

Minds and Material Composition

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1.

Physics tells us that the human brain, like any other molecular entity, is a scattered object. Our current scientific theories tell us that this particular scattered object is the thing that is conscious, that realizes or instantiates conscious thought. Somehow, conscious thought arises in this scattered mereological sum of matter as long as this thing is exhibiting certain neural states sufficient for conscious thought. To be more specific, for each mental property that can be instantiated by some brain, there are physical properties which, if instantiated by some brain, provide sufficient conditions for the instantiation of that mental property by that brain.¹ Using a thought experiment, I will argue that this view leads to practical (although not logical) absurdities.² I will then suggest an alternative to this conception of the mind: The mind is more than its material.

2.

Consider some brief but complete mental event in your life, this one you are having now as you read these words complete with all its sensations, thoughts, and

¹ Because I am interested in mental properties as individuated by their phenomenology, I adopt a narrow

emotions. Call this mental event *E*. According to the standard view, *E* corresponds to some pattern of neural activation; call it *N*. According to this common view, any brain having *N* will instantiate *E*. Now consider the following question: Is the mereological sum of these neurons exactly that entity which instantiates the mental event in virtue of having the right intrinsic properties?³ Suppose this is the case.

Consider now a system of neurons qualitatively identical to the system that composes your brain while instantiating *N*, but for one neuron, *k*. The difference is that neuron *k* sits inches outside the rest of this brain, and yet it is linked to its corresponding neighbors with circuitry that maintains the appropriate signal transfers. That is to say that despite *k*'s unusual location with respect to the rest of the brain, it behaves neurologically just as it would had it been in its "proper" spot. No doubt, creating such a system would be a fantastic accomplishment. And there is no good reason to place any high bets on this

We can now consider an alternate system much like this one but differing in one very significant respect. For, note that the holding of causal relations between neuron k and its neighbors is not a necessary condition for the proper behavior of k . So, instead of one cleverly constructed circuit between k and its neighbors transmitting the requisite signals, an even more cleverly constructed system may exist, one that controls the firings of k and k 's neighbors adventitiously, ensuring that k exhibits the appropriate neurological activity. This system would consist of a master computer (MC

every neuron in the entire collection in just the right way.⁵ This is yet a collection having the pattern N . Call this thing a *de-integrated brain*. The neurons of this de-integrated brain are all neurons causally isolated from each other, but they nevertheless fire just as they would have fired had no causally isolating de-integration obtained.

Now we must confront a question: Is the de-integrated brain a thing that has E , the experience you had previously while reading the beginning of §2? Put another way, if your brain were currently in the de-integrated state but governed by MC so as to exhibit the same pattern of activation it currently has, would you be having the same phenomenal experiences you are having now?

3.

If so, we face a number of very counter-intuitive results that will be outlined here. Recall that the view under consideration is that certain patterns of activation holding of collections of neurons are sufficient for the occurrence of certain mental events, and the thing that instantiates the mental event is just the mereological sum of these neurons. Now for the counterintuitive results.

First, this de-integrated brain may span from Mars to Venus. In fact, there is no limit in principle to how far the neurons may be from each other. Physical instantiations of mental events can be radically strewn across space, their parts bearing little or no causal relevance to each other. Moreover, these physical systems may have less integrity than any cloud of gas, their elements straying far and wide, flying past each other at irregular speeds. The entire system of neurons can do whatever we might imagine as long

⁵ Note that no robust processing is going on. The manner in which the signals go out may all have been arranged ahead of time. In fact, the system for managing such signals would not have to be very elaborate at all, having the same computational complexity profile as the cylinder of a music box.

as each fires in just the right way at just the right time. For some people, this is absurdity enough; physical “mind-having” things are, for some reason or other, intact things. They do not mix or dissipate.

Fourth, we must eventually admit that MC along with its control filaments is merely a conceptual aid, one that assisted us in imagining different collections of neurons. Even without it, many collections exist. So, for instance, unless your neuron k is doing something especially rare, then for some period of time there exist many counterpart neurons in the heads of other people (and other animals) and each of these neurons helps to compose a new collection of neurons firing in just the way that your collection of neurons is firing. We do not need MC or cleverly-constructed systems of circuitry in order to establish the existence of collections of neurons that meet the requisite conditions. The consequence is a bizarre (albeit limited) form of panpsychism: Parts of our brains collaborate in instantiating many minds and many of these minds have overlapping physical instantiations.

Fifth, and finally, we must ask whether only neurons may form these collections. On many views, the replacement of one of your neurons with something else that behaves

4.

On the other horn of the dilemma, collections of neurons do not instantiate mental events merely in virtue of having the right patterns of activations. One criticism of the thought experiment as it has been developed so far might be that the appropriate kind of neural activation involves more than the right neurons having the right activations at the right times; the activation must *spread* among neurons. According to this objection, the brain certainly is not like a mere theater marquee; appropriate activation necessarily involves real signal transfer between units. If so, then I will seem to have been unfair to those who had this kind of phenomenon in mind. For de-integrated brains do not after all have *N*, if *N* is to be understood in a way that necessitates appropriate signal transfer between units.

No doubt, the distinction must be drawn. I propose to use the term *spread of activation* in the way that involves necessary signal transfer between units. The term *pattern of activation* shall refer (as I have used it) only to the activation states of the neurons over time and remains neutral regarding the cause. Therefore, de-integrated brains exhibit patterns, but not spreads, of activation among their neurons.⁸ The proposal then is to require activation spread, thereby avoiding all the embarrassing panpsychic results just witnessed. Certainly, my previous thought experiment does not involve

absurd. Second, it is possible that some truths are absurd, and if any of the previously covered consequences did hold, we could never know it through any scientific means. Do these collections have full-fledged experiences? This is just the problem of other minds applied to very unfamiliar things, and I admit that for the strict philosophical skeptic, the problem of other minds holds for these things just as it holds for anything else. Third, absurdity alone (without contradiction) is no license for rejection. For, the remaining options may be just as absurd or even more absurd. If all other options turn out to be significantly more absurd, we will have to embrace these absurdities as the most plausible consequences of our standard view.

⁸ The fact that signals are transferred from MC to the neurons in the relevant cases should not be misconstrued as satisfying the condition that signal transfer must hold between the neurons.

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But if relevant differences in signals and neurons do not exist at any sub-neural level and yet signal source matters to whether the mental event is instantiated, then we have a view of consciousness that frankly looks like nothing but magic. The instantiation of a mental event is determined by factors by which the thing doing the instantiating is not affected. For, the de-integrated brain and the intact brain are neuron-for-neuron qualitatively identical; no neuron behaves any differently as a result of its degree of spatial or causal intimacy with another. On this view, mental states do not supervene simply on the material thing. Non-local features of the environment matter, even when they leave no physical trace on the thing that instantiates the mental state.

This is action at a distance of a bizarre kind. A wife in San Francisco becomes a widow when her husband in New York dies. She loses the property *being a wife* and eventually the property will become relevant to future causal processes. However, it is causally irrelevant now. There is no sense in which some omniscient being can discern in just her physical make-up some Leibnizian mark of widowhood. Or, to use a more apt metaphor, this paper, for all you know, may have been written by someone other than the author named. If this is so, then you bear different relations to different people and thereby have different relational properties. Either you have the relational property of *reading a paper by James Blackmon* or you have some other relational property involving reading a paper by another source. But at the moment that you read this, whichever relational property you do have regarding this matter has no causal effect on

differences between the signals from these two different sources (differences that do not affect activation) is an issue of physics, and on that issue this philosophy must defer. This is not to count the problem as a one of pure physics. After all, whether and to what extent any such differences are relevant to the instantiation of a mental state cannot be solved with equations. But I think it is safe to say that this is unexplored territory. Moreover, it would certainly be a drastic shift in cognitive neuroscience to hold that mental properties are not instantiated at the level of neurons and neural activation but at some deeper thermodynamic level, especially when the relevant deep-level differences do not have emergent physical effects on neural activation.

view suggested, are physical (in the sense that light, gravity, and space-time is physical), they just are not entirely material in any classical or intuitive sense.¹⁰

We must heed our best physical theories. Whether it makes sense to speak of some medium, some kind of field (presumably at peace with the special-relativistic denial of a luminiferous aether), is l

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