

Chapter 15

The Emergence of Mind: A Dualistic Understanding

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15.1 Emergentism as Monism and Its Critics

The aim of this essay is to show that emergentism in the philosophy of mind should be understood as a dualistic position. Before exposing my thesis I would like to say something about emergentism. It is a philosophical movement that was initiated in Great Britain in the first quarter of the twentieth century by thinkers such as S. Alexander (1920), C. Lloyd Morgan (1923), C.D. Broad (1925) and others. From a methodological viewpoint, emergentism strives to safeguard the autonomy of the so-called special sciences. It also supports an image of reality as structured into hierarchical levels of increasing complexity. According to British Emergentism, there are properties of complex systems, the *emergent* ones, that cannot be reduced to those of less complex systems. The concept of irreducibility can be traced back at the ontological level by and large to the concept of *non-deducibility*. By saying that a property of an emergent system, for example liquidity, is non-deducible, we mean that the belonging of that property to the emergent system cannot be logically deduced from the laws governing lower-level components, that is to say the atomic micro-structure. This implies that the theory which describes the properties at the lower-level is *incomplete* as regards the properties occurring at the higher-level.

In spite of the British Emergentists' commitment to non-reductivism they have all been in favour of ontological monism. This allows us to better understand why in the present-day debate emergentism in philosophy of mind has often been assimilated to non-reductive physicalism. Both positions are supposed to have in common a commitment to a monistic materialistic ontology, though combined with the claim that higher-level properties, such as the psychological ones, are not reducible to the physical basic properties. Jaegwon Kim, one of the most resolute advocates of the similarities between emergentism and non-reductive physicalism, goes so far as to declare the latter as a form of emergentism, and to see in the recent success of non-reductive physicalism a renewal of the emergentistic atmosphere of the 20s

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and 30s of past century (Kim 1992, p. 121). As a matter of fact, Kim's fervour in assimilating the two views mainly aims at making a trenchant criticism of both of them. Let us thus turn to a short analysis of Kim's argument against emergentism and non-reductive physicalism.

Besides the just mentioned principles of physical monism and of the irreducibility of higher-level properties, emergentism and non-reductive physicalism would share on Kim's construal two further principles, that is to say the "Physical Realization Thesis" and "Mental Realism". The Physical Realization Thesis says that "all mental properties 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" (1993, p. 344). As regards Mental Realism it corresponds to the thesis that "mental properties are real properties of objects and events . . . not fictitious manners of speech" (1993, p. 344). The main consequence of the reality of mental properties is, according to "Alexander's dictum", that they have their own causal powers. This idea fits perfectly in the emergentistic frame. Emergentists, in fact, typically maintain that each emergent level of reality is endowed with specific causal powers that can be exerted at the same level of complexity, but also from the higher levels towards the lower ones (for this reason the epistemologist David Campbell later dubbed this form of causation "downward causation").

Kim's claim, however, is that both emergentism and non-reductive physicalism are committed to downward causation, as this is entailed by the basic tenets of both views (1993, p. 350). According to the Causal Realization Principle, "if a given instance of S occurs by being realized by Q, then any cause of this instance of S must be a cause of this instance of Q (and of course any cause of this instance of Q is a cause of this instance of S)" (1993, p. 352). This principle implies that same-level causation is possible only if a causal action is exerted upon the physical realization basis of the property to be instantiated and this sort of causation is downward causation. However, does this combination of downward causation with "upward determination" make downward causation plausible? Or, alternatively, does downward causation make sense within the conceptual frame of physicalism? In his influential 1999 essay on emergence, Kim employs powerful argumentative tools to give a negative answer, that downward causation does not make sense in a physicalistic context. Kim's criticism addresses first downward causation in its reflexive synchronic variety. Kim wants to show that this position leads to causal circularity. I quote: ". . . how is it possible for the whole to causally affect its constituent parts on which its very existence and nature depend? If causation or determination is transitive, doesn't this ultimately imply a kind of self-causation, or self-determination – an apparent absurdity?" (1999, p. 28).

The second variant of downward causation, diachronic reflexive downward causation, which is scrutinized by Kim, is still a form of reflexive causation, since the emergent property causally influences the underlying microstructure. However, such a causation does not display the antinomic and circular character of synchronic causation. In fact, the emergent property M causes at t the whole W's acquiring the new property Q at t + Dt, but W's having Q is not part of W's microstructure at t. Downward causation in its diachronic version is thus a coherent notion. Still, in the

light of Kim's conception of emergence, it is void of significance. Kim shows that the causal activity of the emergent mental property M in producing the physical property P₁ is redundant, as P₁ can be simply caused by P, the subvenient physical basis of M. To argue in favour of the independent causal role of M we must resort to a further positive argument, which in Kim's view has not yet been provided.

Kim's verdict, therefore, is that downward causation, even in its most plausible version, is incompatible with physicalism. It can still have a place in science and in philosophy, provided we are ready to give it up as an ontological category and to consider it as a way of describing the world, which, yet, is a purely physical world (Kim 1993, 1999).

Neither emergentism nor non-reductive physicalism can accept these conclusions, which undermine the plausibility of both positions. But are these conclusions unavoidable? They are so only if the mental level is *determined* by the physical one, that is to say if the underlying basis is not only a necessary but also a *sufficient* condition of the emergent property. However, the thesis of upward determination is not a part of any scientific discipline, but is a mere assumption, which turns out not to be true if the emergent quality is such in virtue of its *not being wholly dependent* on its realization basis. Indeed, it is plausible to maintain that higher-level mental functions, even if they presuppose the activation of the neuro-physiological level –, for there is no thought without brain –, cannot be produced by their neuro-physiological basis alone. If this is the case, then higher-level mental functions are able to influence the brain's activity, that is to say, they are sufficient conditions for it (according to downward causation), while their neuro-physiological basis is insufficient for generating higher-level mental functions, although it represents the necessary condition of them.

Against this view of the micro–macro relationship can be objected that it leans towards dualism, whereas both emergentists and non-reductive physicalists are as reluctant to embrace dualism as they are to endorse reductive physicalism. From the historical point of view it is surely right to say that emergentists were no dualists. However, I shall try to show that the emergentistic view, though not non-reductive physicalism, finds its most natural collocation in a dualistic framework.

In non-reductive physicalism downward causation is a derivative concept. In fact, Kim obtains it by showing that it is implied by same-level causation, which, in its turn, is implied by upward causation. But the implication from same-level causation to downward causation holds only under the condition that upward determination holds. Therefore, non-reductive physicalism is committed to downward causation insofar as it is a form of physicalism. Kim applies the same scheme to emergentism, but in this case his strategy is not justified, since for emergentists downward causation is not a derivative notion, but a primitive one, which lies at the very heart of their view. It is the utmost expression of the emergentistic thesis of the irreducibility of higher-level properties, thus it cannot be thought as disjointed from the non-explainability thesis. The fact that the explainability of the mental by the physical *does not hold* for emergentism undermines any project – like Kim's – to give a physicalistic interpretation of downward causation. While non-reductive physicalism is tied to upward determination and is compatible with

the explainability of the mental by the physical and with Kim's idea of downward causation, in the case of emergentism the non-explainability of the mental by the physical and the correlated concept of downward causation are hardly compatible with upward determination.

Among the many differences between emergentism and non-reductive physicalism that I cannot mention due to lack of space, I still would like to address one that pertains the structure of their respective theories. Both views are often said to imply a "property-dualism" in virtue of their claim of the irreducibility of higher-level properties. However, the sort of property-dualism implied by non-reductive physicalism is profoundly different from the emergentistic one. The former, in fact, views mental properties as situated at two different levels, the abstract and the concrete ones. At the abstract level, properties are exclusively defined by their formal role in producing the behavioural output and are not committed to any ontological position, being thus in principle also compatible with dualism. But, at the concrete level, mental properties are implemented by physical states and, as we know, they are determined by them. Mental properties, therefore, are distinct from the physical ones only at the abstract level but, once implemented, they are token-identical with them. Dualism of properties in emergentism does not involve in principle abstract mental states and considers mental properties, as far as they exist, as concrete properties token-different from their physical bases. This idea generates some tension within emergentism understood as a form of monism, but it can become wholly coherent by disavowing monism itself and by putting emergentism into a dualistic framework.

15.2 Emergentism as Dualism

In recent years some attempts have been made to develop emergentistic models which repudiate the original monistic tenets of British Emergentism and display more or less marked "dualistic" features (O'Connor 1994, 2000a,b, 2003; O'Connor and Wong 2005, 2006, O'Connor and Jacobs 2003; Humphreys 1997a,b; Hasker 1999, 2008). In this part of my essay I shall address the main theses put forward in one of these models, O'Connor's one and discuss it critically in the light of the results achieved in the previous part of the paper.

Aiming at laying out a strong ontological concept of emergence, in several essays Timothy O'Connor characterizes emergent properties as "non structural" properties. He defines structurality as follows: "A property, S, is structural if and only if proper parts of particulars having S have properties not identical with S and jointly stand in relation R, and this state of affairs is the particular's having S" (O'Connor and Wong 2005, p. 663). An emergent property is defined by contrast as the property of a composite system that is wholly nonstructural, and emergentism is defined as the view according to which there are basic, non structural properties had by composite individuals (p. 664). The view supported, at least in the 2005 essay, is property-dualism, according to which mental properties are token-distinct from the microphysical ones (p. 664).

But, how to figure out the relationship between these two different sorts of properties? O'Connor complains that the relationship is often conceived as synchronic, static and formal, due to the contemporary tendency to assimilate emergentism to non-reductive physicalism and, as a consequence, emergence to the concept of synchronical supervenience. Rather, the relationship of micro-level structures and macro-level emergent properties should be viewed as dynamic and causal. In fact, the causal action of the underlying properties is needed to explain the occurrence of emergent properties at a given level of complexity. Yet, emergent properties have causal powers which are irreducible to those of the micro-level structure and which exert at their turn an influence on lower-level and/or same-level entities (p. 665).

O'Connor's claims about the causal relationship between macro- and micro-level are in my opinion the most critical aspects of his proposal. On the one hand he defends the typical emergentistic doctrine of the existence of a downward causation. Given the non-structurality of emergent properties, "their causal influence does not occur via the activity of the micro-properties which constitute (them)"; rather they bear their influence "in a direct 'downward' fashion on the object's microstructure" (O'Connor 2003, p. 5). On the other hand, however, O'Connor also maintains that emergent properties, as everything that occurs, depend on the causal dispositions of the fundamental physical properties (p. 7). The tension existing in O'Connor's thought on this matter can be well illustrated by the passage where he examines the criticism of epiphenomenalism levelled by Kim at emergent properties (O'Connor and Wong 2005, p. 668). He emphasizes that an emergent system is not causally closed as regards its purely physical aspects and that emergent properties are thus not epiphenomenal. But, immediately after making this claim, he writes: "Consistent with this, it is true in an emergentistic scenario that everything that occurs rests on the complete dispositional profile of the physical properties prior to the onset of emergent features. For the later occurrence of any emergent properties are contained (to some probabilistic measure) within that profile, and so the effects of the emergent features are indirectly a consequence of the physical properties, too". Now, it is hard to agree with O'Connor about the consistency of downward causation with the "Causal Unity of Nature Thesis", as he names the just mentioned thesis (2003, p. 7).

A way out of this difficulty can perhaps be found in O'Connor's response to Kim's criticism of downward causation. Though conceding that "the distinctive potentialities of emergent properties do stem indirectly from the total potentialities of the basic physical properties", he adds that "... they do not determine the emergent effects (or fix the emergent probabilities) *independently* of the causal activity of those emergents" (O'Connor and Wong 2005, p. 670). What does this sentence precisely amount to? The only coherent meaning I can give to it is that the potentialities of the basic physical properties are necessary but not sufficient conditions of the causal powers of emergent properties. But this has two consequences which are not compatible with O'Connor's picture of emergence. First, the "Causal Unity of Nature Thesis" is no more valid; second, the fundamental question arises about where the special causal powers had by emergent properties stem from. As they do not entirely derive from the potentialities of the basic physical properties, they must be

rooted in a different dimension of reality. This implies that an unambiguous reading of O'Connor's previous sentence brings us to a more explicit form of dualism than that allowed by the author himself.

O'Connor also devotes one of his essays (O'Connor and Jacobs 2003) to the examination of a controversial issue, that is to say whether emergent dualism is likely to be a variant of property dualism or if it also acknowledges the emergence of whole individuals. He moves from the consideration that human beings are endowed with mental states which confer on them a unity as thinking biological substances. This functional unity of persons as wholes implies their particularity, which does not derive from the particularity of their parts, but is primitive. In the same way, the essential properties of a person are also primitive, since they cannot be reduced to those of her fundamental parts. Thus, O'Connor accepts emergent individuals, but by "individual" he means the composite system itself, with its distinctive particularity and its distinctive holistic features. He does not allow, instead, the emergence of a mental substance, whose acceptance would lead to a kind of substance dualism. O'Connor's rejection of substance dualism holds both for the case where, after having emerged, the emergent individual is ontologically independent from the physical substrate and for the alternative case where it continues to depend on it. In the first case, "a radical kind of creation ex nihilo" is required, for which there are "no remotely plausible candidate instances". As far as the second case is concerned, O'Connor objects that the natural emergence of an individual wholly distinct from the body is implausible and runs against the best empirical evidence (pp. 548–549). However, is the "emergent composite view of human persons" (p. 553) able to account for emergence understood in a strong ontological sense?

To ask this question, we must recall what we have pointed out in the previous paragraph about the origin of emergent properties and their causal powers. The problem with substance monism lies in the fact that the origin of emergent properties cannot be merely physical, because a physical structure is not sufficient for justifying the emergence of non-physical, mental properties. As I am not a Platonist, I believe – as O'Connor does – that emergent properties exist and can exert their causal powers only as instantiated properties. But, differently from O'Connor, I think that they cannot be instantiated in a mere physical substrate. Hence, they must be instantiated in a substrate which is ontologically independent from the body. It must be stressed that only an entity endowed with ontological independence is able to guarantee that its inherent forces can really exert their causal powers. If the mental substance were ontologically dependent on the body, in fact, it would have to borrow its causal powers from the body itself, so that a substance dualism with ontological dependence of the mental substance on the body would not be a much better option in this respect than a substance monism. The fact that the non-material mental substance is ontologically independent from the body, however, does not imply that it is wholly independent from it. Unlike Descartes, and similarly to Aquinas, emergent dualism *does* require a sort of dependence of the mental substance on the body, that is to say, a *functional* dependence. The mind needs an external structure, the body, in order to perform its own functions, such as perceiving, thinking, reasoning or deliberating (see on this Aquinas, *Summa Theologiae*, I, q84, a7).

By postulating a non-material, mental substance ontologically independent but functionally dependent on the body, am I subject to the first objection raised by O'Connor against substance dualism, according to which this theory requires a *creatio ex nihilo*? I take this objection to be a strong one, because, if valid, two unwelcome consequences would follow from it. First, emergent dualism would cease to be emergent, since an act of creation would render the process leading to emergence simply redundant. Emergent dualism would lose its distinctiveness from traditional dualisms "which postulate a special divine act of creation as the origin of the soul" (Hasker 2008, p. 13). But, still worse, while in traditional dualisms the notion of a *creatio ex nihilo* by God is perfectly coherent, the same does not hold for emergent dualism. What is in fact a *creatio ex nihilo*? It amounts to put into existence a particular endowed with ontological independence. But, under the supposition that an emergent individual is "an individual that *comes into existence* as the result of a certain configuration of the brain and nervous system, but which is *not composed* of the matter which makes up that physical system" (Hasker 2008, p. 13), a *creatio ex nihilo* in an emergentistic scenario is simply impossible. The emergence of a mental individual, in fact, cannot be a creation of the material basis, because empirical causes are able to modify the properties of an already existing substance, but they are *not* able to bring a new substance into existence!

Yet, however strong O'Connor's objection may be, it does not affect my own position. Substance dualism with ontological independence of the mind implies an impossible *creatio ex nihilo* only under the condition that the processes from which the mind emerges are merely material processes. Thus, this criticism can be countered if the development of the mental substance is traced back not only to material components, but also to a distinctive, non-material dimension of reality, endowed with ontological independence and existing from the very beginning of the emergent process. Such a dimension is the origin of the potentiality of development of the mental substance, which becomes actualized at the moment in which the biological structure reaches the necessary degree of complexity. Emergent dualism champions the idea of a *co-evolution* of mind and body, at the ontogenetic as well as at the phylogenetic level, on whose basis the realisation of non-biological potentialities is induced by the development of the biological structure, which, in its turn, is afterwards affected by the causal activity of the conscious mind (see on this Hasker 2008). Moreover, it is worth mentioning that the process of actualization of the mental substance also implies its particularization, its being the mind of a specific human individual. As we have just seen, the actualization of the mind is induced by a biological process of high complexity, but increasing complexity is also a sign of increasing individualization, so that my position does not face the problem of having to explain why a certain mental substance exerts its causal powers exclusively on its brain and not on somebody's else brain (this as a response to Kim 2001).

The point of view I am here sketching out could however be subject to the second objection that O'Connor makes against substance dualism, that is to say that it forces us 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”. The implausible consequences of this idea, as applied to human beings, would lie in the fact that “at an early stage of physical development, a self emerges having all the capacities of an adult human self, but most of which lie dormant owing to immaturity in the physical system from which it emerges” (O’Connor and Jacobs 2003, p. 549). I confess that this objection puzzles me, in particular as regards the alleged lack of accordance of emergent substance dualism with empirical evidence. What a developmental psychologist observes concerning the developmental history of a child is the appearance at a certain stage of her development of mental capabilities, whose complexity and sophistication gradually increase, together with the concomitant maturing of the physical structure. This empirical state of affairs – it seems to me – may be interpreted equally well both by an “emergent composite view” and by an emergent dualistic view of the human being. In other words, accordance with empirical evidence is not the benchmark on whose basis a confrontation among both positions has to take place. The merits of my variant of emergent dualism are to be found first of all at the conceptual level. My proposal explains the emergence of the mental substance without resorting to any *creatio ex nihilo*, and also accounts for its ontological independence from the biological structure. In so doing, it guarantees that the mental substance has autonomous emergent powers that it can exert in a downward fashion on the body. Moreover, due to the mind’s functional dependence on the body, my proposal, unlike Cartesian dualism, accounts for the existence of correlations of all mental states with brain states. As we know, neuroscientific research attests the detailed dependence of mental functions on brain functions and the existence of a systematic network of mind–brain correlations, so that at this stage of neuroscientific advancement no dualistic theory can afford to be ill at ease with such empirical data.

Other forms of emergent substance dualism meet the criterion of accounting for mind-body correlations (such as Hasker 1999). I submit that, together with these, my proposal deserves a closer look.

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