]

Salles, R. (2005), "Εκπύρωσις and the goodness of god in Cleanthes", *Phronesis* 50: 56–78.

—. (2009a), "Chrysippus on Conflagration and the Indestructibility of the Cosmos" in R. Salles (2009b): 118–134.

—. (2009b) (ed.), *God and Cosmos in Stoicism*. Oxford: Oxford.

—. (2015a), "¿Qué tan elementales son los cuatro elementos? Una lectura de Ario Dídimo fr. 21 Diels", *Journal of Ancient Philosophy* 9.2: 1–33.

—. (2015b), "Two early Stoic theories of cosmogony" in A. Marmodoro and B. D. Prince (2015) (eds.), *Causation and Creation in Late Antiquity*, 11–30. Cambridge: Cambridge.

Sambursky, S. (1959), *Physics of the Stoics*. Westport: Greenwood.

Sandbach, F. H. (1975), *The Stoics*. London: Chatto & Windus.

Scade, P. (2010), "Stoic Cosmological Limits and their Platonic Background" in V. Harte, M. M. McCabe, R. Sharples, and A. Sheppard (2010) (eds.), *Aristotle and the Stoics Reading Plato,* 143–183. London: Institute of Classical Studies.

—. (2013), "Plato and the Stoics on limits, parts and wholes" in A. G. Long (2013) (ed.), *Plato and the Stoics*, 80–105. Cambridge: Cambridge. 2013.

Schaffer, J. (2010), "Monism: The Priority of the Whole", *Philosophical Review* 119: 31–76.

Sedley, D. (1982), "The Stoic Criterion of Identity", *Phronesis* 27: 255–275.

—. (1999), "Stoic physics and metaphysics" in Algra et al. (1999): 382–411.

—. (2002), "The Origin of Stoic God" in D. Frede and A. Laks (2002) (eds.), *Traditions of Theology*, 41–84. Leiden: Brill.

—. (2003), "The School, from Zeno to Arius Didymus" in Inwood (2003): 7–32.

—. (2011), “Matter in Hellenistic Philosophy” in D. Giovannozzi and M. Veneziani (2011) (eds.), *Materia*, 53–66. Florence.

Sellars, J. (2006), *Stoicism.* Berkeley: University of California Press.

Smyth, H. W. (1956), *Greek Grammar*. Cambridge, Mass: Harvard.

Sorabji, R. (1988), *Matter, Space and Motion*. London: Duckworth.

Todd, R. B. (1976), *Alexander of Aphrodisias on Stoic Physics*. Leiden: Brill.

—. (1978), “Monism and Immanence: The Foundations of Stoic Physics”, in Rist (1978): 137–160.

Totschnig, W. (2013), “Bodies and Their Effects: The Stoics on Causation and Incorporeals”, *Archiv für Geschichte der Philosophie* 95: 119–147.

Verbeke, G. (1945), *L’Évolution de la Doctrine due Pneuma: Du Stoicisme a S. Augustin*. Paris: Descleé de Brouwer.

Vogt, K. (2009), “Sons of the Earth: Are the Stoics Metaphysical Brutes?” *Phronesis* 54: 136–154.

Wachsmuth, C. (1884) (ed.), *Ioannis Stobaei Anthologium*. Berlin: Weidmann. [“Wachsmuth”]

Wasserman, R. (2002), “The Standard Objection to the Standard Account”, *Philosophical Studies* 111: 197–216.

Wasserman, R. (2015), “Material Constitution”, *The Stanford Encyclopedia of Philosophy* (Spring 2015 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2015/entries/material-constitution/.

White, M. J. (1982), “Zeno's Arrow, Divisible Infinitesimals, and Chrysippus”, *Phronesis* 27: 239–254.

—. (1986), “Can unequal quantities of stuffs be totally blended?” *History of Philosophy Quarterly* 3: 379–389.

—. (2003), “Stoic Natural Philosophy (Physics and Cosmology)” in Inwood (2003): 124–152.

Zimmerman, D. W. (1995), “Theories of Masses and Problems of Constitution”, *Philosophical Review* 104: 53–110.