

Emergent individuals

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Abstract

We explain the thesis that human mental states are ontologically emergent aspects of a fundamentally biological organism. We then explore the consequences of this thesis for the identity of a human person over time. As these consequences are not obviously independent of one's general ontology of objects and their properties, we consider four such accounts: transcendent universals, kind-Aristotelianism, immanent universals, and tropes. We suggest there are reasons for emergentists to favour the latter two accounts. We then argue that within such ontologies, emergentism about properties pushes one to the stronger claim that there are emergent individuals, though not individuals which are dual to person's bodies—substance emergentism, but not substance dualism.

When one considers the nature of the human mind in a philosophical vein, perhaps the most fundamental questions one asks are these:

What is the nature of a human person's conscious experience—having conscious thoughts and sensations, experiencing emotions, and so on?

And what kind of thing is the thinker who has them?

Most contemporary philosophers answer these questions with variations on a basic materialist theme: a person's having conscious experiences is constituted by complex states in his nervous system; and he is entirely constituted by the simples comprising his body. Despite its orthodox status, the first of these broad materialist doctrines seems to us wholly unsatisfactory. How could one's present state of puzzlement over the nature of mind, for example, be wholly constituted by a complex pattern of neuronal firings? It is an altogether different kind of state, exhibiting basic qualitative and intentional features that separate it sharply from anything recognizably material.

Yet the second materialist doctrine concerning the kind of things we are is attractive. We certainly seem to have mass and to occupy space. Furthermore, substance dualism notoriously faces conceptual puzzles concerning one's relationship to one's body, and empirical worries as well.

Thus we aim to develop a plausible account which rejects the materialist thesis concerning the nature of mental states, while accepting (in a qualified form) the thesis that persons are material substances. We believe (and shall here presuppose) that the most plausible account will also incorporate two further claims: (a) persons endure as three-dimensional entities (rather than perduring four-dimensionally); (b) their mental lives are grounded in their physical nature—which claim we take to imply a non-reductionist realism about causation (rather than some form of regularity theory). A view we find attractive is that conscious mental life (at least) is ontologically emergent in the sense we lay out below. We aim to show that those philosophers who accept the thesis that some mental states are ontologically emergent have reason to accept, more strongly, that persons are 'emergent individuals'. As we shall show, this is neither a form of mind-body dualism nor a variety of materialist monism, at least on its ordinary conception.

1 Ontological emergence: the basic elements

One of us has in various places defended an account of persons and their mental lives that we call 'ontological property emergence'. We warn the reader that this view needs to be sharply distinguished from others wearing the 'emergentist' label on which the operative notion of emergence is epistemological in character, rather than metaphysical.¹ On this view, 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. There is nothing remotely like a 'realization' relation holding between emergent states and complex, lower-level physical states, whether conceived as tokens or types. 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 req-

¹See T. O'Connor, 'Emergent Properties', *American Philosophical Quarterly*, 31 (1994), pp. 91–104; *Persons and Causes* (Oxford UP, 2000), ch. 6 ('Agency, Mind, and Reductionism'); and 'Causality, Mind, and Free Will', in J. Tomberlin (ed.), *Philosophical Perspectives*, 14: *Action and Freedom* (Oxford: Blackwell, 2000), pp. 105–117.

quisite 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 specific type of holistic state.

This will at least characterize the onset of emergent states within a system. Since the initial emergent states themselves will help to determine similar subsequent states—possibly resulting in a complex, stratified range of such states—the microphysics alone will not determine these later states. Likewise, emergent states will work in tandem with the underlying micro-states to determine later micro-states, manifesting a sort of ‘downwards’ causation. Hence the existence of emergent states is contrary to the assumptions of much contemporary metaphysics and philosophy of mind, assumptions which typically include the truth of some fairly strong mental-physical supervenience thesis and the causal closure of the microphysical realm. Neither of these assumptions will hold if there are emergent states as here defined.

We take the existence of such emergent states to be empirically open. Strong evidence in favour of a competing reductionist view of any ‘high-level’ feature H of organized physical systems requires a plausible theory of lower-level structures which yields an account of the characteristic effects of H in terms of such structures. It is not enough to note that the lower-level theory receives direct confirmation from observed results in experimental contexts not embedded within a structure complex enough for the existence of the higher-level feature. (And that, of course, is the typical scenario, since sound experiment design procedure bids one eliminate as many extraneous influences as possible.) For all anyone knows on present evidence, some perfectly respectable biological and chemical features are ontologically emergent in this way. By the same token, we do not think there is any clear positive reason to suppose so.

But, it seems to us, things are different with respect to psychology. A person’s experiences and other conscious mental states exhibit features quite unlike those of physical objects, whether as revealed in ordinary sense-perception or as uncovered in the physical and biological sciences. And the maximally direct nature of first-person awareness of these conscious

states precludes any *a posteriori* ascription to them of underlying physical micro-structure hidden to introspection. By contrast, the causally mediated awareness of a computer screen gives only coarse-grained information about its surface properties. Precisely because the information is causally transmitted, it is conceivable to each person that he is and has been radically deceived by his sensory experiences, so that the world may be quite unlike what everyone takes it to be. But it is not conceivable, given the immediacy of conscious awareness, that a person might be deceived about the intrinsic character of his experience itself. The upshot of this familiar reflection, if it stands, is that human experiences and other conscious mental states have fundamentally distinctive characteristics, and furthermore lack any intrinsic features not directly accessible to their subjects. Some philosophers acknowledge that this sort of ‘Cartesian’ picture captures how persons naively think about conscious experience, but contend that it is an illusion. For our part, we think that these philosophers underestimate the difficulties for any theory of empirical knowledge which maintains that everyone is subject to a radical and pervasive cognitive illusion at the very source of all empirical evidence.

Arguments supporting the above contentions, and materialist replies, are well known in the literature, and we shall not enter that foray here.² We shall presume that emergentist possibilities for theorizing about the mind are not merely open, but quite plausible. Given that presumption, we shall scrutinize the view that an emergentist understanding of the mental allows for a straightforward *substance monist* view of human beings consistent with property, or state, dualism. On this view, I am a biological substance having sui generis mental states; I am at any moment simply the mereological sum of each of my fundamental parts, though these parts collectively instantiate ‘simple’ states that are no less fundamental, ontologically, than the energy state of a basic particle. We now try to show difficulties for such a minimalist emergentist view concerning personal identity through time.

The difficulties can be laid bare only in the context of a general ontology of particulars and their properties. Alas, general ontology is more controverted than the philosophy of mind. So we consider four broad ontological schemes to which we are willing to assign at least a modest degree of plausibility: transcendent (‘Platonist’) universals theory; one of its variants, kind-

²See, e.g., F. Jackson, ‘Epiphenomenal Qualia’, *The Philosophical Quarterly*, 32 (1982), pp. 127–136; and D. Lewis, ‘What Experience Teaches’, in W. Lycan (ed.), *Mind and Cognition* (Oxford: Blackwell, 1990), pp. 499–519. More recent discussions include D. Chalmers, *The Conscious Mind* (Oxford UP, 1996); M. Tye, *Ten Problems of Consciousness* (MIT Press, 1995).

Aristotelianism; immanent universals theory (also sometimes laying claim to the ‘Aristotelian’ label); and trope theory, according to which there are no universals, but only property instances. We shall argue on familiar grounds that the first two of these ontologies suffer from deep obscurities. Furthermore, the first cannot ground an emergentist picture, while the second hints at a way to do so, but only at the cost of even deeper obscurity. Accordingly, we focus on the last two ontologies for the purpose of exploring the question of personal identity, given property emergentism. Reflection on each, we suggest, pushes the property dualist towards a stronger view, which we dub ‘substance emergentism’.

2 Emergence and the ontology of transcendent universals

We shall suppose that two electrons, eleanore and eddie, are mereological simples, having no objects as parts.³ According to current physics, eddie and eleanore each have a number of basic qualities, such as spin, mass and electric charge, all to a determinate value, or perhaps value-interval. On the ontology of transcendent universals, their having, say, spin $\frac{1}{2}$ consists in their individually instantiating a universal property, *spin* $\frac{1}{2}$, which itself exists outside space and time. If there had been no objects instantiating this property, the property itself would still have existed. The sixty-four dollar question in the theory is this: what is instantiation?

It seems that defenders of the theory will be pushed in one of two directions. Going in one direction, they will emphasize the ontological distinctness of eleanore from the universal (taking a cue, perhaps, from Plato’s ‘imitation’ metaphor in *Parmenides*). Instantiation then seems very much like an external relation, though *sui generis* and necessary—and itself not a universal, on pain, notoriously, of a vicious regress. One problem with going along this route is that it is hard to make sense of causal realism, which we are here assuming. A realist about causality wants to say that things act as they do because of the way they are. Their properties confer primitive causal capacities, or at least are bound up in primitive causal relations to those of their effects. But it is hard to see how eleanore’s bearing an external relation to something outside space and time could result in such causal capacities. We shall not press this contentious matter here. A related and more directly compelling worry for the Platonist view is that there is no

³David Armstrong, *Universals and Scientific Realism*, Vol. 1 (Cambridge UP, 1976), ch. 7, heavily influences what we say in this section.

end to the universals a thing instantiates; yet most of these, one supposes, have nothing to do with how the thing behaves. There is no clear story of a realist sort that a defender of transcendent universals can tell about why those universals on which science focuses attention should determine the basic capacities of physical entities. And so it seems that one who accepts the sort of ontological property emergence described above cannot go in this direction.

The second direction in which the defender of transcendent universals may go is reflected in the alternative metaphor from *Parmenides* of ‘participation’. On this view, the very being of eleanore is bound up with the property *spin* $\frac{1}{2}$. It is a mistake to conceive instantiation as a kind of external relation, even if *sui generis*, between them. Nor even does an internal relation get it right. In the case of a typical internal relation such as *being the same colour as*, it is plausible to think that the relation holds in virtue of the intrinsic features of the *relata*; they are the same colour because each is intrinsically as it is, colour-wise. But we do not want to say this of eleanore and the transcendent universal of *spin* $\frac{1}{2}$, as it suggests that there is something about eleanore intrinsically that is logically prior to her instantiating the property. So what we want to say is that in some sense eleanore is partly constituted by the property. But this clarification of the theory of transcendent universals is really either a modification in the direction of the kind-Aristotelian view or, better, a change to our third ontology, that of immanent universals.

3 Emergence and kind-Aristotelianism

In one strand of Aristotle’s thought, the notion of essential kinds plays a central role. Michael Loux has recently elaborated and defended this view, and we shall take his version as canonical.⁴

On this account, objects, or certain privileged categories of objects, are basic individuals or substances. They exemplify various properties, but, as with the Platonist view, these properties are not literally parts or constituents of the objects. More important than the properties they exemplify at any given time are the kinds of which they are members. Kinds are a special sort of universal, distinct from the ever-changing properties of objects. They are prior in reality and in the order of analysis to their members, giving the members their identity—their being the things they are—though not by being a part of the members, nor by any causal influence over them.

⁴M. Loux, *Metaphysics: A Contemporary Introduction* (London: Routledge, 1998).

The individual substances are held to be irreducible, yet the kinds are said to ‘induce particularity’. Were it not—*per impossibile*—for this function of the kinds, there would be no individuals as distinct parts of the world. Aristotelians frequently advert here to a cookie-cutter metaphor: kinds carve up the world into a collection of individuals of distinct sorts.

We take all this to be deeply, even irremediably, obscure. How could the instantiation relation, or for that matter, *any* relation, induce particularity? If particulars are involved at all, it should be as among the *relata*, rather than as a consequence of a relation between two non-particulars. But on the proposed account, at least for basic particulars, a relation of instantiation would hold between the kind-property and, well, what? Nothing in particular, it seems. (Formless matter, which is not particular.) It might be suggested that in place of formless matter at the bottom of things, there are special objects which are not matter–form composites, the arrangement of which serves as the ‘matter’ for familiar composites.⁵ This pares back the claim that kind-universals induce particularity; instead they are responsible only for there being certain kinds of particulars (hydrogen atoms, elm trees, etc.), and not particularity *per se*. Fair enough, although one might now wonder why universals are needed at all, if some kinds of objects (the basic ones) can exist and presumably be the subjects of true predications without them.

If, despite these worries, some such view could be satisfactorily made out, one would be able to avoid the indiscriminating profligacy of the Platonist view, since fundamental kinds are few, and reflect general characteristics associated with emergence, namely, special characteristics that confer fundamental causal capacities. It seems, indeed, that when kind-Aristotelians are asked for an account of why organizing matter into the form of a living human being results in a fundamental kind, whereas organizing matter into the form of my computer screen does not, they will end up telling some sort of emergentist story. However, we can have the advantages of the kind-Aristotelian view without so much obscurity by placing properties within the structure of objects, and this is reflected in our next view.

4 Emergence and the ontology of immanent universals

On the ontology of immanent universals, *eleanore*, while having no object parts, has each of several features—spin, charge, mass, and so on—as con-

⁵We owe this suggestion to Michael Rea.

stituents. As universals, these features exist wholly in both eleanore and eddie, and also in myriad other particles. If this much is true, there must be more to eleanore than a mere cluster of universals, since it is a particular thing, and no cluster of universals can yield particularity.⁶ This something extra can only be eleanore's *particularity* or *thisness*, a non-qualitative aspect necessarily unique to it. Eleanore, then, is constituted by a cluster of universals plus such a particularity, bound in some sort of non-mereological structure, which we shall call a 'state of affairs'.⁷ When one considers the identity of eleanore, one looks to the persistence of its thisness and whatever universals this may entail.

Suppose an individual water molecule, wilbur, contains eleanore as a part. We shall suppose that there is nothing ontologically emergent about such an entity. On that assumption, not only is wilbur constituted by a great many mereological simples, but each and every one of its basic features is wholly constituted by the instantiation of more basic features in its parts, together with the basic relations between them. (Within a framework whereby all objects, including simples, are built up out of non-mereological property-parts, it is natural to seek to economize the number of basic properties, analysing many others as structures constituted by the more basic ones, and perhaps treating other predicates as answering only to non-immanent concepts, which apply in virtue of properties in a many-one relation. Otherwise we should have to posit a brute difference between those property-parts that confer causal capacities and those that do not.)

Should we suppose wilbur to have a particularity all its own, wholly distinct from the particularity of its component simples? It seems not. Loose and popular discourse might encourage us in thinking this, but there seems little else to recommend it. For what accounts for this added something? Under what circumstances do thisnesses arise, and whence do they disappear? Is it only when simples come into close proximity to one another, corresponding to the vague common sense notion of objects? Or is one to admit them for scattered objects as well? Without some principled restrictions, there will be a bewildering variety of particularities instanced during every boring episode one may observe, some of them exceedingly short-lived.

⁶See M. Black, 'The Identity of Indiscernibles', *Mind*, 61 (1953), pp. 152–164; R. Adams, 'Primitive Thisness and Primitive Identity', *Journal of Philosophy*, 76 (1979), pp. 5–26; and a more recent exchange between J. O'Leary-Hawthorne, 'The Bundle Theory of Substance and the Identity of Indiscernibles', *Analysis*, 55 (1995), pp. 191–196, and D. Zimmerman, 'Distinct Indiscernibles and the Bundle Theory', *Mind*, 106 (1997), pp. 305–309.

⁷See Armstrong, *A World of States of Affairs* (Cambridge UP, 1997), ch. 1.

Anyone who embraces this ontology in a serious way should posit distinctive particularities in only mereological simples and those composites that exhibit some kind of objective, substantial unity. Systems exhibiting ontologically emergent properties are natural candidates. Those lacking such features, however much they may appear to be unified to the uneducated eye, are individual objects only by a courtesy born of practical concerns. Suppose one had a firm understanding of the microphysical dynamics and at the same time heightened powers of perceptual resolution, able to ‘see’ the interactions of fundamental material constituents (perhaps by being shrunk, as in Leibniz’s ‘mill’ thought-experiment).⁸ One would apprehend the local interactions of basic entities, unconstrained in any fundamental way by non-derivative macroscopic forces, and recognize the vagueness of the boundaries of phenomena on the borders of common sense objects. The effect, we submit, would be a quite reasonable dissolution of the sense of tight unity which unaided perception reinforces.

Turning now to persons, their holistic mental states (or perhaps certain enduring ‘baseline’ states in particular) 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. This functional unity does not itself constitute a particularity as an enduring thing, but it plausibly implies it. Surely the particularity of persons is primitive, rather than deriving from the primitive particularity of their parts, since those are constantly changing. Furthermore, anyone who embraces this general ontology will probably want to put essentialist constraints on thisnesses, lest one permits the absurdity that the thisness of eddie the electron could have been the thisness of me; and my essential properties are not going to be any kind of function of those of my fundamental parts.

So given the ontology presently in view, it seems that as organized entities exhibiting holistic features, persons have distinctive thisnesses. At first glance this theory looks like a kind of substance dualism, albeit of an emergentist sort, on which the ‘mind’ asymmetrically depends for its existence on the activity of the underlying ‘body’.⁹ For unlike other complex ‘objects’ recognized only as a courtesy, an emergent entity has a distinctive particularity and distinctive fundamental properties. This ontology has two basic sorts of genuine objects: simples, and emergent composites. We need, how-

⁸See *Monadology* §17, in *Monadology and Other Philosophical Essays*, ed. and tr. P. and A.M. Schrecker (Indianapolis: Bobbs-Merrill, 1965).

⁹W. Hasker, in *The Emergent Self* (Cornell UP, 1999), advocates this view. It is discussed favourably by Peter Unger in ‘Free Will and Scientiphicalism’, *Philosophy and Phenomenological Research*, forthcoming.

ever, to distinguish three conceivable emergentist scenarios, only the last of which is being contemplated here:

1. A new object emerges, with its distinctive thisness and a rich range of emergent features, and it does not continue to depend on its underlying origin in a complex system; once spawned, it is set loose to seek its own fortune
2. 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—strictly speaking, there are a bunch of physical simples that jointly interact with the emergent object—so that the emergent object affects other things in its environment only via affecting the originating system
3. The new object is itself the composite system: the simples jointly compose the object, which has a distinctive thisness and some distinctive features.

The first of these scenarios is a radical kind of creation *ex nihilo*, and whether it is conceivable or not, there are no remotely plausible candidate instances. As for the second, 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. Presumably, in order to soften the envisaged discontinuity and bring the picture of the mind's workings into better accord with empirical evidence, it would have to be said that while the emergent individual is in principle detachable from its sustaining base (at least 'by the power of God'), its actual 'inner' workings in the natural order are intimately bound up with the lower level. To the casual observer, that is, it would seem to be a single unified individual, though in reality it would be a two-part composite. Not conclusively ruled out, we judge, but not terribly attractive either. A theist could get around the implausibility of positing the natural emergence of an entire, wholly distinct individual by supposing that while such individuals always come into existence under precisely specifiable conditions, in fact these are merely the occasions on which God generates and solely sustains the emergent individual. However, this gambit faces the

problem of explaining how once such an individual is generated, it comes to act uniquely on its own brain, and not on some other. It appears to require one to allow that causality can be haecceitistic: that a causal agent x could have a capacity to act that is uniquely directed at one particular object y , independently of any general external relationship between the two that could subsequently obtain between x and some appropriate third object z , leading to the same sort of causal connection as x and y currently enjoy. Though some views of causality allow for such an outcome, we think these accounts are mistaken.¹⁰

It is, then, the third scenario that we have in mind. On this, the emergent things which are persons are none other than living organisms, albeit they may well have an ontological status not had by organisms in general. So it is not a mind-body *dualist* variety of emergence, as is true of the first two scenarios. Nor does it seem to be what people have had in mind (including one of us in previous writings) in espousing mere property emergence. We seem rather to have identified a distinctive third form of emergence, between the two, which seems the most promising of the bunch.

All of this, however, has been essayed within the immanent universals ontology, championed of late by David Armstrong. We shall now consider what we as emergentists might be led to say within the ontology of tropes.

5 Emergence and trope ontology

Where Armstrong sees a single universal instantiated within multiple particulars, the trope theorist sees several wholly distinct property instances that primitively resemble each other. According to this theory, everything that is is particular. What we call ‘individuals’, even basic individuals such as (perhaps) electrons, are comprised of a number of more basic particular building blocks, the tropes.

On one version of the general theory, basic individuals are simply mereological bundles of tropes that are ‘compresent’ to one another, where that relation involves at least spatiotemporal co-location. This view has been advocated recently by Keith Campbell.¹¹ Indeed, Campbell holds that it is a contingent fact that multiple tropes are always compresent in a given location. He would allow that there might have been solitary ‘free-floating’ tropes, despite the repugnance of this to common sense. Alternatively, one

¹⁰For fuller discussion of this whole matter, see O’Connor, ‘Causality, Mind and Free Will’.

¹¹K. Campbell, *Abstract Particulars* (Oxford: Blackwell, 1990).

might posit as a basic necessity that, to be instanced, every trope type requires a threshold number of other compresent tropes.

On a second version of trope theory, the substance–attribute version, we again have the addition of primitive thisness, which here is intended to account not for the individual’s particularity (since tropes are themselves particular), but for its ‘thinginess’. On this theory, tropes, even bundles of tropes, are ontologically dependent entities, best thought of as ways things are, rather than as things in their own right.¹²

What we have to say about complex objects lacking emergent features, on either version of the trope theory, will closely parallel our remarks concerning such objects within the immanent-universals ontology. Such composites are nothing over and above the array of basic objects and their relations to one another. At least, they are no more objectively there than an arbitrary scattered object that one might choose to name. One certainly should not posit special overall tropes or thisnesses to such things. As in an immanent-universals picture, tropes would constitute a relatively sparse base of truth-makers for an abundance of supervening concepts.¹³ Their properties will be nothing more than mereological structures of property and relational tropes in and between the constituting simples.

Turning to cases involving emergence, the two versions suggest different results concerning the composite object’s individuality. The substance–attribute version is the easiest to assess, as it seems precisely parallel in relevant respects to the theory of immanent universals. Since there would be enduring holistic tropes attaching to the bundle of particles, consistent with constant change in the bundle’s membership, one should require a specific thisness of the overall composite object. And as with the universals case, this amounts to a special new kind of substance, but not a dual to the body.

The alternative bundle-of-tropes approach, at least in the austere variety propounded by Campbell, does not mesh well with the idea of a literally enduring yet changing object. An object’s being is exhausted without remainder by its tropes. Therefore to the extent that the individual tropes have changed, the bundle’s very being has changed.

The very idea of being a trope-constituted basic individual at a time

¹²See C.B. Martin, ‘Substance Substantiated’, *Australasian Journal of Philosophy*, 58 (1980), pp. 3–10, who develops a view of this sort, which he sees as implicit in Locke.

¹³Nowadays, philosophers often take the indispensability of certain concepts for human investigation of the world as a sufficient justification for ascribing the corresponding property to the world: see, e.g., J. Fodor, ‘Special Sciences’, *Synthese*, 28 (1974), pp. 97–115; L. Antony, ‘Making Room for the Mental’, *Philosophical Studies*, 95 (1999), pp. 37–44. We take this to be dubious, but cannot argue against it here.

seems to be something of an arbitrary matter. Some trope theorists help themselves to the assumption that all basic tropes are instanced at dimensionless spatiotemporal points, which would permit one to say that basic individuals are entirely composed of all the tropes instanced at a given point. But even if this conjecture were true, it hardly seems a conceptual truth, and so does not seem to give a clear analysis of object individuality within this framework. And in any case, things are clearly rather difficult in cases involving emergent features of larger systems. For one would be hard-pressed to give a similarly principled answer to the question of what would make two emergent properties those of the same individual, when they are. Perhaps the properties are not even spatially located, as most property dualists have supposed concerning the mental. We suppose that the best criterion will be causal, implying that one has two emergent properties of the same composite system if and only if they are simples, and the instantiation of each results from the system's joint causal activity, in the manner described in our introductory remarks. If that is thought insufficient to characterize the overall system as an individual, as against a collection of trope-bundles in causal interaction with one or two unbundled emergent tropes, the 'austere' trope theorist might say that whether or not one has an emergent individual which is comprised of compresent tropes admits of degrees. As one moves to scenarios exhibiting more emergent tropes associated with a given system and greater degrees of hierarchical structure at the emergent level (anchored by baseline, long-enduring features), it becomes more natural to speak of an emergent individual, whose identity is constituted by a continuing manifestation of smoothly evolving emergent psychology bound up with an underlying flux of micro-level basic trope-bundles and temporary emergent tropes.

We speak of the above as an 'austere variety' of the trope-bundle approach, since there is an alternative currently on offer, the 'nuclear theory' of Peter Simons.¹⁴ Simons wants objective individuality in trope-bundles without resort to *substrata*, such as thisnesses. He directs our attention to the possibility of a bundle of co-located tropes (the 'nucleus'), each of whose members is essential to the existence of the others, together perhaps with other tropes (the 'accidents') on which the nucleus does not depend. So if there are basic causal laws requiring that tropes of a certain number of kinds can be instanced only together with instances of the other kinds, we have the requisite nuclei. A number of dependent aspects will thus together

¹⁴P. Simons, 'Particulars in Particular Clothing: Three Trope Theories of Substance', *Philosophy and Phenomenological Research*, 54 (1994), pp. 553–575.

constitute the essential core of an individual whose aspects they are. (And again this individual may also have other aspects contingently.) So long as the nucleus endures, the individual does likewise.

Suppose a system of such nuclei-enduring individuals comes together at a point in time and thereby gives rise to emergent features. In order to adhere consistently to the proffered analysis of individuality, one should say that the result would be an emergent individual if and only if a plurality of emergent tropes constitutes an enduring nucleus, one that will invariably be accompanied by more short-lived accidental emergent tropes. Suppose this to be so. Here it seems that we finally have the makings of a true substance dualism. For the emergent-level nucleus itself suffices for individuality, despite its causal dependence on the underlying system of lower-level nuclei. One would have a distinct substance, then, causally interacting with and continually dependent on the lower-level system of substances. However, there will be peripheral tropes associated with this high-level nucleus at any given time, which are the changing features of the emergent individual. We consider these to be part of the emergent individual, because both the nucleus and its accidental accompaniments are bound up with the same underlying system of individuals. While one could, in strict consistency, treat that as an external condition on inclusion of accidents in the high-level individual, it is more natural to take the emergent individual as encompassing the sustaining system itself as an accidental (and constantly changing) part of its nature. What is essential to me, then, is the core nucleus of emergent tropes—the very ones that now partly constitute my being, not merely ones that resemble these—and there being some or other lower-level trope-individuals that constitute a structure capable of sustaining this emergent nucleus.

We have considered three different trope-based accounts of the unity of particulars and their implications for the nature of an emergently propertied composite. The substance–attribute account yields the same result as its counterpart within an ontology of immanent universals: an emergent system which is a true composite. The more austere bundle theory has less sharp implications, but will plausibly suggest something approximating this result where the range of emergent features is rich and tightly structured, as one may suppose is true in the case of persons. Only Simons’ novel nuclear account would imply that emergent individuals are dual to their bodies. While we take Simons’ account to be intriguing, we are not inclined to adopt it, and so we take the likeliest form of trope theory to endorse also the emergent composite view of human persons, given the basic hypothesis of emergent states.

6 Two alternative views briefly considered

Substance emergentism permits a robust realism about mental lives consistent with the supposition that such episodes are largely a product of, and are continuously dependent upon, purely physical aspects of the nature of persons. This is an attractive combination, it seems to us, and so the view merits further elaboration and exploration.

There are alternative views with some currency that might seem rather similar to ours. We shall note briefly two prominent alternatives in order to make plain their substantial difference from our own view.

Peter van Inwagen presents an elaborate argument for the conclusion that mereological simples and living organisms are the only material beings there are.¹⁵ Thus he upholds a position similar to our own, an ontology which restricts composition to those collections of particles satisfying a non-trivial condition unconnected to contingent human interests and purposes. And at first glance his reasons appear to bear a family resemblance to ours. He contends that we must accept the existence of thinkers because of the correctness of Descartes' *cogito* argument that thought implies thinkers: 'I do not see how we can regard thinking as a mere co-operative activity... things cannot work together to think—or, at least, things can work together to think only in the sense that they can compose, in the strict and mereological understanding of the word, an object that thinks' (p. 118). However, he also holds that this point is neutral on the metaphysics of thinkers, and he goes on to suggest that the ground of unity for thinkers does not reside in anything mental, but in facts constituting their being alive. And earlier in the book (p. 90) he tells us that he is inclined to reject the thesis of holism, on which 'the properties of organisms are not wholly determined by, do not wholly supervene upon, the properties of their parts'.

For our part, we find all this confusing. If (as we suspect) he rejects the existence of emergent mental properties in our sense of emergence, then we fail to see the force of his remarks against the thesis that thinking is a co-operative activity among non-thinking simples. If persons are composite objects that have no emergent mental features, then it seems that thinking must be a co-operative project between the simples that compose them. It is possible, however, to understand van Inwagen as offering something like this:

There probably are no emergent aspects to merely being alive,
but thought (in Descartes' liberal sense) does involve emergence.

¹⁵P. van Inwagen, *Material Beings* (Cornell UP, 1990).

The existence of these emergent features, however, merely establishes the existence of thinkers, without thereby providing the criterion of composite existence. Here we must look at thinkers as we know them (they turn out to be biological composites, and not immaterial simples, as Descartes concluded), and try to discern what is fundamental to their nature. The most plausible candidate is life. (Indeed, thinkers whose current existence is indubitable on Cartesian grounds could continue to exist after losing entirely the capacity for thought.)

We do not find this position plausible. Our Leibnizian shrunken observers, for example, would not notice a simple qualitative or dynamical difference between the storm of atoms in a merely living system and those within a stable, non-living system.

Our aim here, however, is not to rebut his position, on either way of construing it. Instead, we note that its distinctness from our own is a consequence of a somewhat different set of arguments. As readers of *Material Beings* will know, van Inwagen adopts a restricted ontology of composites in order to respond to a range of familiar puzzles, including the ship of Theseus. Our goals are to account for the irreducibility of mental phenomena to any physical phenomena, and for reasons of theoretical economy, to admit only those composites which do fundamental causal work.

More recently, Lynn Baker has argued that persons are distinct from but constituted by their bodies.¹⁶ (She sees the constitution relation as holding between all manner of entities, such as artefacts and the lumps of material of which they are made.) Persons are said to be constituted by their bodies, not by their bodies' parts. On this view, we have *two* body-sized unities here, not one. In a nutshell, the view developed is this: my body and I are co-incident objects that share all our properties; but we have them in different ways. My body has the property of being six feet tall primarily, while I have it derivatively, in virtue of my body's having it. I, meanwhile, have the property of thinking about the mind-body problem primarily, and my body has it only derivatively (pp. 46ff.).

An important support for Baker's coincident-objects approach is the conviction that many ostensible middle-sized objects (including persons and artefacts) are just as real as fundamental physical objects, even though they do not introduce fundamental physical forces in a way that would violate the causal closure of the physical. This particular non-reductionist strategy has the advantage over ours of making no empirically risky assumptions,

¹⁶L.R. Baker, *Persons and Bodies: A Constitution View* (Cambridge UP, 2000).

but it comes at its own cost: the posited constitution relation is uncomfortably similar to the ‘union’ relation between mind and body according to Cartesian dualism. A Cartesian might say that my immaterial mind has the property of being six feet tall derivatively, in virtue of being joined to a body that is six feet tall *simpliciter*, and likewise for properties of my mind which are had derivatively by my body. Baker stipulates that an immaterial entity cannot enter into constitution relations (p. 43), but she frankly admits that this stipulation was added precisely in order to avoid the unwanted implication that the view would turn out to be a version of Cartesianism. Our composition-conferred-by-holism view is not vulnerable to this and other difficulties associated with spatially coincident entities. There are not two composite entities occupying a body-sized region; there is but one, a composite which forms a true unity.

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