

# HYLOMORPHISM AND PART-WHOLE REALISM

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*Ancient Philosophy Today: Dialogoi* 1(2019): 108-127

DOI: 10.3366/anph.2019.0007

## Abstract

Mereonominalism, holonominalism, and part-whole realism represent competing views on the metaphysics of parts and wholes. Mereonominalism claims that what parts exist is a function of the concepts we use in describing composite wholes. Holonominalism claims that what composite wholes exist is a function of the concepts we use in describing things that can qualify as parts. Part-whole realism claims that parts and wholes exist independent of our concepts. I argue that all three views face problems, but that the problem facing part-whole realism can be solved by adopting a version of hylomorphism that takes its cue from Aristotle's account of form.

## 1. *The Challenge of Part-Whole Realism*

I am currently seated at a desk. I am located both above it and below it. How is it possible for me to be both above and not above the desk at the same time? The commonsense answer is that I have parts, some of which are located above the desk, and some below. If it seems paradoxical that a material object might wholly occupy different locations at the same time, common sense deems it less paradoxical that a material object might partly occupy different locations at that time. The obviousness of this point about spatial parts is in part why perdurantists posit temporal parts (Lewis 1986): how, they ask, can Thrasymachus be white before Socrates' interrogation and red after if a single thing cannot be both *F* and not-*F*? What works for locations, perdurantists reason, can also work for times: Thrasymachus has temporal parts, some of which are white, and some red.

Someone might nevertheless insist that appealing to parts to resolve problems of the foregoing sort merely swaps one kind of philosophical problem for another. According to the commonsense view, it is true both that (1) I am one individual, and that (2) I have many parts. Since it is impossible for something to be both one and many, the commonsense view must imply that

there is a difference between being and having—between what is expressed by ‘am’ in statement (1), and what is expressed by ‘have’ in statement (2). Consider three possible accounts of that difference.

According to the first, whether something has parts and what parts it has are functions of the concepts or terms we deploy in describing wholes. Call this view *mereonominalism*. Mereonominalists observe that there are many ways of dividing things into parts. A human can be divided into right half and left half; into top third, middle third, and bottom third; into eye, heart, liver, and so on. According to mereonominalists, this plurality of principles for part identity and individuation indicates that what parts exist is something determined by us—by whatever concepts we choose to deploy. Accordingly, while mereonominalists can take statements like (1) at face value to represent individuals that exist independent of our concepts, they look to paraphrase statements like (2): to say that I have many parts is to say that it is possible to adopt a principle of part identity and individuation according to which I can be described as comprising parts which number many.

The problem with mereonominalism is that if it is true, it appears that we lose the commonsense solution to the problem of bilocation—the problem of explaining how one thing can be simultaneously present in two different locations. The commonsense solution insists that corresponding to the diverse locations occupied by a composite whole, there are diverse parts which, because they are diverse, can occupy those locations at the same time even though the whole to which they belong is one. In order for this solution to work, the diverse parts into which a whole is divided must correspond to the diverse locations that pose the problem in the first place. Since mereonominalism implies that what parts exist is a function of the concepts we deploy, this would appear to imply one of two things: either (a) what locations there are constrains what counts as a part, and so what parts exist is not just a function of the concepts we deploy, or else (b) what locations exist is also a function of the concepts we deploy. If (a) is true, then mereonominalism is false. If, however, (b) is true, then mereonominalists appear committed to providing nominalist paraphrases not only of statements about parts, but of statements about locations as well and anything that talk of locations entails. This might be more nominalism than mereonominalists originally bargained for.

A second possible account inverts the strategy of the first. It takes its starting point not from composite wholes but rather from potential parts. Call it *holonominalism*. Holonominalists observe that there are many ways of grouping diverse things into wholes. As Aristotle observes,

Some things are said to be by bringing together their matter; for example, some things are said to be by mixing, such as honeywater; others by tying, such as a bundle; others by gluing, such as a book; others by nailing, such as a box; others by more than one of these; others by position, such as a threshold or a lintel... others by time, such as dinner and breakfast; others by location, such as the winds; others by their perceptible features such as hardness and softness, thickness and thinness, dryness and wetness (*Metaphysics* 1042b15–30).

Holonominalists take observations like this to indicate that what composite wholes exist is a function of the concepts we deploy in describing things that are potentially parts. According to them, a number of things compose a whole exactly if they satisfy some condition that we stipulate—or in the limit case of standard mereology, any condition at all. In outline, this kind of view is defended by Kit Fine (1999, 2008) and Mark Johnston (2006). Accordingly, while holonominalists can take statements like (2) at face value to represent diverse individuals that exist independent of our concepts, they will look to paraphrase statements like (1): to say that I am one composite whole is to say that it is possible to adopt a principle of mereological grouping according to which many diverse things can be described as composing a unified whole with which I can be identified.

One problem with holonominalism is that it appears to make the determination of which composite wholes exist a matter of stipulation—a function of our descriptive or conceptual whims. This implication is mitigated in Aristotle’s own philosophy by his commitment to the equivocity of being. Immediately after the aforementioned passage in which he observes that there are many different ways of grouping things into wholes, Aristotle remarks, “Clearly, then, ‘is’ is said in just as many ways” (*Metaphysics* 1042b31). There might be bundles, thresholds, and humans, on Aristotle’s view, but the sense in which each is said to be is different, and some things are said to be more strictly than others. Equivocal senses of ‘being’ are united by reference to a univocal core (*Metaphysics* 1003a33–b10): in the strictest sense of the term it is substances that are beings, on Aristotle’s view, for it is on substances that beings in any other sense of the term depend. Substances, however, exist by nature, according to Aristotle, and things that exist by nature include only plants and animals, their parts, and the elements earth, air, fire, and water (*Physics* 192b8–12; *Metaphysics* 1042a8–10). That these things exist is not a matter of stipulation on Aristotle’s view, it is instead a matter of which things are the ultimate engines of change, a point to which I will return shortly.

Unlike Aristotle and in line with most contemporary metaphysicians, holonominalists typically do not countenance different senses of ‘being.’ If there are bundles, thresholds, and

humans, these are all said to be in exactly the same sense. As a result, holonominalists are committed to expansive ontologies comprising many objects that defy common sense—even more than ontologies based on standard mereology. Fine tells us,

[T]here [are] many more material objects than is commonly supposed. We are familiar with the prodigious ontology of the mereologists, according to which any occupied region of space-time, no matter how scattered or gerrymandered, will determine a material object. But this is nothing compared to the ontology of the present view. For to each such object of the mereologist, there will correspond a multitude of rigid embodiments... and a multitude of variable embodiments... [T]he flat unstructured objects of the mereologist represent a mere fraction of what there is (1999: 73).

If holonominalism makes the existence of composite wholes a matter of stipulation, it does something similar with the unity of those wholes. It implies that what makes it true that diverse things compose a unified whole is that those things satisfy a concept or description. Consequently, the unity of a composite whole is due to something other than itself. This is problematic by Aristotelian lights, for it suggests that the unity of even substances depends on something other than those substances, and if that is the case, it is difficult to see how substances could qualify as beings in the strictest sense.

I will have more to say about the problems with holonominalism later on, but first let us consider a third possible account, one that rejects across-the-board paraphrases of statements like (1) and (2). According to this third approach, statements of both sorts can be taken at face value: there are wholes and parts that exist independent of our ways of conceptualizing them. Determining which parts and wholes exist is not a matter of stipulation but of discovery, and our concepts can succeed to greater or lesser degrees in corresponding to what parts and wholes there are. Call this view *part-whole realism*.

One challenge facing part-whole realists is explaining the unity of composite wholes despite the diversity of their parts. No analogous explanatory challenge arises vis-à-vis mereological simples—individuals with no proper parts, such as point particles. Because they have no proper parts, there is no question how mereological simples manage to be unified individuals, for there is no internal diversity that might compromise their unity. The case of composite individuals is different. If  $x$  is composed of  $y$  and  $z$ , we want to know what it is about  $x$  that enables it to hold  $y$

and  $x$  together and to smear their diversity, so to speak, in such a way that that diversity does not compromise  $x$ 's unity. How can something be a unity while yet comprising diversity?

Critics of part-whole realism might worry that any answer to this question is bound to be unsatisfactory. What explains  $x$ 's unity, they reason, must either be something other than  $x$  or else  $x$  itself. But it seems that what explains  $x$ 's unity cannot be something other than  $x$ . Suppose that  $f$ , an entity distinct from  $x$ , is posited to explain  $x$ 's unity. Surely something different from  $x$  cannot be responsible for unifying  $x$ , says the critic. If I break a flower pot, and hold its diverse shards together, I do not bring into existence a unified whole; I succeed merely in holding diverse things in spatial juxtaposition. The same would be true if I were to glue the shards together: the glue would merely be spatially juxtaposing diverse things, not bringing into existence a new unity. Critics insist that the lesson of the shards generalizes: something that "brings together" diverse things can succeed at best in putting those things in some type of spatial or causal or other relation to each other; it cannot succeed in bringing into existence a new, unified individual composed of them.

Part-whole realists might respond by insisting that  $f$  is not really distinct from  $x$ . But, the critic reasons, there are only two possibilities here: either (a)  $f$  is identical to  $x$ , or (b)  $f$  is one with  $x$  in a way that falls short of strict identity. Option (b) seems like a non-starter:  $f$  can be one with  $x$  only if  $f$  and  $x$  are themselves somehow unified, but if  $f$  and  $x$  are unified, then it seems that something must explain what unifies  $f$  with  $x$  as well. If what unifies  $f$  and  $x$  is some further entity,  $g$ , then a regress commences, for we then have to know what unifies  $g$ , on the one hand, with  $f$  and  $x$ , on the other. If, on the other hand, part-whole realists insist on stopping a regress by positing  $f$  as a primitive unifier, one whose unity with  $x$  stands in need of no further explanation, then they seem guilty of ontological extravagance, for if  $f$  can be a primitive unifier, nothing prevents someone from saying that  $x$  itself is a primitive unifier. If a primitive unifying role can be attributed to  $f$ , parsimony favors attributing such a role to  $x$  in the first place. Option (b) thus appears to collapse into option (a). But the problem with option (a), says the critic, is that it gives up on the task of explaining  $x$ 's unity. It is tantamount to saying that  $x$  is unified despite comprising many parts simply because  $x$  is unified. That is no explanation at all, but represents a view that takes  $x$ 's unity as an unexplainable primitive. Either way, then, the critic concludes, part-whole realists fail to explain how one thing can comprise many parts.

There are several ways a part-whole realist might look to respond to the critic's dilemma. I will explore a response that claims that the critic's reasoning blurs some important distinctions.

Once those distinctions are clarified, the dilemma crumbles. The needed clarifications, I argue, are provided by a hylomorphic theory like Aristotle's.

## 2. *Hylomorphism in Aristotle*

The dilemma for part-whole realism arises on account of two different and competing theoretical demands: the demand to account for the unity of composite wholes, on the one hand, and the demand to account for the diversity of their parts, on the other. At a minimum, a solution must take the form of a theory according to which a composite comprises two explanatory factors, one that accounts for its unity, the other for the diversity it comprises. Traditionally, hylomorphists call these factors 'form' and 'matter' respectively.

The concepts of form and matter are primitives within a hylomorphic framework. It is not possible to define them in terms of any categories that are more basic. The only way of defining a theory's primitive terms is to specify the roles they play within the theory and to illustrate how the theory as a whole applies to the paradigmatic cases it is meant to explain. When it comes to describing the roles that form and matter play within hylomorphic theory Aristotle's philosophy provides a touchstone.

Aristotle uses his hylomorphic framework to perform a variety of theoretical tasks—initially the task of accounting for change, or coming-to-be, in the face of Eleatic arguments such as the one discussed at *Physics* 191a25ff.:

- (E1) If something comes to be, then either it comes to be from what is or it comes to be from what is not;
  - (E2) Nothing comes to be from what is (for it already is, and so it cannot come to be);
  - (E3) Nothing comes to be from what is not (for nothing can come from nothing);
- Therefore, nothing comes to be.

Aristotle thinks hylomorphism provides resources for diagnosing what is wrong with arguments of this sort. Whenever there is a change, he says, there are always two explanatory factors at work (*Physics* 190a15ff.).<sup>1</sup> First, there is something that exists prior to the change and persists through it. Second, that thing takes on a characteristic or form (*eidos*) which it previously lacked, or (depending

on the case) it loses a form it previously had. To say that Socrates becomes musical at  $t$  implies that Socrates exists prior to  $t$ , that he lacked the form of being musical but took on that form at  $t$ . A persisting thing coming to have different forms at different times is thus what change consists in.

The problem with Eleatic reasoning, Aristotle says, is that it collapses the distinction between the two factors involved in change. As a result, arguments like the foregoing equivocate on expressions like ‘what is’ and ‘what is not’. Premise (E3) is true if ‘what is not’ designates what doesn’t exist at all: nothing can come from nothing at all. But it is false if ‘what is not’ designates what is not  $F$ , for some characteristic  $F$ . Socrates can clearly come to be musical from having not been musical. Likewise, premise (E2) is true if ‘what is’ designates what is already  $F$ . We cannot say that Socrates became musical at  $t$  if he was already musical at  $t$ . But it is false if ‘what is’ designates simply what exists in some way, for Socrates himself existed prior to becoming musical and he persists through his becoming musical. Consequently, we see that either the premises of the argument are true but it commits a fallacy of equivocation, or else the form of the argument is valid but one of the premises is false.

Aristotle extends this way of understanding the coming-to-be of properties to account for the coming-to-be of substances. Their coming-to-be is more problematic on Aristotle’s view, for according to him, substances are the fundamental bearers of properties and the fundamental subjects of change (*Categories* 4a10-21). It thus becomes unclear what persisting subject there could be to take on contrary forms in the case of a substance coming to be. Aristotle nevertheless insists that the pattern we find in the case of properties we also find in the case of substances: there is something that exists prior to a substance coming to be and that persists through its coming to be (*Physics* 190b1ff.). A statue comes to be from some pre-existing stuff on account of that stuff changing its shape, a house comes to be on account of putting some pre-existing things together house-wise, and the same goes *mutatis mutandis* for natural things such as Socrates, which are substances in the strictest sense (190b17ff.).

The first of the factors Aristotle appeals to in accounting for change—the persisting subject (*hupokeimenon*) of the change—is the matter for the change. The second factor—the characteristic that the matter takes on—is the form. The terms ‘matter’ and ‘form’ are thus defined in relation to each other. Matter is always matter for a particular kind of change, that is, matter for the coming-to-be of a particular kind of form. Not just anything can operate as the matter for just any form. Not just anything can take on the form that makes something a house or a human. A given matter is

instead suited to a given range of forms on account of having the potentiality or power (*dunamis*) to take on those forms (192a2ff).

The powers of natural things were of particular interest to Aristotle. By his reckoning, natural things include plants and animals, their parts, and the simple bodies: earth, air, fire, and water (*Physics* 192b8-13; *Metaphysics* 1042a8-10). What qualifies these as natural is that each has within itself a source of change and stability. Unlike the case of an artifact such as a table, which comes to have its characteristic shape on account of an external agent, a human develops its distinctive array of parts and carries on its distinctive metabolic processes and other activities not on account of an external agent but on account of itself: it is itself the source of the distinctively human characteristics it takes on. Natural things are the ultimate engines of change on Aristotle's view; they are the things that are ultimately responsible for why anything undergoes the changes it does. Tracing the provenance of any putative change will eventually yield an explanation that has as its truthmaker a natural substance or substances acquiring or losing some form or forms.

Some things undergo stereotypical patterns of change. Biological development is the paradigm: fish grow gills and scales, not lungs and skin, whereas humans do the opposite. These occurrences cannot happen by chance, Aristotle argues, for things that happen by chance do not display the kind of regularity we find in cases like biological development (*Physics* 198b33ff.) Developmental changes happen instead on account of the natures (*phuseis*) of things. Behavioral regularities, whether in living things or in nonliving materials, are due to the natures things have.

The changes that are due to something's nature are those which it undergoes on account of itself (*kath'auto*), that is on account of its being an instance of its natural kind. A thing's nature comprises both its matter and its form (*Physics* 193a10-b20): both make a difference to what something is and what it does.

A human being will fall downward on account of its matter, for the latter includes a large portion of the element earth. Because it is in the nature of earth to move downward on Aristotle's view, it is in the nature of anything composed of a sufficiently large quantity of earth to move downward as well. Likewise, it is in the nature of fire to move upward. Because of this upward-moving nature, a human is able to grow and maintain itself. If Socrates were composed of earth alone, he would collapse in a heap of earthy rubble. Fire counteracts this tendency, but the presence of fire is not the only thing needed to explain human growth and homeostasis. Left to their own devices earth and fire would separate themselves from each other completely with the result that living things like Socrates would be torn apart: the fiery materials composing them would ascend



skyward while their earthy materials would accumulate on the ground in a heap (*On the Soul* 416a6-9). Something prevents this from happening. Something in a living whole directs, proportions, and regulates the activities of the materials composing it, and ensures that the whole itself remains a unified persisting individual. That something is form.

Form explains what unifies diverse materials into a single whole (*On the Soul* 411b5-13; *Metaphysics* 1045a23-b6). There is no unified composite individual apart from a form. Destroying something's form results in a disunified heap (*Metaphysics* 1041b11-18). The remains of a human—what are often referred to, confusedly from an Aristotelian perspective, using singular terms such as 'human body' or 'corpse'—do not compose a single individual at all; they are instead materials that used to compose an individual but that no longer do. Form also explains diachronic unity or persistence: why a living whole such as Socrates can exist one and the same over time even though the materials composing him are in constant flux (*On Generation and Corruption* 321b25-7): Socrates persists so long as his form does (*On Generation and Corruption* 321a13-25). Likewise, the biological processes in which Socrates engages are directed toward developing and maintaining a mature, properly-functioning member of the human kind. What unifies various stages of the developmental process, as well as various metabolic processes, is their directedness to this end.

Based on this brief overview of Aristotle's hylomorphism, it is possible to identify the theoretical roles that hylomorphic form is supposed to play on his view. These roles supply an implicit definition of what form is supposed to be:

*Change:* Form is what accounts for change or generation, especially the generation of composite wholes;

*Unity:* Form is what accounts for the unity of composite wholes;

*Persistence:* Form is what accounts for a composite whole's persistence through time, especially in cases in which it changes its matter over time;

*Kind Membership:* Form is what accounts for kind membership, especially membership in natural kinds;

*Behavioral Regularity*: Form is what accounts for behavioral regularities, especially the self-maintaining and developmental processes in which living things engage.<sup>2</sup>

### *3. Forms: Activities, Powers, and Tropes*

Aristotle's hylomorphism provides some guidelines for thinking of the correlative roles of form and matter in a hylomorphic framework. Those roles, as I've indicated, provide implicit definitions of what form and matter are. But there are many details that still need to be filled in.

Elsewhere I've elaborated a hylomorphic theory based on a substance-attribute ontology that takes individuals to be agents that interact with each other on account of their powers ([Jaworski 2016](#)). The latter are causal enablers and causal explainers: they explain both what individuals can do, and what they do in fact. For an individual to act is for it to manifest a power it has. Powers, for their part, manifest themselves only in conjunction with reciprocal powers. A quantity of table salt has the power to be dissolved, but it manifests that power only in conjunction with something, such as water, that has the reciprocal power to dissolve it.

Given an ontology of this sort, I have argued that forms are best understood as powers and manifestations of powers—that is, powers and activities ([Jaworski 2016, 2017, 2018](#)). Composite individuals are essentially and continuously engaged in forming (organizing, configuring—call it what you like) the materials that compose them. What sets forms apart from other powers and activities is that composite individuals are essentially and continuously engaged in manifesting them. A quantity of table salt needn't manifest its power to be dissolved; it needn't ever engage in the activity of dissolving. A composite individual, by contrast, cannot fail to manifest its power to configure the materials composing it lest it cease to be altogether. I am essentially and continuously engaged in configuring the materials that compose me, and you are essentially and continuously engaged in configuring the materials that compose you. Our respective, ongoing configuring activities explain our unity and persistence through the dynamic influx and efflux of matter and energy that characterize our interactions with the surrounding world.

Contrary to what the noun 'form' might suggest, then, hylomorphic forms on this account are not things such as an individuals.<sup>3</sup> Accordingly, forms are not agents. Strictly speaking it is incorrect to say that my form is responsible for unifying the diverse materials that compose me. It

would be more correct to say that I myself am responsible for unifying those materials, and that I accomplish that unification on account of my ongoing forming activity.

That activity is not numerically identical to me. It differs from me in something analogous to the way an apple's redness differs from the apple. Elsewhere I have argued that property ascriptions such as the statement, 'The apple is red' are best understood in terms of tropes—particularized properties (Jaworski [2014](#), [2016](#)). *a*'s redness is a property that is numerically different from *b*'s redness. *a*'s redness and *b*'s redness might nevertheless exactly resemble each other. This resemblance has often been taken to support the idea that there must be an entity—a universal—which *a* and *b* literally have in common. But that is not the case according to trope theorists. Saying that *a* and *b* have the same color is analogous to saying that a boy and his father have the same nose, or that two embarrassed celebrities arrived wearing the same dress—statements that posit exactly resembling yet numerically distinct things.

Tropes are often conceived as accidental modes of the substances having them. The case of forms is obviously different. My forming activity is not accidental to me but essential. The word 'activity' can be misleading here since it typically refers to activities in which things needn't engage. A living thing needn't run, sing, or jump; it can exist without engaging in any of these activities. But a living thing cannot exist without living, and in general something cannot be without being. In an Aristotelian framework, something's being is the forming activity in which it is essentially and continuously engaged. This is the most basic activity in which a thing engages, for it is in performing this activity that the thing exists. A living thing's existence, for instance, consists in its carrying out those directing, proportioning, and regulating operations on physical materials that maintain its unity over time (*On the Soul* 411b5-13; *Metaphysics* 1045a23-b6). Carrying on these operations is, to use Aristotle's expression, what the very being of a living thing consists in; for a living thing, he says, its living is its being (*to de zēn tois zōsi to einai estin*) (*On the Soul* 415b13), or as the Medieval Aristotelian slogan has it, for living things *vivere est esse*: to live is to be.<sup>4</sup>

The Aristotelian identification of something's forming activity with its being provides a helpful perspective on the oneness of an individual and its form. The apple's redness is not numerically identical to the apple. There is nevertheless a sense in which its redness is not entirely distinct from it. Because the apple's redness is one of the apple's modes, it cannot exist without the apple. In the literature on tropes, this is expressed in the claim that tropes are *non-transferrable*, that is, a trope's bearer belongs essentially to it (Heil 2003: 141–2; Molnar 2003: 43–46; Martin 2007: 44). It is impossible for *a*'s redness to belong to something other than *a*. *b*'s redness might exactly resemble

$a$ 's redness, but it is not numerically identical to it.  $a$ 's redness can belong only to  $a$ , and  $b$ 's redness can belong only to  $b$ . The case of individuals and forms is analogous, although the relationship between an individual and its form is even tighter: not only is it impossible for Socrates' forming activity to exist without Socrates, it is also impossible for him to exist without it. He is essentially engaged in his forming activity, and that activity is his essentially; on the Aristotelian view, that activity is, as we have seen, what his very being consists in.

#### 4. *The Roles of Form*

Consider now how the hylomorphic theory I've outlined comports with the theoretical roles that are supposed to define hylomorphic form—starting with the roles of Change, Unity, and Persistence. The hylomorphic theory I've outlined implies something like the following principles for the existence and identity of composite material beings:

*Existence:* there is a composite material being exactly if there is an individual,  $a$ , and materials,  $m_1, m_2, \dots, m_n$ , and  $a$  is engaged in forming the  $m$ s.

*Identity:* composite material being  $a$  = composite material being  $b$  exactly if  $a$ 's forming activity =  $b$ 's forming activity.

Suppose, then, that Socrates, a composite material being, comes into existence at time  $t_1$  and ceases to exist at a later time  $t_2$ . The Existence principle implies that at  $t_1$  there comes to be an individual that is engaged in the activity of forming some materials, but it does not specify exactly how that individual comes to be. The reason is that according to the theory, specifying that is largely an empirical undertaking. There are, in other words, empirically-describable conditions that are sufficient to bring into existence a new composite individual where previously no such individual existed.

Suppose, for instance, that  $m_1, m_2, \dots, m_n$  are physical materials of some sort that exist prior to  $t_1$ . On the hylomorphic view, there are changes the  $m$ s can undergo which will result in there being a new individual composed of the  $m$ s. In the natural course of human events, for instance, changes of this sort regularly happen in utero: physical materials that didn't compose a human organism prior to

$t_1$  come by a series of changes to compose a human organism at  $t_1$ . A new human individual comes to exist where previously no such individual did. Elsewhere I've expressed this by saying that on the hylomorphic view composite individuals are *emergent* individuals (Jaworski [2016](#), [2017](#), [2018](#)). Emergent individuals have powers not had by their parts—at the most basic level, the power to configure the materials composing them. That power is one that a composite individual begins manifesting at precisely the moment it comes to be, and that it continues to manifest until the moment it ceases to be. The materials composing it at a time, moreover, are precisely those that it is engaged in configuring at that time.

A composite individual needn't configure the same materials over time. Living things in particular are never composed of the same materials for very long; the materials composing them are in constant flux. If Socrates' existence commences with his configuring the *ms* at  $t_1$ , it will not take long for him to exchange some of the *ms* for other things. Yet according to the Identity principle, Socrates can maintain himself one and the same through these material exchanges on account of his ongoing forming activity. That activity is what unifies various materials into a single whole, both synchronically and diachronically, until it ceases at  $t_2$ . The foregoing remarks explain how the hylomorphic theory I've outlined accommodates the roles of Change, Unity, and Persistence.

Consider now the role of Kind Membership. Because the theory I've outlined is committed to an ontology of individuals and powers, and because it takes powers to be tropes, it looks to identify kinds with resemblance classes of individuals or tropes ([Jaworski 2016](#)). To say that  $a$  is red, on this kind of view, is to say that  $a$  belongs to a certain resemblance class. There are different ways of constructing resemblance classes. One of them takes resemblance classes to be defined by handfuls of paradigmatic examples (Price 1953: 20-23). In the case of redness, the exemplars might include stop signs and ripe tomatoes. The resemblance class based on these exemplars would include all and only those tropes that resemble each of the exemplars at least as closely as stop signs and tomatoes resemble each other. Accordingly, to say that  $a$  is red is to say that  $a$  is included in the resemblance class of individuals that resemble the exemplars defining the class at least as closely as the exemplars resemble each other. And to say that red is a color is to say that the class of red things is a subset of the class of colored things.

What I've said about red things and colored things applies *mutatis mutandis* to kinds of things at large. The view thus suggests a principle along the following lines:

*Kindhood*: For an individual,  $a$ , and kind,  $K$ ,  $a$  is a  $K$  exactly if  $a$  resembles the exemplars defining the class of  $K$ s at least as closely as those exemplars resemble each other, and for kinds  $K_1$  and  $K_2$ ,  $K_1$ s are  $K_2$ s exactly if  $K_1$  is a subset of  $K_2$ .

By this principle, Socrates is a human exactly if he resembles the exemplars defining the class of humans at least as closely as those exemplars resemble each other, and humans are living things exactly if the resemblance class of humans is a subset of the resemblance class of living things.

Kinds, then, are neither individuals nor powers, on this view, but classes. Consequently, kinds do not enter into causal relations with other things, nor do they account for the causal relations into which things enter. It is rather individuals that enter into causal relations, and the powers of those individuals that explain the causal relations into which they can enter and do enter in fact. On this view, then, the world is populated with powerful individuals that regularly manifest the powers they have. Some of these individuals and powers serve as exemplars defining kinds. Kind membership thus emerges as a function of the ways we define classes, that is, the ways we conceptualize the powerful individuals that exist.

Given the foregoing, we can see how hylomorphic form can enter into an account of membership in some kinds of natural kinds. Earlier, I said that living was the most basic activity of a living thing. I called this activity ‘most basic’ because a living thing is empowered to engage in other activities on account of its living. Aristotle expresses this by calling the form of a living thing (its soul) a first actuality (*energeia prōtē* or *entelecheia prōtē*). It is, he says, analogous to a state of knowledge (*On the Soul* 412a22-27). There is a threefold distinction among, say, (i) being ignorant of how to construct a geometric proof, (ii) knowing how to construct a proof, and (iii) actively engaging in constructing a proof. Before learning geometry, Glaucon merely has the power to learn how to construct a proof. Once the lesson is learned, he actually knows how to do so. This state of knowledge is an actuality, but it is also a potentiality: by knowing how to construct a proof, Glaucon is empowered to construct a proof in fact. There are, then, two kinds of actuality, one represented by (ii), the state of knowledge, the other by (iii), actually exercising that knowledge. Aristotle says that the form of a living thing is analogous to the first kind of actuality—state (ii): it is an actuality that empowers an individual to engage in further activities.

State (i) is analogous to physical materials,  $m_1, m_2, \dots, m_n$ , that have the potential to be configured by a living individual but that are not being configured by any living individual in fact; state (ii) is analogous to the existence of a living individual that is actively configuring the  $m$ s. That

ongoing configuring activity confers on that individual additional powers. Because Socrates is a living whole, he is empowered in ways that nonliving things are not. His basic living activity maintains the organs and organ systems that empower him to nourish himself, to grow, to reproduce, to perceive environmental conditions, and so on.<sup>5</sup> Engaging in these other activities is analogous to state (iii).

Individuals that are empowered to engage in activities such as nourishing themselves, growing, reproducing, and perceiving environmental conditions, provide exemplars that define the resemblance class of living things. What those individuals have in common—the fundamental way in which they resemble each other—is that they all engage in the kind of forming activity that empowers them to engage in life-defining activities. Form can thus enter into an account of Kind Membership.

Consider finally the role of Behavioral Regularity. Based on what was said earlier, it should be evident how the hylomorphic theory I've outlined accommodates this role. When it comes to explaining the behavior of a composite individual, such as a living thing, appeals to both form and matter are necessary. This is why, as we have seen, Aristotle claims that the nature of living things comprises both factors (*Physics* 193a10-b20). When Socrates jumps in the air, it is on account of his matter that he falls back to earth, but it is on account of his form that he remains in one piece while doing so. Both the materials composing him and the ongoing configuring activity in which he engages contribute to an explanation of why he has the power to jump and how that power manifests itself. Likewise, Socrates' metabolic processes operate in such a way that they contribute to developing and maintaining a mature properly-functioning human individual. This is not something that the materials composing him would do on their own; rather, those materials operate in a way that contributes to this end on account of Socrates' form.

The way the hylomorphic view I've outlined accommodates Behavioral Regularity marks an important difference between it and other hylomorphic theories—in particular, those committed to some type of holonominalism. Examples include the hylomorphic theories of Kit Fine (1999, 2008) and Mark Johnston (2006).

By contrast with the Existence principle, holonominalist views are committed to something like the following principle:

*Holo-existence*: there is a material being exactly if there are materials,  $m_1, m_2, \dots, m_n$ , and there is a condition,  $C$ , such that  $C(m_1, m_2, \dots, m_n)$ .

Holo-existence does not posit an individual manifesting a power to configure materials. Form is not an activity; it is simply a condition. For a material being to exist, on a holonominalist account, it is sufficient that there be materials satisfying that condition. As a result, it is difficult to see how form plays the role of Behavioral Regularity on a holonominalist view, for on such a view there are many composite beings whose behavior can be exhaustively explained solely by appeal to the materials composing them (Jaworski 2019).

Suppose that a firecracker explodes at a time thus scattering the atoms that used to compose it—among them, the atoms  $a$ ,  $b$ , and  $c$ . Let  $F$  be a condition that is satisfied by three objects exactly if they have the post-explosion trajectories of  $a$ ,  $b$ , and  $c$ . Holo-existence implies that there is a material being,  $s$ , composed of  $a$ ,  $b$ , and  $c$  precisely insofar as they have those trajectories. Even though  $s$  is distinct from  $a$ ,  $b$ , and  $c$ , it does not have any causal standing beyond them; it doesn't do anything other than what  $a$ ,  $b$ , and  $c$  by themselves do. Any activity we attribute to  $s$  can be exhaustively described and explained in terms of the activities of  $a$ ,  $b$ , and  $c$ , and those objects operate completely independent of their status as parts of  $s$ . The object  $s$  thus adds nothing to the causal inventory of the world.

Someone who endorses the hylomorphic theory I've outlined will insist that ' $s$ ' does not refer to any individual at all. Individuals are agents, but what ' $s$ ' refers to is not. Any agency we might attribute to  $s$  is reducible to the agency of  $a$ ,  $b$ , and  $c$ . We can use the term ' $s$ ' to refer to  $a$ ,  $b$ , and  $c$  insofar as the latter satisfy  $F$ , but using the term in this way does not usher into existence an individual with distinctive powers, it simply introduces a new way of talking about individuals that happen to satisfy  $F$ , and that behave as they do for reasons independent of  $F$ . The condition  $F$ , then—what ostensibly qualifies as something's form on a holonominalist view—contributes nothing to explaining the behavior of what has it.

### *5. Solving the Problem of Part-Whole Realism*

Let us return now to the dilemma facing part-whole realism, and consider how the hylomorphic theory I've outlined resolves it. That dilemma, recall, claims that there can be no satisfactory account of how something can be a unity while yet comprising diversity. What explains  $x$ 's unity must either be  $x$  itself or something else,  $f$ . But it cannot be  $f$ , for something other than  $x$  cannot unify diverse



things in a way that succeeds in bringing into existence a new, unified individual composed of those things. Part-whole realists can respond that  $f$  is not really distinct from  $x$ : either (a)  $f$  is identical to  $x$ , or (b)  $f$  is one with  $x$  in a way that falls short of strict identity. The problem with option (b) is that it either generates a regress, or else it collapses into option (a). If  $f$  is one with  $x$ , then  $f$  and  $x$  must be somehow unified, but in that case, something must explain what unifies them. If the proposed unifier is some further entity,  $g$ , then a regress commences, for we then have to know what unifies  $g$ , on the one hand, with  $f$  and  $x$ , on the other. If, on the other hand, no further entity is proposed, but  $f$  is taken as a primitive unifier, then option (b) fails on grounds of parsimony, for nothing prevents someone from saying that  $x$  itself is a primitive unifier. Option (b) thus collapses into option (a), and the problem with option (a) is that it gives up on the task of explaining  $x$ 's unity; it instead takes that unity as an unexplainable primitive.

The hylomorphic theory I've outlined implies that the foregoing line of reasoning blurs some important metaphysical distinctions. Once those distinctions are clearly made, the dilemma crumbles. First, the foregoing line of reasoning blurs the distinction between agency and explanation. It assumes that if  $f$  explains  $x$ 's unity,  $f$  must operate as an agent that somehow holds together  $x$ 's diverse parts. This was evident in the example of the shards. Something acts on the shards by holding them in a certain spatial position, but doing so falls short of bringing into existence a unified whole. The hylomorphic theory I've outlined implies that this is the wrong way of conceiving of form because forms are not agents. Forms are not individuals at all; they are instead what I have called explanatory *factors*. Aristotle's term for what I have called a 'factor' is *archê* which was translated into Latin as *principio*—whence our English word 'principle.' Unlike a common contemporary usage which takes the term to designate something linguistic such as a proposition, in Aristotle and among Medieval hylomorphists the corresponding terms designate a source, origin, or starting point for explanation—that is, what is responsible for explaining something. Forms qualify, for as we've seen, they perform a variety of explanatory jobs including the job of explaining the unity of composite material beings.

Second, if we were to identify an agent that acts to unify  $x$ 's diverse parts, then that agent would have to be  $x$  itself. But identifying the unifier of  $x$ 's parts with  $x$  does not give up on the task of explaining  $x$ 's unity, as the dilemma claims, for there is a story about how  $x$  manages to be a unified whole while yet comprising diverse parts; namely,  $x$  does so on account of its continuous forming activity. It is true on the hylomorphic theory I've outlined that this activity is taken as a

primitive—it is simply what  $x$  does, what is in  $x$ 's nature to do. But contrary to what the dilemma contends, the theory does not imply the vacuous claim that  $x$  is unified simply because  $x$  is unified.

Finally, the dilemma suggests that since  $x$  is not numerically identical to its forming activity, something must explain how that activity manages to be unified with  $x$ , and this explanatory demand generates an infinite regress. A regress results, however, only if what unifies  $x$  with its activity is some further entity, but that is not the case on the hylomorphic theory I've outlined. Insofar as activities are tropes, each is performed only by its particular agent. Socrates' singing cannot be performed by someone other than Socrates, nor can his forming activity—his living—be performed by someone other than him. In addition, Socrates cannot exist without engaging in that activity. As the Aristotelian slogan has it, his living is his being. This account of what unifies  $x$  with  $x$ 's activity does not posit some further entity distinct from  $x$  and its activity. Consequently, it does not generate a regress as the dilemma insists.

I've presented some competing views about the metaphysics of parts and wholes: mereonominalism, holonominalism, and part-whole realism. The last of these faces a problem explaining how a unified whole is able to comprise diverse parts. I have argued that a hylomorphic theory that conceives of forms along Aristotelian lines provides part-whole realists with a solution.

## References

[Jaworski, William. 2014. Hylomorphism and the Metaphysics of Structure. \*Res Philosophica\* 91: 179-201.](#)

[Jaworski, William. 2016. \*Structure and the Metaphysics of Mind: How Hylomorphism Solves the Mind-Body Problem\*. Oxford University Press.](#)

[Jaworski, William. 2017. Psychology without a Mental-Physical Dichotomy. In \*Neo-Aristotelian Perspectives on Modern Science\*, William Simpson, Robert Koons, and Nicholas Teh, eds. \(Routledge, 2017\), 261-92.](#)

[Jaworski, William. 2018. Hylomorphism and the Construct of Consciousness. \*Topoi\*](#)

DOI: 10.1007/s11245-018-9610-0.

Jaworski, William. 2019. Contemporary Hylomorphism and the Problems of Mind versus Body. In *The Soul/Body Problem in Plato and Aristotle*, Diego Zucca and Roberto Medda, eds. (Academia-Verlag, 2019), 181-196.

Fine, Kit. 1999. Things and Their Parts. *Midwest Studies in Philosophy* 23: 61-74.

Fine, Kit. 2008. Form and Coincidence. *Proceedings of the Aristotelian Society Supplementary Volume* 82: 101–118.

Heil, John. 2003. *From an Ontological Point of View*. Oxford: Clarendon.

Johnston, Mark. 2006. Hylomorphism. *Journal of Philosophy* 103: 652 – 98.

Lewis, David K. 1986. *On the Plurality of Worlds*. Oxford: Blackwell.

Martin, C. B. 2007. *The Mind in Nature*. Oxford University Press.

Molnar, George. 2003. *Powers: A Study in Metaphysics*. Stephen Mumford, ed. Oxford University Press.

Price, H. H. 1953. Universals and Resemblance. From Chapter 1 of *Thinking and Experience* (Hutchinson's University Library). Reprinted in *Metaphysics: Contemporary Readings*, Michael J. Loux, ed. (London: Routledge, 2001), 20–41.

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<sup>1</sup> The term 'factor' here translates the Greek word *arché* which designates a source, origin, or starting point. Although Aristotle will sometimes refer to a linguistic entity, such as the major premise of an argument, as an *arché*, the term needn't have a linguistic referent. To call *a*'s matter an *arché*, for instance, implies that *a*'s matter explains something about *a*. The same is true mutatis mutandis of *a*'s form. This does not imply that either *a*'s matter or *a*'s form is a linguistic entity.

<sup>2</sup> In addition to the aforementioned metaphysical roles, Aristotle also intends form to play epistemological and philosophical roles: *Perceptual and Cognitive Knowledge*: Form is what accounts for the ability to know things themselves in perception and understanding. *Problem Solving*: Form is

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supposed to allow the hylomorphic framework to solve problems in areas such as the philosophy of biology and the philosophy of mind. I'll nevertheless put these roles to one side since they do not bear directly on the present inquiry

<sup>3</sup> If forms were things, it's difficult to see how they could play the unifying role that form is supposed to play. Mark Johnston (2006: 672-3) and Aristotle (*Metaphysics* 1041b11-31) both advance arguments along these lines albeit with a different focus.

<sup>4</sup> See, for instance, Aquinas: *Disputed Questions on the Soul*, Article 14, Ad 8; *Commentary on Aristotle's De Anima*, Lecture 7, Paragraph 319; *Summa Contra Gentiles*, Book 1, Chapter 98; *Commentary on the Sentences*, Book 1, Distinction 33, Question 1, Article 1, Ad 1.

<sup>5</sup> We can see why Aristotle says that the form of a living thing (its soul) is the first actuality of a natural body that has the power to live (*entelecheia hē prōtē sōmatos phusikou dunamei zōēn echontos*) (412a26-27). Here 'power to live' refers to the power to engage in the activities that define living things. That is why Aristotle adds right away that the natural bodies in question are organic (*organikon*) (412b1-4): they are outfitted with organs that embody various powers, in particular, the powers to nourish themselves, grow, reproduce, and engage in the various other activities that define living things.