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Science and/or Religion: a 21st Century Debate
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Science and Spirit: A Critical Examination of Amos Yong's Pneumatological Theology of Emergence

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Abstract: This paper is a critical examination of Amos Yong's pneumatological use of emergence theory. In seeking to bridge the divide between the worldviews of science and Pentecostalism, Yong sees emergence theory as a fruitful mediating discourse. We will argue for the following: 1) the supernaturalism of Yong's Pentecostal theology renders the concept of emergence obsolete; 2) the ontological independence of various types of spirits in Yong's theology breaks his commitment to supervenience theory; and 3) Yong's transference of scientific concepts into the normative discourse of theology is potentially problematic. These criticisms should be seen as a call for Yong to depart from emergence theory (and supervenience) in his admirable ambition to harmonize the spirit-filled imagination of Pentecostalism with the scientific culture of the 21st century.

Keywords: Emergence, Supervenience, Pneumatology, Amos Yong

Introduction

This paper examines the prominent Pentecostal thinker, Amos Yong. More specifically, this paper is interested in Yong's use of scientific concepts in his construction of a robust pneumatology and theology of creation. Yong takes the depiction of God as the Spirit, most notably from the book of Genesis in the Bible, as his starting point. His overall goal is to create a plausible account of the Spirit's role in the creation narrative (Gen. 1:2) using modern scientific concepts. The research objective of this paper is to examine Yong's use of Philip Clayton's emergence theory in developing a scientifically engaged pneumatology. Yong joins emergence theory with his pneumatology in order to reinforce both areas of enquiry. Both pneumatology (within theology) and emergence theory (in the intersection between science and philosophy) have been vigorously revived in 21st century academic scholarship. In his general interest of "Science and the Spirit" Yong seeks to draw together both these exciting 21st century research fields.¹ The most specific application of this effort is seen in his "pneumatological assist" within emergence theory, which this paper shall critically examine.²

First, this paper will describe Yong's project. This consists of outlining both how Yong seeks to bring the categories of "science" and "spirit" together more broadly and describing Yong's more specific use of and modification of Philip Clayton's emergence theory in Pentecostal-scientific dialogue. Second, the critical

1 See Yong and Smith, *Science and Spirit*.

2 Yong, *Spirit of Creation*, 96.

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section of this paper conceptually analyzes three central terms in Yong's project; *emergence*, *supervenience*, and *hierarchy*. More specifically we will argue that:

1. the introduction of a supernatural force within the natural process of emergence is incompatible with emergence theory. The addition of a supernatural force within the process of emergence introduces an ontological gap, thus rendering the concept of "emergence" obsolete. In this way, any distinction between Yong's articulation of emergence theory and traditional dualism becomes blurred.
2. Yong's view of spirits (e.g., mental or divine) are so strongly emergent that they become ontologically independent from the physical components, thereby disregarding his commitment to supervenience theory.
3. The use of the scientific language of "hierarchy" within emergence theory may be seen as theologically problematic when Yong adopts it to describe the goal of the Holy Spirit's perfecting of creation. Hierarchy and relations of ontological dependence are essential for emergence theory. Although morally neutral in scientific discourse, they are in danger of becoming relationships based on power when applied to theological discourse in a way that remains problematic for feminist and ecological theologies.

Bringing the Spirit into Science

As a Pentecostal theologian, Yong is fully aware of the difficult history between Pentecostalism and the natural sciences. Pentecostal theology has often shown a tendency towards fundamentalism, creationism, and anti-intellectualism. Yong's concern is that Pentecostal theologians need to engage in dialogue with science, rather than "merely decrying scientific materialism and metaphysical naturalism".³ Yong recognises that a failure to do so will mean that Pentecostal spirituality will be irrelevant to the academic conversation and to 21st century scientific culture.

Thus, Yong puts forward the question, "... does pentecostal theology have anything to say in, much less contribute to, the ongoing dialogue between theology and science?".⁴ To answer to this question, Yong has two main ideas. First, Yong states that Pentecostalism, given its "embodied epistemology and nonreductionistic worldview" aids in eroding the false dichotomies created by modernism; namely "materialism versus spiritualism, rationalism versus empiricism, intellectualism versus emotionalism... naturalism versus supernaturalism...".⁵ His argument is that the Spirit-nature opposition is and has always been a false one. Thus, to separate Pentecostal experience and understanding of "spirit" from scientific explorations into nature is to the detriment of both fields.

The second reason that Pentecostalism can make a unique contribution to the science-religion dialogue is that the category of "spirit", which is the central defining concept in Pentecostal theology, is present in both theological and scientific discourse. Yong's article "Discerning the Spirit(s) in the Natural World" (2006), describes sixteen uses of the category of "Spirit" in science and religion dialogue.⁶ Yong identifies the contributions of Jürgen Moltmann, in breaking down the often presupposed dualism between matter and spirit, and more specifically, Wolfhart Pannenberg, who understood the "presence and activity of the divine spirit in the world through the concept of fields of force...".⁷ He then moves from the cosmological sciences and field theory, to the use of "spirit" in the biological sciences and "the emergent complexity of human life in terms of 'spirit'".⁸

³ Ibid., 10.

⁴ Ibid., 2.

⁵ Ibid., 11.

⁶ Yong, "Discerning the spirit(s)."

⁷ Ibid., 320. Cf. Moltmann, *Science and Wisdom*; Pannenberg, "The Spirit of God and the Dynamic of Natural Occurrence".

⁸ Ibid., 321.

Bringing the Spirit into Emergence Theory

Yong's use of emergence theory starts with a pentecostal reading of Genesis 1, which focuses on the role of the *ruach*, moving "over or moving upon the primeval watery chaos (*tohu wabhoahu*)."⁹ It might be noted that Yong's reading of creation is not strictly *ex nihilo* but is a giving order and complexity to primordial chaos. Instead, Yong depicts a cooperation between *Ruach Elohim* and nature itself in achieving the processes of creation. Thus, Yong highlights instances in which the Priestly narrative within Genesis shows God creating by saying, " 'Let the earth *put forth* vegetation: plants *yielding* seed, and fruit trees...that bear fruit...' (1:11); 'Let the waters *bring forth* swarms of living creatures...' (1:20)..."¹⁰ Yong's reading of Genesis can be summarized as: "We therefore see the creation emerging pneumatologically from the primordial chaos through the process of division, distinction, differentiation, and particularization..."¹¹

Yong wants to move this reading of Scripture from the confines of fideistic theology into public discourse. Thus, Yong hopes to translate this pneumatological theology of creation so that it is "communicable universally and verifiable in other tongues."¹² In order to bridge the gap between the reading of Scripture in theology and the reading of the "the book of nature" in the sciences, a mediating discourse is needed. Yong sees emergence theory as one such bridge. Although aware of other emergent theorists, such as Harold Morowitz, it is Philip Clayton's emergence theory which most influences Yong's scientific pneumatology.¹³

Clayton's theory of emergence involves eight theses: (a) *Monism*, roughly speaking, the idea that, "There is one natural world made, if you will, out of stuff;" (b) *Hierarchical Complexity*, that "more complex units are formed out of more simple parts...;" (c) *Temporal or Emergent Monism*, which means that "hierarchical structuring takes place over time;" (d) *No monolithic law of emergence*, thus the emergence of higher-level properties cannot be accounted for by one single law; (e) *Patterns across levels of emergence*, so that emergent properties share a family resemblance of ontological dependency, irreducibility and unpredictability; (f) *Downward Causation*, a high-level property can causally affect its physical constituents; (g) Given (a-f) we have a clear case of *emergentist pluralism*. This refers to the idea that there is a plurality of distinct levels within the one natural world; and (h) Clayton defends the *emergence of mind* so that human agency becomes a naturalistic, but non-reductionist, reality.¹⁴

The overall thrust and purpose of Clayton's project is to be able to overcome the dualism that has led to the separation between God and matter, but also the perceived separation between the higher-level sciences (humanities) and the natural sciences. Given that Yong views Pentecostal thought as able to offer a similar breaking down of dualistic frameworks, it is perhaps not surprising that Clayton's project is of interest to Yong's scientific pneumatology. Just as emergence theory allows Clayton to remove the dichotomy between mind and matter, emergence theory for Yong provides a framework for non-dualistic "interactivity and co-creativity between the divine and the creation."¹⁵ Thus, Clayton's emergence theory functions for Yong as the mediating discourse bridging a Pentecostal reading of Scripture with the empirical sciences.

Yong does not adopt Clayton's emergent theory just as it is, but claims that his "pneumatology theology of creation can supplement and in that sense fill out the theological content of Clayton's emergence metaphysics."¹⁶ This is Yong's "pneumatological assist" mentioned above.¹⁷ Thus, Yong develops a theological reading of emergence theory beyond that of Clayton. This is achieved in three main ways:

a) Yong sees Clayton to be "trading in the mind-body dualism for 'theological dualism'."¹⁸ This is because Clayton prioritises the transcendence of God and does not envisage any room for supernatural causation

⁹ Yong, *Spirit of Creation*, 155.

¹⁰ Yong, "Ruach," 197.

¹¹ Yong, *Spirit of Creation*, 156.

¹² Yong, *Spirit Poured Out*, 283.

¹³ Yong, "Ruach," 188; Yong, *Spirit of Creation*, 67.

¹⁴ Clayton, *Mind and Emergence*, 60-62; Yong *Spirit of Creation*, 145-150.

¹⁵ Yong, *Spirit of Creation*, 158.

¹⁶ *Ibid.*, 163.

¹⁷ Yong, "Ruach," 190.

¹⁸ Yong, *Spirit of Creation*, 151; Clayton, *Mind and Emergence*, 185-187.

within the universe.¹⁹ Yong sees this as an unnecessary concession to a false dichotomy; transcendence versus immanence or supernatural causation versus natural causation. Instead, “A pneumatologically informed metaphysic, in other words, requires us to hold to the immanent and transcendent aspects of divine presence and activity together...”²⁰ Yong, by holding immanence and transcendence together, claims to provide a way for theological and anthropological “*nondualism*” from a Pentecostal perspective, “consistent with the emergent *monist* thesis.”²¹

b) Both Clayton and Yong suggest that, when God desires to bring about a certain outcome, divine action supervenes upon natural processes or human action.²² Divine agency and human agency are co-operative in “double agency”.²³ However, Yong claims that we can only understand this relationship of supervenience between divine and human activity “as working proleptically in history, prefiguring God’s eschatological future.”²⁴ Thus, Yong celebrates a teleological reading of, not only divine action (as eschatological), but also of natural law as contingent upon the Spirit bringing about the coming Kingdom of God. It is this view, namely that the Spirit acts through teleological causation rather than efficient causation, which means (for Yong) that the claims of Pentecostal spirituality need not be incompatible with modern science.

c) Lastly, another way that Yong develops his theological interpretation of emergence beyond that of Clayton is by suggesting that theology and science do not merely interact, but that theology has the resources to “illuminate some of the topics much debated in the present science-religion dialogue; the teleological processes of emergence and the anthropic principle; the holistic interactivity and causal relational between systems and their constituent parts and the interrelationality and interactivity of the mental and material domains of the world”.²⁵

Clayton makes no such claims about the contribution of theology to science.

Three Problems of a Pneumatological Theology of Emergence

The above section describes Yong’s use of pneumatology and emergence theory in creating a space for Pentecostalism and science to interact in mutually beneficial dialogue. We will now bring three criticisms against Yong’s “pneumatological assist” of emergence theory: a) Yong’s description of the “creation and evolution of *ha’adam*” entails the presence of a supernatural, or extra-natural, force.²⁶ This renders the concept of emergence obsolete; b) Yong’s discussion of emergent spiritual realities (such as angels, demons, sin, and mind/soul) betrays his commitment to supervenience theory; and c) Yong is aware of the problems of using unmediated theological terms in a scientific way.²⁷ However, he is comfortable with using scientific language in theological discussions, problematically so.

Breaking emergence theory

Yong’s view of the creation of *ha’adam* claims to be emergent because “*ha’adam* is formed out of and thereby emergent from the dust of the ground.”²⁸ Yong goes on to say that *ha’adam* “... becomes a living being only with the breath of the Lord”.²⁹ Yong sees this biblical narrative as an acknowledgment of “the dependence and interconnectedness between the human spirit and its material substrate in a way that is consistent with

¹⁹ Clayton, *God and Contemporary Science*, 169.

²⁰ Yong, *Spirit of Creation*, 163.

²¹ *Ibid.*, 159. Italics added

²² Yong, *Spirit Poured Out*, 152; Yong, *Cosmic Breath*, 193-199; Clayton, *Mind and Emergence*, 193-199.

²³ Yong, *Spirit of Creation*, 95.

²⁴ *Ibid.*, 95-96.

²⁵ Yong, *Spirit Poured Out*, 283.

²⁶ Yong, *Cosmic Breath*, 87.

²⁷ Yong, *Spirit of Creation*, 80.

²⁸ Yong, *Cosmic Breath*, 82.

²⁹ *Ibid.*

the emergent monist thesis.”³⁰ Yong is absolutely correct in highlighting the marriage between monism and emergence theory.³¹ However, by introducing the breath of the Lord as the direct cause of the “enspirited” nature of *ha’adam*, Yong creates a tension between the underlying monism of emergence theory and his pneumatological reading of the creation narrative.

Monism here, one of Clayton’s eight theses of emergence theory, means that there is one world made up of one type of “stuff”. Thus, no extra-natural forces can be causally responsible for the emergence of higher-levels according to the monist thesis. The monist commitment of emergence-theorists leads, according to Jaegwon Kim, to a “Physical Realization Thesis”: this means that “all mental properties [or higher-level properties more generally] are physically realized; that is, whenever an organism or system instantiates a mental property M, it has some physical property P such that P realizes M in organisms of its kind.”³² Thus, the tension on Yong’s view becomes apparent as enspiritedness of *ha’adam* is not *physically* realised but is realised by the Spirit of God, the *ruach*.

Although Yong employs the biblical notion of “dust” in an emergent fashion, the sole *cause* of *ha’adam*’s existence remains divine, thus distinguished from (and outside of) the natural order. Yong might object that by holding the immanence of God’s Spirit together with transcendence, he is not introducing supernatural/extra-natural causation. However, if this were the case, Yong would have collapsed any distinction between God and nature. Given that Yong upholds the ontological difference between God and nature, and additionally is explicit about denying the emergence of God from nature, our charge of supernatural causation can be upheld. Consequently, Yong’s account of the enspiritedness of *ha’adam* can be described as an instance of creation *ex nihilo*. Emergence theory relies upon the idea that any higher-level property that arises is causally connected to its underlying physical base. Yong’s articulation of the “breath of the Lord” as causally responsible, bypasses the ontological resources of the lower-level entities (in this case “dust”). Thus, Yong renders the concept of emergence obsolete.

In addition, Yong does not achieve the “interconnectedness between the human spirit and its material substrate” necessary to defend his claim to be an emergent monist. Instead, what Yong is describing is, quite simply, dualist interactionism. Like Charles Taliaferro, Yong’s description of mind and body holds to a strong interaction between the two, but with a separate origination.³³ Yong’s reading of Genesis still sees God creating two types of things, material “dust” which can continue to develop through the emergence of higher-levels and increasing complexity, and “breath” which is directly bestowed by God into *ha’adam* and which does not continue to develop or generate the emergence of new levels. The Spirit of *ha’adam* does not seem to emerge from matter, but only interact with matter after having been directly created by God.

We have used Yong’s description of the creation of *ha’adam*, as body emerging from dust and human spirit as given by God’s breath, as the primary example of Yong’s inconsistent use of emergence theory. This is because it is a narrative which Yong uses repeatedly in his work and which most clearly draws upon the resources of both theology and science. It might be noted that Yong does not only attribute this enspiritedness, bestowed directly and supernaturally, to *ha’adam* but also to “the fish and the birds... because they also have the breath of life in them (1:30)”.³⁴ Thus, it can be said that so long as Yong maintains that the Spirit is causally responsible for the emergence of higher levels, this criticism will be applicable at every level of his emergent pneumatology.

Thus, breaking supervenience theory

Our first criticism argued that Yong made emergence theory obsolete by introducing supernatural causation into the natural order. Here we will argue that Yong’s view of emergence undermines his commitment to supervenience. Supervenience traditionally speaking has played an important part in emergence

³⁰ Yong, *Spirit of Creation*, 159.

³¹ Corradini, “The Emergence of Mind,” 265.

³² Kim, *Supervenience*, 344.

³³ Taliaferro, *Consciousness and the Mind of God*.

³⁴ Yong, “Ruach,” 199.

theory. Thus, it is not surprising that Yong, in developing an emergentist pneumatology, puts the idea of supervenience to great use. However, Yong's very strong view of emergence becomes incompatible with the supervenience theory.

Yong's understanding of supervenience is built upon Lloyd Morgan's work and is defined in three theses: First, "mental facts or events *A* are dependent upon physical facts or events *B*, but not reducible to them."³⁵ Second, *A* events or facts can causally influence the physical events *B*, thus Yong affirms downward causation of higher-level properties. Third, Yong claims that supervenience implies the rejection of Cartesian dualism. This is because supervenience theory, unlike Cartesian dualism, denies the possibility of any higher-level event lacking correlation to a physical event at any point in its existence. Broadly speaking, the theory of supervenience is a view of ontological dependency, i.e., higher-level to lower-level dependency.

We see three main types of supervenience in Yong's work: 1) the supervenience of mind or soul upon the brain or body; 2) the supervenience of divine action upon human action, in bringing about God's eschatological goal for creation; 3) the supervenience of the angelic, demonic or other spirits upon their "originary material or sentient 'parts'".³⁶ This section will discuss each of these three areas. We will show how Yong's use of supervenience theory not only becomes increasingly strained as we move from 1) to 3) but that, in fact, all three of these accounts "breaks" the central components necessary for any theory of supervenience.

1) Traditionally, the supervenience thesis has been argued in conjunction with body/mind debates. Referring to Nancey Murphy and Philip Clayton, Yong affirms "how the whole of the mind is both greater than the sum of the (biological) parts and simultaneously constituted by nothing more or less than those parts...".³⁷ This view, according to Yong, allows for genuine top-down causation whereby the mind influences the body, whilst remaining ontologically dependent upon the body.

Yong also states that, although supervenience means that the mind is "dependent upon...the material workings of the brain.... Set within a pneumatological framework, a supervenience theory of mind is transformed into a relational and systems theory of minds and bodies in *interdependence* with each other and with nature's processes."³⁸ This suggests that Yong drops the notion of supervenience (or changes it drastically), exchanging dependency for interdependency. Although the concept of co-operation is a good one, mutual dependency raises serious questions concerning Yong's use of supervenience. Interdependence means that dependency goes both ways. Does this mean that Yong is stating that the brain, for example, cannot exist without the mind? What exactly is achieved when Yong refers to supervenience but changes its content?

In addition, when Yong discusses the Christian promise for post-mortem survival, he departs from this previous affirmation of supervenience.³⁹ When Yong states that human spirits (i.e., minds) "are capable of surviving and indeed surviving after bodily death", he breaks the relationship of ontological dependence (or interdependence) between the higher-level property of the mind and its material (i.e., body) parts. The prominent emergence theorist Timothy O'Connor writes that the idea of emergent phenomena, being individuated in such a way as to no longer depend (ontologically) on its underlying physical structure, is closer to substance dualism than it is to emergence theory. O'Connor characterizes this abandonment of supervenience theory by saying that, "once spawned, it [the emergent phenomena] is set loose to seek its own fortune."⁴⁰ In Yong's case, this is when the soul/mind continues on into eternal life, and perhaps starts a new relationship with a freshly resurrected body. Yong enthusiastically affirms the importance of embodiment for Pentecostal theology, which is why he is drawn towards emergence theory. However, given the intervention of the "breath of the Lord" in enspiriting *ha'adam* and the persistence of the mind/soul

³⁵ Yong, *Cosmic Breath*, 77.

³⁶ Yong, *Spirit of Creation*, 204.

³⁷ *Ibid.*, 60.

³⁸ Yong, *Science and the Spirit*, 87. Italics added.

³⁹ Yong, *Spirit of Creation*, 204.

⁴⁰ O'Connor and Jacobs, "Emergent Individuals", 548.

after the cessation of the body, we are forced to question if the body is as radically fundamental to Yong's project as he seems to suggest.

2) While discussing the Pentecostal experience of charisma, Yong states that, "the charismatic activity of the Spirit proceeds from the 'top down', and is somehow supervenient upon the activity of free human agents. This means that the work of the Holy Spirit is constituted but yet not completely reducible to the actions of human agents."⁴¹ It is possible to imagine that a mind is constituted by a brain, or even that my agency is constituted by neuron's firing within my brain. However, it is difficult to comprehend what Yong means when he says that actions are supervening upon, hence constituted by, other actions. To say that the actions of person x are constituted by the actions of person y is both confusing and troubling for the free-agency of person x. Instead, the relationship between divine action and human action, when further described by Yong, seems to be nothing more (or less) than co-operation: two ontologically distinct agents, neither of which emerged from the other, whose activity together brings about a common goal.

Yong emphasises that the Spirit's (supervenient) action is to be understood as eschatological, and thus to work as the teleological cause within nature and within human action: "In sum, I propose that God's activity supervenes upon human agency and does so proleptically"... "bringing about the coming reign of God in the present age."⁴² Does this help Yong's use of supervenience escape our previous objections? Unfortunately for Yong, we cannot see how an eschatological perspective on the Spirit's action in any way illuminates how God's action (in bringing about the future he desires and has foreordained) is constituted by or ontologically dependent upon human action. To say that the Spirit's action is the teleological cause and human action is the efficient cause in bringing about God's desired future, while an interesting proposal, is still not in accordance with supervenience.⁴³ Even when human activity is incorporated into God's future, the Holy Spirit and the human being are still ontologically separate agents. Thus, the relationship between divine and human action in Yong's writing clearly remains one of cooperation and not supervenience.

3) In keeping with his overall goal of constructing a uniquely Pentecostal dialogue with the natural sciences, Yong explores the idea that, in addition to mind and God's Spirit, other spirits might emerge and supervene upon physical realities. In exploring this "spirit-filled world", Yong focuses on the Pentecostal belief in the angelic, demonic and ancestral spirits. Yong suggests that, "angelic spirits are emergent from their material substrates, constituted by, but also thereafter, irreducible to their outward physical forms.... what we call angels are higher-level transpersonal or suprapersonal realities, constituted by and supervening upon the human relations from which they derive." Once they emerge, Yong claims that such spirits can exercise, " 'top-down' influence and agency in relationship to their lower-level realities."⁴⁴ Similarly, "demonic spirits emerge from and supervene upon the human experience of alienation that disintegrates personal lives and destroys human relationships in general and human well-being as a whole."⁴⁵ Finally, ancestral spirits (particularly important to Pentecostal Christians living in the global south) "are spirits of recently dead or long-dead ancestors, separated from their bodies, but still capable of interacting with, and often tormenting, their living descendants...."⁴⁶

In all three cases, Yong describes the emergence of a mind-like substance or entity from human bodies (ancestor spirit), relations (angels) or experience (demons). All three entities are ascribed as having the capacity for "top-down" influence by Yong, *even when that from which they emerged (the lower-level base) has ceased to exist*. Thus, this is the strongest possible view of emergence theory. Yong's description here is much closer to William Hasker's emergent *dualism* than to the emergent monism which he claims to adhere to. Moving beyond Clayton-type property emergence, Hasker argues that, "what is needed is an *emergent individual*, a new individual entity which comes into existence as a result of a certain functional configuration of the material constituents...."⁴⁷ Hasker claims that his emergent dualism, which we see Yong employing

⁴¹ Yong, *Cosmic Breath*, 95.

⁴² *Ibid.*, 96; Yong, *Science and the Spirit*, 62.

⁴³ Yong, *Cosmic Breath*, 165.

⁴⁴ Yong, *Spirit of Creation*, 216.

⁴⁵ *Ibid.*, 217-218.

⁴⁶ *Ibid.*, 176.

⁴⁷ Hasker, *The Emergent Self*, 190.

here, is incompatible with supervenience theory.⁴⁸ This is because the emergent individuals or “spirits” become ontologically independent; thus the relationship of supervenience is broken. To quote Yong’s view of demonic spirits once again: “But once unleashed - or, to use my conceptualization: once emergent - these powers potentially attain a life of their own, capable of influencing and interacting with concrete historical structures, institutions, organisations, nations, and even persons and church movements.”⁴⁹ Yong’s attempt to incorporate a more spirit-filled Pentecostal worldview into the contemporary discussion of emergence and supervenience, simply returns to traditional dualism as this strong version of emergence theory is hard, if not impossible, to square with monism. Yong’s label of supervenience (to describe the relationship between spirits and their physical substrates) is an empty one, as these spirits are depicted as separate, ontological entities/agents.

To summarise this second objection, Yong’s description and use of supervenience (and emergence) theory departs from Clayton’s in a number of significant ways. When Yong describes higher-level properties as “irreducible” to lower-level parts, he seems to grant them ontological independence. But, irreducibility only means that you cannot identify, for example, a mental state only by describing the neurological patterns; it does not mean that the mental state can obtain independence from, and exist without, the brain. It should be pointed out that when Clayton refers to “ontological emergence,” he is describing the emergence of new causal powers to the same (physical) “one stuff”.⁵⁰ Yong, on the other hand, clearly refers to the emergence of new substances (“stuff”) or even beings. Clayton has a real problem with reductionism.⁵¹ Yong has no such problem in his work since his use of emergence theory is significantly different from Clayton’s and is much closer to Hasker’s, and so is not too far from classical dualism. In addition, when Yong refers to supervenience (i.e., the theory of dependency) or interdependency, he seems to only mean co-operation. Although it might be good for flourishing that these pairs (physical and mental/human and divine/human and spirits) co-operate, none of these ceases to exist without the other. Thus, there is really no ontological dependency, interdependency, or supervenience being employed by Yong. To refer to Clayton’s concern, which Yong summarises as the concern “that too much theological discourse will wreck the theory of emergence.”⁵² Given the multiple problems in Yong’s use of emergence and supervenience in his “pneumatological theology of creation”, we believe that Clayton’s hesitation about filling out emergence theory with theology is justified.

It is also worth noting that supervenience, used either strictly or more creatively (as by Yong), has itself been criticised for not amounting to an explanation. Supervenience theory on its own, as Terry Horgan has pointed out, is only a label for a relationship of dependence between two things.⁵³ It does not seek to explain why two things relate in this way nor what sort of dependency is employed in this relation. For Yong, the “why” question can be deferred to the will of God. The question as to the type of dependency suggested by supervenience theory is, however, a larger problem for his theology. In part, this shall be seen in the final critical section of this paper, but it can also be explored briefly here. The problem is because, as noted above, he describes different types of dependency (ontological dependency, interdependency, and co-operation) depending on the type of thing he is discussing. However, all of these are grouped loosely under the heading of “supervenience”. Although supervenience theory is not a clear category in and of itself, Yong’s various types of relation described here only add to the confusion and vagueness of this term.

Before moving on to our third critique, we would like to highlight one more concern about building a robust pneumatology in conjunction with the emergence/supervenience theories. We have argued above that Yong’s theological priority undermines his use of emergence and supervenience. However, if Yong were to develop a stricter understanding of these philosophical concepts, he would have the opposing problem; his pneumatology would suffer considerably. According to emergence theory, there can be no higher-level

⁴⁸ Ibid., 195.

⁴⁹ Yong, *Spirit of Creation*, 205.

⁵⁰ Clayton, *Mind and Emergence*, 49-50, 54.

⁵¹ Moreland, *Consciousness*, 135-155.

⁵² Yong, *Spirit of Creation*, 169.

⁵³ Horgan, “From Supervenience.”

or supernatural causation from above without first a corresponding lower-level or natural event. Thus, for the Spirit to be an active part of the emergence theory, the Spirit (and its causal powers) would have to emerge. This would be much like how emergent theories describe the mind, and not like how Pentecostal theology describes the transcendence of God. The problem of an emergent Spirit deepens: “But how is it possible for the [Spirit] to causally affect its constituent parts on which its very existence and nature depend.”⁵⁴ The problem, akin to what Kim called “an apparent absurdity”, is that this seems to imply “self-causation, or self-determination”, whereby things bring about their own existence. Not only is this part of the problem more generally within emergence theory, but such a pneumatology denies free independent agency of the Spirit which is the key to the Pentecostal worldview. The danger is that the Spirit becomes epiphenomenal, a mere appearance. Yong’s unfaithful use of the emergence theory means that he does not encounter the problems highlighted in this paragraph. However, should Yong choose to adhere more strictly to the emergence theory in response to our above critiques, he should be aware of this very serious threat to his pneumatology.

Problematic transference of language

This last criticism is of a rather different nature, but we think it is still a serious one for Yong’s project. Thus, here we are not criticising the logic or coherence of Yong’s project, but the practical risks of Yong’s use of scientific terminology. We would not be the first to point out how scientific language can enter into social contexts transforming them, sometimes for the better, but also potentially for the worse. Yong seems aware of the problem of using theological language in scientific discussions, however, he shows less caution about using scientific language within his theology.⁵⁵ Yong’s view of the many “tongues” of the different science disciplines having equal roles in interdisciplinary dialogue is a constructive metaphor.⁵⁶ However, our concern is that he seems unaware, that in different “languages” or “tongues”, concepts can subtly change their meaning and impact.

Karl Peters has suggested that the mechanistic language of Newtonian physics and the Enlightenment scientific philosophy had a serious negative impact on mankind’s relationship to the environment as nature was seen to be “something to be manipulated, controlled, and used as a tool for human welfare.”⁵⁷ Feminism has often seen the same sort of problem, namely the negative impact of the transference of scientific concepts into the social sphere, with regard to the treatment of women throughout history. For example, feminist thinkers have pointed out that objectivity, as the methodological goal of science, has been construed in masculine terms and so has been threatened by, excluded and oppressed women. Yong might be seen as seeking to transcend the objective/subjective dichotomy, and as such is a partner to the feminist movement, when he also invites para-psychology (often labelled as a “pseudo-science”) to the science-religion discussion table.⁵⁸ The concern of this paper is that when Yong uses emergence theory, defining reality in terms of *hierarchies*, he perpetuates the sort of problems concerning the transference of scientific language highlighted by eco-theologians and feminists.

Emergence theory generates a view of reality as fundamentally consisting of hierarchies and relations of power, often described as higher and lower levels of reality. Within scientific discussions this hierarchy is morally neutral, referring to ontological dependency, increasing complexity and order of origination. However, when transferred into theological and social forums, such language takes on a normative role. Ontological dependence easily becomes *relations of power*, with all the ensuing connotation of oppression and subjugation. Thus, when Yong explicitly refers to humanity as the culminating high-point (so far) of the emergence of life, he seems unaware of the potential critique from eco-theology.⁵⁹ Namely, that by depicting

⁵⁴ Kim, “Making Sense,” 28.

⁵⁵ Yong, *Spirit of Creation*, 80.

⁵⁶ Ibid., 28-29; Yong, *Science and the Spirit*, 58-60.

⁵⁷ Peters, *Dancing*, 104.

⁵⁸ Yong, *Spirit of Creation*, 196-207.

⁵⁹ Ibid., 164.

humanity as being the teleological goal of emergence and all creation, the value of non-human nature is undermined.

Antje Jackelén makes a similar point against Philip Clayton. She writes, “If the concept of hierarchies is absolutely crucial to emergence, it will also be absolute crucial when emergence is applied to social phenomena and social networks. This will lead to the risk of inadvertently prompting hierarchical views of society.”⁶⁰ This may lead to the emergence and development of some social groups obtaining liberation and agency above and to the exclusion of other social groups.

The problem worsens in Yong’s theological reading of emergence *because the Spirit of God is seen as purposefully creating and upholding this hierarchy*. Yong writes, “Theology can go further, in faith, to assert divine activity at each of these emergent levels (and more) and in providentially sustaining the world and its creatures even within these levels.”⁶¹ The risk then is that the Spirit of God, in Yong’s view, might be seen to be, not simply creating order out of chaos, but introducing and upholding hierarchies within the natural order (and even within social networks). Given the destructive history of such hierarchies, it is problematic to see God as maintaining this *status quo*, rather than redeeming and transforming creation. Yong’s “pneumatological- assist” transforms a scientific description of nature into a normative, divinely-sanctioned hierarchical structure.⁶² The danger is that viewing the hierarchy of the present natural order (and our current interpretation of nature’s structure) as the eschatological working of the Spirit, leaves no room to question this hierarchy.

The ontological dependence between levels, which is integral to emergence theory, does not *have* to be seen as inevitably negative. Sarah Coakley has highlighted in a different debate that the concept of *dependency* need not be anathema to feminism, and indeed should not be to Christian feminism. Her subtle point, which we see as equally as relevant to this debate, is that “we need *distinguish* more clearly and consciously between different sorts of dependence.”⁶³ Our point, therefore, is not that emergence theory necessarily entails destructive relations of power, but there is a risk involved in transferring the language of “levels”, “power” and “dependency” into the context of theological discussion. It is not that theologians cannot discuss emergence theory, but that greater care is needed to outline the meaning and types of hierarchy, power relations and dependence involved, when they do. The danger of translating concepts of Western science into Pentecostal theology is one that, we think, Yong should be particularly sensitive to. He describes Asian Pentecostal theology as being “postmodern”, “postpatriarchal”, “postcolonial”, “post-Western” and even “posthierarchical”.⁶⁴ This is one of the reasons Pentecostal theology is a strong framework for scientific-religious dialogue in the 21st century. This final objection, therefore, should be of particular interest to Yong as a Pentecostal theologian building new paths in science-religion dialogue for the 21st century.

Conclusion

There have been two types of criticism in this paper, which can be summarised thus: 1) In the first two parts of this paper “breaking emergence” and “breaking supervenience”, Yong uses the language of emergence and supervenience theory, while seeming to empty or radically transform the original meaning of these concepts when coupled with pentecostal theology. Given this, can we still say that the emergence theory is compatible with the Pentecostal worldview? By changing the meaning of emergence so radically, Yong has not yet been able to answer this question positively; and 2) In the final part of this paper we highlighted the risk of transferring the language of emergent hierarchies into the normative discourses of theology. We suggest that the language of hierarchies/dependency is not necessarily socially harmful or theologically problematic, but that there is a risk here. If God upholds the hierarchies, what room is there for protest,

⁶⁰ Jackelén, “Emergence Ewerywhere?!” , 629.

⁶¹ Yong, *Spirit of Creation*, 170.

⁶² Yong, “Ruach,” 190.

⁶³ Coakley, *Powers and Submissions*, 57.

⁶⁴ Yong, *Spirit Poured Out*, 20.

should the need to protest and reconfigure these levels arise? On Yong's view, these levels are an intrinsic part of God's creating and sustaining and even eschatologically redeeming.

It can be seen that Yong is leading the way in the 21st century science-religion dialogue as a thoroughly Pentecostal thinker who seeks to rationally examine the distinctively experiential elements of the Pentecostal worldview. We must also acknowledge that Yong is not strongly committed to the emergence theory (or supervenience) and he himself stresses the "fluidity" and "provisionality" of scientific theories.⁶⁵ However, he has published numerous works seeking to show the fruitful relationship between the emergence theory and Pentecostal theology. The three main criticisms of this paper amount to a call for Yong to seek new pathways as he continues to bridge the divide between science and spirit.

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⁶⁵ Ibid., 272.