

BETWEEN PHYSICALISM AND MENTALISM: PHILIP CLAYTON ON MIND AND EMERGENCE

by James W. Haag

Abstract. Philip Clayton's work on emergence is a valuable contribution to the fields of religion, science, and philosophy. I focus on three narrow but extremely important areas of Clayton's work. First, Clayton deems that Terrence Deacon's emergence theory is difficult to accept because it is constructed from thermodynamics, thereby rendering it unable to address phenomenological issues. I examine Deacon's theory and show that development from a physics base is warranted. Furthermore, Clayton does not convincingly demonstrate that such a constructive approach is necessarily incapable of attending to mental phenomena or offer an alternative that explains the causal power of a physically nonconstructible mental realm. Second, I argue that Clayton's notion of emergentist supervenience for comprehending the mental/physical relation is unnecessarily redundant and problematic in relation to causal power. Third, I explore Clayton's alternative use of agent causation to make sense of mental properties having causal power in the world. His effort to resolve emergence difficulties by appealing to phenomenology receives primary attention. Clayton's use of emergence theory is an important contribution to the religion-and-science community, and I encourage further dialogue on the exchange that Clayton commences.

Keywords: agent causation; emergence; emergentist supervenience; morphodynamics; phenomenology; strong supervenience; teleodynamics; thermodynamics; weak supervenience.

The somewhat simple task of writing this article presents us with an explanatory dilemma, depending on one's point of view. For the reductive physicalist, even describing the process as writing or explaining is superfluous. After all, the important information, such as my presence, the language I use, and the reader's ability to perceive my words are really only the

James W. Haag is a Ph.D. candidate, Graduate Theological Union, 5824 College Ave #4, Oakland, CA 94618; e-mail jameshaag@hotmail.com.

[*Zygon*, vol. 41, no. 3 (September 2006).]

© 2006 by the Joint Publication Board of *Zygon*. ISSN 0591-2385

determinative result of a near infinite number of microphysical causes leading back to the Big Bang. Pretending that there is more to explain than the microphysics of particle-field interactions results from an unfortunate illusion. Others feel equally justified in ignoring the physicist's account altogether, because it is my irreducible mental activity that does all the work, with the physics serving only as a neutral medium of embodiment. As dualists, they maintain the separation between the mental and physical; thus, although my writing this essay changes the biophysics in your brain and mine, these changes are merely correlated with the mental work but do not contribute to its meaning-creating functions. These extreme positions create what appears to be an unbridgeable gulf.

In what follows, I consider how Philip Clayton attempts to navigate this gulf to locate a middle ground. I focus on three narrow but extremely important areas of Clayton's work on emergence. First, Clayton deems that Terrence Deacon's emergence theory is difficult to accept because it is constructed from thermodynamics, thereby rendering it unable to address phenomenological issues. I examine Deacon's theory and show that development from a physics base is warranted. Furthermore, Clayton does not convincingly demonstrate that such a constructive approach is necessarily incapable of attending to mental phenomena or offer an alternative that explains the causal power of a physically nonconstructible mental realm. Second, I argue that Clayton's notion of emergentist supervenience for comprehending the mental/physical relation is unnecessarily redundant and problematic in relation to causal power. Third, I explore Clayton's alternative use of agent causation to make sense of mental properties' having causal power in the world. His effort to resolve emergence difficulties by appealing to phenomenology receives primary attention.

Clayton's use of emergence theory is an important contribution to the religion-and-science community. My comments are intended to encourage the exchange that Clayton commences.

THE DYNAMICS OF EMERGENCE

On the topic of emergence, Clayton describes Deacon's work as "the most sophisticated scientific theory of emergence currently available" (2004, 46). Clayton affirms Deacon's preciseness but criticizes his approach for the predominant role that physics plays in this theory. Clayton fears that a theory predominated by physics treads too closely to reductionistic explanations and is unable to affirm genuinely new types of emergence. Clayton also argues that Deacon articulates only three levels of emergence, while Clayton seeks an open-ended hierarchy. However, their uses of the term *levels* of emergence are substantially different. Deacon's levels are constructions based on recursive logic; Clayton's levels appear to be based on a descriptive phenomenology. This makes straightforward comparison difficult.

Of these two critiques, I give attention to the role physics plays in Deacon's theory and suggest that Clayton has not explained how Deacon's physical basis undermines the upward emergence of causal power. Furthermore, I claim that Deacon's position is not limited by physicalism and that Clayton has misdirected this particular critique.

In order to assess this argument, it is important to briefly survey Deacon's complex theory of emergence. Deacon attempts to rethink causality in such a way that the appearance of purpose, or *telos*, in the universe can be affirmed and naturalized. He contends that the emergence story provides the most robust means for achieving this end. For Deacon, this means exploring the dynamics of emergence as a naturalistic, or "bottom-up," process. He believes that the affirmation of semiotic processes, which provide the framework for dealing with such human dilemmas as intention, desire, meaning, and even morality, may be achieved only by showing how their distinctive causal features may be constructed from similar casual processes. Deacon's central contribution is the exploration of the dynamics that lead to these emergent forms of causality in order to precisely identify the inflection points where causal patterns diverge. Deacon understands emergence to be "unprecedented global regularity generated within a composite system by virtue of the higher-order consequences of the interactions of composite parts" (Deacon in press).

To articulate this definition, Deacon develops an intricate three-level system of "orders" of emergent dynamics to address these transitions in the world. The character of first-order emergence is termed *thermodynamics*, which is the level of physics as usual. He uses surface tension as an example of first-order emergence. The effect of surface tension is applicable to water but not to individual water molecules. That is, the pattern of interactions between vast numbers of water molecules results in surface tension, but this is neither water-specific (many kinds of molecules exhibit surface tension) nor evident in any precise interactions of water molecules. It is a property of the statistics of very large numbers of interactions and not of individual molecules or individual interactions. The statistical character of these interactions results in an amplification of the relational properties because of the way "certain of the regularities of molecular interaction relationships add up rather than cancel one another" (Deacon 2003, 288). The uncorrelated parts (water molecules) begin to exhibit patterns with global correlation (surface tension). Deacon emphasizes, following Ilya Prigogine and others, that thermodynamic emergence is not simply a mechanistic story, because the dynamics of molecular interactions are time reversible, while the emergent dynamics are not; hence, a causal inflection.

Deacon continues with second-order emergence, termed *morphodynamics* because it involves transformations of form. A central concept is the notion of self-organization. The conditions under which first-order emergence occur may include those that continually perturb the stability of

first-order emergent properties, thereby creating chaotic conditions in which these “higher-order regularities become unstable, and an unpredictability of higher-order dynamics results” (Deacon 2003, 293). Deacon uses the snow crystal as an example, because it makes visible the effects of continual thermodynamic change in its growth. The snow crystal’s formation as it falls through the atmosphere is based on ice-crystal lattice growth, which is affected by temperature and humidity changes. One could describe the fallen snow crystal as a historical record of its diverse growing conditions captured in its form. However, Deacon emphasizes, the snow crystal cannot be adequately described as merely a historical record of specific atmospheric dynamics. As the snow crystal takes on new mass and heat, there is a generation of new form that constrains the possibilities of future forms. Deacon writes, “Even identical conditions of temperature and humidity, which would otherwise determine identical lattice growth, can produce different global patterns depending on the current configuration of the crystal” (2003, 295). The point is that earlier stages of the crystal’s growth have more influence on global form than later stages. Deacon compares this dynamic of amplification to the commonly understood notion of compound interest. What is important about compound interest is that “it feeds something of the whole thing back into the parts” (Deacon 2000, 26). The form of the snow crystal constrains how its parts will be organized. Morphodynamics articulates that prior form matters for the production of future form and is often irrespective of specific material or energy.

Third-order emergence is a far more complex level, because it necessarily involves both lower orders of emergence in order to explain the transition from self-organization to life and representation. Deacon refers to this level as *semiodynamics* or *teleodynamics*, because it is where causal explanations involve semiotic and end-directed dynamics. The addition of information or memory distinguishes third-order from second-order emergence. Deacon uses a somewhat fanciful twist on the snow-crystal story as an example. Imagine that, instead of simply melting, the snow crystal is able to supply something of its form to the development of another snow crystal—a sort of seed crystal. This illustrates how semiotics plays a role in third-order emergence. In this story, the crystal seed has the ability to represent some feature of a past, whole crystal in the process of new crystal formation. One can describe this as a second-order system (the snow crystal) providing the seed for a new second-order system. Most important, this seed provides the new system with an initial formal bias—a head start, so to speak, in forming one type of crystal. Deacon describes this when he writes, “Analogous to the ampliative architectures that occur via ascent in scale in second-order emergence, there is now the possibility of ampliative architectures via ascent in temporal scale” (2003, 298). This spontaneous acquiring of a second-order system happens across time, thereby exhibiting an evolutionary character. The second-order seed that is taken into

third-order emergence is the passing of information and embodies representation in a fundamental way. This process leads Deacon (in press) to describe third-order emergence as “autopoiesis of autopoiesis.” Third-order emergence is the ground upon which Deacon believes one can build an understanding of symbolic communication and the foundation of meaning. He does not equate such simple systems as the snow crystal with these vastly more complex phenomena. However, he argues that if it is possible to explain how absent wholes can be represented in the production of new complexities, a similar logic should help explain the emergence of higher-order forms of representation. So, Deacon is not as interested in enumerating emergent phenomena or levels of phenomena as he is in the dynamical logic of how they emerge from one another.

This brief overview of Deacon’s position is obviously incomplete, but it provides the background necessary to analyze Clayton’s critique. Clayton argues that “emergence is a pattern that runs on a variety of different platforms,” thereby denying the opportunity for any single scientific theory to provide a complete explanation (2004, 47). Whereas Clayton describes these “platforms” as epistemological in nature (discipline-specific theories), Deacon might use the same language to refer to one level of emergent dynamics (for example, morphodynamics) as the platform from which another (for example, teleodynamics) develops. This again highlights their difference in enterprise. According to Clayton, Deacon fails here because of his reliance on thermodynamics. Another way of posing Clayton’s critique is to question why morphodynamics is not simply reducible to thermodynamics in Deacon’s theory. Deacon alleges that in one sense this reduction is possible. The forming of a snow crystal is impossible without thermodynamic interactions, but, he argues, there is something more at work than merely thermodynamics. Even if the energy involved in the formation of the snow crystal is identical for varying snow crystals, the form of each crystal is still unique. Said differently, a radically different form can be amplified at the same values of temperature and humidity depending on prior form. Deacon argues that this difference between energy and form grounds his contention that morphodynamics represents a different level of causality and is therefore irreducible to thermodynamics alone.

While Clayton’s critique is that Deacon’s theory gives predominance to physics, which is actually correct, Clayton misses the point of Deacon’s argument. The attention to physics is necessary because emergence, as Deacon understands it, requires the thermodynamic emergent process to undermine itself, thereby producing a higher order of emergence. Asserting the necessity of thermodynamics does not entail asserting its sufficiency for explaining emergent phenomena. Apart from the possibility of transcendent mind, which Deacon seems unwilling to contemplate, his analysis of the dynamics of emergence provides a useful move from merely

descriptive categorizations of emergent phenomena toward a lawlike account of what creates the transitions we call emergent.

Deacon describes his orders of emergence as “a hierarchy of increasing topological complexity” (in press). This hierarchy confirms the interconnectedness of the three orders of transition complexity and in this way preserves causal continuity. Thus, teleodynamics is possible only because of form amplification in morphodynamics, which itself is possible only because of canceling tendencies in thermodynamics. This “nested” hierarchy gives thermodynamics predominance because it gets things started. Philosophically said, thermodynamics is necessary for morphodynamics and teleodynamics but does not provide sufficient explanation.

To exclude physical processes from one’s theory involves a fundamental error, and Clayton adheres to this position when he seeks to explain some emergent phenomena. For instance, when dealing with mental properties, Clayton affirms a weak supervenience position. While this position claims that the mental is irreducible to the physical, it also acknowledges the mental’s dependence on the physical. This dependence gives predominance to physics as necessary for a complete explanation of mental properties. As Clayton declares, in language echoing Deacon, “Physics constrains the higher sciences, but it does not replace them” (2004, 171). So, Clayton’s critique of Deacon’s physicalism must be that Deacon’s description of the supervenience relation is too strong. The question is whether Clayton’s is too weak to sustain the causal efficacy of mind he hopes to maintain.

One of Clayton’s basic points is that “the natural world increasingly reveals distinct levels of organization, with each level characterized by its own irreducible types of causal influence and explanation” (2004, 204). Deacon’s dynamics of emergence provide the foundation upon which this reality can be explored. It is one thing to identify emergent phenomena; it is something else to explain how they come about. Deacon attempts a preliminary explanation of how certain causal transitions arise but has not to date extended the analysis to higher forms such as consciousness. Clayton suggests that, in principle, extending Deacon’s analysis may not be possible, but basing this critique on issues of compatibility with physics is not consistently maintained. Clayton’s comments concerning the irreducibility of discipline-specific emergence theories offer a clue that his doubts may instead condense epistemological emergence with ontological emergence. Deacon appears to believe that we can have constructibility without reducibility, while Clayton appears to deny constructibility in either. Although Deacon’s arguments about emergence are applied in detail only to phenomena simpler than life, he argues that investigation of the emergence of life provides the basis for theorizing about how the emergent character of semiotic processes in general come about. However, most of the interest in emergence theories focuses on the mind/body issue rather than the life/matter issue, and this difference in focus may have relevance for Clayton’s emphasis.¹

EMERGENTIST SUPERVENIENCE

Clayton argues that the best way to conceive of the mind/brain relationship is by way of emergentist supervenience.² In relation to the philosophy of mind, one might question whether Clayton accepts supervenience and uses the concept of emergence to explain how its “weakness” is to be understood or whether he is an emergentist who uses supervenience to strengthen a necessary continuity with physical causality. I contend that, in either case, Clayton’s attempts to apply supervenience criteria introduce redundant and unnecessarily problematic causal confusions into his concept of emergence.

Adapting Jaegwon Kim, Clayton splits supervenience along the lines of weak and strong. Strong supervenience maintains that the subvenient level, in this case the brain, tells the full causal story. That is, there is no room for causal powers to be granted to the supervenient level, in this case the mental. This is the commonly acknowledged stance regarding supervenience. A favorite example that philosophers often use to illustrate their points about the mind/brain relation is pain. If pain is experienced at the supervenient level, it must be instantiated at the subvenient or physical level. As Kim states, “Any two things that are exact physical duplicates necessarily are exact psychological duplicates” (2000, 10). Said differently, mental change does not occur without an associated physical change. Many physicalists accept this position as a way to avoid the critique of denying mental phenomena while not subscribing to a version of dualism. Strong supervenience acknowledges the mental without giving it any power, be it ontological, causal, or explanatory. But, according to Clayton, strong supervenience is unacceptable precisely because it represents “a *de facto* epiphenomenalism” and “epiphenomenalism makes no evolutionary sense” (2004, 125, 101). Presumably, his point is that the very fact that mental processes have evolved is *de facto* evidence that they *do* something, since natural selection would not have favored such extensive elaboration of a useless trait.

Not only is strong supervenience unhelpful because it ignores any notion of mental causation or power, it also is based on accepting a misleading token-token relationship between mental and physical phenomena. This is untenable because it assumes that the relationship between mental and physical properties is basic and straightforward. Token-token theories assert that specific mental states supervene on specific brain states. In the pain example, the specific token of pain would be correlated with a specific token brain state. Most emergence theories, however, invoke the multiple-realizability thesis, which says that differing physical states can produce the same token or pain. That is, if one identifies a variety of physical tokens that give rise to a specific pain token, a simple one-to-one correlation is unfeasible. A token-token identification not only diminishes the complexity of the relation between the physical and mental, it

also, as Clayton notes, effectively removes any causal power from the mental. Strong supervenience not only prevents mental causation by definition but also reinforces this position by introducing the specter of redundant causality.

For Clayton, strong supervenience, and the redundancy of the mental that it implies, is therefore incompatible with the very existence of mental capacities. The weak supervenience he prefers also declares that supervenient phenomena are dependent upon subvenient phenomena, thereby agreeing with strong supervenience, but places a strong emphasis on the irreducibility of the supervenient phenomena. Thus, pain is dependent upon its physical base, but pain is not identical to that base. According to Clayton, this irreducibility sustains the causal efficacy of mental phenomena. Another way of describing weak supervenience is as contingent supervenience—that is, the same physical properties tend to instantiate the same mental properties, but this is a contingent relationship, not a necessary one. In other words, one cannot necessarily predict from a specific mental state its specific physical embodiment or vice versa, though there are constraints on their correlations that prohibit any arbitrary correlation.

Ansgar Beckermann makes the argument, following Kim, that weak supervenience is too weak to sustain a basic notion of dependence of supervenient properties upon its subvenient base. He contends, “If supervenience really was a dependency relation it should support counterfactual claims” (Beckermann 1992, 96). Thus, if it is possible to conceive of a world in which two objects are identical in their physical bases but differ in their supervenient properties, as contingent supervenience allows, the dependency relationship upon which supervenience relies is too weak.³ But weakness is a relative matter. For example, there are many physical ways that my computer can encode the letter *e* in its memory, and all are functionally equal from my point of view, but none of them may be exchanged with the encoding for the letter *k* without undermining this functional reliability. Presumably, everything depends on the specification of what is entailed in the term *weakness*, which is why simply contrasting weak with strong supervenience offers little insight, whereas a constructive theory at least specifies the nature of the linkage.

Clayton adopts weak supervenience because it allows for increased attention to evolutionary explanations and not merely explanations from the perspective of microphysical events. That is, weak supervenience may replace token-token correlations with type-type relationships. Clayton believes that we must look for types of mental phenomena to relate to types of brain states. Based on the multiple-realizability thesis, type-type theories hold to the notion that neuroscientific results will not find specific relations between individual brain functions and specific mental phenomena.⁴ Not only does this approach acknowledge the complexity of mental/physical connection, it works to include evolutionary explanations.

Clayton believes that emergence theory, with its introduction of an evolutionary perspective, supplements the concept of weak supervenience, thereby making it a viable option in the philosophy of mind.

Clayton identifies a critical contribution of this evolutionary-emergence approach with the recognition of a synchronic/diachronic distinction that tends to be bracketed out of discussions of supervenience relationships. In this way, both Clayton and Deacon have a kinship with early twentieth-century British evolutionary emergentists such as Conway Lloyd Morgan, C. D. Broad, and Samuel Alexander, all of whom emphasized the role played by time in emergent processes. An explanation that is limited only to a discussion of natural relationships that occur simultaneously, while interesting, is ultimately bound to fail to make sense of the vast majority of physical relationships that are of a process nature. When one claims to identify a slice of time and its corresponding occurrence, one immediately simplifies the analyzed relation. As Clayton writes, again in terms echoing Deacon, "Mental properties depend on the entire natural history that caused increasingly complex brains and central nervous systems to evolve, as well as the physical state of the organism at a particular time" (2004, 127). Deacon's theory understands mental (teleodynamic) processes as irreducibly extended across time but also identifies this attribute at the intermediate (morphodynamic) level. In fact, the different way these two levels of processes extend across time is crucial to his distinction between these levels. Teleodynamic processes, like semiotic and evolutionary processes, can link form relationships that are discontinuously distributed in time, while morphodynamic processes must be temporally contiguous. Clayton also argues that the most relevant emergent properties are the result of interactions across time, although he does not recognize Deacon's additional distinction of differences in temporal dependency. For both thinkers, including evolutionary history along with more immediate antecedent causes is essential for explaining the emergence of mental phenomena. The use of synchronic and diachronic perspectives addresses mental phenomena as emergent within the course of natural history. Simply put, time matters.

Clayton's attention to the dependence and irreducible relation between the physical and mental, his focus on type-type theories, and his focus on both the synchronic and diachronic reflect his strong commitment to emergence theory. At one point Clayton states, "From the perspective of emergence, mental events manifest a type of property, one whose existence depends on another type of property, the neurophysiological states of the organism" (2004, 126). His understanding of emergence expresses the weak-supervenience claim that all phenomena have a physical explanation, but some phenomena are not fully explained in microphysical language. He is presumably reacting to the limitations of supervenience theory when he appeals to the necessary role of historical and evolutionary processes. To emphasize this incompatibility, Deacon lightheartedly asks

whether humans are supervenient upon dinosaurs (2005). Supervenience theory assumes that one need only consider the subvenient and supervenient states of things at time t_1 , but, as noted above, this does not tell the full story. Causality happens across time, and neither weak nor strong supervenience deals with the history of the phenomena under consideration. So, fundamental confusions might result from the assumption that causal implications can be drawn from a purely synchronic foundation. Clayton may be correct that weak supervenience says something about specific phenomena, but it provides more of a description than an explanation. As Deacon notes, "Mind cannot be adequately described in terms that treat them as merely supervenient because this collapses innumerable convoluted levels of emergent relationships" (2003, 304). In describing his weak supervenience, Clayton uses the language of emergence: "One level of phenomena or type of property (in this case, the mental) is dependent upon another level (in this case, the biological or neurophysiological), while at the same time not being reducible to it" (2000, 7). Yet, Clayton's appeals to evolution indicate that he recognizes that the supervenience language cannot express the essential distinctions.

With all of the confusion and contention surrounding supervenience theory, it seems wise for Clayton to jettison its use within his theory. He apparently includes weak supervenience because it "grant[s] the dependence of mental phenomena on physical phenomena while at the same time denying the reducibility of the mental to the physical" (1999, 199). It seems, however, that he recognizes that this causal irreducibility depends on diachronically irreducible properties, for which an evolutionary emergence account is required. This makes the weak supervenience tag redundant as well as unnecessarily confusing. At the level of the mental, emergence theory is able to do the heavy lifting.⁵

AGENT CAUSATION

Clayton develops weak supervenience because it allows for the inclusion of mental causation. However, the inclusion of mental causation as a fundamental tenet can be tricky, because it begs the very question that is at stake: Why is every mental cause also invariably associated with a specific physical cause but not vice versa? Dualists are unfazed by the second part of this question because the mental can act apart from the physical, but this undermines its ability to answer the first part. Physicalists ignore this question because the mental is denied any causal power, but, as Clayton argues, this is inconsistent with the existence and evolution of the experience of mental agency. Thus, Clayton must navigate a middle ground between these extremes.

Clayton believes that mental properties require causal power to avoid eliminative physicalism. However, he works to avoid dualism and the floating away of these powers into some nonphysical realm. The route he chooses

is agent causation.⁶ Traditionally, agency is incorporated as a certain substance that entails certain powers to accomplish specific actions. Clayton emphasizes the importance of resisting the importation of unnecessary metaphysical assumptions about the substantial nature of agency. He posits that any theory of mind that fails to account for the causal power of mental properties is incomplete, but at the same time assuming substantive agency introduces an unexaminable causal attribute. By remaining consistent with his naturalistic approach, thereby avoiding initial confrontation with the empirical sciences, Clayton strives to remain metaphysically minimalist.

Clayton works with a specific and narrow definition of what it means to be an agent. Regardless of one's metaphysical position, Clayton insists, the appearance of mental properties in the world is undisputed; instead, the nature and power of these properties are disputed. Simply stated, Clayton posits the reality and power of mental properties without claiming that this agency derives from new substances with new properties. Phenomenology offers Clayton a language with which to treat mental agency as fundamental while avoiding any substantialist commitments.⁷ He believes that phenomenology "provides a type of analysis that is committed to providing data on mental causation without heavy imports of ontology" (2004, 140–41). This approach maintains that an explanation of the human that includes only the language of physics is doomed to be incomplete; hence his critique of Deacon. We have experiences that, even if illusory, are part of what it means to be human. These phenomenological experiences can be studied without assuming agency by allowing one to bracket out the agent and focus primarily on the experienced phenomena. This is consistent with Clayton's argument for a multiple-platforms conception of emergence. Presumably, he believes that a separate analysis limited to the phenomenal emergence of the mental may shed light on linking this with more physically explicit approaches.

Clayton's metaphysically minimalist position is necessary, because, he claims, the introduction of substantive agents will find only contempt in the scientific community. Agent causation allows Clayton to affirm mental causation as a reality, but with a definitional rethinking. He declares that the agent is best identified as "a set of qualities or mental properties to which we tend to ascribe a unified identify, rather than presupposing from the outset a particular substance with certain essential properties" (2004, 141–42). He describes this approach as an "open-ended study of human agency" (2004, 142). Understanding agency in this manner articulates Clayton's resistance to physics-based explanations. Thus, Clayton's discipline-specific emergent "platforms" demand the inclusion of the social sciences for explaining differing levels of complexity. This means that person-based explanations, which identify humans as psychosomatic unities, will be essential in dealing with human agency.

This focus on the incompleteness of physical explanations is elaborated by Michael Spezio. If one follows Clayton and contends that the mind is emergent, one must affirm that “a set of phenomena is designated as emergent only when an exhaustive description of the underlying physical state of affairs, although necessary, is not sufficient for explaining the emergent properties” (Clayton 1999, 201). Following William James, Spezio argues that only a specific conceptual schema that includes first-, second-, and third-person perspectives is adequate for dealing with human complexity. He describes it as a tripartite schema of human experience, which identifies “the subjective I, the relational You, and the distanced She/He” (Spezio 2004a, 586). The third-person perspective relates to Deacon’s understanding of thermodynamics—that is, causality in the strict scientific and philosophical sense. First- and second-person explanations typically come in the form of reasons.⁸ This is the sort of causation Clayton uses when he investigates the prospects of phenomenology. Phenomenological properties as well as first- and second-person perspectives cannot be judged by a physical or third-person measure. Spezio believes that scientific accounts that favor the third-person perspective are incommensurable with first- and second-person accounts, because science tends to “dismiss compelling first- and second-person experiences not included in its conceptual schema” (2004a, 586). He argues that any conceptual understanding of the human is incomplete if addressed only in the language of physics.

Spezio makes clear that this tripartite schema is not intended to deny the scientific perspective from accounts of human nature; rather, he believes that these accounts are essential if limited to certain contexts. Said differently, any conceptual representation that ignores compelling first- and second-person experiences is bound to be fragmentary. However, any conceptual representation that ignores third-person explanations is equally fragmentary. The tripartite schema relates to Clayton’s assertion that human beings are psychosomatic unities, which adheres to his contention that “the person is a complexly patterned entity within the world, one with diverse sets of naturally occurring properties, each of which needs to be understood by a science appropriate to its own level of complexity” (Clayton 2004, 148). Spezio states that first- and second-person perspectives are utterly indispensable in conceptualizing the complexity of human experience and cannot be explored with the same tools as third-person causation. Clayton concurs with this line of thought and describes the physicality of the brain as necessary, but not sufficient, for the emergence of personhood.

The phenomenological approach does not solve the difficult problem of consciousness. Instead, it states that if or when the hard problem is solved, it will be done along the lines of emergence theory. Clayton believes it wise to place one’s wager on emergence, because we know that “the one natural world is vastly more complicated and more subtle than physical-

ism can ever grasp" (2004, 149). Unless life as we know it is all a massive illusion, which seems equally unlikely theologically and evolutionarily, our theories of the human being must include mental causation. As Clayton writes, "The coherence of our mental states, and the causal influence that they clearly exercise in the world, is best understood as the product of a self-conscious mental agent" (2004, 175).

Clayton's use of phenomenology echoes the argument he makes against Deacon's thermodynamic base. For Clayton, it is impossible to begin with physics and end with phenomenology; instead, we must begin with phenomenology and deconstruct our way back down to physics. Accordingly, Clayton resists Deacon's theory because it gets us only to life, which still has clear ties with physics. When dealing with such things as spirit or ethics, we find physics unsatisfactory. Thus, Clayton identifies the agent phenomenologically and then seeks bridging rules to allow for a "downward" path toward physics. The question I raised earlier in this essay still stands: Why does Clayton contend that a physics-based theory is incapable of constructing upward to a phenomenology?

CONCLUSION

Clayton's integral role in bringing the theory of emergence to the forefront of the religion-and-science dialogue is admirable. I intend the comments in this essay to bolster the conversation that Clayton initiates. As the field of religion and science grows, scholars need to assess the conceptual schemas available for dealing with the complexities of the natural world. I follow Clayton and Deacon in expressing that emergence theory offers a promising alternative. The approaches of Clayton and Deacon are not incompatible. In fact, taken together, they provide a robust theory of emergence that takes seriously both the emergent phenomena and the emergent dynamics. In order to locate the middle ground, we must follow Clayton and Deacon by setting our sails between Scylla and Charybdis. Only then will we have the hope of achieving adequate explanation.

NOTES

A version of this essay was presented at a religion-and-science session during the annual meeting of the American Academy of Religion, Philadelphia, 19 November 2005.

I thank Jeremy Sherman and Tyrone Cashman for numerous conversations and comments on earlier drafts of this essay. Terrence Deacon's meticulous detail and immense knowledge, both in published work and personal conversation, is present throughout this essay. Also, my wife's editing talents have improved the quality of this work immensely. All shortcomings remain mine alone.

1. I owe much of this final paragraph's formulation to Terrence Deacon.
2. In 1922, G. E. Moore brought the notion of supervenience into the philosophical vernacular. He contended that certain properties, like goodness, were not natural. He related these unnatural properties to what he thought were natural properties, thereby arguing that something like goodness could not change without a correlated change in a natural property. Said clearly, goodness supervenes on the natural. About thirty years later, R. M. Hare extended

supervenience to manage specific types of discourse, specifically ethical discourse. He posited that variations in evaluation must be matched by distinctions in depiction. Donald Davidson was the first to bring supervenience language into mind-body conversations. Davidson represents a clear example of what Clayton terms strong supervenience. A problem with comparing Moore and Hare with Davidson or others is that the connection of consciousness to the brain differs drastically from the correlation of goodness to its subvenient base.

3. Kim contends that three situations align with weak supervenience, and these situations are detriments to its validity. First, another world possibly exists that contains an exact physical replica of me at the subvenient base but differs at the supervenient level. Second, this same world may have other creatures that are identical to me physically but have no mental properties. This is a world where zombies exist. Third, this world may contain entities that differ from me in physical makeup but have the same mental properties. That is, rocks may feel pain in this world. If the subvenient and supervenient levels can *possibly* differ to such a degree, their specific relationship in this world is merely coincidental. Kim and Beckermann find these coincidental relationships lacking the force to make a coherent argument for the physical/mental connection.

4. What is difficult about the distinction between token-token relations and type-type relations is that one encompasses the other. Neuroscience may be able to identify a specific type of neuron interaction that gives rise to a specific type of pain, but then one can identify this type as a token and the argument begins again. Clayton is correct to assert that type-type relations are to be favored over token-token relations, but one wonders if there is a better way to describe the correlation.

5. This is not to say that the notion of supervenience is unwarranted in all explanations. Based on Deacon's dynamics of emergence, one can explain the relationships at the thermodynamic level as genuinely supervenient. However, these relationships are misplaced when identified with complex mental phenomena and the neurobiological workings in the brain.

6. In the study of free will, there is an incompatibilistic solution known as agent-causation (the hyphenated version emphasizes this distinctive approach). Agent-causation argues that a distinction be made in causal accounts when dealing with human agents. The traditional understanding of event causation is inadequate to tell the full story of human action. Event causation says that one event gives rise to another as a matter of course. Agent-causation maintains that human beings are capable of determining an effect within a circumscribed range of possibilities.

7. Clayton's approach has interesting ties to other thinkers working in the field. Terence Horgan, John Tienson, and George Graham contend that a phenomenology of doing has been widely ignored in the philosophy of mind. They describe this as the phenomenology of first-person agency. Like Clayton's, their work strives to understand phenomenological experiences without making premature metaphysical claims. This approach acknowledges our experiences of agency without requiring a commitment to metaphysical agents. As Clayton acknowledges, one brackets out the substantive agent in order to focus on the phenomenological experience. Horgan's approach contends "that there is 'something it is like' to behave in a way that constitutes voluntary action" (Horgan, Tienson, and Graham 2003, 323). This phenomenology of doing contains three central elements. First, we all have genuine experiences of being the source of our actions. When I reach out my hand to grab a glass of water, I experience that action's origination as my own. Second, the action that we carry out contains a sense of purpose. I reach for the glass of water because I am thirsty. Third, I identify my action, or lack of action, as up to me. I reach for the water on my own, not because I am forced. Horgan, Tienson, and Graham claim that recognizing a phenomenology of doing identifies the human being as an embodied agent. Clayton affirms that the philosophy of mind cannot continue to ignore phenomenological experiences and their ability to function causally.

8. Spezio argues,

When a cause is attributed from a second person perspective (i.e., from a relational encounter), such as in addiction or mental illness, that cause is outside the second person perspective. There is no relation with the alcoholism or the abnormal serotonin uptake, only with the person. The cause is handled from a third person perspective . . . as an example, people who have loved ones with mental illness generally either treat their ill loved one as responsible and having the capacity for choice or as ill and as lacking the capacity for choice during episodes of illness. In the former, there is no attribution of physical cause (i.e., illness). In the latter, the illness and need for treatment are recognized,

but the goal is to stay in or get back into a second person perspective with the loved one (Spezio 2004b).

REFERENCES

- Beckermann, Ansgar. 1992. "Supervenience, Emergence, and Reduction." In *Emergence or Reduction? Essays on the Prospects of Nonreductive Physicalism*, ed. Ansgar Beckermann, Hans Flohr, and Jaegwon Kim, 94–118. New York: Walter de Gruyter.
- Clayton, Philip. 1999. "Neuroscience, the Person, and God: An Emergentist Account." In *Neuroscience and the Person: Scientific Perspectives on Divine Action*, ed. Robert J. Russell, Nancy Murphy, Theo C. Meyering, and Michael A. Arbib, 181–214. Vatican City State: Vatican Observatory Publications, and Berkeley, Calif.: Center for Theology and the Natural Sciences.
- . 2000. "The Emergence of Spirit." *CTNS Bulletin* 20 (4): 3–20.
- . 2004. *Mind and Emergence: From Quantum to Consciousness*. New York and Oxford, U.K.: Oxford Univ. Press.
- Deacon, Terrence. 2000. "Response to Philip Clayton." *CTNS Bulletin* 20 (4): 26–27.
- . 2003. "The Hierarchic Logic of Emergence: Untangling the Interdependence of Evolution and Self-Organization." In *Evolution and Learning: The Baldwin Effect Reconsidered*, ed. Bruce Weber and David Depew, 273–308. Cambridge and London: MIT Press.
- . 2005. Personal correspondence, April.
- . In press. "Emergence: The Hole at the Wheel's Hub." In *The Re-Emergence of Emergence: The Emergentist Hypothesis from Science to Religion*, ed. Philip Clayton and Paul Davies. New York and Oxford, U.K.: Oxford Univ. Press.
- Horgan, Terence, John Tienson, and George Graham. 2003. "The Phenomenology of First-Person Agency." In *Physicalism and Mental Causation: The Metaphysics of Mind and Action*, ed. Sven Walter and Heinz-Dieter Heckmann, 323–40. Exeter, U.K., and Charlottesville, Va.: Imprint Academic.
- Kim, Jaegwon. 2000. *Mind in a Physical World: An Essay on the Mind-Body Problem and Mental Causation*. Cambridge and London: MIT Press.
- Spezio, Michael. 2004a. "Freedom in the Body: The Physical, the Causal, and the Possibility of Choice." *Zygon: Journal of Religion and Science* 39 (September): 577–90.
- . 2004b. Personal correspondence, 11 August.

