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# AGAINST A *PRIORI* ARGUMENTS FOR INDIVIDUALISM

BY

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## *I. Introduction*

Baldly stated, individualism in psychology is the view that mental states are 'in the head'. But to what does 'mental states' refer? And how are we to understand the 'in the head' metaphor?

Given the already vast and growing literature on individualism, it would be naive to expect there to be any one pair of answers to these questions which adequately describes all views which are individualistic, and dogmatic to insist on any such pair as *the* correct way to understand individualism. In this paper I want initially to fix on a pair of answers to these two questions which provides a characterization of individualism that has received a number of defenses, and then distinguish two types of arguments which have been given for individualism so construed. My central concern will be to identify a problem in one of these types of arguments, a problem which runs sufficiently deep to warrant the rejection of this type of argument for individualism. In particular, the appeals that individualists have made to the nature of science (it taxonomizes 'by causal powers'), to the nature of properties (they *are* causal powers), and to the nature of causation (it operates via causal powers), do not and cannot provide the basis for sound arguments for individualism.

## *II. A Priori and Empirical Arguments for Individualism*

Many proponents of individualism hold that the psychological states and properties that are to play a taxonomic and explanatory role in a properly

scientific psychology must meet a minimal constraint: they must supervene on the intrinsic, physical properties of the individuals in whom they are instantiated.<sup>1</sup> On this construal of individualism, the mental states which fall within the scope of the individualist thesis are those that are taxonomic and explanatory in any scientific psychology, and the 'in the head' metaphor is to be understood in terms of the notion of supervenience. So construed, individualism need not be a thesis about 'the mental' in general, since some mental phenomena, such as self-knowledge, introspection, and consciousness, may not be taxonomic or explanatory in any branch of scientific psychology.

There are a number of intuitive considerations that favor taking individualism to be a constraint on taxonomy in psychology and the cognitive sciences *however they develop*.<sup>2</sup> Yet explicit arguments for individualism are less frequently encountered. One can view the arguments that *have* been given for individualism as being of two basic types.

The first type of argument appeals to some quite general feature of the world or the nature of our explanatory practices that we should want psychology to respect, and argues that any psychology which does respect such a feature must be individualistic. The sorts of things appealed to include the natures of causation, causal explanation, causal powers, scientific explanation, supervenience, and nomological behavior. I shall describe such arguments as proceeding in an *a priori* manner. They make a claim about psychological taxonomy and explanation which turns on no particular, empirical claim about explanatory practice in psychology. Rather, the crucial claim in such arguments occurs in a general premise, such as 'All scientific explanation individuates by causal powers', with the minor premise about psychology, such as 'Psychology should individuate by causal powers', following from this major premise. Conversely, one can see *a priori* arguments for individualism as relying on a premise which is a *generalization* of the constraint that individualism imposes on psychological taxonomy and explanation. It is the major premise, a premise which makes no specific claim about psychology, that bears the argumentative burden in *a priori* arguments for individualism.

The second type of argument, by contrast, does appeal to particular features of explanatory practice in psychology. Arguments of this type might be considered *a posteriori* or *empirical* arguments in that the premise which carries the argumentative burden can be construed as making an empirical claim about psychology, one which might turn out to be false in light of actual, empirical research in psychology. The most powerful cluster of such arguments makes the claim that psychology is, essentially, computational, and insofar as it is, it is individualistic. Such arguments pursue a more cautious strategy than do the *a priori* arguments in that they argue for individualism as a general constraint on psychology (or even on parts of psychology) in a piecemeal way.<sup>3</sup>

I have previously examined in some detail what I take to be the most influential of the *a priori* arguments for individualism, the argument from causal powers.<sup>4</sup> There I argued that the central notion of an entity's causal powers is used ambiguously in the argument from causal powers, making that argument equivocal. I also argued that this equivocation reflects a deep problem in the argument from causal powers. The equivocation does not simply appear in one particular formulation of the argument: its existence in some formulations points to a fundamental incompatibility in the claims that need to be true for any version of this argument to be sound. In passing, I also expressed my scepticism about the prospects for a sound argument for individualism of this type, i.e., a sound *a priori* argument. It is this scepticism that I shall argue for more explicitly here.

My strategy will be as follows. First, I shall examine an argument that is closely related to the argument from causal powers and argue that it is faced with much the same sort of problem that that argument faces (Section III). Second, I shall attempt to identify a metaphysical and epistemological assumption which underlies these arguments, and show how a widely accepted non-reductive view of explanation provides the basis for the rejection of this assumption (Section IV). Third, I shall argue that these conclusions show why a recent 'powers-parameters' analysis of causation offered by Colin McGinn,<sup>5</sup> should also be rejected (Section V). I shall have nothing explicit to say about empirical arguments for individualism here.

### III. *Does Individualism Follow From the Causal Theory of Properties?*

The intuition that an entity's causal powers play a special role in explanations in which that entity features deserves particular attention, since it lies, I think, at the core of the belief that there must be some sound, *a priori* argument for individualism, even if such an argument has not yet been adequately formulated. One alternative way of deriving an appropriate general premise which does articulate this intuition invokes a view not about the nature of causal or scientific explanation but about the nature of *properties*. This view is the causal theory of properties. Before stating this theory and the argument from it to individualism, I want to note an intuitive distinction which motivates the causal theory.

This is the distinction between what have been called *genuine* properties and *mere-Cambridge* properties.<sup>6</sup> Intuitively, not every property that we can refer to with a predicate is a causally efficacious property of the entity to which it is ascribed. For example, the properties of being 12,000 miles from Melbourne, of being admired by Bob Hawke, and of

being born during a particular space-time interval, while truly predicable of certain entities, are not in themselves causally responsible for any effects that those entities bring about: they are mere-Cambridge properties. In this respect they contrast with what are often thought of as paradigmatic properties. Both *microstructural properties*, such as having a particular chemical structure and having a certain number of protons, and *primary qualities*, such as having a specific shape or size, are properties that, when coinstantiated with other properties in objects, give those objects causal powers to bring about particular effects. Much of the suspicion directed at talk of an object's mere-Cambridge properties is due, I think, to the intuition that such properties have no causal efficacy. Whatever sense we can make of conceptual schemes that employ the corresponding predicates, these properties themselves play, at best, only a background causal role in sustaining processes and bringing about events and changes in the world; at worst, the corresponding predicates are merely ways, perhaps even misleading ways, of talking about the world.

Proponents of the causal theory of properties, accepting the intuitive distinction between genuine and mere-Cambridge properties, claim that it is essential to a particular *genuine* property that it have the causal powers it has. The causal theory of properties says that properties, *genuine* properties, are identical just if they make the same causal contribution to an entity's causal powers, where an entity's causal powers are the total causal contribution that that entity makes to its effects across possible situations. According to the causal theory of properties,

what makes a property the property it is, what determines its identity, is its potential for contributing to the causal powers of the things that have it. This means, among other things, that if under all possible circumstances, properties X and Y make the same contribution to the causal powers of the things that have them, X and Y are the same property.<sup>7</sup>

The causal theory provides a sufficient condition for property identity. Distinguishing properties from their instantiating circumstances, we can express the causal theory as follows: for any properties, A and B, if A has the same effects as B in all of the same type of instantiating circumstances, then A and B are identical properties. According to the causal theory of properties, there is a conceptual connection between properties, causal powers, and effects. Properties can be viewed as functions from coinstantiating properties to causal powers, and causal powers as functions from instantiating circumstances to effects.<sup>8</sup>

The distinction between properties and their instantiating circumstances is an integral part of the causal theory of properties which,

expressed as the view that properties are second-order functions, implies that the causal powers used to individuate genuine properties must be *intrinsic* rather than extrinsic.<sup>9</sup> An example that Robert Boyle introduces in 'The Origins and Forms of Qualities' serves as a good illustration of the difference between intrinsic and extrinsic powers that objects can possess in virtue of instantiating a given set of intrinsic properties. In virtue of its size, shape, and composition, a given key has the intrinsic power to open any lock of a specific size and shape or set of sizes and shapes. There is no way for that key to lose *that* power, as Boyle would say, 'without the intervention of any physical change in the body itself' (1744, vol. ii, p. 463). A key also has many extrinsic powers in virtue of having the size, shape and composition that it does, including the power to open a particular door. Such extrinsic powers *can* be lost without changing the key itself. For example, simply change the lock on the door and the key loses the extrinsic power it had to open the door.

One of Boyle's main points in 'The Origins . . .' is that it would be absurd to regard every name for a quality as a real power of the entity concerned, and it seems clear that for Boyle real powers are intrinsic rather than extrinsic. We can express the necessity to restrict 'power' to mean 'intrinsic power' as a *reductio*, using the idea that properties are second-order functions. The extrinsic powers that an object has are not completely abstracted from their instantiating circumstances and so, were they to be considered as the powers in terms of which the causal theory is stated, causal powers could not be complete functions from instantiating circumstances to effects. Putting it differently, stating the causal theory in terms of an entity's extrinsic powers would not provide an account of an object's genuine properties. Genuine properties are functions from one another to powers, and so must completely determine what those powers are. Yet an entity's extrinsic powers are not completely determined by its genuine properties.

Consider the property of being made of a particular type of glass. When coinstantiated with other properties, this property has a variety of causal powers. For example, when coinstantiated with the properties of being circular and having a certain size, it gives an object the causal power to magnify objects; when coinstantiated with the property of being struck by light of a certain intensity, it gives an object the power to burn paper. Each of these powers is intrinsic in that an entity with such a power can lose that power only if some change is made to the entity itself. The power inheres in the entity in which it is instantiated; having the power to do something is compatible with not and, indeed, never being in the position to do it. What makes the property of being made of glass the property it is, according to the causal theory of properties, is its contribution to the intrinsic causal powers of the entities in which it is instantiated, where all possible instantiating circumstances are considered.

If one makes the *prima facie* modest assumption that the properties that are taxonomic and explanatory in science must be genuine properties, the causal theory of properties might be thought to provide a general metaphysical view from which individualism follows. For if we assume that such properties must be genuine properties, and if genuine properties are defined in terms of the intrinsic causal powers they give rise to, then the properties used for taxonomy and explanation in science must be defined in terms of causal powers. In particular, scientific taxonomies cannot differ unless the corresponding entities taxonomised differ in their intrinsic causal powers. The individualist's claim about psychology, that the entities posited by a scientific psychology must be taxonomized by their intrinsic causal powers, would seem to follow trivially. If genuine properties are powers to give rise to causal powers in the objects in which they are instantiated, then in proposing that *psychology* individuate by intrinsic causal powers the individualist is simply claiming that psychology, like the rest of science, should posit only genuine properties, rather than mere-Cambridge properties.

This argument articulates one of the core intuitions motivating individualism. The individualist claims that wide content *itself* makes no causal difference to the mental states which instantiate it; doppelgängers, recall, can instantiate mental states with different wide contents.<sup>10</sup> Rex has thoughts *about water* because he is on a planet where there is *water*, while his molecular twin, T-Rex, has thoughts *about twater* because he is on a planet where there is only *twater*, not water. Yet the property of being in a world in which there is H<sub>2</sub>O, like that of being 12,000 miles from Melbourne, is, intuitively, a mere-Cambridge property, not a genuine property, that an entity instantiates. Instantiating *that* property makes no difference to the intrinsic causal powers that an individual has, and so that property should not be taxonomic in a truly scientific psychology. Such a property is not a genuine property at all.

One problem with this argument for individualism is that it presupposes that all genuine properties are intrinsic properties. One reason for this is that individualism claims that psychological states must be taxonomized by properties that supervene on the intrinsic, physical properties of individuals. Yet, if we presuppose that all genuine properties are intrinsic, the assumption that taxonomic properties in science must be genuine properties loses the modest status that we had, *prima facie*, attributed to it; in fact, it becomes a claim that is false of actual taxonomic practice in the sciences. In many cases scientific taxonomies are constituted by relational properties, not intrinsic properties, and as I have argued elsewhere, this fact about scientific taxonomies is, *pace* Fodor, incompatible with the claim that taxonomies and explanations in science individuate their kinds 'by causal powers'.<sup>11</sup> Two entities identical in their intrinsic, physical properties can be taxonomized differ-

ently if they are individuated relationally, and such differential individuation will often be reflected in the different explanations which may apply to such entities.<sup>12</sup>

While there is nothing in the causal theory of properties that strictly entails that the genuine properties an entity has must be intrinsic properties, the distinction between genuine and mere-Cambridge properties, on the one hand, and intrinsic and relational properties, on the other, is often collapsed in expressions of the causal theory.<sup>13</sup> There is some motivation for doing so within the framework in which the causal theory is often discussed. The causal theory claims that a property's causal powers are essential to its identity and is motivated, in part, by the intuition that a *genuine* change in an entity's properties must involve a change in that entity itself. It is this motivation, I think, that leads to the equation of the two distinctions, since a change in an entity itself involves the acquisition or loss of *intrinsic* properties.

A second reason for the equation of 'genuine' and 'intrinsic', and 'mere-Cambridge' and 'relational', has been the focus, in discussions of mere-Cambridge properties and mere-Cambridge changes, on relational properties which could have been different without making any significant causal difference to the entity itself. Consider Geach's example (1969, p. 72): Socrates acquired the property of being shorter than Theaetatus in virtue of the latter's growth. Such properties in themselves are not causally efficacious in that they do not endow their bearers with any intrinsic powers to bring about particular effects.<sup>14</sup>

Many relational properties, however, *are* causally efficacious in a way that the paradigm cases of mere-Cambridge properties are not. For example, being a mother, being unemployed, being a member of a particular species, being a planet, and occupying a relatively specific ecological niche are all relational properties that different entities can have in particular instantiating circumstances, each of which, when co-instantiated with the appropriate properties, enables an entity to bring about particular effects. With respect to causal efficacy, some relational properties are *just like* paradigmatic intrinsic properties, and I take this to be a reason for counting those relational properties as genuine properties. Like the claim that there is something about relational and historical properties that make them unsuitable for, say, *scientific* taxonomies, the claim that genuine properties *cannot* be relational should be evaluated by attending to our actual taxonomic and explanatory practices.

To illustrate how relational properties can be causally efficacious, consider a generalization from evolutionary biology: highly specialized species tend to extinction in times of ecological catastrophe. Roughly, a species is highly specialized if it adopts a limited range of survival strategies relative to other, competing species. Hedgehogs are highly specialized organisms, while raccoons are not, and this difference between the

two species explains why the latter but not the former have survived our encroachment on their natural habitats. Being highly specialized is a property whose possession is causally responsible for species-wide extinction in certain circumstances: *it* is a causally efficacious property.

I shall return to discuss this example in more detail in Section V where I will argue that the property of being highly specialized is *essentially* relational: in contrast to a property like *weight*, which is not essentially relational, it is not possible to abstract away from the relations which constitute the property of being highly specialized in a theoretically motivated way. There is no reason to think that every explanatory, relational kind must be factorable into an intrinsic kind plus non-explanatory remainder, and the problem of seeing just what the factorisation could be in particular cases is good reason to think that many cannot.

If there is nothing in the causal theory itself that requires the equation of 'genuine' with 'intrinsic', it might be thought that one can simply reformulate the argument I have given from the causal theory of properties to individualism supposing that both intrinsic and relational properties can count as genuine properties. However, such a reformulation is not possible. The basic problem is that an entity's relational properties do not supervene on that entity's intrinsic, physical properties. An entity's relational properties can change without a change in the thing itself, i.e., without a change in the entity's intrinsic properties. If one were to reformulate the argument we are considering using a conception of genuine properties which includes both intrinsic and relational properties, the intermediate conclusion in the argument, the general premise that bears the argumentative burden in this sort of *a priori* argument, would employ a notion of causal powers according to which 'causal powers' do not supervene on intrinsic, physical properties. Such a notion of causal powers does not allow one to arrive at individualism.

Assuming a *restricted* sense of 'genuine properties', which entails that all genuine properties are intrinsic properties, the generalization of individualism that serves as the major premise in the argument is false of science as it is actually practised; assuming an *extended* sense of 'genuine properties', which counts both intrinsic and relational properties as genuine properties, is incompatible with the supervenience of an entity's genuine properties (and so its causal powers) on its intrinsic properties.<sup>15</sup> And it is, recall, the local supervenience of the properties constituting psychological kinds that is at the core of the constraint of individualism in psychology.

I have not argued against the causal theory of properties here, but against the argument from this general view about properties to individualism in psychology. I shall focus more explicitly on the causal theory of properties itself in the next section with two purposes in mind.

The first is to uncover some of the intuitions which drive the argument we have just examined; the second is to explain why one should expect relational taxonomies to feature in a variety of sciences and so to provide some reason for thinking that they may be perfectly suitable in themselves for explanation in *psychology*.

#### IV. *Explanation and the Causal Theory of Properties*

The causal theory takes for granted the intuitive distinction between genuine properties and mere-Cambridge properties, proposing an account of the former which attempts to remain fairly neutral about what sorts of properties count as genuine properties. One of the conclusions to draw from Section III is that the causal theory must be combined with more substantive views about both causation and explanation if it is to be the basis for the constraint that individualism imposes on individuation in psychology.

The causal theory is often held along with a certain view about the *comprehensiveness* of the explanatory framework provided by the corpuscular philosophy of the seventeenth century. The world is material; matter is made up of atomic components; it is the properties of these basic components that are ultimately causally responsible for the phenomena that we observe in the world. It is these sorts of properties which themselves *are* the causal powers that things have (or at least are ultimately responsible for all such powers), and so these properties which our sciences should seek to discover. This corpuscular worldview, vague as it is, could take on either a reductionist or non-reductionist character, and expresses a reason for holding that an entity's causal powers should play a special role in taxonomy and explanation in science. It is a view made more attractive by a certain claim about the nature of causation, a claim I shall simply note here. That claim is that causation is *local* or *proximal*, where this expresses the idea that it is only the intrinsic properties of a cause, properties that are 'right there', that are relevant to the role that that cause plays *qua* cause. Only properties that are at the physical location of the effects brought about do the causal work in the world. At bottom, a causal chain, however long and convoluted, is a series of local causes.

In this section I shall articulate a positive view of causal explanation, the core of which is familiar and widely accepted, which requires the rejection of the metaphysical comprehensiveness of the corpuscular framework. This rejection is in no way a rejection of the centrality of causal explanation in science. The causal nature of scientific explanation itself, properly understood, gives one reason to doubt that the corpuscular view does provide an all-embracing framework for scientific explanation.

Scientific explanations are causal in a very broad sense: they identify, in Wesley Salmon's phrase, parts of 'the causal structure of the world'. This general view of scientific explanation is one that individualists accept: the reason that *sciences* ought to individuate by causal powers is that they offer causal explanations for the phenomena in the world. Yet this view of the nature of scientific explanation does not imply that the world has a *single* causal structure which, in principle, some complete science could describe with a single, complex theory. The idea of there being a causal structure to the world is compatible with the various sciences offering, ultimately, many distinct levels of description. Not all of these levels depict the causal structure in terms of the intrinsic causal properties of entities, nor need they. There are causal truths about particles, atoms, cells, organs, organisms and species, some of which do not presuppose the truth of *particular* causal truths or laws at any 'lower' level. Some underlying explanations *merely happen to* make higher level explanations true in the actual world.

To take a standard and clear example of Fodor's (1974), consider the institution of monetary exchange. The particular forms of money that there are—for example, coins, notes, and gold—are to a large extent arbitrary, depending very much on contingencies concerning, amongst other things, the availability of suitable materials. The exchange of money can be described in physical terms, and one can explain what happens in particular cases by describing the physical transactions that take place. Yet there is only a weak dependence relation between exchange explanations and the corresponding physical explanations of particular transactions. The truth of a given exchange explanation is compatible with the falsity of the physical explanation which *happens to* underlie its truth in the actual world. More pointedly (and in the language of possible worlds): there are nearby worlds accessible to ours in which the exchange explanation is true and the physical explanation false.

The same is true of a wide range of what I shall call *instantiating explanations*, explanations whose truth accounts for the truth of some higher-level explanation in the actual world. An explanation is *instantiating*, relative to some higher-level explanation, just in case it provides more of the details about the causal mechanisms or processes specified or implicit in that higher-level explanation. Examples of familiar explanations which are *instantiating* include explanations identifying DNA as the means by which genetic information is transferred (relative to explanations that identify genes as the causal agents in phenotypic transfer across generations); explanations of the behaviour and properties of gases in terms of the properties of the constituent atoms; explanations of the structural properties of buildings in terms of the tensile strengths of their constituent materials. Sometimes an *instantiating* explanation, while specifying details about the actual causal processes by which an

event occurred or identifying many of the intrinsic properties of some cause, is not essential to a broader understanding of *why* that event occurred. In the spirit of the Cambridge–mere-Cambridge distinction, I shall refer to instantiating explanations which are non-essential to a broader understanding of the *explanandum* as *merely instantiating* explanations.

Since higher-level explanations themselves often specify some of the details of how the relevant causal mechanism operate, I am not saying that there are cases in which one offers a better causal explanation for a given phenomenon by *avoiding* talk of causal mechanisms altogether. Rather, the claim is that the most informative level of description at which an explanation can be pitched need not be that which provides the greatest amount of causal detail. In explanation, sometimes less is more. After all, were this not the case, the best explanations that one could offer for *any* phenomenon involving material objects would be microphysical (or quantum mechanical?), and that is absurd. Not only are there no microphysical explanations for some phenomena, but even when there are microphysical explanations these may be wildly disjunctive, as will the ‘kinds’ they invoke. By contrast, individuating entities by their relational properties often allows one to offer explanations that are more *unified*.

These reflections on causal explanations in practice thus begins to explain why corpuscularism is not a comprehensive metaphysical view; the ‘pragmatics’ of explanation has implications for our metaphysics. Because of the complexity of the causal structure of the world, scientific explanations need not appeal only to an object’s intrinsic properties in explaining phenomena for which that object is causally responsible. The very reasoning which supports this conclusion also begins to explain *why* causal powers do not enjoy an explanatory privilege over other types of causal properties, i.e., properties which play a genuine explanatory role in causal explanations. It is this sort of account which is needed—together with the corresponding focus on *explanation*—to show why the identity of the causal powers that two individuals instantiate need not imply that those individuals have the same explanatory *psychological* properties.<sup>16</sup>

To conclude this section, a final point about the causal theory of properties. One conclusion implicit in Section III is that there is an inherent tension within the causal theory of properties, a tension which derives from two different motivations for that theory. It is entailed by one of the motivations for the theory, the idea that it is only a change in a thing itself which counts as a genuine change in its properties, that genuine properties be intrinsic properties. Yet the identification of genuine and intrinsic properties is inconsistent with another motivation for the view, namely, the idea that genuine properties are to be identified as those properties which are causally efficacious. For some relational

properties are causally efficacious just as intrinsic properties are. So, on the one hand, if the genuine properties that an object has are just those properties which involve a change in the object itself, then one can identify these with a subset of that object's intrinsic properties; on the other hand, if genuine properties are just those properties which are causally efficacious, then, since relational properties can be causally efficacious when coinstantiated with other properties, genuine properties need not be intrinsic.

One might wonder about how deep this tension within the causal theory of properties is, particularly about whether it can be adequately resolved. This is not an issue that I shall address here, though taking the ideas about explanation I have articulated in this section seriously would appear to involve giving up the idea that an object's genuine properties are a subset of its intrinsic properties: some relational properties are genuine properties. Such a concession would be fatal to the argument from the causal theory of properties to individualism that we have examined.

It may be possible to maintain both of the motivations for the causal theory by acknowledging that an adequate causal theory of *properties* must be supplemented by a causal theory of *relations*. Such a theory of relations would be fashioned in the same spirit as the causal theory of properties, and would identify a relation by the causal effects that instantiations of that relation have across possible worlds. The set of relations satisfying this condition would be the set of *genuine relations*. Unless there is some way in which genuine relations can be reduced to genuine properties, on this view there remain properties, relational properties, which are genuine but not intrinsic, for some relational properties are instantiated in genuine relations. So while there is a sense in which this possibility allows one to say that only intrinsic properties which are causally efficacious are genuine properties, it does not adequately preserve both motivations for the causal theory. More importantly for my purposes here, such a view would not allow one to derive individualism in psychology from a causal theory of properties and relations.

### *V. Powers and Parameters*

The discussion thus far sheds some light on a proposal that Colin McGinn has recently made about causal powers and causation. McGinn's proposal could be viewed as making either a specific claim about our ordinary, folk psychological concepts, or a more general claim about causation. Since my prime interest here is in *a priori* arguments for individualism, I shall understand McGinn's claim in the latter way, for it

is so construed that it constitutes the general premise in such an *a priori* argument.

McGinn says that “for any particular causal transaction there must exist a power involved in that transaction that is abstractable and identifiable across contexts” (1991, p. 578), taking this to be a variant of Hume’s principle of the generality of causality. As McGinn goes on to say, ‘Powers drive nature’s motor: parameters are just points on nature’s map’ (*loc.cit.*). The basic idea here is that what might be more loosely called ‘causal factors’ can be decomposed into their respective *powers* and *parameters*. Causality should be viewed as operating through the causal powers that objects possess. While we might say that both types of causal factors, both powers and parameters, are causally relevant features of a given situation, it is in virtue of its powers that an object instantiates properties which are causally efficacious.

The example that McGinn uses to illustrate the sort of decomposition he has in mind is that of a knife being sharp in New York on Halloween 1990, where it is the *sharpness* of the knife that is the power one can factor out of this causal property. Even though much of what McGinn says echoes ideas expressed in the causal theory of properties, McGinn himself does not draw any explicit connection between his view and that theory.

Now, there are many instances of causation for which such a powers/parameters analysis is certainly correct: one can often identify a power that an object has in virtue of which it effects change in the world, and consign mere contingencies of instantiation to the value of parameters. Such powers are often properly cited as ‘the cause’ for some particular effect, or the aspect of the causal nexus which should be regarded as causally responsible for that effect. Yet the claim that such a view of causation tells us something about how causation works in general—something that allows us to derive the general premise that is needed for an *a priori* argument for individualism—is not plausible.

Let us return to consider our example of a true, causal generalization from evolutionary biology—highly specialized species tend to extinction in times of ecological catastrophe—to see how this view of causation fares with a more complex case. I have said that this generalization reflects the causal efficacy of a relational property, that of being highly specialized. It might seem that such a generalization is perfectly suited to the powers/parameters analysis that McGinn offers. The property of being highly specialized, it might be thought, contains hidden parameters which can be abstracted away from the real causal factors, the causal powers that a species has. After all, to be highly specialized is to be highly specialized *in a particular environment*. In this respect, being highly specialized would be like being the best player: it is a property

which is implicitly relative. We might then suppose that to be highly specialized is to have physical capabilities  $\langle a \dots n \rangle$  in environment  $E_1$ , or physical capabilities  $\langle c \dots g \rangle$  in environment  $E_2$ , or . . . . Such abilities can be properly regarded as causal powers: they are determined by the intrinsic, physical properties that individuals instantiate. Thus, this sort of case is amenable to just the sort of powers/parameters analysis that applies to properties like being sharp. What we do in each case is 'parameterize' the instantiating circumstances to abstract particular powers from the properties they constitute.

One problem with this analysis is that it is being highly specialized, not engaging in certain physical behaviors in certain environments (and other behaviors in other environments), for example, which is the explanatorily appropriate property to focus on if we are interested in identifying the property in virtue of which certain organisms, but not others, do not survive periods of ecological catastrophe. This is because it is this property which abstracts away from differences between organisms who are affected in the same way (i.e., extinguished), allowing one to arrive at a common, unifying explanation. Explanations for the fact of differential extinction that appeal to the particular behaviors that individuals engage in are, in terms I introduced in Section IV, *merely instantiating* explanations relative to those which appeal to the property of being highly specialized. If one insists that it is only intrinsic powers which can be causally efficacious, then one breaks the connection between causal efficacy and causal explanation. But in Section IV I suggested that our best causal explanations provide the best guide to what properties in the world are causally efficacious. The point here is that such explanations may well posit relational properties, such as being highly specialized.

This problem might be thought to derive simply from having given the wrong analysis of being highly specialized. Suppose that one decomposes being highly specialized not into the particular behaviors (plus environmental parameters), but into something like having highly *inflexible* behavior, where this is having few behavioral dispositions in one's repertoire. It is, after all, an animal's having a variety of behavioral strategies in its survival kit that enables it to survive once the niches for which it has actually adapted disappear. If one applies the powers/parameters analysis in this way, then to be highly specialized is to have highly inflexible behavior, where the particular behaviors that come to be identified as inflexible vary from circumstance to circumstance. Explanations that appeal to the property of being highly specialized can thus be factored, without loss of explanatory generality, into explanations in terms of causal powers, namely, those quantifying over highly inflexible behavior.<sup>17</sup>

This suggestion suffers from a related but different problem. The problem in this version of how to apply the powers/parameters analysis

to our example is that the power that is cited—that of having highly inflexible behavior—is not a causal power in the relevant sense. That is, it is not a power that supervenes on the intrinsic, physical properties of the entity to which it belongs. For to have highly inflexible behavior, if this is to be understood as the causal property in virtue of which the initial generalization holds, is to be unable to adapt to alternative ecological niches: it is organisms or species who can't do *that* which perish. But, so understood, having highly inflexible behavior is at best an *extrinsic* causal power that an organism or species possesses, for it is a power that an organism or species could gain or lose without any change in its intrinsic properties. For example, an organism or species could lose this property if it were rapidly surrounded by other organisms or species which are even more highly specialized. Such organisms or species will tend to survive for precisely the reason that its competitors will not: they have highly *flexible* behavior, relative to the competing species they will eventually replace.

There are two general points about McGinn's powers/parameters analysis which arise from our discussion of this example.

The first is that even though there are cases in which one can abstract a power from its parameters to identify a part of the causal nexus which has some claim to being *the* cause, there are other cases in which this is not so: our resultant 'power-based' explanations have less explanatory unity. It makes little sense in such cases to claim that the powers one arrives at have any claim to being a special part of the cause for the effect being explained. There is a variety of cases throughout the biological and social sciences for which the powers/parameters analysis, particularly when it is employed in an *a priori* manner, does not enrich our understanding of causation or causal explanation in those disciplines. Relationally individuated kinds have been developed in those disciplines (and elsewhere) precisely to allow one to offer more unified explanations, and it is these explanations which tell us what causal factors are most significant for the sorts of phenomena that those disciplines seek to understand.

The second point turns on the fact that in identifying a causal power as a component of some causal factor or causal property, there is an implicit constraint: that such a power supervene on the intrinsic, physical properties of the entity to which it is ascribed. This is a constraint on what counts as a power only insofar as the powers/parameters analysis is supposed to provide some general reason for thinking individualism to be true, and it *is* such a constraint because individualism can be construed as making the very same supervenience claim about *psychological* states and properties. The point is that the powers/parameters analysis initially looks promising as the basis for a major premise in an *a priori* argument for individualism only because one fails to restrict 'power' to mean 'intrinsic power'.

It will not be lost on some that one could express these two points in terms that bring out something very much like the problem we have seen plague other appeals to the notion of causal powers. Just as it is implausible to hold that taxonomy in science is taxonomy by causal powers if one assumes a restricted notion of causal powers, so too is it implausible to think that the powers/parameters analysis applies to all properties that are taxonomic or explanatory, assuming such a notion. Yet if we broaden or extend the notion of a power in a way that allows us to address this first problem, we do so at the cost of failing to have specified an analysis from which we can derive individualism in psychology in an *a priori* manner, for such 'causal powers' do not supervene on the intrinsic, physical properties of the entities in which they are instantiated. Recall that we saw just this type of problem arise with the notion of 'genuine properties' in Section III.

## VI. Conclusion

Although I have focused in this paper on two related *a priori* arguments for individualism, the main conclusion I would like to draw concerns this *style* of argument, namely, that it is very unlikely to result in a sound argument for individualism. Even if one were to grant my conclusions about the particular arguments I have examined, both here and elsewhere, this more general conclusion could only be warranted, if at all, by abstracting some general morals.

The first of these is that each of these three arguments—the argument from causal powers, that from the causal theory of properties, and that from the powers/parameters analysis of causation—makes its central claims in terms of the notion of causal powers. It is no part of my argument to suggest that the notion of a causal power is not important to the philosophy of science; I have no empiricist or positivist axe to grind about metaphysics. My concern, rather, is with a certain appeal that individualists have made to the nature of science (it taxonomizes 'by causal powers'), to the nature of properties (they *are* causal powers), and to the nature of causation (it operates *via* causal powers). In each case, the notion of an entity's causal powers plays some crucial role in an argument that purports to show why taxonomy and explanation in psychology must be subject to the constraint of individualism. One way of looking at the problem with such appeals is that there is *too much* in the concepts they use for the arguments which flow from them to be sound. In particular, the crucial notion of a causal power has at least two distinct senses, no one of which will allow you to derive individualism in psychology *via* these *a priori* paths.

With this substantive point in mind, consider the *prima facie* conflict between the claim that taxonomy must be 'by causal powers' and the fact that some of our paradigm explanatory frameworks taxonomize relationally. One way of resolving this conflict is to soften or liberalize the meaning that is given to the phrase 'by causal powers' so as to allow certain relational taxonomies to count as taxonomies that individuate 'by causal powers'.<sup>18</sup> I have no argument to suggest that such a 'softening' strategy can't work, but I take it to be no coincidence that the particular softened proposals that have been made are incompatible with one of two required claims. Either they account for our intuitions about when relational taxonomies are permissible, but do so at the expense of failing to connect suitably with individualism in psychology; or they allow one to derive individualism in psychology from an *a priori* claim about science, properties, causal powers, or causality, but fail to explain why relational taxonomies are permissible when they are. This tension parallels that which I have identified above in the individualist's appeal to the notion of causal powers.

A second way of responding to the *prima facie* conflict concedes that there is, indeed, a conflict between the taxonomy of entities by their intrinsic causal powers and their relational individuation, but claims that relational taxonomies, *when they are genuinely explanatory* can be factored into taxonomies which are individuated by the intrinsic causal powers of the entities they subsume. Like McGinn's claim about the generality of the powers/parameters analysis of causation, this claim should be assessed by examining the many relational kinds that there are in the sciences and seeing whether they can, as a matter of fact, be factored in the way proposed. We have seen examples, here and elsewhere, which seem resistant to such a treatment, and in Section IV I have attempted to explain why we should expect them to be resistant.

I shall conclude by drawing a related, more *methodological* moral concerning how one goes about doing the philosophy of science, particularly the philosophy of the special sciences, such as psychology. After all, the debate over whether individualism is a constraint on psychological explanation is principally a debate within the philosophy of science, even if it is not always recognized as such. I want to suggest that the way in which each of these arguments proceeds, what I've called their *a priori* character, is mistaken. This is because sciences, particularly the special sciences, develop their own taxonomies, theories, and explanations in response to very different research interests and problems, and with very different methodologies. It is because of this rich diversity within the sciences, a diversity that is often not appreciated, that any argument which relies on a premise about scientific taxonomies and explanations having some essential feature is unlikely to be sound; more so any argument which relies on a correspondingly general premise about the

notions of causation, property, or explanation, notions at least some of whose principal instances are found by turning to the sciences. The 'pragmatics' of scientific explanation cannot be separated from its metaphysics, at least not if the metaphysics one proposes for science is to be taken seriously as an account of the metaphysics that science actually traffics in. Scientific practice itself is not simply the ultimate arbiter for claims about the nature of science; its examination is the way to do the philosophy of science.

If what I have argued is correct, then where are we with respect to individualism? My advocacy of a clearer focus on particular disciplines and explanatory practices in order to arrive at normative recommendations for how sciences ought to proceed implies that I think that arguments for individualism which appeal to something particular about explanatory and taxonomic practice *in psychology* are likely to be more promising than those arguments I have examined here. There are such arguments (e.g., the computational argument), but their discussion is a task for another time.<sup>19</sup>

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#### NOTES

<sup>1</sup> Discussions which construe individualism in this way (sometimes under the name 'methodological solipsism' and 'internalism') and considerations in favor of it include those in Devitt (1990), Fodor (1980, 1987, 1991), McGinn (1982, 1989, 1991), and Stich (1978, 1983).

<sup>2</sup> I include here various appeals to the idea that doppelgängers simply *must* be treated by psychology in the same way in taxonomy and explanation, and claims that denials of individualism commit one to truly weird doctrines in psychology, such as 'action at a distance' (Block 1986) and 'crazy causal mechanisms' (Fodor 1987: ch. 2).

<sup>3</sup> For example, see Egan (1991, 1992) and Segal (1989) for interesting arguments of this type. Cf. also Patterson (1991).

<sup>4</sup> See my 'Individualism, Causal Powers, and Explanation,' *Philosophical Studies* 68 (1992), pp. 103–139.

<sup>5</sup> See McGinn, 'Conceptual Causation: Some Elementary Reflections,' *Mind* 100 (1991), pp. 573–586.

<sup>6</sup> A note on terminology: Geach (1969: ch. 5) introduced the term 'Cambridge change' to refer to change that occurs whenever a statement of the form 'Fx' is true at one time and false at another. Clearly, such a 'change' need not involve a change in the object itself. Shoemaker (1979, 1980) introduced '*mere*-Cambridge' to refer to those Cambridge changes which are not, intuitively, changes in the object predicated. Mere-Cambridge properties are those properties acquired or lost only in mere-Cambridge change.

<sup>7</sup> Shoemaker (1980, p. 212). While it is this formulation of the causal theory that Shoemaker uses throughout that paper, in a postscript he offers a more restrictive version of the causal theory of properties that adds the conjunction 'and whatever set of circumstances is sufficient to cause the instantiation of [X] is sufficient to cause the instantiation

of [Y], and vice-versa' (p. 233). I shall not be concerned here with the implications that a recognition of the differences between these two formulations have.

<sup>8</sup> Cf. Shoemaker, *loc. cit.*, to whom this 'second-order function' expression of the causal theory of properties is owed.

<sup>9</sup> See Humberstone (forthcoming), for discussion of the substantive issues involved in drawing the intrinsic/extrinsic distinction.

<sup>10</sup> The perceived causal inefficacy of wide content is often identified as an objection to wide content explanations. See, for example, Jackson and Pettit (1988, 1990a, 1990b); cf. also Crane (1991) and McGinn (1989, pp. 132–139, and 1991).

<sup>11</sup> See, in particular, §5 of my 'Individualism, Causal Powers, and Explanation'.

<sup>12</sup> Not that the behavior of entities identical in their intrinsic, physical properties *must* be subject to different explanations if those entities are taxonomized relationally; differential taxonomy is not sufficient for differential explanation.

<sup>13</sup> For example, the equation of the two distinctions is implicit in a number of places in Shoemaker's defence of the causal theory of properties. See especially §VI of each of his 1979 and 1980.

<sup>14</sup> There is also the converse tendency to concentrate exclusively on those intrinsic properties that are explanatory within some sciences and so ignore the many intrinsic properties which *don't* make a significant causal difference to their bearers. For example, having 12 765 345 cells is an intrinsic property that some organisms instantiate, but not one that endows its bearers with powers to bring about effects that are likely to be of explanatory and so taxonomic interest to the biologist.

<sup>15</sup> Cf. Wilson (1992) on the use of 'causal powers' in the argument from causal powers: one can distinguish a restricted from an extended sense of 'causal powers', no one of which will allow you to state a version of the argument from causal powers that is sound.

<sup>16</sup> I intend this to serve only as a *beginning*. I focus more explicitly on explanation in 'Causal Depth, Theoretical Appropriateness, and Individualism in Psychology', *Philosophy of Science*, forthcoming.

<sup>17</sup> One question (which I owe to Kim Sterelny) is whether this analysis of being highly specialized applies to both plants and animals, or only to animals: can plants which are able to tolerate massive changes in temperature or soil moisture levels be considered to exhibit more flexible *behavior*?

<sup>18</sup> For example, Fodor (1987: ch. 2) has suggested that you can taxonomize by *whatever affects* causal powers, and since certain relational properties affect causal powers, this construal of 'by causal powers' is compatible with the prevalence of relational taxonomies in the sciences. See Stalnaker (1989) and Wilson (1992) for why this won't work; cf. also Fodor (1991), in which a different version of this strategy is pursued.

<sup>19</sup> Material in this paper has been presented at Monash University and the University of Auckland, and I thank audiences there for useful feedback. I would especially like to thank Frances Egan, John Fitzpatrick, Kim Sterelny, and J.D. Trout for their comments on the penultimate draft; thanks also to Sydney Shoemaker and Bob Stalnaker for helpful discussion of and comments on parts of the paper.

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