

The Emergence of Properties in Social Systems

Abstract:

Emergence is typically discussed in the context of mental properties or the properties of the natural sciences, and accounts of emergence within these contexts tend to look a certain way. The emergent property is taken to emerge instantaneously out of, or to be proximately caused by, complex interaction of colocated entities. Here, however, I focus on the properties instantiated by the elements of certain systems discussed in social ontology, such as being a five-dollar bill or a pawn-movement, and I argue that these properties emerge in a distinctive way. They emerge in part because of a system that is far beyond and typically before the object that instantiates them. I characterize how emergence occurs in these cases, juxtaposing it with how emergence is typically discussed. I then argue that these properties are genuinely emergent, exhibiting the features of strong emergence—where their instances are not reducible to their physical base and have novel effects. I conclude by considering the scope of the properties that emerge in the way described.

Introduction

A five-dollar bill is a kind of thing of our creation, and as such metaphysicians typically discuss it and similar objects when they are talking about artifacts or social ontology more generally. In those discussions, we are typically considering how to think about the relation between the object *qua* five-dollars versus the object *qua* piece of paper—whether they are the same objects or distinct (e.g., Johnston 1992, Noonan 1993, Baker 2000), the process by which the piece of paper came to be a five-dollar bill (e.g., Searle 1995), or in virtue of what a five-dollar bill counts as money (e.g., Brynjarsdóttir 2018).

What is often left out of this discussion, however, is how we should think about the *property* of being a five-dollar bill. Whereas it may not be clear whether the object that has this property is identical with the co-located object that has the property of being a piece of paper, it can seem quite plausible to say that the property ‘being a five-dollar bill’ is not identical with the property ‘being a piece of paper’. But if we want to say that ‘being a five-dollar bill’ is a property that objects can have, and if we are willing to say that it is not among one of the fundamental physical properties, then it seems that the instantiation of the property of ‘being a five-dollar bill’ must in some sense be *emergent*.

In fact, we can be led to say the same thing about a great many properties of entities in our social world. Just as with the five-dollar bill, we can recognize how a piece of wood on a chess board has the property of ‘being a pawn’, and the event of moving it will have the property of ‘being a pawn movement’. Or, we can see how someone’s walking across the street without a crosswalk will have the property of ‘being a J-walking’. These are properties that we take to exist in some sense, and to have effects in the world. They also do not seem to be the properties of a fundamental physics, and yet we do not doubt that they are somehow related to such properties. So, it seems right to think that these properties too must be emergent.

In this paper, I am going to explore the emergence of these properties, and we can start by recognizing that the claim of emergence is no small thing. At a minimum, it involves a commitment to the idea that a given property in question genuinely is distinct from and will not reduce to any properties of fundamental physics. In other words, it involves reifying non-fundamental properties. And it also involves the claim that these properties (or the instantiation of these properties) nevertheless in some way *come out of* or *emerge from* those physical properties.¹ (It is not simply that non-fundamental properties just happen to exist and be instantiated by physical objects.)

Early discussions of property emergence typically involved considering properties of the special sciences, where these properties seem distinct from the properties of physics and yet clearly related.² And a more recent discussion has gone on in the philosophy of mind considering whether or not mental properties will reduce to or emerge from physical properties of the brain. In each case, demonstrating emergence involves carefully arguing that these properties are distinct from physical properties, and it requires providing some kind of story for *how* these properties emerge from physical properties.

Typically, arguments for distinctness take a variety of forms. In the case of mental properties, it has involved arguments from causal differences between mental and physical properties,³ arguments from the multiple realizability of mental properties,⁴ and others.⁵ The importance of or success of these various arguments in the context of mental properties is heatedly debated, and we can already imagine how some of these arguments may go in the context of the properties we are considering. Surely a pawn can be realized by a piece of wood or a piece of metal or a saltshaker, for that matter. Many different kinds of things can fulfill the functional role of pawn. And perhaps being a five-dollar bill is a very different kind of thing from being a piece of paper, with clearly distinct causes and effects.

Rather than attempt to adjudicate the success or relative importance of these arguments, our aim here will instead be to provide a story for how the properties at issue would emerge if indeed they are emergent. Further, I will show how the properties at issue emerge in a similar fashion, and I will contrast this with how emergence is typically discussed. Critically, something can only be a five-dollar bill in the presence or in the context of a certain monetary system. This system (whether we take it to involve other bills or our own

¹ For a good working definition for emergence, we might follow O'Connor and Wong in saying that "*It is the thesis of emergentism that some basic properties are had by composite individuals*" (2005: 664). However, it may just be incidental if basic properties of composite individuals are emergent. On my way of thinking about emergence, as long as a property is not understood as a property of fundamental physics, it will be emergent whether or not it is instantiated by a composite individual. (For example, if macroscopic extended simples are possible, perhaps such emergent properties could be instantiated by them.) Similarly, this characterization will not work if it turns out that composite objects can themselves instantiate fundamental physical properties (e.g., charge or spin).

² See McLaughlin (1992) for a thorough historical overview of the different approaches taken on the emergence of the special sciences for by J.S. Mill, Samuel Alexander, and C.D. Broad among others.

³ See, *inter alia*, Heil & Mele (1993), Robb & Heil (2019), and the *many* works cited within these. There have been vast amounts of work in the past few decades around discussions of mental causation, whether it is distinct from physical causation or how to reconcile it with physical causation, as well as the efficacy of mental content.

⁴ See, *inter alia*, Polger & Shapiro (2016) and Bickle (2019) for systematic discussions purely on this topic. Though of course appealing to how mental states are multiply realizable, or can be realized by more than one kind of substance on the basis of the function of these properties, has quite a long history (Putnam 1967, 1973; Fodor 1974; Lewis 1972).

⁵ For instance, we might think that mental properties are *just too different* from physical properties to be identified with them. Recently, there has been a fair amount of work on whether appealing to this intuition of differentness doing more work in the literature on whether normative properties reduce to or are distinct from natural properties (see Paakkunainen 2018; Laskowski 2019; Copp 2020).

expectations or intentions) involves many elements far apart from and before the existence of a particular five-dollar bill, and so the emergence of a particular token of this property must be in some part grounded in the presence of this system. Much the same could be said for the property of ‘being a pawn’ or ‘being a J-walking’ given the game of chess and our system of criminal law. I will suggest that the fact that tokens of these properties emerge in the context of systems makes them distinct from how most of the purportedly emergent properties are thought to emerge.

To address this, in section (I) I will discuss more closely how to think about the existence of these properties and their relation to certain systems. In section (II), I will consider the way in which these properties emerge and how this relates to how other properties are taken to emerge. The emergence of these properties will be fairly distinctive, so in section (III) I will consider whether they indeed are emergent properties. Finally, in section (IV), I will conclude by discussing the scope of properties that emerge in this way—whether all properties of socially constituted objects so emerge and whether other kinds of properties may so emerge as well.

Before beginning in earnest, however, I want to briefly discuss two ways in which the approach here is distinct from how the properties of the social world are often discussed. First, a very familiar debate surrounding items of the social world involves the debate between so-called methodological individualism and holism. Holists argue that we need at least some social concepts (such as the concept of a workers’ union, or unemployment, the crime rate, etc.) to provide adequate explanations of phenomena studied in the social sciences (e.g., Kincaid 1986; Sawyer 2002; Zahle 2014a; Zahle & Kincaid 2019). Methodological individualists, on the other hand, argue that adequate (even *superior*) explanations can be given entirely in terms of our understanding of individuals and perhaps their relations to one another (e.g., Popper 1945; Watkins 1957; Brennan & Tullock 1982; Elster 1983; Demeulenaere 2011; List & Spiekermann 2013; Rapport 2017; Mitrović 2017).

This is an interesting and live debate, where I take it that individualism indeed might be right when it comes to certain concepts discussed in the social sciences, though perhaps not for others. I am generally sympathetic to holism, but how these debates are resolved is orthogonal to our question here. We are concerned directly with the nature of properties of particular objects or events, not with the explanatory relevance of social science concepts. That debate concerns explanation, not existence, and it is the existence of these properties that concerns us.⁶

A second way that properties of the social world are often discussed involves how various social features relate directly to the mental states of individuals. So, for example, joint or group agency may be taken to involve the coordination of individual intentions, and we can recognize that there is a debate concerning whether the intentions of individuals is sufficient, or whether those intentions requires content involving plural agents, whether these intentions must be shared, or whether groups themselves must have *sui generis* intentions. Similar conversations concern how to think about group belief or group understanding, for instance, and these and other conversations are generally carried out under the heading of issues in collective intentionality.⁷ What tends to be at issue is whether some social phenomenon can

⁶ That said, there are ontological questions and debates close by. We may wonder whether we should accept the existence of groups or organizations, for instance. Or we might consider whether accepting non-reducible social science concepts entails certain ontological commitments to serve as the truthmakers of claims involving those concepts.

⁷ See Schweikard & Schmid (2013) for a thorough introduction to these topics.

be reduced to what goes on in individuals, but it is a conversation about existence, rather than explanation. It is also a question of whether the phenomenon reduces to the mental states of individuals.

This last point is important, because we might wonder whether the same kind of thing is going on in our cases. I have been talking about whether the properties in question reduce to or emerge from fundamental properties, which are likely properties of a fundamental physics. But we might have wondered whether the properties in question reduce not to these fundamental properties, but perhaps to other *non*-fundamental properties of our minds, just as in the case of group intention or belief. It is important that we are making the claim that the properties in question are *interestingly* emergent, rather than thinking of them as *uninterestingly* emergent insofar as they are only a matter of mental properties that are themselves emergent. I will save this question of the relation between the systems at issue and properties of our minds for below, but for now I will just say *how* these properties are instantiated will prove interesting enough in its own right. Given that, let's move on to consider how we should think about the properties in question.

I. The Properties of Elements of Social Systems

The common thread in the examples that concern us here is that these are properties that stand in some relation to socially constructed systems (e.g., our economy, our system of laws, the game of chess). It can be hard to see exactly what this relation amounts to—whether these properties are *parts* of those systems, or *instantiate* them, or exist *in the context* of them—but we can start merely by recognizing that some properties are related to systems in some way. At the very least, we can appreciate that these are properties of elements of these systems, as opposed to properties of those systems themselves. Call the properties had by elements of these systems *social system properties*.⁸ Though it is not immediately clear exactly what it is to be a social system property, we certainly know one when we see it. We engage with these social systems on an everyday basis and are constantly acting within them. These are features of our social world that we create and collectively accept, the objects of which are the subject of social ontology.

I want to be clear to say that our concern here is merely with these properties of these objects of social ontology. We really do take there to be pawns and pawn-movements and five-dollar bills, and we take them to be a part of the physical world. Insofar as we do, there must be a story for how the properties of these objects square or relate to other kinds of properties in the physical world. That they do so relate via emergence is the claim of this paper, but it must be acknowledged that it is just a claim about these particular kinds of properties,

⁸ This label allows for an easy contrast with mental and physical properties, though it does perhaps invite some ambiguity. To be clear, again, our concern is for those properties *of elements* of social systems, not properties *of the social systems* themselves. The former are properties like 'being a five-dollar bill' or 'being a pawn,' whereas the latter are properties such as money's property of 'being a medium of exchange' or chess's property of 'being an intellectual game.' Though the ambiguity is unfortunate, notice that the ambiguity here is not unique, as a similar ambiguity is possible when thinking about mental properties. We may be used to thinking of mental properties as properties of elements of the mind, but 'mental properties' could also be misread as being properties of the mind itself, such as 'being clever' or 'being of sound memory.' There is, however, a separate and interesting debate concerning the causal efficacy of social structures themselves. See Elder-Vass (2010, 2014a, 2014b) and Wahlberg (2014a, 2014b), Zahle (2014b).

as opposed to other interesting properties of our social world (e.g., the other kinds of properties discussed in fn.8).

It's also not immediately clear what it takes to be among the social systems in question. We will return to this issue at the end of the paper, but here we should acknowledge that there are deep metaphysical issues surrounding these systems even if we have a particular one in mind that we have a fairly good grip of. For example, certain objects will have the property of being a pawn when they are part of a game of chess, and so properties involved with an unfolding chess game will depend to some extent on how exactly we understand chess metaphysically. Many will deny flat-out that the game of chess exists or can in any sense be a part of the furniture of the world, but proponents within social ontology will be amenable to talking about the existence of chess and chess-related properties.

Clearly, chess as a game involves a system of rules, many of which we may take to be constitutive of the game itself (Lewis 1979). These rules established what kind of items are in chess and what kinds of things can happen in a chess game. So, for instance, they tell us what counts as a bishop, a pawn-movement, checkmate, and so on. We can think of this as a list of chess types, such that a particular game of chess involves various tokens of these pre-established types. (The instantiation of these tokens of previously established types is the critical element to the distinctive nature of the emergence of these properties, as discussed below.)

From here, however, there may be broad disagreement over the nature of those rules, the types that they set out, or how they are established. We may follow Searle (*op. cit.*) in maintaining that what is involved in the creation of chess is establishing a set of status functions, using the 'X counts as Y in context C' schema, to denote which items will count as pawns or how the pieces are to move and in what conditions. So, we may take the rules to be pegged to particular speech utterances. Alternatively, we may take the rules of chess to be a matter of behavioral conventions that were historically established, or of shared knowledge or beliefs about what the rules are. Or, on the other extreme, we may be Platonists and take the rules of chess to be abstract existing entities.

Though with chess we are dealing explicitly with rules, we are largely dealing with the same issues when we expand to think about the other mentioned social systems involving our system of currency/banking or our system of laws.⁹ There may not always be a rulebook ready to hand for these other systems, but there are the same concerns having to do with what events constitute the establishment of various elements of the system, whether it is explicit acts of rule-setting or changes in behavioral dispositions, etc. In each case, it seems that we create social systems by creating a set of related types. And a property of an element of a social system as I have been discussing them will be a token of one of the pre-established types.

These debates about the metaphysics of rules and systems are important, and below I will suggest that exactly how we think about them will influence how we understand the emergence of properties within these systems. For now, though, what matters is that there are different ways of conceiving of these systems while agreeing that they exist and can have elements that instantiate them. The question becomes, then, how should we think about the emergence of the token properties of the elements within these systems?

⁹ Closely related to all of this is how we should think about the existence of social institutions more generally and institutional facts (facts involving elements of those institutions).

II. The Emergence of Properties in Social Systems

It is my contention that the properties of elements of social systems do emerge, and I think that they do so in a way relatively distinctive among the ways that philosophers have characterized emergence. Emergent properties are typically thought to emerge from and so to be irreducible to the base of physical properties on which they supervene.¹⁰ They emerge from properties either instantiated by the very same object, or at least by properties instantiated by an object colocated with the object that instantiates them.

The emergentist about mental properties, for example, will usually claim that mental properties are different in kind and irreducible to any candidate physical properties such as properties of the brain, meaning mental properties cannot be understood in terms of or thought to consist in properties or arrangements of brain properties.¹¹ However, this emergentist will usually admit that those mental properties nevertheless clearly supervene on certain properties of the brain. So, there will not be any difference in the mental properties without some difference in the physical properties of the brain. And, if they are to avoid substance dualism, they will say that the mental properties are still instantiated by the very same substance as the physical properties of the brain. (The brain itself instantiates physical and mental properties.) Given supervenience, and since both the physical and mental properties are being instantiated at the same time in the same substance, the typical metaphorical understanding of emergence seems to be that mental properties emerge *upwards* from the physical properties of the brain. That is, the mental properties seem to emerge directly out of physical properties.

Thus, emergence is traditionally conceived of as a synchronic relation between the emergent properties and the physical properties on which they supervene, where the properties in question appear to emerge upwards from the properties of their supervenience base somehow in virtue of the relation of the elements in that base. We could say that the instantiation of these emergent properties is metaphysically explained by the instantiation of the properties of the supervenience base. This is how the properties of the special sciences were originally thought to emerge by the early British Emergentists (McLaughlin *op. cit.*). The idea was that the organization and structure of the elements of the base led to the emergence of further properties. It was the structure of elements, not merely the base elements on their own, that would yield emergent properties.

More recent philosophers thinking about emergentism have considered other ways to conceive of emergence that are not simply a matter of the structure of the elements in the supervenience base. O'Connor and Wong (*op. cit.*), for example, gives a picture on which properties emerge as a matter of the complex interactions of the elements which *cause* the emergent properties to emerge. That is, the instantiation of emergent properties is caused by the instantiation of non-emergent (or at least more fundamental) properties, and that these new properties are emergent (*the fact* of their emergence) is metaphysically explained by *facts* concerning the complex interaction that preceded it. So, on their picture emergence is diachronic and causal instead of synchronic, though the emergence is caused by the organized complexity of the elements in the purported base.

Similarly, Kirchhoff (2014) also delivers a model of diachronic emergence within dynamic systems, in this case where complex interactions cause an emergent *process* to unfold.

¹⁰ Kim (1999) takes these two theses of supervenience and irreducibility to be essential for the emergentist.

¹¹ Though non-reductive physicalists about the mind will maintain that mental properties count as physical as well, or are derivatively physical (Bennett 2008).

Even more radical views of emergence can be found in Humphreys (1996, 1997), which claim that emergence is a matter of the *fusion* of the base elements (such that those base elements no longer exist on their own to offer worrying causal competition with the fused product), and in Ganeri (2011), which offers the view (in part on the behalf of ancient Indian philosophers) that the elements of the base *transform into* the new emergent substance.

Though emergence is depicted on these views as being diachronic and causal, what's crucial to notice is that they still all involve *proximal* causation. That is, that which emerges does so *immediately* as the product of either the interaction of the same base elements, or else their fusion or transformation. While these may provide fruitful models for the emergence of certain properties within the social sciences, or even for mental properties, it seems immediately clear that social system properties of that kind we have been discussing do not emerge in these ways.

Quite clearly, the property of being a pawn does not emerge as a matter of the interaction of any of the physical properties of the piece of wood that constitutes its physical base.¹² The wood may have the structure of a pawn, but pawn-ness does not emerge locally as a property merely because it has that structure. (A chipped off piece of wood from a tree that happened to have the same shape would not be a pawn.) Neither is it a pawn because of some degree of organized complexity in the elements of the object that instantiates it. The molecules in the wood are not so complex that they somehow cause the instantiation of the property of being a pawn or of a pawn movement, nor do they seem to fuse or transform into a pawn. And what we have said about the pawn seems equally true for the property of being a five-dollar bill or being a J-walking.

The emergence of properties of elements within social systems more generally cannot easily be construed as occurring as a matter of the interaction of the properties of their physical bases. This is because the emergence of social system properties at least partially depends on the system of which it is a part. It's not that the physical properties at hand somehow bubble-up and miraculously birth new irreducible properties; instead, social system properties are a matter of physical properties fulfilling the criteria for the presence of extra properties, the blueprint for which were created at an earlier time as part of separately creating the system.

Now, in these cases it may still seem appropriate in a sense to think of these properties as synchronically emerging. After all, the object instantiating the property of being a pawn is colocated in space and time with the object instantiating the property of being a piece of wood. And though the property of being a pawn does not supervene on the property of being a piece of wood, there would be no instance of the property of being a pawn without an instance of the property of being a piece of wood (or some other property of an object suited to play the role of pawn).

That being said, it also seems reasonable to conceive of the emergence in this case diachronically, as a property emerging within the context of this larger social system that

¹² We might go further and suggest that the property of being a pawn does not even supervene on any set of the properties of the wood, as the pawn-ness of the piece also depends on the rules of chess, and those rules are extrinsic to the wood. It is not entirely worth arguing about this in the main text, however, for two reasons. First, we will still likely think that the property in question does supervene on *some* set of physical properties, once the base of properties is extended far beyond the piece of wood. And, second, the properties of the wood *might* be sufficient to constitute the supervenience base in question if we allow relational features of the wood to its environment to count amount those physical properties in the base.

proceeded it and of which it is a part.¹³ This context of the social system at hand is part of the metaphysical explanation for the instantiation of the properties in question. Unlike the above-mentioned forms of diachronic emergence, the context necessary for social system property emergence cannot merely be a matter of how or by what they have been proximately caused, since these properties do not seem to be caused by any interaction or fusion of the elements in its physical base. Instead, the context necessary for their instantiation often extends far before their immediate causes.

Beyond this, we can note that whether the emergence at hand is causal may depend on the kind of property or system under discussion. For example, the event of checkmating has to not only involve a configuration of pieces abiding by particular rules, but the situation has to come about in the right kind of way, via a move from the opposing player. So, the property of being an instance of checkmate does seem tied to an event with a particular causal history involving other properties of the system in question. Even beyond the last move made, we may be tempted to say that the invention of chess is a partial cause of the checkmate insofar as it was a part of a long series of events that eventually produced it.

On the other hand, other examples show how this causal connection is not necessary for the instantiation of a property of this kind. Walking across the street can instantiate an instance of J-walking, though the walking doesn't seem to be caused by the invention of the system of laws. It's true that the instantiation of this property of J-walking will still counterfactually depend on the creation of the system, but we shouldn't be tempted to say that the creation of this system helped to produce the J-walking in question. So, though the emergence of a given system may be causal, and the historical context is needed for the instantiation of a given social system property to emerge, an instantiation of the property may be emergent without being caused to emerge. Instead, they may simply emerge as a matter of bearing the right relational properties to the system in question.

What's historically interesting about conceiving of the emergence of social system properties as proceeding in this way is that several philosophers writing about emergence have at times expressly written-off the possible importance of relational properties. Tim Crane notes that it would be "somewhat perverse to describe [relational properties] as 'emergent'" (2001:213), though he doesn't consider that other properties could be emergent in virtue of relational properties. Pereboom (2002:508) makes nearly the same point¹⁴ and I think the same mistake. While it would surely be odd to think of bare relational properties as emergent, we can see that an item's relation to a system can be such that a new property does emerge: a property of the item relative to the social system of which it is a part.

What's more, I am not alone in maintaining that relational properties might play an important role in emergence. Though the emergence of social system properties is quite different from how discussions of emergence typically proceed, their emergence is quite similar to one instance of emergence discussed in the literature: the emergence of instances of patterns discussed in Humphreys (2008). There, Humphreys suggests that when patterns emerge from random phenomena, that emergence "...is an essentially historical phenomenon—whether an instance of a pattern is emergent or not depends essentially upon the process that generated it" (434). He goes on to say, "It is therefore impossible to determine

¹³ It thus seems appropriate to think of the emergence of social system properties as a kind of mixed synchronic/diachronic case. See Sartenaer (2015) for a discussion of how emergence may be both synchronic and diachronic.

¹⁴ Specifically, he claims that something's not being predicably from basal conditions, such as relational properties, is insufficient to guarantee that those properties are emergent (fn.16). This does seem right, but it does not show that relational properties cannot be crucial to the emergence of certain properties.

whether a pattern is emergent by looking only at synchronic relations between the pattern and the spatial array of elements that comprise the pattern” (*ibid.*). So, for Humphreys pattern emergence also depends on the relation to extrinsic features (in his case, facts about the past).

III. But is it Emergence?

Despite some similarity to other forms of emergence, the emergence of social system properties may seem *so* different from more paradigmatic instances of emergence that we might think that whatever is happening here is too dissimilar to be genuine emergence.¹⁵ Then again, it has not always been clear exactly what it is for a property to be emergent, and this ambiguity has spawned different characterizations of emergence as well as bifurcations in the concept itself.¹⁶ In this section, I want to acknowledge on which assumptions the emergence of these properties depends, and then I will argue that given those assumptions the resources are available to argue that the properties of social systems are emergent in the strongest sense of the term.

I have claimed that the properties of elements of social systems depend for their existence on the systems of which they are a part, where we may think of those systems as constituted by rules that determine the types of which these properties are tokens. If this is the case, then whether or not we take properties of objects within these systems to be emergent will likely depend upon how we are thinking about these systems themselves. For example, imagine that there is a way to construe the systems as entirely reducing in some way to physical events and properties. Perhaps, for instance, the rules of chess are actually to be identified with particular historical utterances of individuals making the game. And a similar story could be told for all social systems. In this case, it seems quite likely that the properties of these systems will *also* wholly reduce to already acknowledged physical properties. We will say, in the case of the pawn for instance, that the instantiation of the pawn is a matter of the piece of wood having its intrinsic features as well as various relations to other physical (and historical) entities. At most, we could argue that the property of being a pawn is a composed or structured property, though it is not clear that this would lead us to say that there is a sense in which it emerges.

The same would be true if we took the rules of a social system to be understood entirely in terms of the mental states of individuals charged with governing or acting within that system. If there is no ‘chess’ absent individuals thinking about chess or who know the rules of chess, then we may want to say that the rules of chess consist in shared epistemic states of agents who aim to play it. If we had this view of the rules of social systems, then I still think we should say that properties like ‘being a pawn’ do not reduce – at least in the sense that there will still be such a property that will itself not be a mental property. However, we will again likely understand these properties as being instantiated in virtue of physical objects with certain intrinsic features that bear the right relations to our mental states. If the rules are conceived of this way, then social system properties will again likely be composed or structured

¹⁵ One could argue that system properties are nonreductive and physical, but still not emergent. Crane (*op. cit.*) claims that nonreductive physicalism about some properties commits us to being emergentist about those properties, but see Bennett (*op. cit.*) and Pereboom (*op. cit.*) for arguments against.

¹⁶ For various characterizations of emergence, see McLaughlin (*op. cit.*), Crane (*op. cit.*), O’Connor and Wong (*op. cit.*), Kim (2006), and Barnes (2012). Chalmers (2006) for distinguishes strong and weak senses of emergence, and Silberstein and McGeever (1999) distinguish epistemological and ontological senses of emergence.

properties, and if they are non-fundamental they will owe that non-fundamentality to the mental properties on which they depend.

It might be possible, though, to maintain that the rules constitutive of chess and other social systems themselves actually do count as *sui generis* in some sense (perhaps we take them to be abstract entities). This will make the case for emergent social system properties much stronger. In the case of chess, for instance, facts about a pawn-movement certainly would not be explainable in terms of or deduced from facts about a piece of wood or any set of historical physical events, because those facts would not include the facts about the establishment of the game of chess. And, as social system properties would not emerge as a matter of being composed by their physical base, social system properties would also not be explicable in terms of any compositional principles.¹⁷ We would be on strong footing to claim that the properties of elements of social systems in this case would at least be weakly emergent (*à la* Chalmers *op. cit.*).¹⁸

Further, I think we would even be in a good position to argue that these properties are strongly emergent. The most critical feature of strongly emergent properties is their causal autonomy.¹⁹ If a property is truly an emergent, 'new' property, then it should be able to do new things. It should have some effect in the world that cannot be causally explained by the lower-level physical properties to which the emergent property supposedly will not reduce. And, *prima facie*, the properties of elements of social systems do seem to have novel effects.

Your pawn-movement may cause my rook-movement; an instance of J-walking may cause the giving of a citation; an objection in a court of law may cause a judgment of 'sustained'. The systems involved not only include many elements, but they also involve rules (even sometimes genuine causal rules) for how those elements interact across time. If this is true, then social system properties can contribute to the world causally by causing the instantiation of further properties in that system. It may even be that those properties can only *be* caused by previous property instances of the same system, as we noted. We saw how someone cannot be checkmated unless they find themselves in a particular chess situation having followed the rules of chess the entire game.

Similarly, a document can only have the property of being notarized if it is caused to have a signature on it by someone previously certified as a notary. The difference between a notarized document and a forgery of one entirely comes down to a difference in causes, and the appropriate cause in this case involves being marked by someone with a higher-level property of being a notary. Being checkmated or being notarized are clearly causings that lower-level, non-social property instantiations cannot achieve. A pawn-movement, for instance, can make a difference to the ongoing game of chess, whereas being a movement of the wood cannot.

Instantiations of social system properties are so often relevant to the causation of further property instantiations within social systems that we might be tempted to think that a

¹⁷ Schröder gives a helpful explication of this notion when he says, "A property of a whole is non-explainable if and only if it cannot be deduced from properties of the parts in isolation (or in other wholes) and from a composition principle which would combine these properties" (1998:437).

¹⁸ This is distinct from what Silberstein and McGeever call 'epistemological emergence' (*op. cit.*), where properties are said to emerge just when there are surprising and provide simple ways to treat complex physical phenomena or else to categorize these phenomena into groups in ways that we could not have predicted. This would just be to model 'emergent' properties as a means of convenience, given how much calculation would be necessary to do the job by modeling the lower-level elements, and arguably the properties of social systems would exhibit this sense of emergence even if the systems of which they are a part do not emerge in any sense at all.

¹⁹ For a discussion of this feature and its relation to emergence, see, *inter alia*, Menzies & List (2010).

social system property's *only* causal contribution is within that system and at the level of sociality. If we thought this, we would be in good company in arguing that this is nevertheless sufficient for the efficacy needed to demonstrate the strong emergence of these higher-level properties. Thomasson (1998) and Gibbons (2006), for example, both argue that higher-level properties generally demonstrate their efficacy entirely by causing the instantiation of other higher-level properties. These authors are concerned with mental properties (e.g., where one belief causes another), but their comments apply in our context. If appealing to social system properties is necessary for a complete causal explanation of phenomena at any level (including other phenomena within the social system), then we can argue that it is sufficient for the causal contribution of strongly emergent properties.²⁰

Though we are in good company to claim that social system properties can justify their existence via their intralevel efficacy within social systems, it is sometimes maintained that more is required. We might think that social system properties must also be able to 'downwardly cause,' or have physical effects, in order to be genuinely emergent.²¹ Properties that emerge from physical properties must be able to effect things in the physical world, so the thought goes. And this presents a problem. Any physical effect purportedly downwardly caused by a higher-level property is also assumed to have sufficient physical causes, and it is also assumed not to be causally overdetermined. Put colloquially, physical events already have physical causes, so there seems to be no causal work left for higher-level property to do.

To be clear, I do not think that downward causation is necessary for strong emergence, and so the problems associated with downward causation are problems that we do not *need* to address insofar as we remain convinced of this. However, I want to, because I think there is a *prima facie* case to be made for the claim that the instantiations of social system properties do downwardly cause at least some of the time, and I think the way social system properties emerge furnishes us with a novel way to see how they downwardly cause unproblematically. So, to end this section, I will quickly consider why we might think that social system properties do downwardly cause, be more explicit about the apparent problem with this, and suggest how we might answer it.

Though certain events in social systems clearly do cause further events within those systems, it is not hard to imagine cases of events in these systems that superficially seem to have physical effects as well. We would readily say that our market economy has had devastating effects on the environment, for instance. In a particular case, we might say that

²⁰ Successfully defending this argument goes beyond the scope of this paper. When presented with it, opponents will doubtless be drawn to the claim that higher-level properties can only cause one another in virtue of the physical causation of the lower-level properties on which social system properties supervene. Jaegwon Kim, for instance, advocates for what he calls the 'causal inheritance principle,' which roughly says that higher-level properties can only ever cause in virtue of the causal powers of their supervenience base (see Kim [1992:18] for one formulation of the principle). A thorough discussion and likely rejection of this principle would be needed to successfully argue for causal autonomy via intralevel causation, and this would take us too far afield here. Quickly, though, we can recognize that although causation between the elements of a system may entail that there are physical changes (e.g., one move in chess causing another entails physical changes of the location of the pieces), causation within a system may nevertheless not be in virtue of those physical changes, since (*contra* Kim) physical changes in the base properties on their own are not sufficient to generate the higher-level system properties (e.g., a movement of a piece of wood does not entail a pawn-movement).

²¹ Kim (2006) claims this explicitly. And this should be no surprise given his acceptance of the causal inheritance principle (see fn.20). If higher-level properties only ever cause each other by inheriting the causal powers of the physical properties on which they supervene, then demonstrating their own efficacy will require effecting physical properties themselves. If we reject this principle, however, then the proponent of emergent properties does not need to demonstrate downward causation in order to show that higher-level properties can be efficacious.

the referee's calling off-sides in the game made viewers furious. Or perhaps A's pawn-movement made his opponent's heart begin pounding rapidly.

Admittedly, much more would need to be said to demonstrate that these really are *physical* effects of these social system properties. We may say that our market economy involves the moving around of lots of physical things, and it is ultimately this movement of physical stuff that results in the waste contributing to environmental hazards, not the economy itself. Or we might say that though the viewers are not *in* the game in which offsides is called, their mental state is a fitting attitude given the call and is itself an instantiation of a social emotion at the same level of reality of the game (and so not properly a physical effect). Even in the last example, we may say that the pawn-movement caused the opponent to become nervous—which is a mental event itself supervening on (and not identical with) physical events involving the heart—rather than saying that the movement caused the rapid heart-beating directly.

Though there is something suspicious about how much of the physical causation of social system properties seem to be effects on *us* as agents, I do find many of these cases of apparent physical causation plausible.²² At least, they are plausible enough to make us wonder whether a proponent of emergent social system properties has anything to say about the above overdetermination worry. If social system properties genuinely do have physical effects, but we take all physical effects to have sufficient physical causes, aren't we led to say that these physical effects are overdetermined?

Here, there are already some resources ready to hand for a proponent of social system properties. We could argue, for instance, that the close relation between the pawn-movement and the wood-movement (say, constitution) is such that if the physical effect of the pawn-movement is also caused by the wood-movement, this will involve overdetermination, but the determination will in a sense be unproblematic because of the close relationship between the causes. The events are dependent such that they are able to somehow share in the causation (Wiggins 1968; Paul 2007). This is an interesting and recognized approach available to the proponent of emergent social system properties, though it is not without opponents (Ney 2007). Instead of pursuing it, though, I want to quickly show how a proponent of diachronically emergent social system properties in particular is able to advocate for downward causation without overdetermination and without appealing to these resources.

To see how, let's return to the idea that physical effects always have sufficient physical causes. This thought, or the idea that physical events have physical explanations, is often taken to express the sense in which the physical world is 'complete' or 'closed' off from outside causes. This is the principle of causal closure of the physical, and the question is how social system properties can have physical effects without violating this principle. Our answer involves recognizing that there are a few ways that the principle of causal closure might be understood.²³

One might think that closure requires that every physical property must have an *entirely* physical explanation, or one that is not at all in terms other than those of physics.²⁴ If this is the conception of the closure at issue, then it does seem that no instance of downward causation will be allowed, because that would involve a physical properties being at least

²² Given that we are talking about *social* system properties, it's unclear where else we might look for their effects.

²³ See Prosser (2012) for a separate disambiguation of causal closure that also purports to give a plausible reading of it that allows for downward causation. Though, on his view this will require indeterministic laws at the base level, and it's not clear that on my view downward causation requires this.

²⁴ For example, Kim (2000:40) glosses closure in just this way. He says, "One way of stating the principle of physical causal closure is this: If you pick any physical event and trace out its causal ancestry or posterity, that will never take you outside the physical domain."

partially explained in terms of higher-level, non-physical properties. Put another way, every physical event would have a proximate physical cause, since every link in the causal chain leading up to it would need to be physical. However, it's not clear to me why we would have this strong of a conception of physical closure in mind, or why physics itself would demand such a conception of closure.

What really matters for the completeness of physics is that there are no physical properties that are not *ultimately* explained in terms of or caused by other physical properties. That is, there are no physical properties being caused and causing that cannot in some sense be accounted for ultimately by physics. But downwardly causing social system properties can accommodate this intuition.

Suppose that a particular physical event is proximately caused solely by the instantiation of a social system property, and no physical event even competes with this property. (The instantiation of the social system property may supervene on physical properties, but the claim would be that we accept a view on causation on which those properties arguably do not themselves cause the physical effect in question.) Then, there will be no overdetermination, since the physical event has only one cause. This seems to challenge the causal closure of physics until we realize that the property instances of social systems themselves ultimately have physical explanations. Social system property instances are partially caused by elements in their proximate physical circumstances and also by the creation of the system of which they are a part,²⁵ and that system itself emerges as a matter of being caused by physical events. So, even if a physical event has a social system property instance as its sole cause, the explanation of that physical event will nevertheless ultimately be physical in the sense that the ultimate causes of the social system property are physical.

To state this clearly: Causal closure of the physical can be preserved even in cases of downward causation, as long as those downwardly causing events themselves have physical causes. That way, the causal explanation of the physical effect is *ultimately* physically, even if it isn't *entirely* physical. This respects the intuition that the physical world is causally closed, since all physical effects can be explained entirely in terms of other physical phenomenon. What this solution involves, however, is denying that those explanations must all be *proximal*. It won't be the case, on this view, that everything that happens in the physical world has a proximal physical cause. It will be the case, though, that every physical event does ultimately have a physical cause (assuming the transitivity of causation).^{26,27}

²⁵ It was admitted in the last section that there may be social system properties that are not in any sense caused by the emergence of the system that they instantiate (e.g., the case of J-walking). If this is the case, then we need only say that these properties as a subset of social system properties do not downwardly cause, though they may still horizontally cause the instantiation of other properties of the same system.

²⁶ O'Connor and Wong at one point also quickly note that in some sense the products of downward causation will be contained in the causal profiles of the physical causes of emergent properties (*op. cit.*:668), though I think they severely undersell this point. If what reductionists are perhaps most worried about is some sort of inexplicable invasion or intrusion upon the regular goings-on of physics by higher-level properties, then recognizing that ultimately local intrusions by higher-level properties are causally explained by physics itself should significantly quell their concerns. What's more, this is a response to the worry concerning closure that will be available to any account of emergence in which the emergence involves upwards causation.

²⁷ Alternatively, we may argue that closure is best understood in terms of explanation, regardless of whether the explanation is causal. So, for example, if the creation of chess actually involved the creation of constitutive rules as abstracta, we could grant that these abstracta do not cause but do partially explain the instantiation of properties of their social system. Then the physical effects would have complete physical explanations, even if those explanations did not involve a complete causal chain. This works well if we have become convinced that social structures with relational features cannot have causal powers (Wahlberg forthcoming).

Fully arguing for this solution to overdetermination worries in cases of downward causation would of course require more. We would need to say more to dispel the intuition that physical effects always have proximate physical causes, for instance. And I still have not sufficiently argued that emergent social system properties would even need to downwardly cause. Nevertheless, I hope to have offered a package of views such that if our understanding of the nature of rules turns out a particular way,²⁸ then we may give a start towards arguing that social system properties emerge in the strongest sense of the term.

IV. Scope

It is important to think about the emergence of the properties of elements of social systems, if indeed they are emergent, as we are constantly engaged in these systems in our lives. To conclude, I want to consider the extent to which this type of emergence might apply.

First, though no example is quick to mind, it may be that there are many properties within social ontology that do not emerge in the way that the properties of social systems emerge. Although the properties I have been considering are broadly within social ontology, and it is hard to think of socially constituted properties that are not a part of some system or other, the foregoing was not meant to fully capture the emergence of every kind of social entity.

That said, I take the foregoing to capture much more than the explicit, consciously created systems on which we have focused. There may be many systems that we create though not consciously. And though social systems can emerge all at once in a baptismal fashion, we may also think it's possible for a system to gradually emerge. For example, insofar as some linguistic items mean something, it is appropriate to say that something has the property of having a certain meaning. And, insofar as it will also be appropriate to ask of these properties how they fit into a world of physical properties, I think the case could be made to say that they are also emergent system properties, as language is surely best conceived of as a system.²⁹ However, the system of language in question may emerge slowly and unconsciously as a matter of tacit conventions.³⁰

As a further final extension, I will quickly suggest that the foregoing may have metaethical implications as well. Metaethicists have developed a whole field of considerations around naturalism and nonnaturalism, considering whether moral properties can reduce to properties of the natural world. It is seldom, however, that one sees a discussion of moral properties as emergent, and the way in which they would emerge. Yet, on a natural understanding of certain metaethical views (e.g., constitutivism) or even views within

²⁸ And while this is not the place to argue for it, there is some reason to think that they will. For instance, Hédoin (2015) has recently argued that constitutive rules cannot be fully accounted for by reductionistic views that understand them only in terms of historical behavioral trends.

²⁹ It is much too quick to simply say that language is a system, so the property of something's having a certain linguistic meaning can emerge as a system property. The metaphysics of language is instead a possible application of the idea of system emergence that I merely mean to gesture towards. This could easily have been saved for the final section, which explicitly gestures towards possible applications of system emergence given different kinds of systems, but I mention this possible application here because I want to make it clear that systems need not emerge via conscious acts of creation or all at once (or that they must be something housed in a book of rules or laws). That being said, see Bickhard (2008) for a connection between language and social ontology in the importance of convention.

³⁰ We may say something similar for much of the law. While we do write down and enforce many laws, much of the law forms as a matter of patterns of judicial decisions rather than as a matter of explicit law-making.

normative ethics (e.g., utilitarianism), moral properties might be thought to be natural yet emergent. Given this, and since at least some views within metaethics can be construed as understanding morality as a kind of system, it may be that a complete picture in metaethics requires coming to understand how a moral system can emerge and how moral properties can emerge as instances of that system.

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