

A NOTE ON EMERGENT MATERIALISM

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Emergent materialism is a form of Nonreductive physicalism which may be summarised as follows.

1. Materialism (ontological physicalism): everything is ultimately composed of physical constituents (fundamental physical particles and forces).
2. When material entities are organised in a sufficiently complex fashion, new 'emergent' properties and laws become operative. Such emergent properties and laws are new in the sense that they are irreducible to and unpredictable from descriptions of properties and laws at lower levels.
3. Material reality is organised at a number of different levels of complexity which involve different sets of emergent properties and laws. These constitute distinct natural kinds and natural laws which are the subject matter of the various branches of the sciences (geology, meteorology, biology, psychology, social theory, etc).
4. Emergent properties and laws are not a function only of our descriptions or interpretations. They are objectively real, in the sense that they have causal power.
5. New levels of complexity – new natural kinds governed by new laws – have developed within the material world by purely natural processes.
6. The mental is an emergent property of the social, and not merely of the neurobiological, chemical or physical levels.¹

In common with other forms of nonreductive materialism, emergent materialism of this sort is accused of trying to have its cake and eat it. Ontological physicalism, it is said, necessarily implies reductionism which rules out the idea that there are irreducible emergent mental properties and laws. For according to such physicalism, everything is composed of physical constituents whose behaviour is governed by the laws of physics and mechanics. It follows that, in theory at least, every particular mental process is describable and explainable in purely physical terms, without recourse to mental descriptions. Description in terms of emergent properties and laws seems superfluous. Nothing save the complexity of the task prevents us from describing and explaining everything that exists or happens in purely physical terms.

This is indeed an implication of ontological physicalism (to which emergent materialism is committed), although the task would be so enormously complex that there is no practical prospect of ever achieving it. But even if, *per impossibile*, a Laplacean brain did succeed in describing and explaining a human thought or action in purely physical terms, it would not have described and explained it *as* a mental and intentional phenomenon. For the reasons given by Davidson, descriptions using mental concepts are irreducible to purely physical terms. There is a token not a type identity between the mental and the physical. Though every particular mental event is identical with some particular physical event, in using mental concepts we are describing

¹I explain and defend these claims in 'Making Room for the Mental'.

it in a way that has no precise equivalent in physical terms. Mental events as such – as kinds or types – have no general counterparts at the physical level.

Moreover, according to emergent materialism at least, there is a real difference between a conscious human being and a merely physical, chemical or biological entity – a difference to which a purely physical, chemical or biological account is blind. This difference is not only a function of our form of description or interpretation; it is objectively present in the thing itself. Even though a human being is composed of physical and chemical constituents and nothing more, thought and intentional activity constitute new forms of organisation of these material constituents, governed by a new and distinct level of laws. In short, a human being is not just a physical or biological entity; psychological principles really govern its activity and mental concepts are needed in order to understand its activity *as* human activity.

Action of the higher level on the lower – specifically of the mental on the physical – is an essential feature of this philosophy.² As Kim says,

The paradox, and perhaps also the appeal, of the emergentist conception of mental causation arises from the combination of two ideas, the idea that mentality emerges out of, and in that sense depends on, the physical, and the idea that, in spite of this ontological dependence, it begins to lead a life of its own, with a capacity to influence that which sustains its very existence – that is, the combination of ‘upward determination’ and ‘downward causation’.³

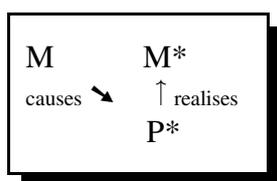


Fig 1

According to Kim these two ideas cannot be combined. As Kim pictures it, the idea of downward causation involves the view that a mental event, M, causes a physical event, P*, which embodies or realises mental event, M* (see Fig. 1).⁴ How is such downward causation supposed to work? There are only two possibilities, Kim

argues. The first is reached by the following line of reasoning.

Surely a mental event could not telekinetically cause a physical event ... if the sharp pain in your elbow causes you to cry “Ouch!” it could not be that your pain, as a non-physical mental event, could somehow directly cause your vocal cords to vibrate. We must expect the causal path from the pain to “Ouch!” to coincide with the chain of neural events that culminates in the appropriate vibrates of your vocal cords, and it seems inescapable that we must locate the origin of this causal chain at the physical realization of pain, if indeed we want to give pain a causal role.⁵

So the situation must be as in Fig. 2.⁶ But then ‘the causal powers of M are wholly derived from the causal powers of its realizer P ... there are no new causal powers that magically accrue to M over and beyond the causal powers of P’.⁷ Emergent materialism turns out to be in effect a form

²Jaegwon Kim argues that ‘downward causation’ is a feature of all forms of nonreductive materialism. *Philosophy of Mind*, Westview Press, Boulder CO, 1996, p.231.

³Kim, ‘“Downward Causation” and Emergence’,. Ansgar Beckermann, Hans Flohr and Jaegwon Kim eds, *Emergence or Reduction? Essays on the Prospects of Nonreductive Physicalism*, Walter de Gruyter, Berlin, 1992, p. 137.

⁴*Philosophy of Mind*, p. 231.

⁵ibid., p. 231-2.

⁶ibid., p. 232.

⁷idem.

of reductionism in which mental properties are epiphenomenal and have no causal role.⁸

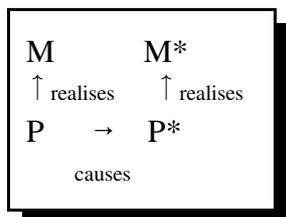


Fig 2

This argument offers us an either/or choice between dualism and reductionism. Emergent materialism refuses this choice: it is neither of these. It rejects the dualist idea that there are 'nonphysical' mental events which 'telekinetically' cause physical events. There are no nonphysical events full stop. Every mental event is at the same time a physical event. But this does not exclude the notion of mental causation. What we have is a series of particular events which can be described either in physical or in mental terms; and a causal chain can, in theory at least, be traced through at either level. Thus we can say

either that your pain caused you to cry out, or that stimulation of your nerves caused your vocal chords to vibrate. There is a causal story that can be told at both levels, and both are valid (Fig 3).

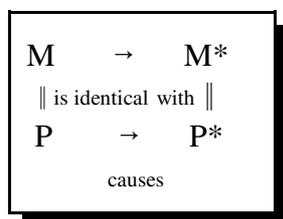


Fig 3

On this view mental properties have physical effects (there is downward causation) in the following sense. Human intentional activity is governed by mental principles. Since such activity is the activity of a material organism and hence physical activity, mental properties have physical effects. That is to say, mental properties can exercise a 'downward' causal influence in the sense that the activity of a material entity which possesses them is governed by psychological laws; and since these laws govern its activity, which is also a succession of physical events, they govern what happens physically.⁹

According to Kim, however, the possibility of description and explanation in physical terms renders the mental explanation redundant. 'If physical facts determine all the facts, as physicalists are fond of saying, then physical facts, including causal facts about physical processes, must determine all the causal facts, including facts about mental causation'. Hence, Kim concludes, the physicalist account implies that 'no new causal powers emerge at higher levels'.¹⁰

Alternatively, if emergent materialism insists (as it does) that mental concepts describe a new level of properties and laws with real effects, then 'new causal powers' are indeed posited. With these claims, however, 'the emergentist is committed to irreducible downward causation, causation of physical processes by nonphysical properties'¹¹. Such causation breaches the principle of 'the closure of the physical', the principle that to explain the occurrence of a physical event we never need to go outside the physical domain.¹² This is to abandon physicalism and

⁸Kim deploys a similar line of argument against 'anomalous monism' in 'The Myth of Nonreductive Materialism', *Proc. and Addresses of the American Philosophical Association*, 63(3), 1989, pp. 31-47.

⁹Samuel Alexander explains downward causation as follows. 'Let large letter denote the psychical and small ones the neural series. What we have then is a series *Aa, Bb, Cc*, etc., where some of the small letters may have no corresponding large letter at all. Now *A* does not cause *a* but is identical with it; but *A* being also *a* may cause the next member of the series *b*, and if *b* is equivalent to *B*, *A* also causes *B*. Strictly speaking, the effect of *A* is *B* and of *a*, *b*. But in so far as *A* does not exist without *a*, *A* also causes *b*', *Space, Time and Deity*, Macmillan, London, revised edn 1927, vol. 2, p. 12.

¹⁰*Philosophy of Mind*, p. 232.

¹¹*ibid.*, p. 232.

¹²*ibid.*, p. 147.

`retrogress to the Cartesian picture that does not allow, even in principle, a complete and comprehensive physical theory of the physical world'.¹³

Emergent materialism does indeed maintain that mental properties involve `new causal powers'. But not in the sense that Kim suggests. Again Kim's argument rests on the assumption that the only alternatives are reductionism or dualism. Emergent materialism rejects this assumption. Mental properties are not reducible to physical properties, nor are they `nonphysical' properties which affect physical processes from beyond the domain of the physical. Mental properties exist entirely within the physical realm, not outside and independent of it. They do not violate the closure of the physical. Rather, the mental is immanent within the physical. It arises as a new emergent form of organisation of the physical, as a form of organisation which develops and emerges within the physical realm by natural processes.

But it is a form which, once it has emerged, is real: real in the sense that it exercises a determining influence over the behaviour of the entity so organised; real in the sense that it has become the operative organising principle, the law, of the thing itself.¹⁴ And it has real effects, in that this law governs the activity of the whole and hence of the parts. But it does so in a way that does not conflict with or override the laws of biology, chemistry or physics. These continue to operate in all human activity. The movement of every physical particle which goes to make up a human being or even a whole society is governed by the laws of physics, but the result of the interactions of all these myriad particles – invisible in purely physical terms – is a new order of things, new forms and new principles of activity: the emergence of the mental.¹⁵ In this way, the existence of irreducible emergent mental properties can be reconciled with ontological physicalism.

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¹³ibid., p. 233.

¹⁴[Is this related to Aristotle's notion of `formal causality'?)

¹⁵Cf Hegel's concept of the `cunning of reason' captures some of this; but this notion is of an intentional process whereas emergence is purely natural. `Reason is as cunning as it is powerful. Cunning may be said lie in the intermediative action which, while it permits the objects to follow their own bent and act upon one another till they waste away, and does not itself directly interfere in the process, is nevertheless only working out its own aims', *Logic*, trans. W. Wallace, Clarendon Press, Oxford, 3rd edn, 1975, §209z, pp. 272-3.