

Hylomorphism and the Construct of Consciousness

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Abstract

The hard problem of consciousness has held center stage in the philosophy of mind for the past two decades. It claims that the phenomenal character of conscious experiences—what it's like to be in them—cannot be explained by appeal to the operation of physiological subsystems. The hard problem arises, however, only given the assumption that hylomorphism is false. Hylomorphism claims that structure is a basic ontological and explanatory principle. A human is not a random collection of physical materials, but an individual composed of physical materials with a structure that accounts for what it is and what it can do—the powers it has. What is true of humans is true of their activities as well. The latter are not random physiological changes, but structured ones: we engage in them by coordinating the ways our parts manifest their powers. Structured activities include perceptual experiences. Consequently, everything about a perceptual experience, including its phenomenal character, can be explained by describing the perceiver's perceptual subsystems, the powers of those subsystems, and the coordination that unifies their activities into the activity of the perceiver as a whole. Conscious experiences thus fit unproblematically into the natural world—just as unproblematically as the phenomenon of life. Even exponents of the hard problem of consciousness agree that there is no hard problem of life. Consequently, if hylomorphism is true, there can be no hard problem of consciousness. To insist that there is such a problem, then, is implicitly to reject hylomorphism. The conception of consciousness that motivates the hard problem is as much a theoretical construct, therefore, as the conception of life that motivates an obstinate vitalist.

Keywords: consciousness; hard problem; hylomorphism; perception; powers; explanation; enactive; embodiment; materialism; reduction; structure; qualia

1. The hard problem of consciousness

The problem of explaining how consciousness fits into the natural world—the so-called hard problem of consciousness—has held center stage in the philosophy of mind for the past two decades (Chalmers 1996, 2002). Conscious states have a phenomenal character—there is something it’s like to be in them. If we assume that consciousness is a natural phenomenon, the difficult task is explaining how and why physical processes give rise to phenomenal character—how and why they don’t occur “in the dark,” so to speak, without any accompanying experiences.

David Chalmers contrasts the hard problem with what he calls the easy problems of consciousness—problems such as explaining, “the ability to discriminate stimuli, or to report information, or to monitor internal states, or to control behavior...” (2002: 247 – 8). Explaining these operations poses no special philosophical problems, according to Chalmers, for in the case of each, there is no difficulty explaining how a physical system might perform it. All that’s needed is to describe a causal role the system plays, and to identify a physical mechanism that plays it. In this sense, the easy problems of consciousness are analogous to those that once confronted attempts to explain the phenomenon of life. Once we identified physical mechanisms that played the causal roles associated with life, says Chalmers, even a reasonable vitalist would have conceded that life had been explained (1996: 109). But the hard problem is different: even when we give a full physical account of what plays various cognitive or behavioral roles, it remains unclear why and how those roles should be accompanied by experiences with phenomenal character.

Critics might nevertheless argue that Chalmers’ view is like that of an obstinate vitalist who insists that the physical story of living things is incomplete because it leaves out vital spirit. Chalmers’ response is that the cases are disanalogous: vital spirit is an “explanatory construct,” not something we have “independent reason to believe in,” whereas consciousness, “forces itself on one as an explanandum” (1996: 109). By ‘independent,’ Chalmers presumably means something like ‘independent of vitalist theory itself.’ Vital spirit is something posited by a theory that aims at explaining living phenomena, whereas consciousness is not a theoretical posit, but something we have reason to believe in independent of any theory that aims at explaining conscious phenomena—a pretheoretical explanandum.

Some critics have nevertheless suggested that the concept of consciousness that Chalmers employs is just as theory-laden as the concept of vital spirit (Noë and O’Regan 2002). I plan to argue

that this view is essentially correct: the concept of consciousness that motivates the hard problem has an implicit theoretical commitment to rejecting hylomorphism.

Hylomorphism's basic idea, stated very roughly, is that some things are composed of matter with a specific configuration or structure. A human being, for instance, is not composed of physical materials configured in any way whatsoever, but physical materials configured in a very specific way. In some cases, a thing's configuration (its form or structure) is something static, like the relatively unchanging spatial arrangements of atoms in a crystal, but in other cases—by far the more interesting ones—the configuration comprises dynamic interactions among an individual's components. The configurations of matter and energy that make human beings and other complex living things what they are cannot be characterized apart from the dynamic interactions among their various organ systems, along with their component organs, tissues, cells, and the molecules, atoms, and fundamental physical materials ultimately composing them.

What is true of living things is also true of their activities: walking, talking, running, and the various other activities in which we engage are not random physiological occurrences; each is instead an event composed of physiological occurrences with a certain coordination or structure. These structured activities include thinking, feeling, perceiving, and other paradigmatically conscious experiences. As a result, there is no difficulty explaining how conscious experiences fit into the natural world. If structure is a basic ingredient of natural world, then structured individuals and their activities fit unproblematically into that world. If those activities include conscious experiences, then the latter fit unproblematically into the natural world as well.

To insist, therefore, that consciousness poses a hard problem is to assume that hylomorphism is false; it is to conceive of consciousness in a way that implicitly endorses an alternative picture of consciousness and the natural world. The concept of consciousness with which philosophers like Chalmers operate, then, is arguably just as theory-laden as the concept of vital spirit. It depends on a theory of the natural world that we are not compelled to accept and that hylomorphism rejects. Within the hylomorphic framework, by contrast, the explanation of life and the explanation of consciousness are of a piece: both involve describing structured activities, which is largely an empirical undertaking. As a result, within a hylomorphic framework the hard problem of consciousness doesn't arise.

In what follows, I'll describe the hylomorphic view in greater detail starting with the notion of hylomorphic structure. I'll then discuss structured activities with a special focus on perceptual experiences that have a phenomenal character and explain how that character finds a place in the

hylomorphic account of perception. Finally, I'll consider an argument advanced by Chalmers that would purport to provide non-question-begging grounds for rejecting the hylomorphic account, and explain why the argument fails.

2. *Hylomorphic structure*

The hylomorphic notion of structure is not the same as others that have appeared in the literature (Author 2016: 8-18; 2017: 264-267). It is not the same, for instance, as the notion of structure that has been operative in discussions of grounding in metaphysics.¹ Nor is it the same as the notion that is operative in debates about scientific realism.² Nor is it the same as the notion Chalmers employs when he speaks of structure and dynamics.³ The concept of hylomorphic structure is instead primitive or basic within a hylomorphic framework: it cannot be defined in terms of any categories that are more basic; it must instead be defined by describing the roles it plays within hylomorphic theory as a whole and then illustrated with examples.⁴ The metaphysical roles of structure include the following:

Unity: Structure is what accounts for the unity of composite wholes, both individuals and events;

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

Behavioral Regularity: Structure is what accounts for behavioral regularities, especially the self-maintaining and developmental processes in which living things engage.

An example borrowed from Aristotle can help illustrate these roles. In Aristotle's framework, earth, air, fire, and water are the basic material constituents of composite wholes.⁵ These material constituents explain some of a composite individual's behavior. A human being will fall downward, for instance, on account of the materials composing it. The latter include a large portion of the element earth, and it is in the nature of earth to move downward on Aristotle's view; hence, 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 about a living whole prevents this from happening—something manages to direct, proportion, and regulate the activities of the materials composing it, and to ensure that it remains a unified individual. That something is the individual's form or structure.

Given the theoretical roles that hylomorphic structure plays, it should be evident that it cannot be identified with a plurality of spatial and causal relations among something's parts. Socrates can survive changes in the positions of limbs, tissues, or organs, and he can survive changes in the causal relations among them. There are of course constraints on the kinds of spatial and causal changes among his parts that Socrates is capable of surviving. Aristotle discussed these constraints under the heading of *hypothetical necessity* (*anagkē ex hypotheseōs*) (*Physics* 200a10-29): there can be an individual with the kind of structure Socrates has only if various material conditions are satisfied. Those conditions include spatial and causal relations among the materials composing Socrates, but just as Socrates' structure cannot be identified with the movements of the earth, air, fire, and water composing him, likewise his structure cannot be identified with spatial and causal relations among those materials.

What, then, is Socrates' structure? It's important to note that words like 'form' or 'structure' can be misleading in this context. They suggest that hylomorphic structure is a further individual or entity independent of what has it. If structure were such a thing, however, it is difficult to see how it could play the unifying role that structure is supposed to play.⁶ Very roughly, suppose that *f* is Socrates' structure—an entity distinct from him on the proposed hypothesis. This entity is supposed to be responsible for unifying physical materials into a single composite whole, but it seems plausible to suppose that something must also unify *f* with Socrates. If that unifier is some further entity, *g*, then a regress commences, for we then have to know what unifies *g* with Socrates and *f*. If, on the other hand, the unifier is *f* itself, then positing *f* seems ontologically extravagant, for in that case, nothing prevents us from saying that Socrates himself is the unifier: if the unifying role can be played by *f* itself, there doesn't seem to be a principled reason why it cannot be played by Socrates himself.

Socrates plays this unifying role, however, not on account of being composed of these or those physical materials, for the materials that compose him at any given time might be different from those that compose him at some other time, and *ex hypothesi* structure is supposed to explain Socrates' unity through time—his persistence. There must be something else about Socrates, then, that explains his synchronic and diachronic unity. I've argued elsewhere that this is best understood as an activity in which Socrates engages—the ongoing manifestation of a power he has (Author 2016, 2017).

That activity is not identical to Socrates. It is a property of him, and hence differs from him in something analogous to the way an apple's redness differs from the apple.⁷ Since it is his activity, however, the foregoing problem explaining its unity with him does not arise: his structuring is an activity that belongs essentially to him.⁸ It seems plausible to conclude, then, that structure—or to put it more clearly, *structuring*—is something that a composite individual does. There is not some entity other than Socrates that is responsible for unifying the materials that compose him; doing this simply belongs to his nature, to use Aristotle's term; it is one of the things he does simply on account of being the kind of thing he is. In this sense, it is on a par with, say, his falling back to earth after jumping in the air. This too is something Socrates does on account of being the kind of thing he is. The conclusion we have arrived at, though, is that a thing of this kind comprises two different explanatory principles:⁹ the materials composing it, and the structuring activity that unifies them. It is on account of the former that Socrates falls back to earth, and it is on account of the latter that he remains in one piece while doing so. Both the materials composing him and the structuring activity in which he engages contribute to an explanation of why he has the power to jump and how that power manifests itself.

On the hylomorphic view I've described, then, structuring is an activity in which a composite individual is essentially and continuously engaged. It is in a strong sense the most basic activity in which a composite individual engages, for it is in performing this activity that the composite exists—something expressed in Aristotle's statement that for living things, their living is their being (*to de zēn tois zōsi to einai estin*) (*On the Soul* 415b13), and in the Medieval Aristotelian slogan that for living things *vivere est esse*: to live is to be.¹⁰ At the most basic level, a living thing's existence 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). I say 'at the most basic level' because a living thing's existence—its life on this view—might comprise other activities as well.

3. *Structured activities and enactive perception*

Because Socrates is a unified individual, he has powers that physical materials by themselves do not have—the power to run, sing, or jump, for instance. He manifests these powers by structuring or coordinating the way his parts and surrounding things operate. In jumping, he coordinates the way his legs and the earthy ground operate—how they manifest the powers they have. Socrates' legs and the earth each have powers of their own. Those powers are essentially directed toward manifesting themselves in various ways in conjunction with various reciprocal powers.¹¹ When Socrates jumps, he manages to coordinate the way the powers of his legs and the reciprocal powers of the earth co-manifest themselves. He coordinates the co-manifestation of those powers *jumping-wise*, we might say, where a detailed description of this coordination is to be supplied empirically.

What is true of Socrates' jumping is also true of his other activities. Perceiving is an example (Author 2016, 2017). When Socrates sees something—a ripe tomato, say—he and the tomato both manifest reciprocal powers they have. He manifests the power to see the tomato, and it manifests the power to be seen by him. The powers of both are mutually manifested in each other's presence when the surrounding conditions are right, just as water and salt mutually manifest their powers to dissolve and be dissolved when conditions are right. Elsewhere (Author 2017), I've described this mutual manifestation of perceptual powers as a temporally-extended process of sensorimotor interaction of the sort described by Gibson (1979) and more recently Noë (2004) and Hutto and Myin (2013).

As Socrates moves relative to the tomato, he gains an implicit practical understanding of how its various facets come into and go out of view as a function of his movements: he exercises a mastery of movements that bring into view these or those facets which he expects to look these or those ways under the present conditions. In this way, he comes to know the tomato's perceptible properties such as its uniform redness. That redness is revealed through a series of appearances none of which is uniformly red. The young child who depicts a tomato by applying a single shade of red paint across the canvas fails to capture how it really looks. The skilled painter, by contrast, uses a variety of colors to depict the tomato: a bit a red here, a bit of gray there, white toward the top, and so on. The result is a more accurate depiction of how the tomato really looks from a particular vantage point. If Socrates' vision were limited to the way the tomato looks from that point, he might

never know its uniform color; there would be no explanation for what psychologists call *color constancy*, the ability of perceivers to discern that an object has a uniform color despite changes in its nonuniform appearance. But Socrates' vision is not limited in this way. By moving in relation to the tomato he grasps its uniform redness through the shifting appearances.

Perception is not a passive process, therefore, of receiving sensory stimuli and constructing internal representations of external objects. It is instead an active process that unfolds over time in a series of appearances that vary as a function of the perceiver's movements through the environment. Those appearances are coordinated co-manifestations of the perceiver's power to perceive and the perceived object's reciprocal power to be perceived.

Perceptual powers are essentially *embodied* in parts of the perceiver and parts of the object perceived in this sense: the perceiver has parts whose activities, when coordinated the right way with reciprocal powers of the perceived object, compose the perceiver's activity of perceiving and the perceived object's being perceived. These are the parts that embody, respectively, the perceiver's power to perceive and the object's power to be perceived.¹² Socrates' power to see the red tomato is thus embodied in various sensory and motor subsystems whose activities, when coordinated in the right way with the reciprocal powers of the tomato, compose his activity of seeing it and its activity of being seen by him.

Since perception is a structured activity on the hylomorphic view, an exhaustive account of perceptual phenomena can be given by describing (1) the reciprocal powers of the perceiver and the object perceived, (2) the subsystems of the perceiver and the object perceived as well as the powers of those subsystems that when coordinated in the right way compose the perceiver's perceiving and the object's being perceived, and finally (3) the coordination itself that unifies the activities of the subsystems into a single event: the perceiver's perceiving and the object's being perceived. All aspects of perceptual experience will be accounted for by such a description—including phenomenal character.

4. Phenomenal character

If an exhaustive account of perceptual phenomena can be given by describing (1) – (3), and perceptual phenomena include phenomenal character, then whatever phenomenal character amounts to will be accounted for by the description of (1) – (3). There is nevertheless a distinction

between accounting for phenomenal character and communicating it through a description to a target audience.

Phenomenal character is often characterized as what-it's-likeness, which comprises the kinds of things that might be used to answer questions of the form, 'What is it like to A ?' Such questions request an answer that enables questioners to go some of the way toward imagining how it would seem to them if they were to A , and answers along these lines generally appeal to activities, states, or experiences that the answerer assumes are familiar to the questioner. The following anodyne question-answer pairs illustrate this:

Q1. What is it like to free fall?

A1. Free falling feels a bit like going down the dips on a roller coaster.

Q2. What is it like to see mauve?

A2. It's a bit like seeing magenta; although it has a bit more gray and blue.

Understanding answers to questions of this sort thus depends on the questioner's prior familiarity with the activities, states, or experiences the answers mention. As a result, these answers will be limited in their communicative potential, for there will be cases in which questioners lack the background knowledge necessary for them to imagine themselves A -ing. A1 will not help someone who has never ridden a roller coaster, nor will A2 help someone unfamiliar with magenta, gray, or blue. The point carries over the questions like Q3 posed by someone who is congenitally blind:

Q3. What is it like to see color?

An answer might attempt to describe vision by drawing analogies with more familiar sensory modalities, as in the following:

A3. It is like hearing (and unlike taste or touch) insofar as it is possible to see objects at a distance. The way those objects appear to you differ from each other in something analogous to the way sounds differ in their pitches or timbres, and those differences are colors.

A description of this sort will almost certainly fall short of enabling the congenitally blind to imagine themselves seeing. People with normal vision might well imagine seeing mauve without ever having seen it based on a description like A2, for they have an inventory of remembered color experiences with which to begin the imaginative task. The congenitally blind, by contrast, lack an inventory of remembered color experiences that might enable them to do something similar, and humans in general lack an inventory of echolocative experiences that might enable them to do something similar in the case of a bat's experience. There is thus a sense of 'know' according to which the congenitally blind cannot know what it is like to see color or according to which humans cannot know what it is like to be a bat (Nagel 1974). Knowledge in this sense of the term depends on first-person imaginability, and that ability depends on background knowledge that might in some cases be lacking.

There is nevertheless a difference between knowing what it's like to *A*, on the hylomorphic account, and knowing what *A*-ing is. Seeing color is a structured activity on that account, a co-manifestation of the reciprocal powers of the perceiver and the object perceived coordinated in a way that composes perceiver's act of seeing and the object's act of being seen. To describe the relevant powers, activities, subsystems, and so on—to describe (1) – (3), in other words—is to describe what seeing color essentially and exhaustively is: there is nothing to seeing, on the hylomorphic account, other than (1) – (3). This is the case even if a description of (1) – (3) fails to enable someone to imagine himself or herself seeing color. By analogy, there is nothing to Socrates' throwing a baseball other than Socrates coordinating the way various physiological subsystems and objects in the environment manifest their powers. In that sense, a description of those subsystems, objects, powers, and the relevant sort of coordination succeeds in giving an exhaustive description of Socrates' throwing a baseball. Yet knowing such a description will not suffice for someone knowing how to throw a baseball, that is, for mastering the skill. The latter requires actual performance and practice, for only then will someone be able to coordinate the powers of the relevant subsystems and objects in the relevant way. Seeing color is analogous: both it and throwing a baseball are activities composed of the subactivities of physiological subsystems and objects in the environment with the right kind of coordination. Just as knowing how to throw a baseball requires actual performance and practice, something analogous is true, on the hylomorphic account, of knowing what it's like to see color.¹³

If the term 'phenomenal character' is reserved for descriptions that enable the kind of first-person imaginability necessary for knowing what something is like in the relevant sense of 'know,'

then there will be cases in which a description of (1) – (3) will fail to communicate phenomenal character to a target audience. In these cases, however, the description will fall short not because it is missing something, but because the audience fails to understand fully what it is saying. They will be like people who have never thrown something and who consequently fail to understand how to do throw a baseball by merely reading a description. Because the lack the necessary background knowledge, they fail to fully understand the description. Whatever superficial understanding they manage to glean from the description will fall short of enabling them to perform the activity. For individuals who lack the relevant background knowledge, phenomenal character cannot be communicated through a description of (1) – (3), just as for someone unfamiliar with magenta, what it's like to see mauve cannot be communicated through a description like A2, and for the congenitally blind what it's like to see color cannot be communicated through a description like A3.

Descriptions enable first-person imaginability only for individuals who have a prior familiarity with the things those descriptions advert to. A3 will enable someone to imagine seeing mauve only if he or she is already familiar with seeing magenta, gray, and blue. Likewise, a description of (1) – (3) will enable someone to imagine seeing color only if he or she understands the individuals, subsystems, powers, activities, and structures described therein, and in many cases, there is reason to think that someone will be incapable of understanding at least some of these things without engaging in the activity firsthand. If a description of (1) – (3) fails to communicate phenomenal content in these cases, therefore, this marks a shortcoming not of the description, but of the audience. If, however, the audience's background knowledge is not deficient, a description of (1) – (3) will enable some degree of first-person imaginability; it will provide a basis for knowing to some degree what it's like to engage in the relevant activity; it will succeed to some degree in communicating phenomenal character, and will do so precisely to the extent that it enables the corresponding imaginability.

5. Hylomorphism and physicalism

It is worth noting at this juncture how the hylomorphic approach to phenomenal character differs from standard physicalist approaches. The term 'physicalism' is used in a variety of ways. I'm using it here to refer to the strong claim that everything can be exhaustively described and explained by the most empirically adequate theories of current or future physics. Elsewhere I've argued that any

adequate definition of physicalism must imply the core physicalist thesis that everything is physical (Author 2016). Physicalism, in other words, must rule out the existence of nonphysical things. By these lights, many definitions of physicalism are inadequate. The claims that all objects are composed of entities described by physics or that all properties supervene on properties described by physics fail to imply the core physicalist thesis because they are compatible with the existence of nonphysical properties. An object composed of physical entities might still have nonphysical properties, and an object's nonphysical properties might still supervene on or be necessitated by its physical properties.¹⁴

Physicalism in the strong sense I have in mind is compatible with hylomorphism. Hylomorphists claim that composite individuals and events comprise lower-level individuals and events with the right kind of structure. This claim by itself is compatible with those individuals, events, and structures being described and explained exhaustively by physics. I am nevertheless interested in exploring the implications of a hylomorphic view that takes the conceptual resources of physics to be inadequate for describing and explaining at least living individuals and their activities. Physics, on such a view, operates by bracketing the various ways that matter and energy are structured biologically, psychologically, or otherwise in the natural world. Consequently, on such a view, the conceptual resources of physics fall short of providing an exhaustive account of living things and their activities—including perceptual activities. Describing the activities of physical particles, or even cells, tissues, or entire organ systems falls short of describing the activity of an entire organism, for there is more to that activity than lower-level events, on the hylomorphic view; there is also the way those events are structured or coordinated. Throwing a baseball involves more than the changes in neural and muscular subsystems that can be described using only the conceptual resources of physics; it also involves the coordination the thrower imposes on those subsystems to compose a unified act of throwing. Similarly, there is more to perception than the powers and activities of neural and muscular subsystems—the kinds of things described by (2); there is also the coordination that unifies the activities of the subsystems into a single event—something described by (3). The foregoing points mark a difference with standard physicalist views.

One way of bringing out the difference between physicalism and hylomorphism on this point is to consider how each approaches Jackson's (1986) knowledge argument. If physicalism is true, then all facts are physical facts; that is, in principle, all facts can be described exhaustively using only the conceptual resources of physics. Critics nevertheless contend that not all facts are physical facts, for it is possible, they say, for someone to know all the physical facts without knowing all the

facts. Mary, for instance, knows all the physical facts, yet she has never before seen colors. When she sees a colored object for the first time, she surely learns something new, say critics; she learns what it's like to see color. It's not possible for her to learn something she already knows, and because she already knows all the physical facts, what she learns must not be a physical fact. Since what she learns is, plausibly, some other fact, it follows that not all facts are physical facts. Hence, critics conclude, physicalism must be false.

Common physicalist responses to the argument deny that Mary gains knowledge of facts she didn't previously know. The ability hypothesis, for instance, says what she gains are new abilities to imagine, remember, and recognize colored objects (Lewis 1983b, 1988; Nemirow 1980, 1990), and gaining these abilities does not amount to gaining knowledge of previously unknown facts. Hylomorphists needn't adopt this response to the knowledge argument or any other physicalist response because, unlike physicalists, they deny that all facts are physical facts; they deny that conscious experiences can be exhaustively described using only the conceptual resources of physics. They can agree with critics of physicalism that Mary learns something new when seeing color for the first time, and agree that what she learns are new facts about color experiences. If prior to seeing color Mary knew only the activities of physical particles, or the kinds of changes in physiological subsystems that could be described exhaustively using the conceptual resources of physics, then she had only a partial understanding of color experience. To use the traditional hylomorphic vocabulary, she understood only the matter of those experiences, only the lower-level events that when coordinated the right way would compose an activity of seeing color. What she failed to understand was the kind of coordination that would unify lower-level events into the structured activity of seeing color. She might read about that coordination in a description of (3), but understanding that description in a way that would enable her to imagine herself seeing color is something she would not be able to do unless she had engaged in that activity firsthand. Without that first-person exposure, she would fail to know what it was like to see color.

Hylomorphists can thus agree with critics of physicalism that Mary learns something new when she sees color for the first time, and agree that what she learns are new facts—facts, in particular, about the kind of hylomorphic coordination or structure that unifies diverse physiological events into the activity of seeing color. This is a point physicalists cannot concede.

6. *Explanation: naturalistic vs. reductive*

If perceptual phenomena can be described exhaustively by (1) – (3), then explaining a conscious activity such as perceiving is on a par with explaining life activities: both are structured activities, both are exhaustively accounted for by describing the coordinated manifestations of the powers of something's parts and surrounding things. Consciousness thus receives a naturalistic explanation on the hylomorphic view in exactly the way life does, and it fits into the natural world just as unproblematically.

Is such an account reductive? The term 'reduction' is used in a variety of ways. According to one usage, reduction involves descriptive and explanatory takeover. To claim that psychology is reducible to neuroscience, for instance, is to claim that in principle neuroscience could take over all the descriptive and explanatory jobs that psychology performs. This is clearest in the case of something like the psychophysical identity theory. We explain Caesar spurring his horse across the Rubicon by saying that he desires political power and believes marching on Rome the best means of securing it. If Caesar's desire and his belief is each identical to a sequence of neural firings, sequence N_1 and sequence N_2 , respectively, and his act of spurring the horse is identical to a sequence of muscular contractions, M , then our explanation can be rewritten as, 'Caesar had M because he had N_1 and N_2 .' Given the relevant identities, it would be possible in principle to rewrite all psychological descriptions and explanations in neuroscientific terms; in principle, then, neuroscience could take over all the descriptive and explanatory roles of psychology.

If this is what reduction involves, then a naturalistic explanation of conscious experiences is not reductive on the hylomorphic view. The reason is that it is impossible on the hylomorphic view for neuroscience, chemistry, physics, or any other such discipline to take over all the descriptive and explanatory jobs that we employ psychological discourse to perform. On the hylomorphic view, thinking, feeling, and perceiving are composed of physiological events, but describing those events falls short of describing thinking, feeling, and perceiving since there is more to thinking, feeling, and perceiving than that: there is also the way physiological events get structured, and that structuring is the activity of a living whole—the manifestation of a power that it has but that its parts do not. Neuroscience, chemistry, physics, and related disciplines could supply a description of (2) above, but they could not succeed in giving a description of (1) and (3).

For a similar reason, descriptions of physiological subsystems do not count as reductive explanations in Chalmers' (1996) sense. According to Chalmers, a reductive explanation succeeds in

dispelling any sense that the explanandum phenomenon involves anything more than physical mechanisms playing certain causal roles (1996: 49). This is the kind of explanation that Chalmers thinks was supplied by a physical account of life. On the hylomorphic view, however, phenomena like perception and even life itself involve more than the operation of physical subsystems; there is also the coordination or structure that unifies the activities of those subsystems into activities performed by the composite whole.¹⁵ That coordination is the manifestation of a power that is had by the whole but not its subsystems.

Hylomorphism, then, is committed to a robust antireductionism. It does nevertheless imply that there is no unexplained phenomenal residue once we've described the structuring activity of a conscious whole and the subactivities of its relevant subsystems. That brings us back to the hard problem of consciousness.

If hylomorphism is true, there is no hard problem of consciousness: conscious experiences are structured activities that fit into the natural world in a way that is just as unproblematic as the phenomenon of life. When it comes to the latter phenomenon, describing the powers of a living whole, the reciprocal powers of the things composing it (powers that when coordinated in the right way compose the living whole's vital activities) and the coordination that unifies the manifestations of those powers into a single individual, the living activity of the whole has been explained without remainder. Since conscious experiences are structured activities of an analogous sort, what is true of life is true of them. Insisting that a description of (1)–(3) leaves out phenomenal consciousness is analogous to an obstinate vitalist insisting that the foregoing account of life leaves out vital spirit. On the hylomorphic view, there simply is no, “conceptual room,” as Chalmers (1996: 109) puts it, for the relevant structured activities to occur in the absence of conscious experiences: some of the structured activities of living things just are conscious experiences.

7. Some objections

The most commonly voiced objection to the hylomorphic view argues that hylomorphism fails to avoid the hard problem of consciousness because it is possible for someone like Chalmers to agree with hylomorphists that there are structured activities while yet denying that a description of those activities comprising (1) – (3) explains why those activities are accompanied by phenomenal character. There is nothing included in a description of the powers of perceivers, objects, their parts,

and the kinds of coordination that unify their activities into perceptual episodes, says the objection, that implies anything about phenomenal character, and so the hard problem arises within a hylomorphic framework as well.

Hylomorphists respond that the objection is based on a false premise. It claims that a description of (1) – (3) does not imply anything about phenomenal character, but this is false if the hylomorphic view is true. Phenomenal character comprises the kinds of things that might be used to answer questions like Q2 or Q3. On the hylomorphic account, answers to these questions describe structured activities composed of the activities of lower-level subsystems with the right kinds of coordination. A description of the powers of perceivers, perceived objects, and the powers and activities of their parts along with the coordination that unifies those activities into perceptual acts provides an exhaustive account of perceptual phenomena. Anything that might be used to answer these questions—anything, that is, that might describe what-it’s-likeness, phenomenal character—will be included in such a description. To insist, as the objection does, that phenomenal character would be missing from such a description either fails to conceive accurately what such a description includes or else implicitly rejects the hylomorphic account altogether. In the former case, the objection attacks a straw man, and in the latter it commits the fallacy of begging the question: it assumes rather than proves that the hylomorphic view is false. Consider these points one at a time.

Critics who fail to conceive accurately what a description of (1) – (3) includes are most likely committing one of two errors. First, it is possible that they are conceiving a description of (1) – (3) to be the kind of description a standard physicalist might try to give of perceptual phenomena. We have already seen, however, that this is a mistake. A standard physicalist account of perception will be limited to something like (2); it will not take the powers and activities of whole organisms as irreducible primitives as the hylomorphic account does. Second, it is possible that critics are conceiving of someone like Mary being provided a description of (1) – (3)—someone, in other words, who can only imperfectly grasp the content of that description—and concluding on the basis of that conception that the description must be incomplete. We have already seen, however, that in cases like Mary’s, failing to grasp the description’s content does not reflect a deficiency in that content, but instead a deficiency in the audience’s ability to understand it. A description of (1) – (3) can succeed in accounting for phenomenal character even if it fails to communicate that character to someone who lacks the relevant background knowledge, as Mary does.

Critics might nevertheless claim to be conceiving a description of (1) – (3) in precisely the way hylomorphists do, and yet insist that that description fails to provide an exhaustive account of

perceptual phenomena. Yet this is precisely the kind of move the obstinate vitalist makes. To persist in this way is to commit the fallacy of begging the question: it implicitly assumes that the hylomorphic view must be false; it does not prove that the view is false, but assumes its falsity at the outset. To advance this kind of objection is thus to illustrate the main thesis of this paper; namely, the concept of consciousness motivating the hard problem is implicitly committed to rejecting hylomorphism.

Another objection claims that the hylomorphic account must be wrong because ordinary people manage to describe their experiences in phenomenal terms without knowing anything about the science or philosophy of perception. Yet the description of (1) – (3) includes a great deal of content that only scientists or philosophers could understand. As a result, say critics, hylomorphists must be describing something other than the experiences that ordinary people have in their day-to-day lives. Hylomorphists respond that the objection proves too much: if it is accurate, then it is impossible to give an accurate scientific or philosophical account of anything ordinary people talk about. But that is surely not the case.

Consider an analogy with water. We might initially have no way of referring to water other than by appeal to our pedestrian ways of interacting with it, and as a result our initial concept of water will entail being odorless, thirst-quenching, and so on. That description nevertheless does not tell us what water essentially is. Determining that is largely an empirical undertaking: we discover empirically that the stuff we initially referred to as odorless, thirst-quenching, and so on is H₂O. Something analogous will be true of conscious experiences. We might initially have no way of referring to a structured activity other than by appeal to our first-person experience of engaging in it, and we might have no vocabulary for describing it other than a phenomenal vocabulary. As a result, our initial concept of that activity will entail a description in phenomenal terms. Suppose, for instance, that seeing red is the structured activity in which we engage when we encounter objects that are sufficiently similar to a number of exemplars seen under the right conditions: ripe tomatoes, fire hydrants, stop signs, and so on. Initially, we might have no way of picking out the activity of seeing red other than by appeal to our own encounters with such objects, and we might have no vocabulary for describing that activity other than a vocabulary in terms of which we describe what it's like for us to encounter them. Our initial concept of seeing red will thus entail a description of what it's like for us to see red objects. But that description will not tell us with the activity essentially is. On the hylomorphic view, that activity, which we initially conceptualized in phenomenal terms is

a structured activity comprising (1) – (3), and as in the case of water, describing the details of (1) – (3) is largely an empirical undertaking.

A third objection claims that phenomenal experiences might accompany or supervene on structured activities and yet fail to be identical to structured activities themselves, as the hylomorphic account claims. Hylomorphists respond that arguing in this way is analogous to arguing that life might accompany or supervene on the complex structured activity of a living whole while yet denying that when we talk about life we are referring to that activity. Obstinate vitalists can insist that this is the case, and people like Chalmers can insist on the analogous point about consciousness; in doing so, however, they are committing the fallacy of begging the question; they are implicitly rejecting the hylomorphic view—not proving its falsity, but assuming its falsity at the outset. This kind of objection once again illustrates the main thesis of the paper; namely, the concept of consciousness motivating the hard problem is implicitly committed to rejecting hylomorphism.

Are there any non-question-begging objections to the hylomorphic account? Do philosophers like Chalmers advance arguments that do not depend on a prior rejection of hylomorphism, and that entail that a description of (1)–(3) leaves an unexplained phenomenal residue? In the next section I consider one possible argument to this effect.

8. Chalmers' argument against materialism

Let 'materialism' designate any theory according to which all positive facts about phenomenal consciousness logically supervene on physical facts; worlds, in other words, that comprise the same physical facts must also comprise the same phenomenal facts. Elsewhere I've argued in detail that given reasonable assumptions a hylomorphic theory of the sort I've described is committed to the following strong supervenience thesis (Author 2016):

Structuro-physical supervenience: For any possible worlds w_1 and w_2 , and any physical materials, x_1, x_2, \dots, x_n , in w_1 and y_1, y_2, \dots, y_n in w_2 , if the x s at time t are exactly similar to the y s at time t^* in respect of the kinds of properties and relations that can be exhaustively described by physics, then the x s compose an individual, z , at t if and only if the y s compose an individual at t^* that is structurally exactly similar to z at t .

It is not obvious that this claim implies logical supervenience as Chalmers (1996) understands it, but in the interests of time and philosophical engagement, let us suppose that it does. It follows that a hylomorphic theory of the sort I've described will be committed to materialism. An argument showing that materialism in general was false would thus succeed in showing that hylomorphism was false, and it would do so, it seems, without assuming at the outset that hylomorphism was false.

Chalmers (2009, 2010) advances an argument to this effect. Let P be a true description formulated in the language of microphysics of the fundamental properties of every fundamental microphysical entity, and let Q be a truth about phenomenal consciousness. In that case, Chalmers argues as follows:

- (1) P & \sim Q is ideally 1-conceivable;
- (2) If P & \sim Q is ideally 1-conceivable, then P & \sim Q is 1-possible;
- (3) If P & \sim Q is 1-possible, then P & \sim Q is 2-possible;
- (4) If P & \sim Q is 2-possible, then materialism is false;

Therefore, materialism is false.¹⁶

According to Premise (1), it is conceivable that a world physically indistinguishable from the actual world might include physical duplicates of us who have qualitatively different conscious states or who lack conscious states altogether. The kind of conceivability Chalmers has in mind is ideal 1-conceivability. 1-conceivability concerns primary intensions. Intensions are functions from possible worlds to extensions. A term's primary intension assigns to it an extension comprising whatever has the kinds of characteristics a speaker would use to fix the referent of that term in the world the speaker inhabits. For example, the primary intension of 'water' assigns to it an extension comprising (roughly) all the clear, colorless, odorless, drinkable liquid that fills rivers and oceans in the speaker's world. To 1-conceive that P is to understand all the terms in P according to their primary intensions, and to conceive how things would be if P were true. An ideal 1-conception, moreover, is not superficial or *prima facie*, as Chalmers put it, but the kind of conception that would be achieved on ideal rational reflection.

Primary intensions interest Chalmers because determining a term's primary intension can be done *a priori*; it requires no empirical investigation, but only armchair reflection on the term's meaning (Chalmers 2004). Reflecting on something in this way, he maintains, is a guide to whether it is 1-possible—whether it is possible, that is, if all its terms are understood according to their primary

intensions. It is 1-conceivable, for instance, that the primary intension of ‘water’ might assign to it a referent other than H₂O; we can conceive of a world in which the clear, colorless, odorless, drinkable liquid that fills rivers and oceans is not H₂O but XYZ. It is thus 1-possible for water to be XYZ. Premise (2) thus claims that if P & ~Q is ideally 1-conceivable, then it is 1-possible.

According to Premise (3), however, if something is 1-possible, then it is 2-possible as well. 2-possibility concerns a term’s secondary intension which assigns an extension in all counterfactual worlds comprising whatever satisfies the term’s primary intension when the speaker’s world is treated as actual. In our world, for instance, the secondary intension of ‘water’ assigns the extension H₂O in all counterfactual worlds. In the case of ‘water,’ the term’s primary and secondary intensions might assign different extensions, for it is possible for something to resemble water in all its reference-fixing respects without being water. But according to Premise (3), P and Q are different. According to Chalmers it is not possible for something to resemble consciousness in all the respects that fix the referent of ‘consciousness’ without being consciousness. The case for P being this way is harder to make out. It will follow if a property’s theoretical roles are essential to it—if it is impossible for different properties to play the role that, say, mass plays in different possible worlds. Given reasonable assumptions, this follows from the metaphysics of powers that hylomorphists endorse, and in that case, hylomorphists will be committed to something like Premise (3): if it is 1-possible for the world to be physically exactly as it is and yet not to include a particular phenomenal truth, then it will be 2-possible for the world to be physically exactly as it is in fact and yet not to include a particular phenomenal truth. I’ll say more about the hylomorphic metaphysics of powers in a moment.

Finally, Premise (4) claims that if P & ~Q is 2-possible, then materialism must be false. We agreed for the sake of argument that the kind of hylomorphic theory I described earlier is committed to materialism; consequently, hylomorphists are obliged to reject one of Chalmers’ premises. Elsewhere, I’ve described their response in detail; it is similar to the responses advanced by some physicalists (Author 2016). Depending on how ‘conceivability’ and related terms are defined, they will target either (1) or (2). Given Chalmers’ preferred definitions, they will reject (2). Our conceptions of things, they say, needn’t correspond to genuine possibilities. This too is an implication of their metaphysics of powers.

If properties are powers, then they have essentially the causal roles that they have actually. To be a power is to be essentially a causal enabler and a causal explainer. A power essentially enables individuals to enter into causal relations with individuals having reciprocal powers, and it explains

the causal relations into which they enter in fact. What distinguish powers from each other, on this view, are the kinds of causal relations they enable and explain: two powers cannot manifest themselves in the same ways in all possible circumstances. If Power_1 and Power_2 are distinct, there must be some possible circumstance in which Power_1 and Power_2 manifest themselves differently. Suppose that a 's having P_1 and b 's having P_2 are reciprocal powers that manifest themselves in way M_i when conjoined under the right conditions, C_j . Every power will comprise a range of possible manifestations like this. If we call that range the power's *manifestation complex*, then this account of powers is committed to the following principle:

$\text{Power}_1 = \text{Power}_2$ if and only if the manifestation complex of $\text{Power}_1 =$ the manifestation complex of Power_2 .

A view of powers along these lines implies that natural necessity is a species of metaphysical necessity. The powers that exist in the actual world constrain the space of metaphysically possible worlds. Consequently, determining whether something is metaphysically possible requires determining what powers actually exist, and determining that is a largely an empirical undertaking. It follows that if we deploy our concepts a priori even under ideal circumstances, the conceptions we form might fail to disclose what is possible.

Chalmers says that a view like this is committed to strong necessities:

...an a posteriori necessity [S] is a... *strong necessity*, iff S has a necessary primary intension... What would a strong necessity involve?... One could put the matter by saying that there is an epistemically possible *scenario* verifying [\sim S], but no metaphysically possible world verifying [\sim S]. Here a scenario can be understood as corresponding to a maximal a priori coherent hypothesis, in the way that worlds correspond to maximal metaphysically possible hypotheses... When S is a strong necessity... there will be a scenario verifying \sim S, but this scenario will correspond to no metaphysically possible world... [T]he space of... metaphysically possible worlds is *smaller* than the space of epistemically possible scenarios... [T]here are scenarios that correspond to no worlds... [T]here will be a *scenario* verifying P & \sim Q, including various specific zombie scenarios. But these scenarios will correspond to no metaphysically possible world (2009: 325 – 27).

Chalmers advances six reasons for rejecting strong necessities:

(i) strong necessities cannot be supported by analogy with other a posteriori necessities; (ii) they involve a... radical sort of a posteriori necessity... requiring a distinction between conceptual and metaphysical possibility at the level of worlds; (iii) they lead to an ad hoc proliferation of modalities; (iv) they raise deep questions of coherence; (v) they will be brute and inexplicable; and (vi) the only motivation to posit a strong necessity in the mind-body case is the desire to save materialism (2009: 327).

Hylomorphists can make short work of claims (v) and (vi), for the strong necessities that hylomorphism postulates are not brute and inexplicable, as (v) says; they are instead implied by more fundamental hylomorphic principles (Author 2016).¹⁷ Something analogous is true of claim (vi): if strong necessities in the mind-body case follow from basic hylomorphic principles, they are not introduced simply to save materialism.

The other considerations Chalmers advances against strong necessities center around claim (ii). According to him, strong necessities require us to distinguish conceptual from metaphysical possibility. If this were the case, then worries (iii) and (iv) would likely follow. But according to hylomorphists, their own postulation of strong necessities does not depend on distinguishing conceptual from metaphysical necessity. Rather, they say, some of our conceptions correspond to no possibilities at all—neither metaphysical possibilities nor possibilities of other sorts.

There are numerous ways in which the conceptions we form can fail to disclose what's possible. First, our concepts can be inaccurate: we can believe falsely that a concept includes a condition it actually excludes, or that it excludes a condition it actually includes. Someone might believe incorrectly, for instance, that being a bachelor implies being a woman or being married.

Second, our concepts can be inadequate: we can fail to grasp the full range of conditions for correctly deploying a concept. Someone might know that being a bachelor implies being male but believe incorrectly that being a bachelor has no implications for one's married status.

Third, even if we have concepts that are accurate and adequate, we can still fail to deploy them correctly. We might know fully the conditions under which the concepts *BACHELOR* and *MARRIED* are correctly deployed, or the conditions under which the predicates 'is a bachelor' and 'is married' are correctly applied, and yet utter the sentence 'Richard is a married bachelor' or think that Richard is a married bachelor. There are at least two circumstances in which we might do this.

First, it could be the case that even though we fully and accurately grasp the conditions for correctly deploying the concepts or applying the predicates, we might fail to appreciate that one of them implies the negation of the other. Roy Sorensen provides an example:

I long believed that ‘The American Thanksgiving Holiday is on the last Thursday of November which is the fourth Thursday in November’. Only in November 2000, which contains five Thursdays, did I realize that these two definite descriptions only partially overlap. Of course, I long knew that November has more than twenty-eight days and that there are only seven days in a week and that the first day of the month cycles forward each year. But I did not pull together all of these analytical truths (2003: 340).

When we deploy various concepts, we can fail to draw out their implications for each other—fail to pull them together, as Sorensen says.¹⁸ In cases like this, the conceptions we form needn’t correspond to genuine possibilities.

In addition, we can alter the force with which we say or think that Richard is a married bachelor. If Richard is a notorious philanderer, we might say this as a joke. In doing so we do not intend for our audience to interpret the utterance as a literal assertion of contradiction; we instead intend for them to follow Gricean (1989) maxims of communication and find a coherent message in what is uttered. We are able to do so because the conditions for correctly applying the predicate ‘is a bachelor’ comprise more than simply being unmarried; they also comprise, we might suppose, an association with certain stereotypical bachelor behaviors. This association enables our utterance to retain some cognitive significance, and it is because of this residual cognitive significance that we can reasonably expect an audience to get the joke. We are thus capable of using an expression to achieve a communicative end even if not all the conditions for correctly applying the expression are satisfied in a particular case. In the joke example we do this by consciously ignoring some of the conditions for correctly applying the predicate ‘is a bachelor’. What we do with predicates we can also do with concepts: we can perform acts of conceiving in which we can put some of the conditions for correctly deploying a concept out of play. We put various powers out of play when conceiving of characters like Superman, such as the powers of surrounding materials that would inhibit the kinds of things we imagine Superman doing. When we put conditions for correctly deploying our concepts out of play, the conceptions we form needn’t correspond to genuine possibilities.¹⁹

Someone might object that in the Superman case we put conditions out of play intentionally; we actually choose to ignore them, but no such thing happens when we conceive of $P \ \& \ \sim Q$; we do not take ourselves to be putting any of the relevant conditions for correctly deploying our concepts out of play, and so the cases are disanalogous. What we do intentionally, however, we can also do unintentionally. We needn't intend to put conditions for deploying a concept out of play in order to do so, and this is perhaps what happens when some people conceive of zombies or inverted spectra: they put out of play conditions for correctly deploying psychological and/or other concepts not by choice, but unknowingly and unintentionally.

The cases of inaccurate and inadequate concepts, of failed deployments, and deployments that put conditions out of play, involve the content of our acts of conceiving. But we can also commit metaconceptual errors in judging what is possible. Eric Marcus (2004), for instance, argues that the claim that qualia zombies are conceivable commits an act-content fallacy: it mistakes the act of conceiving something while refraining from conceiving its conscious states, on the one hand, for the act of conceiving something that lacks conscious states, on the other. To conceive of a qualia zombie is to conceive of a human from a third-person vantage point while at the same time not conceiving of it from a first-person vantage point. It is to conceive of something in third-personal terms while at the same time refraining from conceiving of it in first-personal terms. But if we can conceive of humanlike beings who are third-personally indistinguishable from us without conceiving of their first-personal conscious states, it does not follow that we succeed in conceiving of beings who are third-personally indistinguishable from us but who lack first-personal conscious states. By analogy, he says,

No one would argue that to imagine a happy family without imagining their toes is to imagine a toeless happy family. Similarly, it does not follow from the fact that we can imagine creatures third-personally like us without thereby imagining what it's like to be them, that we have imagined creatures third-personally like us whom there's nothing it's like to be (2004: 482–84).

I've just described a number of ways in which we can form conceptions that do not correspond to any metaphysical possibilities: (a) deploying concepts that are inaccurate or inadequate; (b) deploying concepts incorrectly; (c) putting out of play conditions for correctly deploying those concepts; (d) committing metaconceptual errors such as act-content fallacies.

Hylomorphists needn't insist that the same kind of error is committed in every case in which someone purports to conceive of $P \ \& \ \sim Q$. It is possible for one person to commit error (a) when she conceives of $P \ \& \ \sim Q$, for another person to commit error (b) when he conceives of $P \ \& \ \sim Q$, and even for one and the same person to commit different errors on different occasions. But however these errors might occur, the important point is that when people form conceptions in any of these ways, their conceptions fail to correspond to what is genuinely possible.

The assumption that motivates Chalmers' claim (ii) is that our conceptions must correspond to possible situations—if not metaphysically possible situations, then at least epistemically possible ones, which Chalmers calls 'scenarios'. Chalmers tells us, "My view is that for every scenario there is a corresponding world" (2009: 327). Call this claim *concept-world correspondence* (CWC). Given CWC, it is easy to see how the postulation of strong necessities would lead to a distinction between metaphysically and conceptually possible worlds: if all our conceptions must correspond to possible worlds, and some of those conceptions correspond to no metaphysically possible worlds, then there must be possible worlds of some other, broader sort to which those conceptions correspond. If we reject CWC, however, this result does not follow. If, moreover, there is no division between worlds that are metaphysically possible and ones that are possible in some broader sense, then there are no attendant worries about coherence, as (iv) says. Nor is there an ad hoc proliferation of modalities, as (iii) says. Finally, if the hylomorphic commitment to strong necessities follows from more basic hylomorphic principles, and not on drawing analogies with familiar a posteriori necessities, then (i) does not appear to be a worry either.

The core of the hylomorphic response to Chalmers' argument, then, is to endorse strong necessities and to reject CWC. Hylomorphists claim that there are many ways of deploying concepts that correspond to no possible situations, and if that is the case, then Premise (2) of Chalmers' argument is false. Even if $P \ \& \ \sim Q$ is ideally 1-conceivable, it does not follow that $P \ \& \ \sim Q$ is 1-possible.

9. A final objection

It is worth considering a final objection to the hylomorphic account. Critics might say that the criticisms I've advanced against arguments like Chalmers' do not require a commitment to hylomorphism, that physicalists are free to adopt similar strategies *mutatis mutandis*. Physicalists are

free to say, for instance, that people in Mary's position lack the relevant background knowledge to understand descriptions of lower-level physical processes, or that people who conceive of $P \ \& \ \sim Q$ are committing some type of conceptual error. If that is the case, say critics, then hylomorphism does not offer any special insight into the hard problem or how to solve it.

Hylomorphists have several things to say in response. First, the objection does nothing to challenge the main thesis I've looked to defend, namely that the conception of consciousness that motivates the hard problem is implicitly committed to rejecting a hylomorphic worldview. That conception might also be implicitly committed to rejecting many other worldviews as well including a physicalist one. Demonstrating that is an interesting task that physicalists are welcome to undertake, but it is not a task that falls within the scope of this paper. The goal of this paper has not been to advance a comprehensive defense of the hylomorphic view, nor to advance an argument that hylomorphism is superior to physicalism, nor even to advance an argument in favor of hylomorphism. The goal has instead been to argue that hylomorphism does not face a hard problem of consciousness, and as a result, someone who insists that there is a hard problem is tacitly committed to rejecting hylomorphism.

Second, hylomorphists are not committed to saying that every other philosophical position gets things completely wrong. Just as Kantians and Utilitarians might agree that a particular action is morally permissible (albeit for very different reasons), something analogous will be true of hylomorphists and physicalists. Both will agree, for instance, that substance dualism is false or that Chalmers' argument is flawed, and in some cases, they might even agree on the reasons. Learning about these points of convergence is interesting in its own right, and fosters mutual understanding and fruitful dialogue that focuses on real and not merely apparent similarities and differences. Moreover, points of convergence with physicalism could prove to be assets for hylomorphism. There might be many reasons to reject physicalism independent of anything to do with consciousness. If there are, and if those reasons do not also cut against hylomorphism, then the latter offers physicalists an attractive fallback position, one that does not require them to abandon the positions they originally took on arguments like Chalmers'.

Finally, even if physicalism and hylomorphism converge on some points, they do not converge on all points for some of the reasons I've articulated. Hylomorphism of the sort that I've considered implies that physicalism is false because it implies that not everything can be exhaustively described and explained by physics. We saw that this marked important points of divergence

between the theories when it came to the knowledge argument, and those points of divergence might eventually weigh in hylomorphism's favor.

10. Conclusion

I have argued that the hard problem of consciousness does not arise within a hylomorphic framework. It arises only for a view of the natural world that rejects hylomorphic structure. If conscious experiences are structured activities, as hylomorphism claims, then they can be exhaustively accounted for by describing the powers of conscious beings, the subsystems in which those powers are embodied, and the kind of coordination or structure that unifies the activities of those subsystems into conscious events. To insist that such a description fails to capture phenomenal character is analogous to an obstinate vitalist claiming that a physical description must fail to explain life because it fails to accommodate vital spirit. The obstinate vitalist's position depends on a prior commitment to vitalist theory, and in the same way Chalmers and other exponents of the hard problem of consciousness are implicitly committed to rejecting a hylomorphic worldview.

Chalmers advances what is ostensibly a non-question-begging argument that a view like the hylomorphist's cannot account for consciousness, but that argument depends on premises that the hylomorphist rejects. The conception of consciousness that motivates the hard problem is just as theory-laden, therefore, as the conception of life that motivates the obstinate vitalist.

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¹ Schaffer 2009; Sider 2012.

² Worrall 1989; Ladyman and Ross 2007.

³ See, for example, Chalmers 2002: 258.

⁴ As Kit Fine says, the only way of defining a framework's basic concepts is, "to specify the principles by which [they are] governed" (2008: 112).

⁵ I've described the view in terms of an example borrowed from Aristotle, but the outlines of the account are the same whether basic physical materials are earth, air, fire, and water, as Aristotle thought, or something else.

⁶ Mark Johnston (2006: 672-3) and Aristotle (*Metaphysics* 1041b11-31) both advance arguments along the lines I sketch here albeit with a different focus.

⁷ Elsewhere I've argued that properties are best understood as tropes—particularized properties (Author 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 can make it seem as though there must be an entity, a universal, which the two 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. Tropes are often conceived as accidental modes of the substances having them. The case of an individual's structured activity, however, is different since it is not accidental to the substance having it. Rather, it is, to use the Aristotelian expression, what the very being of the structured individual consists in.

⁸ In the literature on tropes, this is expressed in the claim that tropes are non-transferrable, that is, each belongs essentially to its bearer (Heil 2003: 141–2; Molnar 2003: 43–46; Martin 2007: 44). It is not possible 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 belongs essentially to *a*, and *b*'s redness belongs essentially to *b*.

⁹ The term 'principle' here translates the Greek term *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 it designates a source, origin, or starting point for explanation—that is, what is responsible for explaining something.

¹⁰ 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.

¹¹ The notion of reciprocal powers is defended by a variety of authors including Heil (2005), Martin (2007), Mumford and Anjum (2011) Author (2014, 2016), and Marmodoro (2017).

¹² In general, we might define embodiment this way: Let a be a structured individual with the power to engage in activity A , and let b_1, b_2, \dots, b_n be individuals, a subset of which are proper parts of a . Suppose now that a 's A -ing at a time would be composed of the b s manifesting their powers A -wise at that time. In that case, a 's power to A is embodied in those b s which are proper parts of a ; those b s embody a 's power to A .

¹³ This seems to be confirmed by experiments with inverted goggles which disrupt a perceiver's regular pattern of sensorimotor engagement with the environment (Taylor 1962; Kohler 1964).

¹⁴ Daniel Stoljar (2010) has gone the farthest in defending a definition of physicalism along these lines. According to Stoljar, physicalism is the thesis that, "[E]very instantiated property is necessitated by, and not metaphysically distinct from, some physical property" (2010: 235). I've argued that this definition is inadequate in multiple respects (Author 2016).

¹⁵ Another difference is that Chalmers understands the contributions of lower-level subsystems to higher-level behavior in terms of the performance of causal roles, not in terms of the unifying activity of a composite whole. Elsewhere I've described in detail the various ways in which Chalmers' notion of reductive explanation differs from the way in which hylomorphists conceive of explanations that appeal to physiological mechanisms (Author 2016).

¹⁶ Chalmers' fully developed version of the argument includes a technical wrinkle that requires him to add a disjunct about Russellian monism to Premise (3): If $P \ \& \ \sim Q$ is 1-possible, then $P \ \& \ \sim Q$ is 2-possible or Russellian monism is true. The argument thus concludes that either materialism is false or Russellian monism is true. This wrinkle needn't concern us here, so I've presented a streamlined version of the argument.

¹⁷ Roughly, the line of reasoning is as follows: on the hylomorphic view, properties are sparse in Lewis' (1983a) sense: the only properties that exist are ones that make a causal difference to their bearers. On the hylomorphic view, moreover, sparse properties are powers, but if sparse properties are powers, then given reasonable assumptions, natural necessity is a species of metaphysical necessity. What is true of hylomorphism, moreover, is true of any view with similar commitments to sparse properties and powers. Given reasonable assumptions, any such view will imply strong necessities. The latter are not introduced ad hoc, as Chalmers would have it, but on a principled basis. I discuss these points in greater detail in Author 2016.

¹⁸ Something analogous happens when viewing visual paradoxes like Istvan Orósz's *Il Cavallo* which adorns the jacket of Gendler and Hawthorne 2003. There is nothing paradoxical about the

individual elements of the drawing. Paradoxes arise only when we put the various elements of the drawing together and try to see them as depicting a scene that could actually exist.

¹⁹ Someone like Chalmers might insist that when we conceive of characters like Superman we are conceiving of possible worlds with different laws of nature. Recall, however, that according to hylomorphists natural necessity is a species of metaphysical necessity. If this is the case, then there are no possible worlds with different laws of nature. When we imagine characters or scenarios that violate natural laws, we do not succeed in conceiving worlds that are metaphysically possible, nor do we succeed in conceiving worlds that are possible in some other sense.