For emergence: refining Archer's account of social structure

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Abstract: The question of social structure and its relationship to human agency remains one of the central problems of social theory. One of the most promising attempts to provide a solution has been Margaret Archer's morphogenetic approach, which invokes emergence to justify treating social structure as causally effective. Archer's argument, however, has been criticised by a number of authors who suggest that the examples she cites can be explained in reductionist terms and thus that they fail to sustain her claim for the independent causal effectiveness of social structure. This paper offers an alternative argument to support the emergentist claim for the causal effectiveness of social structure, and shows how this argument refutes a representative critique of social emergence.

Keywords: social structure; emergence; morphogenesis; methodological individualism; critical realism.

Margaret Archer has been the prime advocate of an emergentist approach to sociology for over two decades. In what continues to be one of the central debates in social theory, and indeed the social sciences generally, her approach to the theorisation of structure and agency has had a major impact. However, there have been several challenges to the theoretical coherence of her invocation of emergence to justify treating social structure as causally effective in its own right. This paper will argue that although these challenges expose some questionable examples of emergence offered by Archer, this problem can be overcome

by a more rigorous account of the synchronic basis of emergence, which is developed here. Hence emergentism can indeed help to resolve the ontological relationship between structure and agency.

The paper begins by summarising Archer's use of emergence in her account of structure and agency, and some of the criticisms that have been made of it. It then offers an alternative formulation of the argument for emergence, and shows how this might apply to at least one kind of social structure: organisations. The paper goes on to show how this refutes anti-emergentist criticisms of Archer, focusing in particular on the argument offered by Anthony King.

In order to maintain the focus of this argument in the space available, the paper will pay relatively little attention to a number of important aspects of the agency-structure debate, including the nature of human agency itself, the various different forms of social structure, and the role of language, meaning and culture. These are all subjects that deserve further attention, and I expect to argue elsewhere that emergence has a valuable role to play in understanding each of them (on agency, see Elder-Vass, 2006c).

The morphogenetic approach

Archer's account of social structure draws on two key influences. The first is Buckley's concepts of morphostasis and morphogenesis – indeed she calls her theory 'the morphogenetic approach'. Morphostasis 'refers to those processes in complex system-environment exchanges that tend to preserve or maintain a system's given form, organization or state. Morphogenesis will refer to those processes which tend to elaborate or change a system's given form, structure or state' (Buckley, 1967: 58-9), (quoted in Archer, 1982: 480). The second key influence is her reading of Lockwood's well-known paper on social and system integration. From Lockwood, she takes in particular his argument that social and system integration, which she reads as agency and structure respectively, 'are not only analytically separable, but also, because of the time element involved, factually distinguishable' (Lockwood, 1964: 250).

Archer's theory of social morphogenesis rests upon this separability of structure and individual action, and she relies heavily on Lockwood's temporal argument to justify the claim that they are distinct. The methodological consequence of this separability is that it enables us to examine the ongoing interplay between them while still insisting on the close inter-relationships between the two: 'Fundamentally the morphogenetic argument that structure and agency operate over different time periods is based on two simple propositions: that structure necessarily pre-dates the action(s) which transform it; and that structural elaboration necessarily post-dates those actions' (Archer, 1995: 76). There is therefore a

continuous cycle of interaction between social structure and individual actions. The examination of this interaction is premised in practice on the pre-existence of structure and the temporality of its interplay with human individuals.

Archer does not, however, argue that action *determines* structure or *vice-versa*: 'it is precisely because such elaboration is co-determined by the conditional influence exerted by antecedent structures together with the autonomous causal powers of current agents, that society can develop in unpredictable ways' (Archer, 1995: 75). Not only agents but also culture co-determine structural change: 'where any form of social elaboration is concerned, then structure, culture and agency are always involved' (1995: 324). Her temporal account of the interaction between structure and action, then, does not constitute a social theory to the effect 'structure determines action which then determines structure', but rather a methodology for analysing the interaction between the two, always in the context of other causal factors.

These causal effects of social structures (and indeed those of human individuals and of cultural entities) can be explained by their possession of emergent properties. For Archer,

> Emergence is embedded in interaction: in the latter 'we are dealing with a system of interlinked components that can only be defined in terms of the interrelations of each of them in an ongoing developmental process that generates emergent phenomena – including those we refer to as institutional structure'. *Emergent properties are therefore relational: they are not contained in the elements themselves, but could not exist apart from them*… The highest orders of emergence are nothing more than the relations between the results of interaction. Nevertheless these 'feed back' to condition subsequent interaction at lower levels (Archer, 1982: 475, emphasis added: the internal quote is from Buckley).

Emergence is thus taken to justify the central ontological claim of social realism: that social structures, although the product of human individuals, have causal powers of their own, which cannot be reduced to the powers of those individuals. Similar arguments, of course, apply to other emergent entities. Thus, for example, emergentists also argue that human individuals, although composed of their biological parts, have causal powers of their own, which cannot be reduced to the powers of their biological parts. The emergentist claim that social structures have causal powers, then, in no way denies that human individuals also have such powers.

Nevertheless, this argument constitutes a direct challenge to several competing views of social ontology. This paper focuses on Archer's challenge to methodological individualism.

Archer vs. methodological individualism

Taking issue with J.W.N. Watkins, Archer argues that methodological individualism is only tenable if its protagonists can 'show that *all* aspects of the social context, which figure in explanations… refer to nothing more than the behaviour of other people'. She points out

that Watkins argues that individuals have it in their power to *change* any aspect of social structure, and Archer asserts that this claim requires that all such social context can be reduced to 'the effect of *contemporary* individual behaviour' (1979: 15). But social structures, she argues, are the residue in the present of past human behaviour, and so 'the moment the individualist turns historian he also becomes a structuralist' (1979: 19). Here her argument appears to be that any social context carried over from the past is structural – and emergent – by virtue of its pre-existence alone, although as we have already seen, elsewhere Archer makes clear that emergence also depends on the existence of appropriate relations between a set of lower-order elements.

Archer has illustrated social emergence with a wide range of examples in the course of her work, but there are two in particular that critics have seized upon. First, she claims that 'the existing demographic distribution' constitutes a social structure, arguing that 'ontological status needs to be accorded to such aggregate (and emergent) social properties precisely because they are mechanisms facilitating or frustrating various policies' (1990: 87). A second example she uses prominently is the literacy rate in a model of Castro's Cuba (Archer, 1982: 468-9; Archer, 1995: 76-9). The demographic distribution or literacy rate at any point in time is taken to be a structure, with an independent influence on social outcomes. This is justified in part by the argument that their current states cannot be altered by the *current* actions of human individuals and thus cannot be reduced to contemporary individual behaviour.

These two examples have been picked out by Anthony King, an advocate of the hermeneutic tradition in sociology, in a critique of Archer's morphogenetic approach (King, 1999a). King takes issue with Archer's apparent claim that the invocation of history is automatically a structural move:

> For the interpretive tradition the past is the meaningfully produced social relations between (now dead) individuals which have an impact on the present through the actions and interpretations of living individuals. The interpretive tradition does reduce society to people (both living and dead) but not to 'these people here present' (King, 1999a: 205).

He illustrates the point with a response to the Castro example. Here, he says, 'Archer converts the temporal priority of other people's actions into the ontological priority and autonomy of structure' (King, 1999a: 211). More generally, King argues that 'in every case, appeals to emergentism can be reduced to the practices of other people, located at other places and times, and that, therefore, the morphogenetic approach cannot defend itself from collapsing back into an interpretive ontology' (1999a: 207).

The rest of this paper will argue that this reductionist critique of emergentism is mistaken, although it will accept that some of the specific examples cited by Archer are indeed explainable in individualist terms. The next section will begin the response by offering an alternative account of emergence that is complementary to Archer's. This will show how a

synchronic relational theory of emergence can justify the argument that higher-level entities may possess causal powers in their own right. The following sections review how this argument may apply to the social world, illustrating both examples of emergent social entities and other cases – the more controversial of Archer's examples – where the claim for emergence does not work. Finally, I will return to King's argument and show how the relational theory refutes his criticisms of emergentist approaches to social structure.

Relational emergence

Emergence is the idea that a whole can have properties (or powers) that are not possessed by its parts – or, to put it more rigorously, properties that would not be possessed by its parts if they were not organised as a group into the form of this particular kind of whole. Such properties are called emergent properties, and any entity that has one or more emergent properties is an emergent entity (Stephan, 1992: 27). This section will briefly overview those parts of the theory of emergence that are essential to the argument in this paper, with some brief suggestions as to how they might apply to social structure. (For a fuller discussion of the theory of emergence see (Elder-Vass, 2005a), and for its application to social structure see (Elder-Vass, 2005b)).

Emergent properties, also known as the causal powers of an entity, arise from the organisation of the entity's parts. This can be illustrated with the classic example of emergence: the case of water (an example which goes back at least as far as Mill's *System of Logic* (1900: 243)). Many of the properties of water, such as being liquid at room temperature, or being able to put out fires, are clearly different from the properties of its constituent hydrogen and oxygen atoms (Mihata, 1997: 31). If these atoms were present but simply as atoms, or organised into molecules of other types than water, the resulting substance would not have the properties of water. It is the fact of being organised into the specific form of water molecules that gives this collection of hydrogen and oxygen atoms the particular properties of water.[1] The same argument can be applied to any emergent entity, to demonstrate that its characteristic properties or powers depend *both* on the presence of its characteristic parts *and* on their being organised into the characteristic structure of the higher-level entity. (I follow the usual convention here of regarding wholes as being at a 'higher' level than their parts. This carries no normative implication, but is a useful metaphor in describing emergence.) It is worth noting that entities with emergent properties would appear to be identical with *powerful particulars* as these were originally defined by Harré and Madden. In their account, "causation always involves a material particular which produces or generates something" and "the location of causal power or potency in things and materials…

can be given a quite unproblematic basis in the chemical, physical or genetic natures of the entities involved" (Harré and Madden, 1975, p. 5).[2]

Emergent properties may be contrasted with 'resultant properties' – these are properties of wholes that *are* possessed by its parts in isolation, or in an unstructured aggregation.[3] The classic example of a resultant property is mass – the mass of a molecule, for example, is the sum of the mass of its constituent atoms. A property that is resultant at one level may be emergent at a lower level. And it is entirely possible – indeed it is normal – for entities to possess both emergent and resultant properties. A dog, for example, may have a certain mass (a resultant property) and the power to bark (an emergent property).

Resultant properties arise from the mere summation or aggregation of a property of the parts. By contrast, emergent properties depend upon the presence of specific relationships between the parts – on their organisation into a particular sort of whole. Thus, a dog's power to bark only exists when the molecules of which it is composed are organised into the specific form of a living dog. This critical role of organisation as the source of emergent properties has been identified by authors in all the well-developed literatures on emergence, (e.g. Buckley, 1998: 36; Cilliers, 1998: 43; Holland, 1998: 121-2; Lloyd Morgan, 1923: 64).

The presence of the parts and the relations that structure them into the form of any given whole, however, cannot be taken for granted. The original and continuing existences of any entity are always contingent; they depend upon the operation of casual factors in the actual world. This is the significance of morphogenesis and morphostasis. Those causes that combine to bring an entity into being from the collection of its parts, or that modify its structure without destroying it, are its *morphogenetic* causes. But having come into existence, there is no guarantee that an entity will continue to exist; if it does so, we can label the set of causes that sustains this existence as its *morphostatic* causes. At any moment, it is always possible that countervailing causes will overcome the morphostatic causes sustaining an entity, and dissolve it back into its component parts – as, for example, when a biological organism dies and decomposes – or reuse those parts in some other entity – as when a chemical reaction destroys a water molecule and reuses its constituent atoms as parts of other molecules.

Morphogenesis, then, is critical to the *existence* of emergent entities, and so any account of a specific case of emergence will include a temporal element, an explanation of how the entity concerned has come to exist. However, morphogenesis does *not* explain how an entity can possess emergent properties. Such an explanation always depends on the existence of a specific set of *synchronic* relations between the parts: morphogenesis explains the development of such a set of relations over time, but the operation of a causal power at any given moment depends upon the presence of those parts in those relations *at that specific moment in time*. Thus the temporal element in the explanation of emergence must always be

complemented by a synchronic relational element. Consider, for example, the (emergent) liquidity of water over a certain range of temperatures and pressures. The *existence* of water molecules can be explained by morphogenesis, but their *liquidity* can only be explained in terms of the structure of hydrogen and oxygen atoms and the set of relations between them that pertain when (and only when) they are organised into the form of water molecules (for such an explanation, see Ball, 2000, ch. 6).

Now this might appear to be a reductionist explanation of liquidity, but we must distinguish here between different varieties of reduction. This explanation provides an *explanatory reduction* – an explanation of how the properties or powers of the higher level entity result from the properties of its parts and the way they are organised, or in other words, a description of the generative mechanism responsible for the higher level property. However, this does not entail an *eliminative reduction* in which the causal power of the higher level entity itself becomes redundant to the explanation (Elder-Vass, 2005a).[4] As Harré and Madden put it, "While the power or ability… is understood by referring to its nature, such reference does not explain away the power" (Harré and Madden, 1975, p. 11). To see why, we need what I call *the redescription principle*.

This is the principle that *if* we explain a causal power in terms of (i) the parts of an entity *H;* plus (ii) the relations between those parts that pertain only when they are organised into the form of an *H*; *then* because we have explained the power in terms of a combination – the parts and relations – that exists only when an *H* exists, we have not eliminated *H* from our explanation. The entities that are *H*'s parts would not have this causal power if they were not organised into an *H*, hence it is a causal power of *H* and not of the parts. The *lower level* account of *H*'s powers merely *redescribes* the whole, which remains implicit in the explanation. In other words "upper and lower level accounts refer to the same thing, as a whole and as a set of configured interacting parts" (Wimsatt, 2006, p. 450) and hence a casual explanation which invokes the set of configured interacting parts implicitly invokes the same ontological structure as one that invokes the whole.

This argument implies that, because an emergent entity is nothing more than its parts and their organisation, any explanation that depends upon *both* the properties of its parts *and* upon the characteristic way that they are related within this type of higher level entity is in effect an explanation in terms of the higher level entity – it is an explanation that depends upon the existence of just such an entity. Unless the parts existed and were organised into just such an entity, any causal influence that depends on such parts being organised in such a way could not occur. Because emergent properties depend in this way upon the existence of particular sets of relations between the parts of the entity possessing the property (unlike resultant properties), the higher level entity cannot be eliminated by any reductionist strategy from causal accounts that depend upon the exercise of its powers.

Truly eliminative reductions, on the other hand, remain possible for resultant properties. Such properties, as we have seen, do not depend (ontologically) on the relations between the parts of the higher level entity. If these same parts were organised in some other way (or not at all), they would still have the same resultant property (e.g. the same total mass). Hence, any causal power exercised by this resultant does *not* depend on the parts being organised in the way that is characteristic of any particular type of higher level entity, and it is entirely valid to ascribe this causal power to the parts instead of to any higher level into which they happen to be organised.

This brief account of emergence and cause implies that a complete causal analysis of the real powers or emergent properties of any emergent entity would include five elements: (a) a list of its characteristic parts; (b) an explanation of how these must be structured (i.e. related to each other) to form the whole; (c) a morphogenetic account of how this comes about; (d) a morphostatic account of how it is sustained; and (e) an explanatory reduction showing how the powers or properties of the whole are produced as a result of it having the parts it does, organised as they are – in other words, an explanation of the generative mechanism underlying each causal power.

The emergent powers of organisations

How might this argument apply to social structure? This is a large question, partly because there are many different kinds of social structure, each characterised by different types of relations between the people who compose them. But the ontological point can be made with just one example. Let us briefly consider the case of organisations (for a fuller discussion see Elder-Vass, 2005b).[5]

Any organisation, I argue, is an emergent entity composed of a group of human individuals, structured by a set of relationships between them. These relationships are formalised in the descriptions of the *roles* or *social positions* occupied by the people in the organisation.[6] Role descriptions implicitly or explicitly specify rules that define how an incumbent of the position concerned must relate to other members of the organisation, and also how they must relate to outsiders when acting on behalf of the organisation. Occupying a social position or role means (a) to be recognised as occupying it by the other relevant role incumbents, and (b) to perform the behaviours that define the role.

In the terms of an emergentist ontology, roles are not entities; rather, in defining roles we define relations between people. Roles, therefore, are not composed of parts but instead are occupied by actual people. Hence they can only have causal influence in the sense that, and to the extent that, they are so occupied, or to the extent that the role incumbents 'adopt' their characteristic behaviours – which is of course another way of saying the same thing.

Now, when a role incumbent adopts the behaviours defined by a role (e.g. answering the phone in the call centre if your role is 'call handling agent'), we have a case of 'downward causation', in the sense that the behaviour of the role incumbent is influenced by the rules for a holder of that role that are built into the structure of the organisation. Here the action of the role incumbent is co-determined by a variety of causal powers, including the causal power of the organisation, as well as the causal powers of the individual role incumbent herself (cf. Archer, 1995: 184). Thus, the organisation has a causal effect on the role incumbent, although this effect, like any causal influence, does not fully determine a necessary outcome.

To the extent, however, that this causal mechanism is effective, the behaviour of the role incumbent 'in the role' is part of the behaviour of the organisation[7], and the causal effects of the organisation are the aggregate of the causal effects of its role incumbents when they do act in role. Now, a methodological individualist would argue that this reduces the behaviour of the organisation to that of the individuals and there is no need for the organisation at all in this explanation, (cf. King, 1999b: 271). However, the argument made earlier against eliminative reductions in general is perfectly applicable to this case. The role incumbents have the effects that they do when acting in these roles only because they are organised into this organisation through their performance of these roles. If there were no organisation there would be no such roles and the people would behave differently. Hence the causal effect of the organisation cannot be eliminated from the explanation of this behaviour.

Similarly, if there were no organisation, then those with whom the role incumbents interact would treat them differently. Customers, suppliers, and others who interact with an organisation always do so through the human individuals who occupy roles within it, but the way they interact with these individuals is conditioned by their understanding that the role incumbents represent the organisation concerned, that they act on its behalf. Thus the existence of the organisation also affects how these external individuals behave towards the individuals who are its parts.

Let me illustrate the arguments of the last three paragraphs in a simple example: I walk into an electrical shop and purchase a TV from a sales assistant, who arranges for it to be delivered to my home in a few days time.

First, it is perfectly clear that when I ask the assistant to sell me a TV, the assistant's behaviour is in certain respects determined by her incumbency of the sales assistant role. I do not mean to deny that the sales assistant exercises her individual agency – she does so in *choosing* to inhabit the role, and in deciding *how* to enact it. Yet as long as she does choose to inhabit the role, certain behaviours are expected of her, such as agreeing to sell me what I wish to buy (assuming it is in stock, etc.), taking payment, and arranging delivery. No doubt she will have been taught these behaviours by individuals, and no doubt she understands that individual managers will discipline or dismiss her if she fails to enact them adequately. Yet all

of these people act in these ways towards her purely because they too are enacting roles. Neither they, nor the sales assistant herself, would behave in these ways if they were not part of the organisation as a whole.

Second, when the sales assistant sells me the TV, it is perfectly clear that she does not do so on behalf of herself. She does not own the TV – the organisation does. And she sells it in her capacity as part of that organisation. In other words, it is the organisation that sells me the TV, though it does so through the sales assistant, who is one of its parts. This may seem to conflict with our phenomenological anthropocentrism, but it should not be difficult to understand. To return to the dog analogy, if a dog bites me, it does so through its teeth, yet we understand perfectly well that it is the dog that is primarily causally responsible for the bite, and not the teeth. This is perhaps more difficult to accept when the parts have a mind of their own, but the principle is similar. Certainly, we must accept that the individual agency of the sales assistant co-determines the outcome, but it *only* co-determines it. Just as we accept that human beings are causally responsible for the behaviour of their parts when it is directed by their decisions, so we must accept that organisations are causally responsible for the behaviour of their members or employees when that behaviour is motivated by organisational policy.

Thirdly, as a customer I would not hand over my money to this sales assistant unless I believed she had, through her role incumbency, the right on behalf of the business she represents to sell me the television I expect in return. Although I am served by an individual person I know that she does not own the TV, and will not deliver it to me personally, but I take her to be an authorised representative of a reputable business against which I have legal redress should the TV fail to arrive. In other words, while some aspects of my behaviour towards the sales assistant may be oriented to her as an individual – I may greet her and chat about the weather, for example, before buying the TV – others are oriented towards her as a part of an organisation. I only purchase the TV from her because I take her to be acting as part of the organisation that owns it, and so my behaviour as an actor external to the organisation is causally influenced by the existence of the organisation as such.

The behaviour of the organisation, then, is the aggregate of the behaviours of its role incumbents ‘in the role’. Although the relationship between these behaviours is additive, the organisation is nevertheless emergent, because it has a non-linear effect on each of these behaviours as a result of the fact that the role incumbents behave differently as role incumbents than they would have done in isolation if they were not incumbents of these roles.

This brief analysis of organisations addresses three of the five elements required for a full analysis of a case of emergence - it has identified the components of an organisation (people), the relations that constitute them into the organisation (roles), and how this gives the organisation emergent properties not possessed by its parts. These three represent the

synchronic relational aspect of emergence. A full analysis, then, would also require an account of the temporal aspect – the morphogenesis and morphostasis of organisations. Such an account is beyond the scope of the present paper, however, since my objective here is to show how the analysis of the synchronic relational aspect of emergence refutes sociological reductionism. The next two sections will illustrate the relational theory by showing how it applies to some of the examples of social structure debated by Archer and King.

Temporality, relationality, and demographic distributions

The account of relational emergence offered above has identified two distinct but complementary, indeed mutually interdependent, aspects of emergence. On the one hand, there is a synchronic aspect of emergence – the way in which a higher level property depends upon the presence of a particular type of parts in a particular type of relations to each other. On the other, there is a diachronic aspect – the way in which morphogenetic and morphostatic causes combine to develop and sustain the existence and characteristics of this set of parts and relations.

Archer's work focuses primarily on the latter, in her investigations of the morphogenesis of social structure, and she tends to pay less attention to the synchronic aspect of emergence. On occasion, it may even seem that she denies its significance entirely, as when she writes 'Until the analytical *separability* of structure and agency was explicitly acknowledged to entail temporality *rather than* simultaneity, realists did not radically recast the form of theorising about the relations between structure and agency' (Archer, 1996: 693). Similarly, temporality seems to have supplanted synchronic relations when she claims that 'the moment the individualist turns historian he also becomes a structuralist' (Archer, 1979: 19). Other realists have also interpreted her argument in this way, as for example when Lewis argues that "Critical realists acknowledge the activity-dependence of pre-existing social structures… but they are the product of actions undertaken in the past, possibly by actors who have since perished, not in the present" (Lewis, 2000, p. 251).

A number of commentators have suggested not only that Archer depends upon temporality to justify claims for the emergence of structure, but also that such an argument does not work. As we have seen, for example, in commenting on the example of literacy rates, King accuses Archer of converting 'temporal priority' into the 'autonomy of structure' (1999a: 211). Similarly, Domingues argues that Archer's treatment of emergent properties 'conflates two different issues, namely the historicity of the properties… and their ontological nature – which is the really serious issue at stake here' (2000: 227). And Sawyer, himself an emergentist, has argued in discussing Archer's work that morphogenesis does not entail emergence (2001: 570; Sawyer, 2005: 83-4).[8] The common theme here is a rejection of the

argument that the prior existence of something entails that it is emergent, and hence of the argument that historical social residues are automatically structural.

My argument so far implies that we must accept this claim: something could exist as an unstructured aggregate of lower-level entities with purely statistical properties as a group. Such a 'heap' (Laszlo, 1972: 28) or 'taxonomic collective' (Sayer, 1992: 101) would possess only resultant properties, which are reducible to the properties of the individual members of the group. The overall effect of the group is merely the sum of the effects of the individuals of which it is an aggregate. Thus it could pre-exist without being emergent.

However, it is much less clear that Archer can reasonably be accused of depending upon temporality in the first place. Despite her occasional neglect of the synchronic side of emergence, she does often acknowledge it. Thus for example, she writes

> Emergent properties are *relational*, arising out of combination (e.g. the division of labour from which high productivity emerges), where the latter is capable of reacting back on the former (e.g. producing monotonous work), has its own causal powers (e.g. the differential wealth of nations), which are causally irreducible to the powers of its components (individual workers). This signals the *stratified nature of social reality* where different strata possess different emergent properties and powers (Archer, 1995: 9).

This recognition of synchronic relationality becomes important when we consider the examples of emergent structure referred to earlier: literacy rates and demographic distributions. As the issues involved in both cases are similar, let me focus on just one of them, the claim that demographic distributions may be causally effective in their own right because they possess emergent properties. As we have seen, Archer argues that 'the existing demographic distribution' constitutes a social structure, writing that 'ontological status needs to be accorded to such aggregate (and emergent) social properties precisely because they are mechanisms facilitating or frustrating various policies' (Archer, 1990: 87). Elsewhere she writes that

> a demographic structure is often treated as a mere aggregate of so many people of such and such ages, yet this structure itself can and does modify the powers of people to change it, that is, it affects the powers of its constituents – by defining the size of the relevant group of child bearing couples whose reproductive behaviour could transform the structure and thus restricting their influence upon it, however prolific or non-prolific they may be (Archer, 1995, p. 174).

Let us analyse this example. The 'demographic structure' refers to the proportions of the population in different age bands. The argument presented isolates one mechanism that contributes to the morphogenesis of this distribution – childbirth – and one factor that affects the operation of this mechanism – the number of potentially child bearing couples (abbreviated to 'couples' hereafter). If the number of couples at T_1 increases, then, other things being equal, the number of babies at T_2 will increase. If we wish to explain the impact of this on the demographic structure, we will express the effects in proportional terms: a

higher proportion of couples produces a higher proportion of babies in the demographic structure in the next time period.

So far, this is uncontroversial. But the point of the example is the claim that the proportional relation between the numbers of couples and the population as a whole affects the proportion of babies at T_2 in its own right, as an emergent property of the population, rather than merely as a summative measure of the causal effects of the individual couples concerned. But does the demographic structure really have a causal effect in its own right? I argue not, as the proportion of couples at time T_1 affects the proportion of babies at time T_2 only because the *number* of couples at time T_1 affects the *number* of babies at time T_2.

Here, the 'proportion' has no effect distinct from the summed effects of the individual couples, because those couples themselves are unaffected by the size of this proportion. The proportional relation is merely a formal relation, with no substantial effect on the relata (see Sayer, 1992, p. 88 on formal vs. substantial relations). The number of babies produced by the group of couples is affected by the number of couples in the group, but not by the number of other people in the population, and hence there is no causal power exercised by the *proportion* of couples in the population that is distinct from the impact of the *number* of couples. Granted, the *proportion* of babies in the population at T_2 depends both on the number of babies and on the number of non-babies in the population, but this is merely a statistical artefact, not a material causal relation. Thus, the effect of a demographic distribution on, say, birth rates or pension costs, is merely the resultant sum of the effects of the individuals of which it is an aggregate. (It may still be methodologically convenient to express the relation as one between proportions, and indeed to call demographic structures *social structures*, but these are not *emergent* social structures).

This is why this example (and the similar example of literacy rates) is vulnerable to King's argument that the effects of a distribution can be reduced to the effects of the individuals composing it. The problem here is not that Archer is relying on a temporal argument for emergence; on the contrary, her assertion that demographic distributions are mechanisms implies that she is making a synchronic relational claim. The problem, rather, is that in these particular cases (but not in many others she cites), this relational claim is wrong, and the supposed higher-level structure is not emergent at all. In this particular case, Archer in my view mistakenly claims emergent structural powers for an unstructured aggregate of human individuals and hence *is* assigning structural status to what is, in ontological terms, nothing more than a collection of individuals.

However, this does not substantiate methodological individualism in general; there are many other cases where social structures do have causal powers in their own right. The next section will show how the account of relational emergence given earlier can be used to justify such a claim in response to King's critique of emergentism.

Relational emergence vs. the denial of structure

Let me now turn, then, to an example of a social structure cited by Archer that definitely *does* have emergent properties: the division of labour. In Adam Smith's example of pin production, a group of workers organised according to the principles of the division of labour is able to produce substantially more than the same group of workers, each producing pins individually (Archer, 1995: 51; Archer, 1996: 686). Hence a group organised on these principles has an emergent property that is not possessed by the same workers when they are not so organised, and the analysis of organisations above applies. This capability to produce more is therefore an emergent causal power of the organised group, and not causally attributable to the individual workers.

Now King recognises that this capability cannot be ascribed to the individuals alone; for King, structure is to be replaced in sociological explanation by *social relations* (King, 2004, e.g. p. 17). He therefore rejects the label of *methodological individualist*, and distinguishes himself from rational choice theory, in particular, which he sees as offering sociological explanation purely in terms of individuals, to the exclusion even of social relations (King, 2004, pp. 192-4). One might question King's choice of identity – Watkins, for example, explicitly professed methodological individualism while endorsing a causal role for the "inter-relations of individuals" (Watkins, 1968, p. 271) – but this is beside the point. The point at issue here is whether structure is causally effective; for King, it is not structure but social relations that are causally effective:

> The interpretivist tradition is no way arguing that this new division of labour can be understood through dis-aggregating the division of labour back to its molecular constituents – the individual craftsmen or individual readers. This approach fully recognizes the qualitative novelty of this situation but that newness resides precisely in the new relations between individuals (King, 1999a: 213).

Thus he recognises the same facts of the case as Archer and myself (Archer writes 'the power of the … emergent property, mass production, did exceed those of everyone involved, because it was no aggregate of their individual productivity but the relational resultant of their *combined productive activity*' (2000: 467)). Where we differ is on the question of whether these facts entail that the group as such has causal powers in its own right. King denies that the combination of people plus relations, or people plus interaction, constitutes a higher level entity with causal effects of its own (King, 1999b:272).

In its discussion of organisations, this paper has already stated the positive case for seeing people plus relations as constituting a higher level entity with causal powers. The key points in this argument were (a) that if the people concerned were not organised into such an entity, those powers would not exist; and (b) that the people plus the relations *are* the higher

level entity, so to say that the people plus the relations have a power is the same thing as to say that the higher level entity has the power. Thus, for example, in an organisation that practices the division of labour (e.g. Smith's pin factory) if we say that the productive capacity of the organisation depends on *both* the workers *and* the relations between them that exist when they are organised as they are in this organisation, this is necessarily equivalent to saying that the productive capacity is a causal power of the organisation and not of the workers.

But there is also a negative case, which rests on the fact that King's version of the reductionist argument has an entirely general form. If it is true, say, in the case of the division of labour, that people plus a particular set of relations between them do not constitute a higher level entity with causal powers of its own, then the same argument would appear to apply to any other part-whole relation. King, along with many other reductionists, offers no reason why this argument could not also be applied to other sorts of entity.[9] The argument therefore entails, for example, that when a dog barks, this is *not* because the dog has the causal power to bark, but rather because its lungs, windpipe, vocal chords, mouth, etc, and the relations between them have the power to bark. And if this is not absurd enough, we can pursue the same logic indefinitely to produce a full reduction *ad absurdum* – because on the same logic we must also deny that it is the lungs, windpipe, etc, that are doing the barking, but rather the 'cells plus relations' that make those organs up, and then we must consider it to be the 'molecules plus relations' instead of the cells, the 'atoms plus relations' instead of the molecules, and so on to levels where science has so far failed to go.

The full irony of this position appears when we apply it to human individuals. The same argument that is taken to deny causal effectiveness to social structures could be applied equally well to the human individuals whose causal powers individualists seek to privilege. Just as social structures are nothing more than the people in them and the relations between those people, human individuals are nothing more than the cells in them and the relations between those cells. But it would be just as invalid to eliminatively reduce the causal powers of people to those of their cells as it is to eliminatively reduce the causal powers of social structures to those of people (cf. Durkheim, 1974 [1898]: 28-9). For consistent emergentists, people have causal powers – agency – by virtue of the emergent properties that arise from the way their parts are organised, in an analogous ontological structure to that which underlies the emergence of the causal powers of social structures (an argument I have developed in (Elder-Vass, 2006c)). Emergentism is therefore recursively consistent: it ascribes causal powers at each level on the basis of the same ontological argument. But if King's argument were to be applied recursively, his relational grounds for the denial of causal power to structures like organisations would also imply that people have no causal power either, and thus undermine his own ontology at the next level down.

It is worth noting that beyond this ontological issue, King's position has a great deal in common with the realist/emergentist tradition. Social relations are immensely important to the emergentist position (see, e.g. Bhaskar, 1998, pp. 28-9) – it's just that we don't *substitute* them for structure, but instead recognise their crucial role in *underpinning* structure. And there is a great deal of value in King's *theoretical* (as opposed to *ontological*) analysis of how institutions work, for example in his reply to Stueber, who has also criticised him from a realist perspective (King, 2006; Stueber, 2006).

In ontological terms, King goes so far as to say 'For hermeneutics, social networks have their own distinctive properties which are irreducible to isolated individuals, extracted from these networks, but that does not mean that these networks are more than the individuals in them' (1999b: 275). The first part of this reads like an acceptance of emergentism, but he seems to believe that by rejecting the claim that 'networks are more than the individuals in them' he turns this into a denial of emergence. There is arguably a sense in which emergentism sees an emergent whole as more than its parts, because a specific set of relations between the parts is *also* required to constitute it into this type of whole. But as we have seen, King too accepts that relations as well as parts are required to produce the causal effect of the whole. Perhaps by 'more than' he is referring to emergentism's claim that wholes have properties that are not possessed by their parts – but the first part of his statement in this quote seems to confirm that he accepts the same point. There is no other 'more than' to be found in emergentism than these, and so it is hard to see what objection there is here to a synchronic relational form of emergentism.

Perhaps the answer lies in his repeated objections to the "reification" of structure by realist thinkers, who, he claims, see structure as "a metaphysical entity which exists independently of humans" (King, 2004, p. 69). This is a criticism he links explicitly to emergence: "despite its apparent coherence, the concept of emergence, in fact, involves a relapse into sociological reification where society comes to exist independently of individuals, although this relapse into reification is concealed by the continual emphasis on individual practices and beliefs" (1999b: 270). The usage of the word 'independently' in this context, however, is extremely ambiguous. Relational emergentism certainly does not imply that society can exist independently of individuals, since social structures are always synchronically composed (at least in part) of people. It *does* imply, however, that wholes like social structures may have *distinct* causal powers from those of their parts, or in other words *causal powers in their own right*. On occasion, emergentists may have called these 'independent' causal powers, and it is easy to see why they might do so, but these causal powers of the whole remain dependent on the presence and properties of the parts. It would be desirable for the sake of clarity to avoid this usage of 'independent', but when used in this way it does not entail reification of social structure: emergent social structures always remain

structures composed of people and sustained (to the extent that they are sustained) by their practices.

It is true, of course, that realists sometimes *abstract from* these people and their practices when discussing the effects of social structures. Abstraction is an entirely valid methodological move when we have already established the causal powers of the entity concerned: we must always be *able* to trace a claim for structural power back to the web of individuals and relations that underpins it, that provides the mechanism for it. But given that such a tracing has been demonstrated, and where its *details* are not directly explanatory of the case under study, we can then abstract from such details and simply refer to the structural power in its own right.

I do not claim that realists have always observed these qualifications; it may be that they have sometimes taken structure and its powers for granted when a careful examination of the underpinning individuals and relations would have been helpful; and it may even be that sometimes such examinations would have revealed that the structures concerned did not have the powers that were being claimed for them. Indeed, the example of demographic distributions discussed earlier may be such a case. Abstraction may sometimes lead to this sort of reification, but this does not mean that abstraction is never justified; only that we must be careful how we use it.

Conclusion

This paper has refined Archer's account of the emergence of social structure by complementing her focus on morphogenesis with a synchronic relational account of emergence, and showing how this can be applied to at least some social structures. In particular, it has advanced the *redescription argument* to show that, even though we can sometimes explain how social structures work in terms of individuals and the relations between them, this does not entail that social structures can be eliminated from the explanation of social behaviour. Social structures have causal powers in their own right, which arise from the combination of individuals and relations that constitute them, but which are different from the causal powers that would be possessed by these same individuals if they were not organised into these social structures. They are therefore causal powers of the structures and not of the individuals.

The paper has gone on to show how this abstract account of social emergence justifies claims for the causal effectiveness of at least one type of social structure: organisations. On the other hand, some examples of social structure do not appear to be emergent at all. This includes some of Archer's examples, which have therefore been vulnerable to criticism from those who have questioned her account of social emergence. The paper has shown, however,

that reductionist criticisms like those advanced by King against Archer cannot be sustained against a synchronic relational view of emergent social structure. I therefore conclude, alongside Archer, that emergentism can indeed provide a successful defence of a non-reductionist realist social ontology.

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Notes

[1] Note that on some accounts of emergence, the properties of water would not be regarded as emergent, because they can be explained in terms of the lower level parts and the relations between them. This *strong* conception of emergence is common in the philosophy of mind, though it may be an empirically empty category (see, for example, Broad, 1925, p. 61; Horgan, 2002, pp. 115-6; Kim, 1999, p. 18).

[2] In effect, this paper constructs an argument for recognising at least some social structures as powerful particulars. Although this is a claim that Harré and his colleagues have denied in more recent work, it may be that we just need to look for social powerful particulars in a different place: in organisations and normative communities, rather than in economic systems or rules, for example (see Harré, 2002; Varela and Harre, 1996) (and see critical realist responses in Carter, 2002; Lewis, 2000).

[3] The terms *resultant* and *emergent* were both coined by Lewes and hence this distinction dates back to the very beginnings of emergentist thinking (Lewes, 1874-9). For a particularly clear account of what it means for a property to be resultant, or aggregative, see Wimsatt (2000).

[4] Searle makes the same distinction, using the term 'eliminative reduction' (Searle, 1997: 29-30, 212). Bhaskar uses 'explanatory reduction' in a similar sense in (Bhaskar, 1978: 181). Excellent arguments for non-eliminative versions of reduction can be found in (Gell-Mann, 1995: 112) and (Campbell, 1974). Wimsatt has given a particularly strong recent account of reductive explanations and their compatibility with emergence (2006).

[5] I have also argued elsewhere that normative communities are causally effective social entities, which are causally responsible for social institutions (Elder-Vass, 2006a; Elder-Vass, 2006b).

[6] Although I equate *role* with *position* here, I recognise that sometimes the concept is used in somewhat different ways in the literature (Biddle, 1986, pp. 68-9).

[7] Mouzelis seems to intend something similar when he talks of 'the type of action that results from the incumbency of authority positions' as a case of 'macro action' (Mouzelis, 1991: 35).

[8] Healy has offered a similar argument (1998).

[9] Exceptions include Watkins, who claims that any belief in the irreducibility of explanations in terms of physical particles is "a prejudice" whereas an equivalent belief in the irreducibility

of explanations in terms of human factors is “a necessary truth” on the grounds that “psychological statements cannot be deduced from wholly non-psychological statements”(Watkins, 1968, p. 275). But neuroscience is rapidly developing physiological explanations of at least some psychological statements, which would seem to suggest that Watkins’ claim is not necessarily true after all.

References

ARCHER, M. (1979). *Social origins of educational systems*. London: Sage.

ARCHER, M. (1982). Morphogenesis versus Structuration. *British Journal of Sociology*, **33**, 455-83.

ARCHER, M. (1990). Archer replies to Outhwaite. In J. Clark, C. Modgil & S. Modgil (Eds.), *Anthony Giddens: Consensus and Controversy* (pp. 86-88). London: Falmer.

ARCHER, M. (1995). *Realist Social Theory: The Morphogenetic Approach*. Cambridge: Cambridge UP.

ARCHER, M. (1996). Social integration and system integration: developing the distinction. *Sociology*, **30**, 679-699.

ARCHER, M. (2000). For structure: its reality, properties and powers: A reply to Anthony King. *Sociological Review*, **48**, 464-472.

BALL, P. (2000). *H_2O: a biography of water*. London: Phoenix.

BHASKAR, R. (1978). *A realist theory of science*. Hassocks: Harvester Press.

BHASKAR, R. (1998). *The possibility of naturalism*. London ; New York: Routledge.

BIDDLE, B.J. (1986). Recent Developments in Role Theory. *Annual Review of Sociology*, **12**, 67-92.

BROAD, C.D. (1925). *The Mind and its Place in Nature*. London: Kegan Paul & Co.

BUCKLEY, W. (1967). *Sociology and modern systems theory*. Englewood Cliffs, N.J.: Prentice-Hall.

BUCKLEY, W. (1998). *Society - a complex adaptive system*. Amsterdam: Gordon and Breach.

CAMPBELL, D.T. (1974). 'Downward Causation' in Hierarchically Organised Biological Systems. In F. J. Ayala & T. Dobzhansky (Eds.), *Studies in the Philosophy of Biology* (pp. 179-186). London: Macmillan.

CARTER, B. (2002). People Power: Harre and the Myth of Social Structure. *European Journal of Social Theory*, **5**, 134-142.

CILLIERS, P. (1998). *Complexity and Postmodernism*. London: Routledge.

DOMINGUES, J.M. (2000). Social Integration, System Integration and Collective Subjectivity. *Sociology*, **34**, 225-241.

DURKHEIM, E. (1974 [1898]). Individual and Collective Representations, *Sociology and Philosophy* (pp. 1-34). New York: The Free Press.

ELDER-VASS, D. (2005a). Emergence and the Realist Account of Cause. *Journal of Critical Realism*, **4**, 315-38.

ELDER-VASS, D. (2005b). The emergence of social structure and the question of naturalism, *BSA Annual Conference*. York. Available at www.eldervass.com.

ELDER-VASS, D. (2006a). Integrating institutional, relational, and embodied structure: an emergentist perspective, *BSA Annual Conference*. Harrogate. Audio recording available at www.eldervass.com.

ELDER-VASS, D. (2006b). A Method for Social Ontology, *IACR Annual Conference*. Tromso. Available at www.eldervass.com.

ELDER-VASS, D. (2006c). Reconciling Archer and Bourdieu in an emergentist theory of action, *ISA World Congress of Sociology*. Durban.

GELL-MANN, M. (1995). *The quark and the jaguar*. London: Abacus.

HARRÉ, R. (2002). Social Reality and the Myth of Social Structure. *European Journal of Social Theory*, **5**, 111-123.

HARRÉ, R., & MADDEN, E.H. (1975). *Causal powers: a theory of natural necessity*. Oxford: Blackwell.

HEALY, K. (1998). Conceptualising Constraint: Mouzelis, Archer and the Concept of Social Structure. *Sociology*, **32**, 509-522.

HOLLAND, J.H. (1998). *Emergence: from chaos to order*. Oxford: Oxford University Press.

HORGAN, T. (2002). From Supervenience to Superdupervenience. In J. Kim (Ed.), *Supervenience* (pp. 113-144). Aldershot: Ashgate/Dartmouth.
KIM, J. (1999). Making Sense of Emergence. *Philosophical Studies*, **95**, 3-36.
KING, A. (1999a). Against structure: a critique of morphogenetic social theory. *Sociological Review*, **47**, 199-227.
KING, A. (1999b). The impossibility of naturalism: The antinomies of Bhaskar's realism. *Journal for the Theory of Social Behaviour*, **29**, 267-288.
KING, A. (2004). *The structure of social theory*. London: Routledge.
KING, A. (2006). How Not to Structure a Social Theory: A Reply to a Critical Response. *Philosophy of the Social Sciences*, **36**, 464-479.
LASZLO, E. (1972). *The systems view of the world*. Oxford: Blackwell.
LEWES, G.H. (1874-9). *Problems of life and mind*. London: Trubner.
LEWIS, P. (2000). Realism, causality and the problem of social structure. *Journal for the Theory of Social Behaviour*, **30**, 249-+.
LLOYD MORGAN, C. (1923). *Emergent evolution*. London: Williams and Norgate.
LOCKWOOD, D. (1964). Social Integration and Systems Integration. In G. K. Zollschan, W. Hirsch & D. Martindale (Eds.), *Explorations in social change* (pp. 244-257). Boston: Houghton Mifflin.
MIHATA, K. (1997). The Persistence of 'Emergence'. In R. A. Eve, S. Horsfall & M. E. Lee (Eds.), *Chaos, Complexity, and Sociology* (pp. 30-38). Thousand Oaks, Calif.: Sage.
MILL, J.S. (1900). *A system of logic*. London: Longmans.
MOUZELIS, N.P. (1991). *Back to sociological theory*. Basingstoke: Macmillan.
SAWYER, R.K. (2001). Emergence in sociology. *American Journal of Sociology*, **107**, 551-585.
SAWYER, R.K. (2005). *Social Emergence*. Cambridge: Cambridge UP.
SAYER, A. (1992). *Method in Social Science*. London: Routledge.
SEARLE, J.R. (1997). *The mystery of consciousness*. London: Granta.
STEPHAN, A. (1992). Emergence - A Systematic View on its Historical Facets. In A. Beckermann, H. Flohr & J. Kim (Eds.), *Emergence or Reduction?* Berlin: de Gruyter.
STUEBER, K.R. (2006). How to Structure a Social Theory? A Critical Response to Anthony King's The Structure of Social Theory. *Philosophy of the Social Sciences*, **36**, 95-104.
VARELA, C.R., & HARRE, R. (1996). Conflicting Varieties of Realism. *Journal for the Theory of Social Behaviour*, **26**, 313-25.
WATKINS, J.W.N. (1968). Methodological Individualism and Social Tendencies. In M. Brodbeck (Ed.), *Readings in the Philosophy of the Social Sciences* (pp. 269-80). New York: Macmillan.
WIMSATT, W.C. (2000). Emergence as Non-Aggregativity and the Biases of Reductionisms. *Foundations of Science*, **5**, 269-297.
WIMSATT, W.C. (2006). Reductionism and its heuristics: Making methodological reductionism honest. *Synthese*, **151**, 445-475.