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Is Materialism Equivalent to Dualism?

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Is materialism equivalent to dualism? Clearly not, if the question is taken in its most natural sense, as referring to the entire families of philosophical views known respectively as dualism and materialism. These two are rightly regarded as rival explanations, or types of explanations, of the nature and status of mind and its relationship to the human organism. This does not, however, preclude the possibility that some particular version of materialism should prove to be equivalent, or nearly equivalent, to a particular version of dualism. The burden of this paper is to point out a version of materialism, or quasi-materialism, and a version of dualism for which this is indeed the case. I believe, though I shall not be able fully to argue this here, that the versions in question represent the *best* versions of their families—that the kind of dualism and the kind of materialism presented here are the best and most credible versions of dualism and materialism respectively. If this is so, the range of plausible choices for a solution to the mind-body problem is narrowed in an interesting way. But even apart from this more ambitious claim, the near-equivalence of the two views should be of considerable interest.

My procedure will be as follows: I begin by setting out briefly the version of dualism and the version of materialism that are under consideration, with some indication of why each may be deemed superior to its intrafamilial rivals. I will then discuss the objections proponents of each of these views have offered to the other. This will lead in turn to a further development of one of the views, a development which will enable the similarities between them to be displayed.

1. EMERGENT DUALISM

The dualistic view to be considered is emergent dualism, a conception I have expounded in Hasker 1999 and other writings.¹ (The clearest historical precursor for the view is Karl Popper.)² According to emergent dualism, the human person originates from a chunk of organized physical stuff; emergence then functions at two different levels. First there are *emergent causal powers* of the physical stuff: powers that, latent in every grain of sand and drop of water, nevertheless manifest themselves only when the matter is taken up in certain of the extremely complex functional configurations characteristic of animate beings. It is these powers that enable the manifestation of the typical psychic properties of consciousness, sensation, thought, desire and aversion, active choice, and the like. But second, what emerges is not merely powers and activities, but a *new substance*, one that is not composed of the particles of microphysics. It is this new substance, which is generated and sustained by the biological organism and continually interacts with the organism, which is the subject of conscious awareness and of cognitive and affective states, and is the agent-cause of our free actions. A suggestive analogy to the emergence of the self (it can be no more than that) is found in the generation by a magnet of a magnetic field.

The chief competitors of emergent dualism from the dualist family are those views which posit the direct creation of the soul by God: mainly Cartesian-type dualism and some versions of Thomistic dualism. Broadly speaking, views of these sorts have difficulty in giving plausible accounts of the kinds of relationships between the mind/soul and the world of nature that are indicated by the empirical evidence. Cartesian dualism has great difficulty in accounting for the

souls of nonhuman animals, unless one is content (like Descartes himself) to deny them souls, and thereby any sort of conscious existence at all. Cartesian dualism also has difficulty in accounting for the extremely close dependence of our mental lives on the integrity and functioning of various parts of the brain; certainly this sort of dependence is unexpected given the nature of the “thinking thing” as described by Descartes. Thomistic dualism is arguably better off in this respect, but in making the soul the principle of biological life it is committed to a vitalism which is emphatically rejected by contemporary biology. Neither Cartesian dualism nor Thomistic dualism fits at all comfortably with evolution and the common ancestry of life on earth. But these and related difficulties can only be gestured at here; their full development must be found elsewhere.³

2. EMERGENTIST MATERIALISM

The version of materialism to be considered is adapted from a view developed in various writings by Timothy O'Connor, as well as in a recent article coauthored by O'Connor and Jonathan D. Jacobs.⁴ Actually the status of the view as “materialist” is somewhat problematic. I have given it this label in view of O'Connor's and Jacobs's endorsement of the claim that a person “is entirely constituted by the simples comprising his body” (O'Connor and Jacobs 2003: 540). However, they reject the other doctrine, typical of materialist views, that “a person's having conscious experience is constituted by complex states in his nervous system” (O'Connor and Jacobs 2003: 540). Instead, they view the experiential states as *emergent from*, but not reducible to or constituted by, those states of the nervous system. Such a view may perhaps be characterized as “emergentist materialism,” though O'Connor and Jacobs do not use that label.

The conception of property emergence developed by O'Connor is congruent with (and in fact served as a model for) the corresponding conception as found in emergent dualism. The following summary will help to fix the relevant concepts in place:

I am indeed a biological organism, but some of my mental states are instantiations of simple, or non-structural, properties. A property is

'non-structural' if and only if its instantiation does not even partly consist in the instantiation of a plurality of more basic properties by the entity or its parts. . . . Emergent features are as basic as electric charge now appears to be, just more restricted in the circumstances of their manifestation. Further, having such emergent states is, in general, a causal consequence of having the requisite type of intrinsic and functional complexity. The emergent state is a "causal consequence" of the object's having this complexity in the following way: in addition to having local influence in a manner familiar from physical theories, fundamental particles and systems also naturally tend (in any context) towards the generation of the emergent state. Their doing so, however, is not detectable in contexts lacking the requisite macro-complexity, because each such tending is, on its own, incomplete. It takes the right threshold of complexity for those tendencies, present in each micro-particle, to achieve their characteristic effect jointly, the generation of a special type of holistic state. (O'Connor and Jacobs 2003: 541-42)

It remains to be added that these emergent states exert "downward causation" on the simples that have given rise to them, thus resulting in behavior different from what would be predicted on the basis of the laws of physics alone. Furthermore, the novel causal influence thus provided for renders the theory hospitable to the doctrines of libertarian freedom and agent causation. Much more can be said about such emergent states, but this should be sufficient to fix the basic direction of O'Connor's thought on the subject.

In his earlier writings, O'Connor was content with this doctrine of property emergence. In the article with Jacobs, however, a second layer of emergence is added, termed by them "substance emergentism." Here, one might think, the parallel with emergent dualism threatens to collapse into identity, but this is not the case. They reject the view of emergent dualism, which they explain by stating that "a new object emerges and continues to depend for its existence on the structure that generated it: The underlying composite system and the new thing none the less interact with each other as distinct units . . . so that the emergent object affects other things in its environment only via affecting the originating system" (O'Connor and Jacobs 2003: 548). They hold, on the contrary, that "the new object is

itself the composite system: the simples jointly compose the object, which has a distinctive thisness and some distinctive features” (O’Connor and Jacobs 2003: 548, emphasis added).

It is clear that O’Connor and Jacobs have avoided falling into the pit of dualism, but one might be inclined to ask, what is really *emerging* in this scenario? If the “new object” just *is* the composite system, what’s new about it? Wasn’t the system there already, prior to the alleged “emergence”? The answer to this can be appreciated only by taking into account the ontology within which they are working, described as an ontology of “immanent universals.”⁵ On this ontology a basic object, such as an electron, has as constituents such features as spin, charge, mass, and so on. These features are “in” the object rather than transcendent, but they exist in many other objects (e.g., other electrons) as well, so they cannot be what confers particularity on the electron. That is contributed, rather, by a “*particularity* or *thisness*, a non-qualitative aspect necessarily unique to” the electron (O’Connor and Jacobs 2003: 546). These universals and the thisness are bound together in a non-mereological structure called a “state of affairs.”

So much for basic objects, but what about composite objects, such as (for instance) molecules? Do they also possess thisnesses of their own? Here we are cautioned to exercise restraint, lest there be “a bewildering variety of particularities instanced during every boring episode one may observe” (O’Connor and Jacobs 2003: 547). In order to avoid this, we “should posit distinctive particularities only in mereological simples and those composites that exhibit some kind of objective, substantial unity” (O’Connor and Jacobs 2003: 547). Molecules, like buildings and heaps of sand, are not real, substantial unities but rather mere aggregates of the simples of which they are composed. The “objective, substantial unity” required for the possession of a thisness is found in entities possessing “ontologically emergent properties” which do real causal work. And this applies in particular to persons: “Their holistic mental states . . . confer on them a substantial unity as thinking biological substances, requiring one to treat persons as wholes in any adequate characterization of the dynamics of the world” (O’Connor and Jacobs 2003: 548). In view of this, “the particularity of persons is primitive, rather than deriving from the primitive particularity of their parts, since those are con-

stantly changing” (O’Connor and Jacobs 2003: 548). Here, then, we have the answer to the question, what is it that emerges in substance emergentism? It is precisely the *person as substance* that emerges; prior to the emergence there was only an aggregate of simples, even if the arrangement of the simples was very similar to that of the bodily parts of a person.

This exposition should already have made it evident why emergentist materialism is preferable to other, more widely accepted versions of materialism. The versions that treat mental states as “constituted by complex states in the nervous system” are simply unable to acknowledge mind and consciousness for what we find them to be. (Witness the heavy labors of materialists over the last generation in seeking to overcome this intractable difficulty.) Views that insist on strict supervenience of the mental on the physical, and on the causal closure of the physical domain, may acknowledge the existence of the mental life but end up by denying it any real causative role in the goings-on in the world. (Note the continuing struggles to capture some sort of causal relevance for mental states.) Emergentist materialism, on the other hand, retains at least a minimal materialist commitment in that human beings are composed of physical stuff and nothing else, but the view is able to recognize the reality and importance of the mental in ways that other materialist views are not.

3. CRITIQUE OF EMERGENT DUALISM

So much, then, for an initial characterization of the two competing views; we turn now to the criticisms of each of the views offered by partisans of the other. We begin with the objections offered by O’Connor and Jacobs to emergent dualism, which they judge to be “not conclusively ruled out . . . but not terribly attractive either” (O’Connor and Jacobs 2003: 549). On this view, they say,

one is apparently asked to contemplate a composite physical system’s giving rise, all in one go, to a whole, self-contained, organized system of properties bound up with a distinct individual. Applied to human beings, the view will imply that at an early stage of physical

development, a self emerges, having all the capacities of an adult human self, most of which, however, lie dormant owing to immaturity in the physical system from which it emerges. (O'Connor and Jacobs 2003: 549)

Now, emergent dualism will indeed posit the emergence of the conscious self “all at one go,” in the sense that there is a threshold stage, early in the development of the organism, before which the self is absent and after which the brain and nervous system give rise to the emergent self—yet (we are supposing) that self immediately acquires capacities which are far beyond the present stage of the development of that same brain and nervous system. This may not be flatly inconsistent, but it is certainly (as O'Connor and Jacobs have noted) far from being plausible or attractive.

But why attribute such a view to emergent dualism? On that view, material stuff is anything but psychically inert, so there is no need for all of the potentialities to be present in the self from the beginning—except, to be sure, in the sense that the nascent self is the *kind of thing* that is able, given favorable development, to arrive at the possession and exercise of the powers in question. But since the self is not only generated in the first place but is also constantly sustained and empowered by its organic base in the brain and nervous system, why should we not suppose that its powers and capacities naturally grow in consequence of the brain's own development? On this conception, O'Connor and Jacobs's criticism fails for lack of a target.

In another article, O'Connor seeks to rule out this move. In addition to repeating the criticism given above, he writes, “For we cannot say, as we should want to do, that as the underlying physical structure *develops*, the emergent self does likewise, as there doesn't seem to be conceptual space for changing mereological complexity within a nonphysical simple” (O'Connor 2003: 3). This is an interesting argument, but it contains two dubious assumptions within the space of a single sentence. The sense in which the emergent self is “simple” is something that needs to be carefully investigated, not taken for granted. It is quite true that, as will be pointed out below, the self that is the subject of experiences must function as an undivided unity

and not as a system of parts. But this does not immediately carry with it all the freight traditionally attached to metaphysical doctrines of the “simplicity of the soul.” I have repeatedly argued, for example, that the emergent self could under certain circumstances be divided—for instance, by the fission of the generating organism. (Arguably the famous cases of “brain bisection” through commissurotomy constitute partial examples of this possibility.)⁶

Even more obviously unwarranted, however, is the assumption that growth in the powers of the emergent self must come about through “changing mereological complexity”—that is, through the *addition of parts* to the mind/self/soul. I submit that this is entirely gratuitous; nothing we know about the ways in which persons, and their minds, grow and develop provides a basis for such an assumption. I conclude that O’Connor’s attempt to shore up his objection is a failure, and the objection itself should be relegated to the dustbin.

It should not be supposed, however, that O’Connor would be reconciled to emergent dualism were he to recognize the failure of the objection we’ve been discussing. In still another article he gives a lucid characterization of the view, and admits that it provides a solution for the “pairing problem” for Cartesian dualism urged by Jaegwon Kim. But he goes on to say, “The present sort of emergence . . . would involve the generation of fundamentally new substance in the world—amounting to creation *ex nihilo*. That’s a lot to swallow” (O’Connor 2000b: 110). Especially in a theistic context, this seems to be a forceful objection. Creation *ex nihilo* has always been viewed as a uniquely divine prerogative; to attribute such a power to creatures goes very much against the grain of theistic sensibilities. But is the attribution fair? On the view under consideration, the physical stuff of the world has been *endowed by its Creator* with the capacity—indeed, with the necessity—to generate an emergent mind in the appropriate combination of circumstances. Given this, the production in question is simply a matter of physical stuff’s *fulfilling its divinely ordained destiny*—and how could its doing so amount to the usurping of a divine prerogative? As a parallel, many believers have felt strongly that the theory of organic evolution, which attributes the genesis of new life-forms to the material processes of the world, is a denial of the dignity of the Creator—but many other believers have

come to understand that it is no such thing. Note also that it is not excluded that the production of the emergent self is a process that *consumes energy*; the idea that energy is convertible into physical substance has come to be recognized as scientifically sound and theologically unproblematic, so why should it not be convertible into mental substance?⁷ Finally, we may wonder why the generation of mental substance is theologically suspect but the generation by matter of completely new kinds of states and properties, differing fundamentally from those in the inorganic world (as is postulated by O'Connor's emergentist materialism) is supposed to be unproblematic. If a divinely implanted "tending" is sufficient to deflect the charge of heresy in one case, why not in the other?⁸

For all that has been said, I do not suppose for a moment that I have removed all objections to emergent dualism or overcome the resistance many will feel to this view. This is not, after all, the simplest or most obvious solution to the mind-body problem. It's just that (as Winston Churchill said about democracy) it begins to look better, the more one considers the alternatives!

4. CRITIQUE OF EMERGENTIST MATERIALISM

The principal objection an emergent dualist might urge against emergentist materialism is found in the unity-of-consciousness argument which is derived from Leibniz and Kant. In a familiar passage Leibniz writes,

In imagining that there is a machine whose construction would enable it to think, to sense, and to have perception, one could conceive it enlarged while retaining the same proportions, so that one could enter into it, just like into a windmill. Supposing this, one should, when visiting within it, find only parts pushing one another, and never anything by which to explain a perception. Thus it is in the simple substance, and not in the composite or in the machine, that one must look for perception. (Leibniz 1991: 19 [*Monadology* 17])

The problem Leibniz is pointing out here does not lie, as many have supposed, in the limitations of seventeenth-century technology. If in-

stead of his “parts pushing one another” we fill the machine with vacuum tubes, transistors, or for that matter with neurons, exactly the same problem remains. The problem does not lie in the pushes and pulls but rather in the *complexity* of the machine, the fact that it is made up of many distinct parts, coupled with the fact that *a complex state of consciousness cannot exist distributed among the parts of a complex object*. The functioning of any complex object such as a machine, a television set, a computer, or a brain consists of the coordinated functioning of its parts, which working together produce an effect of some kind. But where what is to be explained is *the having of a thought*, a state of consciousness, what function shall be assigned to the individual parts, be they transistors or neurons? Even a fairly simple experiential state—say, your visual experience as you look around the room—contains far more information than can be encoded in a single transistor, or a single neuron. Suppose, then, that the state is broken up into bits in such a way that some small part of it is represented in each of many different parts of the brain. Assuming this to be done, we have still the question: *Who or what is aware of the conscious state as a whole?* For it is a fact that you *are aware* of your conscious state, at any given moment, as a unitary whole. So we have this question for the materialist: When I am aware of a complex conscious state, what *physical entity* is it that is aware of that state? In order to be viable, emergentist materialism needs to provide an answer to that question.⁹

Here is a relatively simple formal presentation¹⁰ of the unity-of-consciousness argument against materialism:

1. I am aware of my present visual field as a unity; in other words, the various components of the field are experienced by a single subject simultaneously.
2. Only something that functions as a whole rather than as a system of parts could experience a visual field as a unity.
3. Therefore, the subject functions as a whole rather than as a system of parts.
4. The brain and nervous system, and the entire body, is nothing more than a collection of physical parts organized in a certain way. (In other words, holism is false.)

5. Therefore, the brain and nervous system cannot function as a whole; it must function as a system of parts.
6. Therefore the subject of experience is not the brain and nervous system.

To the best of my knowledge O'Connor has never published a reply to this argument, but he is well aware of it and presumably must have satisfied himself that it poses no threat to his position. In view of this, it becomes necessary for us to attempt to discern what his response to it could be. An initial thought might be that the need for a unified consciousness is met by the postulation of a "thisness" that is present in the person but lacking in composites that are mere aggregates without novel causal powers of their own. This, however, would be a mistake. The presence of the thisness guarantees that the person is a real, substantial unity, contributing novel causal powers to the way the world operates. But the thisness does not itself change the mode of operation of the elements of the system in which it inheres; at least, nothing has been said that would indicate that this is the case. Furthermore, it is the *person* that undergoes conscious experiences, not the thisness—and the person, according to emergentist materialism, is precisely *the composite system*—a whole consisting of many, many parts.

Consider again the formal argument given above. Premise 1 is obviously true, and premise 2 seems above reproach; it simply formulates the evident fact that a complex state of consciousness cannot exist distributed among the parts of a complex object. Steps 3, 5, and 6 are each validly inferred from previous steps in the argument. It seems, then, that the only feasible recourse for the materialist will be to deny step 4, and to claim that the brain and nervous system are indeed something more than a collection of physical parts organized in a certain way. But what would this amount to? In order to satisfy the requirements of the situation, the brain¹¹ *as an undivided whole* must experience all of what is phenomenally "going on" in the person at a given time, and must do this in such a way that there is no "dividing up" of the phenomenal experience between different parts or subsystems of the brain. At the very same time, the brain must *also* function as a system of parts, since a great many different parts of the brain are playing their respective roles in providing the information

which is contained in this unitary experience. Trying to think all of this together may well occasion in us a certain dizziness—is this really coherent, really conceivable? If we suspect that it is not, this may be because so much of what we have learned about the brain depends on regarding and treating it as a system of parts. This is certainly true of recent scientific work on the brain, and is reinforced by the ubiquitous computer models of the brain. However, there is not lacking in physics itself the suggestion that this “atomistic” approach may not be telling us the entire story.¹² I am thinking, for example, of the phenomenon of “quantum entanglement,” in which two objects (normally elementary particles) are linked together in such a way that what happens to one instantaneously determines the fate of the other, no matter how far apart they are. This certainly is a kind of holistic phenomenon, in which two apparently discrete objects are in fact intimately connected. Now, quantum entanglement in itself is hardly the solution to the materialist’s problem with the unity of consciousness; it just is not the case that, for example, all of the elementary particles in the brain, or in any significant subregion of the brain, are quantum-entangled with each other. However, it does demonstrate that holistic phenomena are not as such alien to the nature of the physical world, and thus lends some plausibility to the holistic behavior of the particles in the brain that must be affirmed by emergentist materialism.

The emergentist materialist, then, will assume that the functioning of the brain has two distinct aspects: there is the *particulate aspect*, in virtue of which the different subunits of the brain act and interact in the way studied by neuroscientists, and there is the *holistic aspect*, in virtue of which the brain as a whole is aware of whatever may be the contents of phenomenal consciousness at any given time. *If* such a “dual-aspect theory” of the brain is genuinely possible (I am inclined to strengthen this to “if and only if”), then emergentist materialism may provide a viable solution for the mind-body problem.¹³

5. SOME ADDITIONAL QUESTIONS

So far, I have been attempting to expound O’Connor’s position, or when necessary to draw reasonable inferences with regard to how it

should be developed in response to a particular objection. In what follows, I shall be setting out on my own and can lay no claim to his authority or endorsement. I hope nevertheless that, if what has gone before is accepted as at least reasonably plausible, the ensuing reflections may retain a certain degree of credibility. What needs to be done at this stage is to investigate further the nature of the “particulate aspect” and the “holistic aspect” of brain function—especially the latter, since the particulate aspect is already being intensively studied by brain scientists.

An initial question of some interest is the following: *What is the location* of the events and processes comprised in the brain’s holistic aspect? It has sometimes been held that mental events and processes are unlocatable, and that it is a category mistake to speak of them in spatial terms at all. But on the view we are now pursuing this can’t be right; the events and processes occur to and in *a material object*—namely, the brain—and physical objects are not without location. Nor, on the other hand, can we say that (for example) the awareness of a person’s skin color occurs in *this* bit of brain tissue, the awareness of shape in *that* bit, and the awareness of facial expression in that other bit. Without doubt the various parts of the brain play crucial roles in processing the data that eventually comes to consciousness, as brain scientists are continuing to discover. But to locate the *awareness* of these features in the brain regions that process the data flies in the teeth of the unity-of-consciousness argument; it will leave us precisely in the impossible situation where the (necessarily unified) awareness of a complex experience is distributed among the parts of a system.

What must be said, apparently, is that the awareness occurs in the *whole* of the brain without being distributed among the brain’s parts. But that still leaves us with an interesting choice to make: Does the awareness occur in *all* of the space occupied by the brain? Or does it occur in just the same space as is occupied by the brain’s particles? The reason these are not the same is that, as has been known for the past century or so, the actual particles that compose the brain (or any other ordinary physical object) occupy only a tiny fraction of the space occupied by the object as a whole. (This is the source of Ed- dington’s famous remark that stepping on a plank is like stepping on

a swarm of bees.) Upon consideration, it seems more plausible to prefer the second alternative, according to which the holistic aspect of the brain exists only in the actual particles. It's true that we normally assume that everyday objects occupy continuous volumes of space, regardless of "empty space" that may be included in those volumes. (A Swiss cheese occupies the volume defined by its external dimensions, without there being additional "stuff" that fills up the holes.) But these ordinary objects are not ontologically fundamental; the fundamental causal powers they exemplify must in the final analysis be attributed to the particles of which they are composed—the "simples" of O'Connor and Jacobs's account of the person. So one would think that it is to these particles that awareness must be attributed, and it will follow that the awareness must occur in the space that is occupied by the particles. These particles must then be assumed to be linked together in an instantaneous connectedness analogous to quantum entanglement. An interesting side-question concerns the topology of these connections—is each particle linked directly to each other particle? Or only to the particles in its immediate vicinity? Or is it sufficient that each particle be linked to at least one other, so long as the system as a whole remains connected?

But leaving this aside, we may ask, what is the role played by each individual particle in the holistically connected array? (That is, what is the role played by each particle *in the experience of phenomenal consciousness*? As already noted, the role of the particles and of the brain systems composed of them in processing data is not in question.) We've already seen that we cannot assign to each particle a *part* of the conscious experience; shall we then say that the phenomenal field *as a whole* is experienced by each quark and each electron in the brain? This simply cannot be right; to say this would be to attribute to the simplest elements of physical reality the capacity for an experience containing virtually unlimited internal complexity. So we cannot say of the particles *either* that each of them experiences some part, however minute, of the entire phenomenal field, *or* that each of them experiences the field in its entirety. Which is to say: the particles do not experience anything at all, *and yet* there is nothing to do the experiencing except for the brain, which is, by hypothesis, the object composed exclusively of these very same particles!

At this point, I think we are forced to reconsider our previous conclusion that it is to the particles that awareness must be attributed. We shall have to say that there is “something else” in the brain, something besides the particles, to which the awareness is attributed. And since the “something else” is not particulate, there is no remaining reason to suppose that its spatial extent is limited to the region occupied by the particles. The “something else,” whatever it may be, will be an emergent entity that functions holistically, in that phenomenal awareness is attributed to it *as a whole* and not as a collection of parts.

The time has come for us to take an overview of the (amplified) theory of emergentist materialism. It is postulated that the human brain¹⁴ (and that of other animate life-forms) has both a particulate aspect and a holistic aspect. In its particulate aspect it performs the incredibly complex and sophisticated functions that are being studied by brain science. In its holistic aspect, on the other hand, it functions as an undivided whole in experiencing the person’s states of phenomenal consciousness. It is in virtue of having such a holistic aspect that the brain is able to perform such crucial activities as conceptual thought, sensory experience, voluntary choice, and the like. The potential for such a holistic aspect and for these kinds of experience is present in ordinary matter, but both the holistic aspect of the brain and the particular experiences emerge only given the right sort of organized complexity in the structure and functioning of the brain. We have seen, furthermore, that the brain’s holistic aspect needs to be something objectively distinct from the particles of which the brain is composed, since those particles cannot be supposed to experience either the phenomenal field as a whole, or some particular part of that field.

But is the “something else” still physical? (One colleague suggested that if the subject of experience exists in more space than the particles do, “it looks like dualism.”) This, it seems to me, is a nice question! It is not particulate, but we are (I trust) well past the point of supposing that the physical realm must be limited to particles. Over the centuries, the limits of what was previously considered to be physical have been repeatedly transgressed; first by Newton’s mysterious gravity, then by electrical and magnetic forces, and more

recently by quantum fields, strings, dark matter, and dark energy. The outcome of these transgressions has generally been that the supposedly “nonphysical” entities have been swallowed up by physics, with no indigestion resulting. (In view of this history, O’Connor and Jacobs’s reference to “simples” may best be taken as meaning “the ultimate constituents of physical reality, whatever those constituents may turn out to be.”) So the holistic aspect of the brain might be just another chapter in that same story.

Still, there is no gainsaying the similarity of the brain’s holistic aspect to the emergent mind/self/soul as described by emergent dualism. It is not entirely clear, in fact, whether any substantive difference remains between the two views. One potential difference concerns a topic that has not surfaced until now: the possibility for the emergent individual to persist beyond bodily death. It has been argued elsewhere that this is at least logically possible for the self of emergent dualism. That self is ontologically distinct from the body and brain, even though causally dependent on them. But the causal dependence is logically contingent, so it may be that a sufficiently powerful and knowledgeable being (e.g., God) could maintain the self in existence during a period when the brain and body are no longer available to play their ordinary causal roles in sustaining it. Can a similar case be made for emergentist materialism? I believe that it can, though the conclusion may not be quite as clear-cut. Is the holistic aspect of the brain ontologically distinct, and potentially separable, from the particulate aspect? The distinctness is clear if we say (as I have argued that we ought to say) that the holistic aspect occupies all of the space of the brain, whereas the particles occupy only a minute portion of that space. Separability may seem more questionable. But recall that, in the brain’s holistic functioning, we were unable to assign any distinctive role to the particles; we cannot say that each particle is aware either of the whole of the conscious state, or of some part of it. The only role assignable to the particles is their causal role in the brain function that supports the state—and as noted above, such causal dependence is logically contingent; whatever causal contribution is needed could be supplied in a different way by a sufficiently wise and powerful being. It would seem, then,

that the brain's holistic aspect and its particulate aspect may well be separable, at least by divine power.

Is materialism equivalent to dualism? More precisely, is emergentist materialism equivalent to emergent dualism? The descriptions of the two views are not logically equivalent, but deeper analysis might remove some of the differences. It may not matter all that much, for instance, that the self of emergent dualism is said to be immaterial, whereas the "holistic aspect" of emergentist materialism is an aspect of a material object, namely the brain. The self of emergent dualism is not a Cartesian soul: it is generated by a physical object and is itself spatially located, and it is not simple in the way that a Cartesian soul is simple. And on the other hand, the holistic aspect of the brain is in many ways unlike our ordinary conception of matter; especially this is so if, as was argued in the preceding paragraph, it is capable when sustained by divine power of existing without the particles of which the brain is composed. On either of these two views the line between "physical" and "mental" needs to be redrawn, and once this has been done the opposition between them will be narrowed and may even disappear entirely.

6. CONCLUSION: MATERIALISM AND DUALISM

Still, it may be that not all of the differences can be made to disappear. The emergence of a new substance seems different from the emergence of a new aspect of a substance, even if the aspect is supposed to be capable of separate existence. The need to accept that physical stuff is able to function holistically in the way called for by emergentist materialism may continue to be an obstacle for some. (But isn't there the same problem for the self of emergent dualism? Not quite; the problem for emergentist materialism is that the holistic behavior is attributed to something we already know a great deal about, almost all of which lends itself to being understood in atomistic fashion.) On the other hand, it is quite a bit more obvious in the case of emergentist materialism that the charge of creation *ex nihilo* doesn't apply. As we've seen, the possibility for the self to exist separate from the brain and body is clearer for emergent dualism than it is for emergentist materialism; those who find the doctrine of resur-

rection through reassembly or re-creation plausible and attractive will not, however, be concerned about this. But it is not my purpose in this essay to sort out all of the remaining differences; what is intriguing is that the differences are as narrow as they are. Is emergentist materialism equivalent to emergent dualism? Not quite, perhaps, but near enough!

NOTES

My thanks to Dean Zimmerman for his comments on an earlier version of this essay.

1. Cf. Hasker 1999, 2004, 2005, and 2010.
2. See Popper's contributions to Popper and Eccles 1977.
3. See Hasker 1999: ch. 6.
4. See O'Connor 1994, 2000a, 2000b, and 2003 and O'Connor and Jacobs 2003.
5. They also discuss the prospects for such an emergentist view within a trope ontology. This approach, however, is clearly less favored by them than the ontology of immanent universals, and it will not be pursued further here.
6. See Hasker 1999: ch. 7 and Hasker 2010.
7. For a dualist view that posits exchange of energy between the physical and mental realms, see Hart 1988.
8. An intriguing light is thrown on this topic by theologian Michael Lodahl. Commenting on the depiction of creation in Genesis 1, he writes, "There is even an apparently playful punning in the Hebrew that may well reinforce this idea of creation's creativity: the earth is called upon by God to 'put forth' (*tadshe*) vegetation (*deshe*) and the waters are called upon to 'bring forth' (*yishretsu*) swarming creatures of the sea (*sherets*). *Tadshe Deshe*—the earth, we might say, is called upon to produce produce, to implant itself with plants. *Yishretsu Sheres*—the seas, we could say, are called upon to swarm with swarms of swimmers. Creaturely elements are invited to contribute their distinctive energies and capacities to what God is doing in the labor of creation" (Lodahl 2009: ch. 3). My thanks to Michael Lodahl for permitting me to use this draft of work in process.
9. Consider the following from Dean Zimmerman: "Thus the unity of consciousness supports the view that whatever is the bearer of psychological properties must be a single substance capable of exemplifying a plurality of properties. Its unitary nature consists in the impossibility of its having a 'division of psychological labor' among parts. If a single thinker can recognize the difference between sounds and colors, this thinker does not enjoy

the ability to compare the two simply by having one part that does its seeing and another that does its hearing, even if these parts are tightly bound together. As Franz Brentano remarks, this ‘would be like saying that, of course, neither a blind man nor a deaf man could compare colors with sounds, but if one sees and the other hears, the two together can recognize the relationship’” (Zimmerman 2007). Zimmerman correctly points out that this does not entail that the subject of experience must be absolutely simple, having no parts at all.

10. This version is adapted from a formulation by Paul Draper, who in turn was summarizing the argument as given in chapter 5 of Hasker 1999.

11. In the interest of convenience I shall from this point on refer simply to “the brain,” while recognizing that the relevant part of the organism might be either more or less than the entire brain. The points made will apply in any case.

12. The relevance of this data to the mind-body problem was pointed out to me by Robin Collins.

13. The word “aspect” has a certain ambiguity which may actually be useful in the present case. Different aspects of a thing are often distinguished subjectively, in terms of the “point of view” from which the matter in question is considered. But different aspects can also be objectively different parts of the item in question: the “northern aspect” of a building can be physically and structurally distinct from its “southern aspect.” We shall need to determine whether, and if so, how, this ambiguity is relevant to the case of the brain.

14. The reader is reminded that “brain” is used here as a shorthand for whatever portion of the anatomy turns out to be relevant, which may be either more or less than the actual brain. It is not excluded that something similar may occur in primitive life-forms that lack a recognizable brain.

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