Causation, Colour and Secondary Qualities

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I, Madeleine Claire Brown, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

This thesis examines Price and Menzies' defence of an agential theory of causation by analogy with the dispositional theory of colour, and their claim that causation should be treated as a secondary quality. Exploration of the objections to their theory that Price and Menzies discuss shows that causation should not be treated as a secondary quality. These objections are that the agential theory of causation confuses metaphysics with epistemology, that it is unavoidably circular, that it cannot account for causation in cases where agential manipulation is impossible, and that it is unacceptably anthropocentric. It is argued that although understanding causation as a secondary quality is supposed by Price and Menzies to solve these problems, this understanding does not in fact provide adequate responses to the four objections, and hence that treating causation as a secondary quality is under-motivated. It is argued, however, that the analogy made between causation and colour is nevertheless useful, because an idea from a different theory of colour presents a better option for understanding causation. This alternative idea uses agency, but does not bring the disadvantage of making causation metaphysically dependent on agency. The alternative idea is built on the argument for selectionism about colour. It is ultimately argued that although causation is not a secondary quality, it may yet be a tertiary quality.

Contents

1. Causation, Colour and Secondary Qualities[1]

In this first chapter, the agency theory of causation is explained, along with its motivation. The four objections to this theory are outlined. It is explained that Price and Menzies defend the theory against these objections using an analogy with the dispositional theory of colour, claiming that understanding causation as a secondary quality is the key to responding to these objections. An interpretation of how Price and Menzies understand the term 'secondary quality' is offered, so that an assessment of their arguments can be made in subsequent chapters.

What is the agency theory of causation?

To begin, let us first explain the theory to be discussed. Price and Menzies's (hereafter 'P&M"s) agency theory of causation is driven by the claim that "the ordinary notions of cause and effect have a direct and essential connection with our ability to intervene in the world as agents" (1993: 187). The basic claim of the theory is:

"an event *A* is a cause of a distinct event *B* just in case bringing about the occurrence of *A* would be an effective means by which a free agent could bring about the occurrence of *B*." (1993: 187)

The combination of the claim that this is an account of 'ordinary' 'cause' and 'effect', in combination with the claim that this theory is not to be confused with one that states "that there is a special kind of causation by agents which is distinct from ordinary causation by events" (Menzies and Price, 1993: 187 n.2) is intended to tell us that in using agency as a constituent part of the theory of causation, P&M do not mean to suggest that agential causation is in any way a special case of causation; rather, there is one kind of causation only, and it should be understood through agency. This will be important in later discussion.

It is important to determine the motivation for P&M's theory. It should first be pointed out that P&M's theory is also a probabilistic theory, in that what it means for *A* to be an effective means of bringing about *B* is for *A* to raise the probability of *B*, from the agent's perspective. Herein lies one of the advantages claimed for the agency theory: a probabilistic account of causation, whereby causes are said only to raise the probability of their effects, rather than necessitate them, relaxes the demand for constant

[1] Thanks to Ian Phillips, who supervised this thesis, and Rory Madden, who gave additional advice.

conjunction that the Humean theory of causation claims; Price states "Perhaps the most important advantage of the probabilistic approach to causation is that it allows a plausible relaxation of the Humean condition that causes show constant conjunction with their effects" (Price, 1991: 158). The reason this supposed to be a good thing for a theory of causation is that it allows for non-deterministic causation. I concede that this is an advantage, since we would not wish the adoption of a certain theory of causation to pre-judge the issue of whether or not we live in a deterministic universe, lest it turn out to be false simply because we find out that the universe is indeterminate.[2]

Price (1991) gives arguments for the advantages of augmenting a probabilistic theory of causation by introducing an essential connection with agency, which P&M endorse (1993: 191). A basic problem facing probabilistic theories of causation that Price is trying to address is that the relevant epistemic probabilities are symmetric, and therefore cannot really explain the difference between cause and effect. This is because not only do causes raise the chances of their effects, but also effects raise the chances of their causes, because if an effect occurred, it can be inferred that it is more likely that its cause also occurred than it otherwise would have been. Another, related problem that Price thinks the introduction of agency can solve is that probabilistic theories of causation cannot distinguish some cases of spurious causation from those of genuine causation, because if a cause has multiple effects, then the presence of one effect also raises the probability of the other effect, hence falsely suggesting that one of the effects is a cause of the other.[3]

Lastly, it is argued that introducing agency will remove the need to stipulate a temporal direction for causation (Price, 1991: 170-1). This is argued to be an advantage not only because it removes the need to assert an otherwise unexplained brute fact about causation, but also (and perhaps mainly) because it then allows the theory to accommodate cases of simultaneous and backward causation, which would otherwise be ruled out *ex hypothesi*. Insofar as it is an advantage for a theory to be able

[2]On this topic, some philosophers, including P&M (1993: 189), say we must allow for non-deterministic causation because quantum mechanics may require it.

[3]The most famous example of this is surely the case of the barometer, where really both the low reading and the rain are caused by a drop in atmospheric pressure, although some theories of causation would wrongly indicate that a drop in barometer pressure causes rain. In the probabilistic case, a drop in barometer reading indicates that rain is probable, yet does not cause the rain.

to accommodate cases we are not yet sure of, we can concede that it would be an advantage for the agency theory if it could do this.

With these advantages in mind, we may examine the content of the agency theory more closely. The agency theory requires the use of "agent probabilities" (Price and Menzies, 1993: 190; Price, 1991: 159). P&M explain them as

> "conditional probabilities, assessed from the agent's perspective under the supposition that the antecedent condition is realized *ab initio,* as a free act of the agent concerned...the agent probability that one should ascribe to *B* conditional on *A*...is the probability that *B* would hold were one to choose to realize *A*." (1993: 190)

Thus we can see how agency is introduced as an essential element of P&M's theory of causation; the very idea of raising the probability of an outcome *B* is defined in terms of the agent's assessment of the chances of *B*'s occurrence given that they themselves carry out *A*.

The ways in which this theory is supposed to avoid problems of spurious causation and maintain an asymmetry between cause and effect can now be seen more clearly. Firstly, we should consider how agential probabilities allow avoidance of the problem that effects make their causes more likely, and hence of wrongly suggesting that effects cause their causes. An example of such a problem is found in Price (1991).

Agent probabilities are a kind of evidential probability (Price and Menzies, 1993: 190). Yet evidential probabilities are claimed to cause trouble in Newcomb problem-style cases.[4] The example used in Price (1991) is a medical Newcomb-style case as follows: consumption of chocolate is correlated with the onset of migraine (in migraine sufferers), yet rather than chocolate being a cause of migraines, the desire for chocolate is a symptom of a pre-migrainous state, from which the migraine then also results. It is therefore obvious that avoiding chocolate is not an effective strategy for avoiding migraine; if one is a migraine sufferer, and one starts to feel a craving for chocolate, one can infer that one is in this pre-migrainous state, and that ignoring one's craving for chocolate will do nothing to change this. Yet, says the objector to evidential, and

[4] Newcomb problems are explained, for example, in Sainsbury (1995: 53-65), and in Nozick (1969).

hence agential probabilities, anyone deciding their actions on the basis of these probabilities would surely (irrationally) choose to avoid chocolate consumption, on the grounds that this lowers the (evidential) probability of being in the pre-migrainous state.

Price convincingly argues that this is not the case. In order for this to be the recommendation of the evidential probability, the migraine sufferer would have to be extraordinarily talented at self-deception. They would have to ignore the fact that their decision concerning whether or not to eat chocolate was not evidence for whether or not they were in a pre-migrainous state; they must ignore their knowledge that were they to choose not to eat chocolate, that would only be because they accept something like "if I eat this chocolate bar, it will be more probable than it would otherwise be that I am in a pre-migrainous state" (Price, 1991: 165-6). The migraine sufferer's decision is thus isolated from usual instances of chocolate consumption; it is not an incidence of the generalization that chocolate consumption indicates a pre-migrainous state because it has a unique history featuring the agent's own deliberation.

This is a case of an action's being given an "independent causal history" of the kind P&M refer to (Menzies and Price, 1993: 191). The significance of these independent histories is that they are what is supposed to do the work in avoiding cases of spurious causation. As P&M explain

> "in enquiring whether one's manipulation of an effect *B* would affect the probability of its normal cause *A*, one imagines a new history for *B*, a history that would ultimately originate in one's own decision, freely made" (1993: 191).

This appears to be a convincing advantage for independent causal histories, at least. It seems successful in differentiating between cause and effect in such a way as to remove the problems generated if the cause-effect correlation is symmetric.

Objections to the agency theory

Having seen that the introduction of agency could be advantageous for solving some problems theories of causation face, it will be no surprise that these advantages come at

a cost. In fact, the introduction of agency to one's theory of causation is seen to be heavily problematic. P&M acknowledge four objections to their theory as follows:

"1. *Agency accounts confuse the epistemology of causation with its metaphysics*. It is widely conceded that experimentation is an invaluable source of evidence for causal claims; the objection is that it is a confusion to suppose that the notion of agency should thereby enter into the analysis of causal claims.
2. *Agency accounts are vitiated by circularity*. It is argued that the *bringing about* is itself a causal notion, and that this introduces a vicious circularity into an agency account.
3. *An agency account cannot make sense of causal relations between events which are outside the control of any agent*. For example, it is argued that such an account cannot make sense of the claim that the earth's revolution around the sun causes us to experience the seasons.
4. *Agency accounts make causation an unacceptably anthropocentric phenomenon*. Agency accounts are said to imply what is obviously false, namely that there would be no causal relations if there were no human agents (or different causal relations if there were different human agents)." (Price and Menzies, 1993: 188)

P&M's strategy for responding to these objections is to suggest that analogous objections apply to the dispositional theory of colour. They suggest that in the case of the dispositional theory the objections are not troubling, and so likewise they should not be problematic for the agential theory of causation. P&M suggest that the need to refer to human visual capacities in an account of colour is almost universally accepted (1993: 188), and that similarly it will turn out that the need to refer to human agential capacities should be so accepted.

One might be worried about why P&M choose to relate causation specifically to *human* agency, particularly since agency does not appear to be only found in humans. In so far as an agent is someone who is able to act in the world, it seems that there are many non-human agents, most clearly in the animal kingdom. This issue will be addressed in chapter five.

A worry about P&M's strategy in responding to these objections is that secondary quality accounts of colour are not the only option; theories of colour such as one that identifies colours with certain surface reflectance properties, for example, seemingly

are not obliged to make reference to the perceptual capacities of perceivers (although they may do so). This worry is most likely not too troubling, however, since nothing P&M say by way of defending their theory depends on colour actually being a secondary quality; it is enough if these pairs of corresponding objections can be rebutted; there may be other objections that apply only in the case of colour that mean that a secondary quality account turns out to be inappropriate in that case after all, without this damaging the agential theory of causation.

A point related to this, however, which I return to in later chapters, is that the role that may be accorded to vision for understanding colours does not force us to adopt a secondary quality theory of colour. P&M may be quite wrong to suggest that perceiver-dependence in the context of the dispositional theory of colour is generally accepted and thought to be harmless. Indeed, there are a number of philosophers who are opposed to the idea of any kind of relationalism about colour.[5] For now, however, we can consider whether P&M are right that understanding causation as a secondary quality enables them to respond adequately to these objections. In examining these responses, we will be able to assess the proposal that causation is a secondary quality. If treating causation as a secondary quality does not provide good responses to the objections, the motivation for understanding causation as a secondary quality is undermined.

The analogy with colour

Since P&M's arguments are based on the analogy they make between their own agential theory of causation and the dispositional theory of colour, there are a number of points it is necessary to consider concerning that theory of colour and the nature of the analogy that P&M are using.

P&M take the dispositional theory of colour to be "the view that to be red is to be disposed to look red to a normal observer under standard conditions" (1993: 188). P&M feel that the reference to human visual capacities "embodies the insight that colour is a secondary quality" (1993: 188). P&M point out that although they have chosen the dispositional theory, any secondary quality account of colour would have

[5] For example Keith Allen and Mark Kalderon, who both argue against such views (see, for example, Allen, 'Inter-species variation in colour perception' (2009); Kalderon, 'Color Pluralism' (2007)). For an example of a philosopher who is a relationalist about colour, see Jonathan Cohen (2004; 2007). Such views will be discussed in later chapters.

done. This cannot be quite right, since they need to choose one that faces all of the same objections, and not all secondary quality accounts of colour are, for example, circular. What I suggest this draws out is that P&M are doing two interrelated things with the analogy. The first, as mentioned, is arguing that objections to their theory of causation lack force because parallel objections to a different theory are not troubling; the second is arguing that causation should be understood as a secondary quality, for that reason that so understanding it allows responses to the objections.

Before examining P&M's treatment of causation, we must get clear about what a secondary quality is. If P&M wish us to come to understand causation as a secondary quality, we need to know what that would actually mean. Specifically, we need to understand what P&M themselves take a secondary quality to be.

Unfortunately, the criteria for being a secondary quality seem to be obscure at best. Consider what Mark Johnston says on the subject:

> "the very distinction between primary and secondary qualities has itself the dubious distinction of being better understood in extension than intension. Most of us can generate two lists under the two headings, but the principles by which the two lists are generated are controversial, even obscure." (1992: 228-9)

The point is that although we have some grasp of the distinction such that we think we could say of some given quality whether it is primary or secondary, it is not entirely clear on what exact basis we make our decision, and moreover there are some qualities on which people may disagree as to which is the correct classification; temperature is perhaps a good example of this, since some people think that hot and cold are primary qualities having to do with the molecular energy of a substance, whereas others say that they are secondary qualities, having to do with the way they make a perceiving subject feel.[6]

In spite of this lack of clarity, we can certainly say something useful about how P&M understand secondary qualities, which is what is important for the analysis of their view. P&M seem to be working with an understanding of secondary qualities whereby

[6] I acknowledge that it might be argued that in the case of heat and temperature, there are two qualities, one primary and one secondary.

they are the qualities of objects that are essentially perceiver-dependent. For example, they make this comment:

"[the dispositional] theory makes colour a secondary quality in the sense that the concept of colour is taken to be an extrinsic or relational one, where the constitutive relation is to a certain kind of human response" (1993: 192)

So for P&M, secondary qualities are 'extrinsic or relational', and in the case of colour, the relation is between object and human perceiver. They also say, in summarizing how they wish to generalize the notion of a secondary quality to include causation:

"The usual characterization of a secondary quality [is] as a quality which tends to elicit a characteristic sensory experience in human subjects under specified conditions" (1993: 202)

They go on to say how we might expand this, but at present what is important here is that secondary qualities are, for P&M, determined by certain perceiver-responses; they are essentially dependent on something external to an object, which is to say they are relational in nature. In the cases of colour and causation, the former is a relation between an object's surface and a certain type of perceiver, and the latter is a relation between an object's capacity to be manipulated and an agent with certain manipulative powers.

There is another important way in which the analogy may be motivated. Causation and colour are both claimed not to exist at the level of physics:

"Physics tells us what is objectively there. It has no place for the colours of things. So colours are not objectively there. Hence, if there is such a thing at all, colour is mind-dependent."
(Campbell, 1997: 177)[7]

Likewise, the motivation of the papers in *Causation, Physics and the Constitution of Reality: Russell's Republic Revisited* (Corry and Price, 2007), to which Menzies and Price both individually contribute and which Price co-edited, is acceptance of Russell's famous claim that science has no place for causation:

[7] Campbell himself does not endorse this argument that colours must be mind-dependent.

"All philosophers, of every school, imagine that causation is one of the fundamental axioms or postulates of science, yet oddly enough, in advanced sciences such as gravitational astronomy, the word 'cause' never occurs... The law of causality, I believe, like much that passes muster among philosophers, is a relic of a bygone age, surviving...only because it is erroneously supposed to do no harm" (Russell, 1913: 1, also cited in Corry and Price, 2007: 1)

It seems to be widely agreed that fundamental physics does not involve the concept of causation. For the purposes of this thesis, I will not be challenging that claim. I start from the premise that both causation and colour are not described in fundamental physics. If there is such a thing as a causal relationship, which most of us take it to be obvious that there is, it exists somewhere further up the scale, at the macro- level. Similar claims have been made about colour. It has been suggested that atoms must be colourless, and hence it is unclear how objects assembled from them could turn out to be coloured; if they do turn out to be coloured, it must be that colour appears somewhere further up the scale, at the macro- level too. Hence P&M's analogy becomes appropriate in a way that they do not mention, for P&M's theory is of the variety under discussion in Corry and Price that attempt to diffuse the tension between the absence of causation from fundamental physics and the usefulness of the concept of causation in everyday life. It is likewise true of some theories of colour that they are attempting to find a way of vindicating colour experience in spite of the claim that fundamental physics does not mention colours.

There is thus an extra theme uniting the discussion of this thesis; with two everyday concepts under threat from the claim that physics does not mention them, we have further reason to consider them in parallel. In the above quotation from Campbell, he says that the argument from physics is supposed to tell us that if there is any such thing as colour, it must be mind-dependent. This is of course distinct from the claim of the eliminativist[8], who would argue that there is no such thing as colour, perhaps admitting that there is colour experience only.[9] From what, then, are we attempting to rescue causation and colour: mind-dependence or eliminativism? The short answer is both, for both are in conflict with the ordinary view. Causation and colour are ordinarily taken to be objective features of the world. It is thought that they do exist,

[8] By an eliminativist, I mean one who claims that a certain concept fails to apply in the world. This is, however, a difficult position to maintain, as one must be able to identify the concept or property the very existence of which one is denying. It is therefore a subject of debate whether eliminativism is even a coherent doctrine; I will assume for the purposes of this thesis, however, that it is.
[9] See, for example, Hardin (1988).

and would continue to exist even if there were no minds to learn about them. This is a part of the way in which we have seen that there may be a motivational analogy between theories of colour and causation.

Primarily, though, this thesis considers the question of the mind-independence of causation and colour, insofar as this conflicts with secondary quality views. The eliminativist positions about these two concepts will not be discussed in any detail. This is because both P&M's agential theory of causation and the dispositional theory of colour seem to require the acceptance of a kind of mind-dependence about their subject matter. As stated, however, ordinary thought about these concepts seems to favour mind-independent views. One question this thesis therefore addresses is whether a theory of mind-dependence is the only way to avoid eliminativism if fundamental physics has no place for a concept. This question was suggested by the passage from Campbell quoted above and is addressed in chapter five.

The interesting questions we should consider about causation can now be seen to be very similar to the most interesting questions in the philosophy of colour; what we want to know is firstly what it means to say something is a cause, in the same way that we might ask what it means for something to be coloured, and secondly what the relationship between agency and causation is in the same way that we ask what the relationship between (human) vision and colour is, which is the analogy P&M exploit. The debate, then, is over whether colour, (and so causation), is some kind of emergent feature of the objective (i.e. perceiver-independent) world, or whether it has some essential connection to perceivers (or agents), and hence is a feature of the subjective (i.e. perceiver-dependent) world. That is, *are P&M right to argue that causation is a secondary quality?*

P&M's use of the dispositional theory of colour to help to defend the agential theory of causation is intended to support this broader suggestion of theirs, that given a wide enough understanding of 'secondary quality', we can treat causation itself as a secondary quality:

"Our claim is simply that the agency theory correctly portrays causation as something analogous to a secondary quality—*as* a secondary quality, in fact, on a suitably extended understanding of that notion" (1993: 189).

Exploring the objections to their position that they attempt to use the analogy to solve will help to answer the question of whether they are correct to claim that causation is a secondary quality. This will clear the way for a revision to the P&M analysis of causation that will maintain its more useful insights, but also advance the ability of the theory to respond to objections by arguing that although causation is not a secondary quality, the analogy with colour is useful. That is, to answer the Campbell inspired question, it will be argued that mind-dependence for causation, specifically in the form of P&M's agential theory, is not the best or only way of avoiding eliminativism about causation, so causation is not a secondary quality, but a closely related position might be an improvement in that direction: causation might be best understood as a tertiary quality.

In the rest of the thesis, a chapter each is devoted to the four objections mentioned above. In each of these discussions, the analogy between colour and causation is explored, and P&M's responses to the objections using the dispositional theory of colour are shown to be inadequate. This shows that causation should not be treated as a secondary quality. Chapter five, which concerns the unacceptable anthropocentricity objection, contains a fuller discussion of the mind-independence problem. It also explains how some of P&M's arguments can be combined with an idea from another theory of colour. This not only completes the demonstration that causation is not a secondary quality, but also shows how the analogy with colour is still useful, as it explains how not being mentioned by fundamental physics is no barrier to a mind-independent existence for either colour or causation. The thesis ends with a discussion outlining how this related alternative account of causation might deal with the objections P&M's theory faced.

2. Metaphysics confused with epistemology?

In this chapter, the objection that P&M confuse epistemology with metaphysics is discussed. It is argued that they misunderstand the objection, and that the objection raises important questions about P&M's commitments. The analogy with colour is explored to assist with clarifying P&M's metaphysical and epistemological commitments. It is argued that P&M are committed to the metaphysical priority of agency over causation, which may be unattractive. This has a bearing on the circularity objection, which is discussed in the next chapter.

The first objection P&M consider to their position is that it confuses metaphysics with epistemology; as they put it:

"Doesn't the agency approach to causation confuse the epistemology of causation with its conceptual analysis? No doubt experimentation has a privileged position in the empirical methodology for testing causal claims. But surely this is no reason for supposing that the notion of agency has a constitutive role in the analysis of causation: after all, it is the cardinal sin of verificationism to suppose that the means by which a statement is verified or tested determines the meaning of the statement" (1993: 192).

We can see from this passage that P&M understand the objection to be that they have, either knowingly or otherwise, put forward a verificationist position, whereby a statement gets its meaning from the manner by which its truth is checked.

P&M go on to give a defence of their position against this objection by showing that it is not verificationist. They do this via the dispositional theory of colour. They explain that according to the dispositional theory of colour, colour is a secondary quality "in the sense that the concept of colour is taken to be an extrinsic or relational one, where the constitutive relation is to a certain kind of human response" (1993: 192). Theories of this kind do have epistemological implications, in this case namely that experience is the best guide to redness; this does not, however, mean that epistemological considerations play a part in the conceptual analysis of colour (Menzies and Price, 1993: 192).

The point is that the dispositional theory of colour does not depend on a verificationist assumption, but rather merely on the assumption that colour is a secondary quality,

and hence reference to visual experience is necessary for a theory of colour; colour is inherently visual, and so cannot be explained without reference to vision, but this is not the same as the verificationist case that colour must be defined according to the way we check the truth of a colour statement. P&M's idea is then that reference to human agency is similarly necessary for a theory of causation; this is not because of a verificationist assumption, but rather because causation is a kind of secondary quality, and hence reference to agency is required for causation in the same way that reference to vision is required for colour; agency is essential to causation in the same way that vision is essential to colour. Their thought is that if it is not objectionable to say that colour requires vision, it will likewise be unobjectionable to say that causation requires agency. Since this is their argument, if this response does not work, that will undermine the idea that causation should be treated as a secondary quality, since the reason for saying that causation is a secondary quality is that this enables the agential theory to respond to these objections.

The shortness of P&M's discussion of this objection suggests that they give it little weight. It appears to me that either they misunderstand the objection, or else they have deliberately given it its least forceful interpretation. There is a more serious question here than one as to whether or not P&M's position is verificationist. There are here genuine issues of the role of experience, and questions regarding definitional and conceptual priority. In discussing these issues, a clearer picture of P&M's position will emerge which will be useful in later discussions.

In speaking of colour, one might suggest that the problem would be the question as to whether it is appropriate to say that colours are essentially visual properties (i.e. properties of visual experience), as opposed to merely accessed through vision. There is nothing especially objectionable about the latter claim; the former is far more contentious, as it is the claim that colours are properties of visual experience, and hence that colours are not properties of objects themselves, contrary to pre-theoretical intuition.

Thus the objection here against P&M's agency theory is that although it may be appropriate to say that causation is experienced through agency, it is not appropriate to say that causation is essentially agential, i.e. a property that is, in the first instance,

found in human action. To suggest the latter is to confuse epistemology, in this case how we learn about causation, with metaphysics, that is, what causal relationships actually are. We must therefore consider which claims P&M are committed to. I return to this more directly shortly.

Pertinent to this discussion is a paper by Christopher Peacocke, "Colour Concepts and Colour Experience" (1984)[10], in which Peacocke raises questions of priority regarding colour that are highly relevant here. Peacocke considers the question "What is the relation between the concept of an object's being red on the one hand and experiences as of red objects on the other?" (1984: 365). We may equally say that we are asking here "what is the relation between the concept of something's being a cause on the one hand and experiences as of causation on the other?"[11] For our experiences are relevant to the epistemology of our concepts, and the concepts of things actually being certain ways are a question of metaphysics.[12]

According to Peacocke, there is a dilemma in the case of colour between things being red and experiences as of red things because

> "There are arguments for saying that each must be more fundamental than the other. Someone does not have the concept of being red unless he knows what it is like to have a visual experience as of a red object; and the occurrence of such an experience is just an experience in which something looks red." (1984: 365)

What P&M have given us is a parallel of this dilemma. The objection under consideration is, I believe, founded on the assumption that causation is more fundamental than agency. P&M, on the other hand, seem to put forward a position where we are required to accept that agency is the more fundamental of the two. Our present concern is to decide which, if either, of these positions is correct.

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[10] Peacocke is, incidentally, someone we might classify as holding the view that colours are properties of visual experience. He argues for the existence of a visual field that is the location of colours, rather than locating colours in the objects that appear to have them. Thus the colours are properties of our experiences, rather than properties 'out there' in the world.

[11] Indeed Peacocke says that the same question applies to all secondary qualities, so if P&M are right that causation is a secondary quality, it should be clear that this is a legitimate and relevant question.

[12] We can, of course, learn about the ways that things are through experience; that is the point of empiricism.

Peacocke offers us three options, which taken together are exhaustive, for how we are to resolve this dilemma. We can say any one of the following three things:

(i) "The concept of being red is philosophically prior to that of looking red and to other experiential concepts…

(ii) "Neither being red nor any relevant family of concepts true of experiences ("experiential concepts") is prior to the other: both have to be characterized simultaneously by means of their relations to one another and to other notions…

(iii) "The concept of being red has to be explained in terms of experiential concepts." (1984: 366-7)

There could equally be three options in the case of causation and agency:

(I) The concept of being a cause is philosophically prior to that of agency and to other experiential concepts.

(II) Neither being a cause nor any relevant family of concepts true of experiences ("experiential concepts") is prior to the other: both have to be characterized simultaneously by means of their relations to one another and to other notions.[13]

(III) The concept of being a cause has to be explained in terms of experiential concepts (agency).

As a preliminary to answering the dilemma of which is correct out of (I), (II) and (III), it is helpful to consider some comments made by Arif Ahmed (2007). In discussing the problem of circularity[14], Ahmed lists a series of claims that agency theories of causation may be committed to as follows:

"(A) Constitutive: the concept of agency features in a necessary, sufficient and elucidatory condition for 'X is a cause of Y'.

(B) Constitutive: wherever there is causation there is agency.

(C) Phylogenetic: the concept of causation arose in the Western word out of the concept of agency.

(D) Ontogenetic: you and I have a concept of causation that arose from our concept of agency.

(E) Ontogenetic: you and I have a concept of agency that arose from our being agents.

[13] An example of this kind of view in the case of causation might be Woodward's Interventionism, for which see Woodward (2003).

[14] See chapter three for my discussion of this problem.

(F) Counterfactual: nobody would have had the concept of causation if they hadn't had the concept of agency.
(G) Counterfactual: nobody would have had a concept of agency if they hadn't been agents themselves." (Ahmed, 2007: 121)

From this set of claims, Ahmed suggests that P&M are committed to (A), (D) and (F), and possibly (E) and (G) as well (2007: 121). To briefly explain why: firstly, P&M must be committed to (A) because the very idea of their account is to offer an explanation of causation in which agency plays an essential role. They commit themselves to (D) because their defence against the circularity objection turns on the acceptance that we understand causation thanks to our own experience of agency, specifically that once we grasp 'bringing about', we can grasp causation; this suggests that the concept of causation is derived from the concept of 'bringing about'. They are committed to (F) because they think that this is only understanding of causation possible, hence one could not come to possess the concept of causation in any other way. That they also hold (E) and (G) seems to be fairly clear to me; if we must all learn the meaning of causation by first learning about agency through our own actions, as P&M hold, then these two claims apply, since each person must be an agent in order to learn by ostension the meaning of 'bringing about' that is so essential to P&M's position.[15] Moreover, it is clear from their claim that Dummett's intelligent trees, cognitive beings with no agential powers whatsoever (Dummett, 1964: 338), would have no concept of causation at all, that they think being an agent is essential to having a concept of agency.[16]

The genuine problem P&M are facing here is: have they got the priority of concepts right? And in answering this question, we will get a clearer picture of the nature of their position. They appear to take option (III), whereas the general intuition that drives the objection seems to be that that is the least plausible option. What we should ask now is in what order of priority the claims (I), (II) and (III) place the concepts of agency and causation, and moreover what kind of priority we are talking about here.

[15] The importance of this for P&M will be seen in the discussion of circularity in chapter three.
[16] This argument of P&M's comes up during their defence against the charge of unacceptable anthropocentricity, for details of which see chapter five.

For this, we need to know what is meant by 'philosophically prior to' in Peacocke's discussion. We can see that Peacocke means it to be the same as 'conceptually prior to' from the following statement:

"I have written, very loosely, of the relation "more fundamental than", "conceptually prior to", and "philosophically prior to". To be more precise, my topic here is a priority of definability." (1984: 367)

So as Peacocke formulated it for colour, the term 'philosophically prior to' in (i) is to mean the same as 'has to be explained in terms of' from (iii), because 'philosophically prior to' means the same as 'definitionally prior to', and it is not difficult to see that 'has to be explained in terms of' is also referring to definability. Hence each of the options excludes the other two. It seems right, then, to say that the problem does also apply to causation and agency, because Peacocke is considering whether 'is red' can be defined in terms of 'looks red', and P&M are considering whether 'causes' can be defined in terms of 'an agent brings it about that…'; they argue for the idea that causation can be understood through experiential 'bringing about' in exactly the same way that being red can be defined through experiential 'looking red'.

Peacocke offers a helpful explanation of the definitional priority that is his topic: "concept *A* is definitionally prior to concept *B* iff *B* can be defined illuminatingly in a given respect in terms of *A*" (1984: 367). We might also wonder whether definitional priority indicates priority of any other kind, and how this bears on the objection. Of course one might think that the possibility of defining *B* illuminatingly in terms of *A* does not preclude the possibility of defining *A* illuminatingly in terms of *B*, and that in such a situation there might be no definitional priority. Such a possibility might mean that there could be an illuminating yet circular definition. I will put this aside, however, because as will be seen in chapter three, P&M reject this type of solution for the problem of circularity (1993: 194). Hence although this type of illuminating definition may exist, we can be sure that they do not take themselves to be offering one.

Considering Ahmed's set of claims an agency theory might be committed to, it is clear that (A) is a statement of the definitional priority of agency over causation. The words 'elucidatory condition' and the mention of necessity and sufficiency imply this order of

priority strongly. (D) likewise suggests the definitional priority of agency, because 'arose' conveys an asymmetry between the two concepts, and agency is stated to come first. (F) seems to be consistent with any options of priority, including a no-priority view that is Peacocke's option (ii), because it speaks only of an unavoidable coincidence of the two concepts. (E) is also consistent with all options, since it says nothing about our actually possessing the concept of agency; we could be agents, as it says we are, without having formulated a concept of agency. Finally (G) is also silent of the subject of priority, for essentially the same reason (E) is.[17]

What of metaphysical priority? It might appear that P&M are vindicated after all if they are only making the claim that the concept of causation must be acquired through the concept of agency.[18] If they are not claiming metaphysical priority they might not be vulnerable to this objection.

But it appears that P&M are making much more than a claim about the direction of definability for human agents. Consider again the way they phrase this objection:

"No doubt experimentation has a privileged position in the empirical methodology for testing causal claims. *But surely this is no reason for supposing that the notion of agency has a constitutive role in the analysis of causation*" (Menzies and Price, 1993: 192, emphasis added).

They are characterizing the objector as saying that we have no reason to suppose agency is a constitutive element in the analysis of causation, so it seems that their own position must be that agency *does* have a constitutive role to play here. It sounds very much as though they are engaged in a question not merely of definition, but of metaphysics. P&M seem to argue that a cause is something that is, in principle,

[17] These points are similar to those made by Ahmed when discussing which formulations are vulnerable to the circularity objection (2007: 121).

[18] In investigations of the psychology of causal reasoning, it appears that agency may well play an essential role. It therefore seems worthwhile to briefly explain what this role might be, and to explain to what extent this could bear on P&M's arguments. There is a considerable literature concerning the role of agency in causal learning (See, for example, Lagando *et al* 'Beyond covariation: cues to causal structure' (2007); Lagnado, 'Causal Thinking' (2011); Hagmayer *et al* 'Causal Reasoning Through Intervention' (2007).) It appears that people are much quicker and more accurate in learning the causal structure of a scenario when they are able to intervene on that scenario for themselves. That is to say, when a person is able to use their own agency to make changes to a situation, their ability to discern the causal links present is greatly improved (Lagnado, 2007: 162-3). This alone, however, does not provide substantial support to any agency-style theory of causation. It is silent on the subject of whether this agency is then seen to be in any way constitutive of causation itself; it speaks only of how we learn about causation. It could merely be that we observe certain occurrences and are able to hypothesize on that basis about possible causal links, and the fastest and most accurate way for us to see if we are right is to be allowed to experiment upon the system. Thus it may not be necessary to have agency to understand causation, but rather agency may merely be a very useful way of speeding up that process of understanding (and possibly improving its accuracy).

susceptible to agential manipulation. This does seem to be a claim about the metaphysics of causation, about what it is to *be* a cause. Moreover, if there is a commitment to claims about conceptual priority, it is not obvious that metaphysical priority can be genuinely distinct from that. Indeed it seems far more likely that definitions must be informed by the way things actually are, which sounds like a metaphysical point. P&M are committed to the metaphysical priority of agency over causation.[19]

To reinforce the explanation of P&M's metaphysical commitment, we should consider again the analogy with secondary quality theories of colour. For a secondary quality theorist about colour, it is not merely true that we could not know about colours without our particular perceptual capacities, but also that the colours are partly constituted by our perceptual capacities. To try to make the point more clearly: even a primary quality theory of colour, such as one which says that colours are to be identified with certain disjunctions of surface reflectance properties, and goes no further than that, would still grant that without the perceptual capacities we have, we could not experience those colours the way we do. A secondary quality theorist, however, says that those visual capacities we possess (which the primary quality theorist says simply enable us to see colours) actually feature in an explanation of what colour *is*.

If P&M really believe that causation is a secondary quality, therefore, the argument of the agency theory must be that causation is constitutively dependent on particular human or agential capacities: that agency necessarily features in an explanation of what causation *is*. And there is further reason to understand P&M's arguments as making this metaphysical claim: at the beginning of their paper they state that they aim to "defend the view that the ordinary notions of cause and effect have a direct and essential connection with our ability to intervene in the world as agents" (Price and Menzies, 1993: 187). The use of the word 'essential' implies that it is not merely the case that we, human agents, as we happen to be constructed, need to use agency to

[19] The best challenge to this claim would be the point raised above that definitional priority may not be asymmetric. If definitional priority is taken to be, as Peacocke suggests, the possibility of offering an illuminating definition of *A* in terms *B*, it has yet to be established that this excludes the possibility that *B* can also be defined illuminatingly in terms of *A*. This point is important because it bears on the discussion of the circularity of P&M's definition, which is the subject of the next chapter. Serious discussion of this concern will be given there.

understand the phenomenon of causation, for that would be a contingent connection with human agency; rather, the connection's being *essential* suggests that it is *necessary*, that is, that P&M are making the claim that causation as it is ordinarily construed is unavoidably linked with agency. Their claim is that a cause should be understood as something that is susceptible to the manipulation of an agent.[20]

This being the case, we can be sure that their option of priority is (III). The objection they are facing, however, is that we have no reason to think that this is the correct answer. And the fact that we may learn about causation through the exercise of our agency does not support the claim that causation should be defined through our agency. We think we merely use agency to discover a feature of the world; we can go around experimenting to try to discover causal links, but we think that those links would exist even if we did not. This is the same as the naïve intuition in the case of colour that the world is really coloured, and vision simply gives us the capacity to see those colours.

Here are two reasons why we would think that causation is prior to agency:

1 It makes sense to suppose that the reason our manipulation is effective is that a causal relationship exists for us to exploit, rather than causation's being something we ourselves bring to the picture.

2 We think that there would be causation even if there were no agents.

And here are their parallels in the philosophy of colour:

1* It makes sense to suppose that the reason we see colours is that colours exist to be seen, rather than colours' being something we ourselves bring to the picture.

2* We think that there would be colours even if there were no perceivers.

[20] Or that bears sufficient similarity in essential respects to something that can be manipulated by an agent. The similarity point is the one they make in response to the objection of unmanipulable causes (1993: 195-8). I discuss this objection in chapter four.

Of course there are philosophers who have denied that we are right to hold both 1* and 2*. It might not, then, be obviously absurd to hold 1 and 2. But we will need to be given very good reasons to endorse them. Of course P&M take themselves to be offering such reasons. The purpose of their view is to show that it is advantageous to accord this role to agency. Tying causation to agency in this way is their secondary quality view of causation. At this point I doubt that further independent argument can be given either for P&M's adoption of (III) or for the endorsement of (I). We do, however, have initial reasons for thinking that (I) is correct in 1 and 2. This suggests that understanding causation as a secondary quality will not be a good idea. In order to establish this in a way that is philosophically satisfying, however, it needs to be shown that P&M's treatment of agency fails to fulfil its brief in enabling responses to the other objections. In the subsequent discussions of each of the other objections, I aim to show that treating causation as a secondary quality is not a successful move for responding to those objections. Hence it will be shown that treating causation as a secondary quality, whereby agency has priority over causation in the same way as looking red has priority over being red on a secondary quality view of colour, is not well-motivated.

3. Circularity

This chapter addresses the objection that P&M's theory is unavoidably circular. Their response makes use of their belief that agency has priority over causation, at least experientially; they think that we can come to understand what it is to 'bring something about' through ostension, such that agency can be understood separately from causation. The preceding discussion of the order of priority of concepts for P&M is thus pertinent to their defence against the second of the objections. A discussion of circularity and ostensive definition for the dispositional theory of colour helps to clarify the situation for the agential theory of causation here. Having seen that we should doubt the priority of agency over causation, there is reason to doubt the effectiveness of P&M's solution to the circularity problem.

Recall that P&M defined causation as follows:

"An event *A* is a cause of a distinct event *B* just in case bringing about the occurrence of *A* would be an effective means by which a free agent could bring about the occurrence of *B*" (1993: 187).

They intend this to be a reductive definition of causation. Evidence for this is the fact that they say one possible response to the objection is to claim that the definition is not intended to be reductive; they reject this response because they believe a stronger one is available (1993: 194).[21] Reductive theories are those that attempt to explain a concept in terms that do not themselves use the very concept to be analysed.[22]

This leads P&M to a serious problem. If P&M are intending to offer us an account of causation that is reductive, they must intend to be offering an account that does not explain causation in terms that are themselves causal. This appears to be exactly what they have done, however, because 'bringing about' appears to be a causal notion. P&M concede that "it would appear, then, that agency accounts are vitiated by the fact that they employ as part of their analyses the very concept which they are trying to analyse" (1993: 193). This is the circularity objection in its most basic form, but we have yet to see exactly why the account should be 'vitiated' by its circularity.

[21] One could also note that Woodward (2003: 127) takes P&M to be offering a reductive analysis of causation.

[22] It is also sometimes suggested that they aim to explain concepts in more basic terms, but this need not be of concern here. I will focus on the idea that a reductive theory explains a concept using terms different from those that involve that very concept.

Circularity may also surface in P&M's definition in other ways, through the terms 'effective means' and 'free agent'[23]; the problem for 'effective means' will be explained below.

In order to analyse the seriousness of this objection for P&M we need to state exactly what is problematic about circular definitions in general terms. Typically it appears that circular definitions are non-reductive definitions, i.e. definitions where the concept to be analysed appears in the analysis itself. This is illustrated by the dispositional theory of colour. A typical statement of the dispositional theory of colour says 'an object is red if and only if it would look red to a normal observer under standard conditions'. One of the objections to this theory is its circularity. It is offered as a definition of what it is to be red, yet that very concept of redness appears in the analysis.

As Boghossian and Velleman (1989: 89) note, circularity does not have to be problematic; there are ways of accounting for many concepts that are circular but useful. For example, Boghossian and Velleman suggest that courage can be defined as a disposition to act courageously; although this definition requires that one already have a concept of courage, it is useful because it can tell us that courage is a behavioural disposition (Boghossian and Velleman, 1989: 89). Circularity is an objection against a theory only if it somehow undermines the aims of the theory, or makes it completely uninformative.

We can now see how P&M's project could be undermined by circularity as follows: P&M are offering a reductive account of causation; their account, however, defines

[23] Ahmed raises the concern that the notion of 'free act' has causal connotations, and thus that there may be yet another source of circularity in P&M's theory (Ahmed, 2007). Ahmed asks "isn't a 'free agent' in their sense one whose actions are either uncaused or satisfy certain causal conditions?" (2007: 124). Unfortunately there is not space to give a full discussion of how 'free act' might result in a circularity problem here; some brief comments must suffice. It is unclear whether 'free act' can be understood without use of causal terms. Ahmed argues that if we are to understand 'free act' by ostension so that P&M could solve all the circularity problems in the same way, we must suppose that we have sensory acquaintance with free agency, which would mean that "we have sensory acquaintance with the fact that our actions have a special causal history. But then we can distil the concept of causation *directly* from experience without having to go via the [P&M] definition in terms of means, ends and probability. If I know from experience what it is to be a free agent then I must *already* have the concept of cause" (2007: 126). I believe it remains unclear whether 'free act' is problematic for P&M. Woodward suggests that there are different possible understandings of 'free act': one might think that free acts lack causes entirely, or one might think that free acts are those which are due to voluntary choices of the agents (Woodward, 2003: 126). Which understanding P&M are working with would no doubt have a bearing on whether or not they face an objection here. Settling such questions as which understanding P&M are using, and which understandings are problematic, however, would require a lengthy discussion of the free will literature for which there is not space in this thesis. It will suffice as an objection to P&M to show they suffer from the problems of circularity that arise in the other ways discussed in this chapter.

causation in terms that are themselves causal, since 'bringing about' is a causal notion; their account is therefore not reductive; hence they fail to meet one of the aims of their account.

If P&M were merely seeking to provide some useful information about causation, circularity might not be a problem. Price (1991: 172) suggests that this is one possible strategy for dealing with the problem of circularity; he suggests that one could claim that one's aim was for a characterization of causation, rather than an analysis, and argue that this circular characterization was nevertheless informative. P&M, however, state that they believe they can make a stronger response, arguing that their account of causation involves no circularity at all rather than relinquishing one of the aims of their theory (1993: 194).

P&M argue that the problem of circularity can be resolved by realising that 'bringing about' can be defined by ostension. They argue that this is the same solution as that advanced for the dispositional theory of colour, and that it should be no more objectionable for them to use this move than it is for the dispositional theorist to do so.

Circularity and ostensive definition in the dispositional theory of colour

Circularity would be a problem for the dispositional theory of colour if the theory were offered as a reductive analysis of what it is to be a colour. For the dipositionalist, colour contrasts with properties such as shape; the square objects are generally the square-looking ones, but this by no means tells us what the property of squareness is. There is more to being square than merely looking square, whereas for the dispositional theorist, what it is to be a colour is exhausted by the way an object looks.[24] Thus to be a colour *C* is defined by the dispositionalist along the lines suggested by P&M (1993: 188) as:

(D) *x* is *C* iff *x* is disposed to appear *C* to normal observers under standard conditions

Boghossian and Velleman (1989) offer an analysis of why circularity is a problem for dispositional theories of colour. I shall explain their argument here in order to see if the problem of circularity for colour dispositionalism afflicts P&M's account of causation in

[24] This example of squareness is derived from Peacocke (1984: 365-6).

the same way.

According to Boghossian and Velleman, we can understand dispositionalism as telling us something about the *content* of colour experiences (1989: 85).[25] This seems sensible. If colours are to be explained through the experience of them, then explaining the content of those experiences should explain in turn what the colours are. Boghossian and Velleman thus define content-dispositionalism as:

> "*Red* [i.e., the property that objects are seen as having when they look red]
> = def
> a disposition to appear red under standard conditions" (1989: 85)

Boghossian and Velleman explain that this can be understood in two ways, depending upon how we interpret the right hand side: we can understand it as having its "usual semantic structure" such that "a disposition to appear red" means "a disposition to give the visual appearance of being red", or we can understand the it in an unusual way such that 'red' refers instead to "an intrinsic property of the visual experience it is disposed to give." (Boghossian and Velleman, 1989: 85-6).[26]

Boghossian and Velleman argue that dispositionalism faces fatal objections whichever way we understand it (1989: 86). I shall focus on the 'usual semantic structure' interpretation. Within this, Boghossian and Velleman argue that either the word 'red' on the right hand side expresses the same property as it does on the left hand side of the definition, or else it does not. I shall concentrate on the interpretation where 'red' is taken to have the same meaning on both sides of the definition, since this most closely resembles the problem for P&M's theory whereby causal terms appear in both the analysis and the analysans.

If the use of 'red' on the right hand side of the definition must have the same meaning as the use of 'red' on the left hand side, then we have a problem understanding 'red' because the definition becomes circular. There are two closely related ways in which

[25] In their paper, Boghossian and Velleman (1989) explain a variety of ways we might understand the dispositional theory. For reasons of space I will discuss only the interpretation that most closely parallels the agential theory of causation.

[26] As Boghossian and Velleman acknowledge, this 'visual field' option is due to Peacocke (1984). It is the one mentioned in the discussion of metaphysics confused with epistemology.

we might take this to be problematic; one is explained by Boghossian and Velleman (1989), the other by Lewis (1997)[27]. In examining these circularity objections, we will gain a clear idea of what is problematic about circularity, and of whether ostension can be used to solve circularity problems. This will help to clarify what is problematic for P&M and whether ostensive definition can help their position.

Boghossian and Velleman's argument is that 'red' as it is ordinarily used cannot appear on the right-hand-side of the definition of 'red' because that attempts to place 'red' in a relation to itself which it logically cannot occupy. They argue that whilst a dispositional definition of the kind we are considering is unproblematic for what they call "ordinary extensional context[s]" (1989: 89), it is not acceptable in the case of colour.

They illustrate this difference with an example: one can unproblematically define courage as a disposition to act courageously; the definition is not especially helpful, because you need to already know what courage is to recognize it, but nevertheless it is a perfectly acceptable definition, which carries the information that courage is a dispositional quality. This is not acceptable in the case of colour because we are considering content-dispositionalism; we are talking about dispositions as the content of visual experiences (Boghossian and Velleman, 1989: 89). The result is that "the content of the visual experience of red must contain, as a proper part, the content of the visual experience of red"; this is logically impossible. The content of a visual experience cannot contain itself.

It might seem acceptable to give a definition saying that experiences of red are experiences with a certain visual content without specifying what that content is. Then the experience of red would not be embedded within itself. This, however, would not be a proper definition of red because it fails to distinguish among the colours. For the definition to work, it must give a determinate content to the visual experience of red. This is precisely what Boghossian and Velleman have shown it cannot do, for to do so would require that it be possible to embed the visual experience of red within itself.

Lewis' objection is arguably a development of that claim that dispositionalism cannot

[27] Lewis may not be explicitly discussing dispositionalism, but he is arguing about circularity in defining 'red' and 'experience of red' together, and so his arguments are relevant here.

distinguish between the colours because of its circularity.[28] Trouble arises, according to Lewis, because for someone who did not understand either 'red' or 'experience of red', a circular definition of the two things is of no help at all (Lewis, 1997: 336). For the dispositional theorist, the same problem arises because for someone who did not understand either 'red' or 'looks red', the circular definition offered is of no help at all. The definition might tell us the useful fact that if an object looks a certain colour to a normal observer under standard conditions, it is that certain colour, so we can use it to know that there are circumstances under which we veridically perceive the colours of objects. What the definition cannot do, however, is tell us which colour is which (Lewis, 1997: 347).

Lewis' point is that we know that the red objects are the ones that look red, the chartreuse objects are the ones that look chartreuse and so on. But for any curious person who did not know, for example, what chartreuse was, it will not help them to say 'chartreuse is the colour of the objects that are disposed to look chartreuse to normal observers under standard conditions'. They need to already understand what it is to be chartreuse in order to use that definition, otherwise they cannot tell the difference between that definition and the definition for, say, green ('objects are green if and only if they are disposed to appear green to normal observers under standard conditions'); all the definition can do is tell someone who already recognises colours that objects really are the colours they look to have.

Whilst this is not useless information, it does not do everything we want a definition of an individual colour to do. A definition of any colour should be able to tell us what that colour uniquely is, otherwise it is not a definition of a particular colour but a general truth about all colours considered together. The dispositional theory fails to do this, as Lewis' argument shows.

To reiterate, consider the following pair of definitions:

'An object is purple if and only if it is disposed to appear purple to normal observers under standard conditions'

[28] Actually Lewis is referring to a pair of statements that, taken together, are circular, and as stated in note 25 is not explicitly discussing a problem for dispositionalism (Lewis, 1997: 336), but the argument is applicable straightforwardly to the definition we have been considering.

‘An object is mauve if and only if it is disposed to appear mauve to normal observers under standard conditions’

If you did not already know the meanings of ‘purple’ and ‘mauve’, these definitions could not teach you how to distinguish the mauve objects from the merely purple ones, nor that the mauve objects are a subset of the purple ones. Those are things you could only know if you already recognized purple and mauve objects competently.

Ostensive definition is argued to help here. If someone wanted to know what chartreuse was, we could point to something, let's say a bottle of the particularly lurid liqueur that is the colour's namesake, and say to our questioner ‘that looks chartreuse’ The inquirer could then use the dispositionalist's definition to understand that ‘being chartreuse’ was looking the way that bottle of unappealing liqueur looked. Lewis himself develops this line of thought to show how a kind of ostensive definition could remove the circularity in the case of colour. It will prove helpful for analyzing P&M’s response to see Lewis’ response in more detail here.

Lewis begins with what he calls ‘parochial solutions’, the idea of which is this variety of ostension just suggested. People could be introduced to colour terms by specific examples such as ‘red is the colour of pillar boxes’ or making marks with crayons and then saying ‘red is this colour’ (Lewis, 1997: 348). The problem with this, according to Lewis, is that is draws on “parochial knowledge”; the examples used are not necessarily common knowledge, and so they cannot serve the requisite purpose here. For example, there are plenty of countries where pillar boxes are not red, and hence where ‘red is the colour of pillar boxes’ is false (Lewis, 1997: 349). Using definitions such as the pillar-box one, we cannot guarantee the common knowledge we require in order for this solution to work.

Lewis goes on to defend ostensive definition with the observation that in fact we do not need so much common knowledge as we might have thought. For if different English-speaking communities come together, even if each uses a different term to explain what red is, disagreement over which objects are red never arises. Since both communities have grouped colours in more or less the same way (such that

disagreements might only arise over borderline cases), it will not matter if one community defines red in terms of an object that does not appear in the other community; confusion will not arise because the same hue is still picked out, so all red objects that both communities do experience will still end up being called red by everyone involved. As Lewis puts it

"even though neither definition was common knowledge throughout the entire linguistic community, there might still be *existential* common knowledge: common knowledge (1) that some definition of 'red' was common knowledge among [one community], and (2) that some definition of 'red' was common knowledge among [a second community], and (3) that these two definitions agreed (or near enough) about which things were red" (Lewsi: 1997: 355)

As a result of this, it is possible for people to come to understand what an experience of red is through ostension. A person could be integrated into a community of people who know what 'red' is by having them explain that 'red' has 'this appearance' or 'the appearance of *x*s'. Lewis himself is not a dispositionalist about colour, but what he argues can be used to help to analyse of the status of the circularity objection both for colour and for causation.

Circularity for the agential theory of causation

With a good understanding now in place of the nature of circularity problems and the way in which an ostensive definition solution is supposed to work, it is now possible to examine the ways in which circularity might arise for P&M's theory, and to see whether ostension is a good solution.

In examining whether ostension is a good solution, it will become clearer whether or not causation should be thought of as a secondary quality. Whether experience plays an essential role in explaining causation is a key factor in answering this question because, as seen in chapter one, P&M understand secondary qualities to be those which are essentially connected to human experiences. Their proposal was that we should generalize the notion of a secondary quality to include agential on a par with perceptual sensory responses; this is a generalization from the secondary qualities merely being those which elicit characteristic sensory responses. (Menzies and Price, 1993: 202). Thus for P&M a secondary quality can be one that involves a characteristic agential experience; such experiences would surely include the agential experience of

'bringing about' that P&M argue enables the avoidance of circularity in their theory. Hence if P&M's ostensive definition does not work, that may be reason to believe that causation is not a secondary quality even on this expanded understanding of the nature of secondary qualities.

P&M clearly think that their own circularity problem is the same as one faced by the dispositional theory. The discussion of circularity for the dispositional theory has helped to show how circularity can become problematic for a theory. We have seen that two genuine problems of circularity face the dispositional theory of colour:

C1. It forces the content of visual experience to stand in a relation to itself that it logically cannot occupy.

C2. It cannot distinguish between the colours.

Is the circularity problem for P&M relevantly similar to either of these problems?

The most obvious source of circularity for P&M's agential theory is that 'bringing about' is itself a causal notion. As discussed above, P&M admit that 'bringing about' appears to be a causal notion, suggesting that an objector might ask "doesn't an agent bring something about just in case she causes it to occur?" (1993: 193). The point must be that the definition ends up telling us nothing more than 'An event *A* is a cause of a distinct event *B* just in case *causing* the occurrence of *A* would be an effective means by which a free agent could *cause* the occurrence of *B*', which appears trivial. Two questions we may ask about this are: 'is this a genuine problem for the agential theory?' and 'is this a parallel of the circularity problem for the dispositional theory of colour?' If the answer to the latter question is yes, that would indicate that the answer to the former is also yes, based on the arguments about the dispositional theory discussed above.

Let us think of the dispositional theory in general terms again. "*x* is red iff *x* would look red to normal observers under standard conditions" was the basic statement of the dispositional theory that P&M are using (1993: 192); this theory tells us that the objects that *are* red are the ones that *look* red. As discussed, this can tell us something

interesting, for it tells us that our colour experiences are at least sometimes veridical. Likewise we could say that the agency theory is not trivial because it tells us that there is a constitutive relationship between causation and agency. This is, however, too similar to the solution P&M reject. It does not remove the circularity, but rather renders it less problematic by saying that the theory can still tell us something interesting about causation. P&M do not want to accept this kind of solution. They prefer to claim that their theory is not circular at all (1993: 194). Their preferred solution of ostensive definition must therefore be considered.

P&M suggest that we learn the meaning of 'bringing about' through our experience as agents in the world, providing us with an ostensive definition of 'bringing about'. Thus, they claim, their theory is not circular, for it is possible to understand "bringing about" in a way that is non-linguistic and hence does not require the pre-existing understanding of causal terms. P&M express this solution as follows:

> "The basic premiss is that from an early age, we all have direct experience of acting as agents. That is, we have direct experience not merely of the Humean succession of events in the external world, but of a very special class of such successions: those in which the earlier event is an action of our own, performed in circumstances in which we both desire the later event, and believe that it is more probable given the act in question than it would be otherwise. To put it more simply, we all have direct personal experience of doing one thing and thence achieving another. We might say that the notion of causation thus arises not, as Hume has it, from our experience of mere *succession*; but rather from our experience of *success*: success in the ordinary business of achieving our ends by acting in one way rather than another. It is this common and commonplace experience that licenses what amounts to an ostensive definition of the notion of 'bringing about'. In other words, these cases provide direct non-linguistic acquaintance with the concept of bringing about an event; acquaintance which does not depend on prior acquisition of any causal notion. An agency theory thus escapes the threat of circularity." (Price and Menzies, 1993: 194-5, emphasis in original.)

P&M are arguing that we come to know what it is to bring something about simply by interacting with our environment and noticing that sometimes we think we can achieve something by means of our action and succeed in this. What is not clear in this passage is how we experience this success. It may be that we experience success through the correlation between desiring an outcome we think more likely if we perform a certain action and that outcome actually obtaining given that we perform that action. Alternatively, it may be that we are supposed to experience some special feeling of

success as agents, which has a unique phenomenology. Arguably, neither option would succeed. I return to this below.

For now, I return to the question of whether circularity in the agency theory parallels circularity in the dispositional theory. Considering Lewis' objection that distinguishing between the colours becomes impossible, there may be a loosely analogous objection given that 'effective means' also appears to be a causal term. This is another way in which circularity might arise for the agency theory, but which P&M do not address.

P&M are not attempting to distinguish one concept of causation from others (indeed, as stated above, they do not think of agential causation as one type among several. But a distinction we do require a theory of causation to make is that between spurious and genuine causation. As discussed in chapter one, this is supposed to be an advantage of adopting the agential approach to causation (Price, 1991). This may roughly parallel the Lewis objection, although to be exactly similar the Lewis objection would have to be that the dispositional theory could not distinguish between spurious and genuine colours. Nevertheless this is worth exploring, since it is important that P&M's theory has its stated advantages.

Circularity might prevent the agency theory from making this distinction because 'effective means' has causal connotations. The agential theory is supposed to be one that identifies only genuinely causal relationships. The phrase 'effective means' must be intended to do some work. But isn't 'effective means' just another way of expressing 'genuine cause'?[29] We could eliminate it from the definition as follows:

"An event *A* is a cause of a distinct event *B* just in case by bringing about *A,* a free agent could bring about the occurrence of *B.*"

Has the definition lost anything by this re-wording? Arguably, yes. This alternative version says that in bringing about *A*, a free agent could bring about *B*, but it does not say anything about how that happens; unless we have the 'effective means' clause to guarantee that *A*'s relationship with *B* is of the right kind, we have not ruled out the idea that bringing about *A* is related to brining about *B* in some other way. For

[29] A similar point is made by Ahmed (2007: 124).

example, this definition seems to allow for the possibility that whatever the agent did to bring about *A simultaneously* brought about *B* as a side effect of the agent's action, and this is exactly the kind of mere correlation that P&M think they can avoid erroneously classifying as causal. It seems that the 'effective means' clause is required to ensure that the relationship between *A* and *B* is one of cause and effect (means and end) rather than joint effects of a common cause (an agent's action), and so P&M have merely stipulated away the kinds of relationship they do not want to label as causal.

'Effective means' suggests a correlation between the two that is stronger than the relationship in the alternative wording; it seems that it is intended to bring out the importance of agential probabilities, as they are at the heart of P&M's agency theory. The words 'effective means' seem to be used to indicate that the required agential probability is met by a certain causal relationship. So in fact the effectiveness of the causation is only guaranteed by the very fact that this inherently causal term is added. The problem of circularity thus arises for P&M in a way that they do not address.

It is likely that if they were to address this, they would once again use their proposal of ostensive definition. If we had an 'experience of success' in some of our actions, and hence were able to learn about causation through action, we would able to discern the genuine cases of causation through experiential knowledge of causal relationships. Thus P&M might argue that just as Lewis suggests we can learn the differences between the different colours through ostension, so we can learn the difference between the causal and non-causal relationships through ostension by use of our experiences.

So for P&M, ostensive definition is the key to responding to the circularity objection. It is intended to be the same as the way in which we can learn colour concepts by having colours pointed out to us; if someone wants to know what red is, we are supposed to point to a paradigm example such as a ripe tomato and say 'the surface of that tomato is red.' Likewise, if someone wants to know what a causal relationship is, we are supposed to get him to do something like set a billiard ball in motion with a cue, and say 'your action and the subsequent movement of that ball is a causal relationship.' The agent who is learning about causation is supposed to have an experience of success in this case that he can then recognize as the marker of a genuine causal

relationship. This is very similar to the ostensive definition suggested by Lewis. Moreover, the agential viewpoint is supposed to be one that we all share such that we are all members of the same community with respect to this term; this parallels Lewis' point about linguistic communities regarding ostensive definition explained above.

There is, however, reason to doubt that ostensive definition can work for P&M, because the relevant experience must contain a feeling of success that has no parallel in Lewis' ostensive definition for colour. As stated, it is not clear whether P&M intend the experience of success to be merely the experience of a correlation between acting for a desired end and the occurrence of that end, or some special feeling of success. I suggested above that neither would be adequate; I shall now explain why that is so.

To take the second possibility first, P&M cannot require a special phenomenology of success since it is not clear that there is any such thing; moreover even if there were, it would need to be a reliable guide to success, which it may not be. Ahmed is skeptical of the idea that we have a sensory experience of successful action, saying, with reference to P&M's claim that "we all have direct personal experience of doing one thing and thence achieving another" (Menzies and Price, 1993: 194),

> "I cannot see that we have direct experience of anything that distinguishes 'thence' with its causal implications from 'then' which lacks them. I cannot see that the sequences in which ends are brought about by means look any different from the sequences in which the former merely *succeed* the latter. At least that distinction is no more visible among certain means-end sequences than it is among sequences to which I stand only as a spectator." (Ahmed, 2007: 126)

Two interesting points are raised by this passage. Firstly, there is the skepticism that there is any special, first-personal experience associated with episodes of successful agential action whereby some end is brought about; secondly, there is the more subtle point that if there is a difference between successful and unsuccessful episodes of means-end relations, it is found no more clearly in first-personal agential cases than it is in cases where agents simply observe these means-end pairs, rather than bringing about the means themselves.

Concerning the first point, I suspect that it is correct for Ahmed to be skeptical that there is a special phenomenology associated with successful agential 'bringing about'; it

is not obvious what such a feeling would be like. The second point raises a more general question about the perception of causation. Some argue that we can, at least sometimes, directly perceive causation; such arguments have a basis in Michotte (1963).[30] But this kind of direct perception does not make reference to human *agency*. Hence even if we do have this direct perceptual awareness of causation, it does not help P&M because it does not support the need for reference to agency. I discuss this further shortly.

This suggests that Ahmed is right that the distinction between causal and merely correlational relationships is no more obvious from the agential perspective than from the mere observer's perspective. Thus it seems that there is not a unique feeling of success available through agency that could play the special role P&M require; if there is direct sensory experience of success, it does not come through agency. Hence even if it is possible to learn about causation through ostension, there is no motivation for P&M's claim that causation stands in a constitutive relationship with agency, since the direct perception of causation requires no reference to agential experience.

If, on the other hand, we take P&M to mean the first possibility that we desire certain ends and act on this by performing actions we hope will achieve our desired ends, and then often experience success (in the sense that what we wanted to happen does happen), P&M fall short of establishing what they need. There is nothing that will ever necessarily be involved to ensure that it was our action that brought about what we wanted, rather than a coincidence of our action and some other event that actually causes the thing we wanted. Thus P&M have failed to show that genuine causation can be understood in a way that distinguishes it from spurious causation, as was one of their aims.

It might be thought that if we do have direct acquaintance with causation in accordance with Michotte's experiments, this would help P&M. Even if there is unelaborated direct sensory experience of causation, however, this falls short of establishing that that is a reliable guide to the difference between spurious and genuine causation. If it seems that people perceive causal relationships where there are none, or where they make a mistake because what they really see is two effects of a common

[30] For philosophical discussion of the possibility of seeing causation, see Beebee (2003).

cause, then once again experience cannot play the role P&M need. And there is reason to think that experience is unreliable in this way. For in the Michotte experiment where subjects observe one dot moving across a screen and arriving at a second dot, which then moves off when the first dot touches it, people report that they perceive the first dot as causing the motion of the second; yet both dots move because of the actions of a computer programmer.[31] Scholl and Tremoulet make this comment about Michotte experiments:

"despite the fact that observers know that the displays are not really causal or animate, this knowledge does not appear to be taken into account by the mechanisms that construct the percepts (Scholl and Tremoulet, 2000: 306)

This seems to suggest that people do automatically perceive some relationships as causal, but it also makes clear that in the very experiments that show this, people perceive as causal a relationship that is not causal. Might it not be that experience is in this way a guide to the kinds of relationship that are often causal, without being a reliable guide as to exactly which ones are and are not?

It might be suggested that causation can be learned from multiple experiences, and this kind of repeatability of experiment will be enough to filter out the spurious causes. This might be true, since there is research to suggest that experience is one among many factors that assist us in causal learning.[32] This is not the kind of immediate acquaintance with causation P&M require, however. An argument from Ahmed suggests that experience will not be sufficient for P&M's purposes after all, because the kind of experience they are talking about is simply not rich enough.

The problem is that P&M argue that causation is like redness. Redness might be learnable through ostension, because there is nothing very difficult about introducing it by ostension; a red experience is an ordinary visual sensory episode, and we merely describe it by learning to call it 'red'. The same cannot be said for the agential causation P&M argue for. For to learn causation by ostension through a similar unelaborated direct agential experience, which is what P&M argue for, seems impossible. An ordinary sensory experience will contain nothing more than a

[31] A demonstration of this is available at <http://cogweb.ucla.edu/Discourse/Narrative/michotte-demo.swf>
[32] See, for example, Lagnado, "Causal Thinking" (2011).

succession of events; we might perceive this chain of events as causal, but we have no reason as yet to believe that this is reliable. To learn causation in the way that P&M require, the experience would have to be rich; Ahmed argues that the richness of the concept of agency that this would require would involve understanding stretching from the idea that something is in one's power to the reasoning that one needs to conditionalise upon it in certain ways in order to achieve a desired result; Ahmed argues that plain sensory experience simply isn't that rich (Ahmed, 2007: 128).

In order for definition by ostension to work for causation in the way that it might for colour, we would need experiences of causation to reliably provide us with knowledge of the distinction between causal and merely correlational relationships. Yet we have seen reason to doubt that experience can provide what P&M need here; so we cannot introduce "bringing about" by ostension in the same way that we can "red"; the analogy does not hold.

In this way, experience does not appear to be making the contribution to causal knowledge that P&M believe it can. For it was P&M's argument that understanding causation as a secondary quality, whereby agents' experiences were essential in the way that sensory experiences are taken to be essential for more traditional secondary qualities, allowed the agential theory to respond to the objections it faced. This is a case in which experience cannot play that helpful role, however, and hence seems to partially undermine the argument that we should understand causation as a secondary quality. It also suggests that agency may not be prior to causation in the way discussed in chapter two.

4. Unmanipulable Causes

This chapter considers whether or not P&M's view can explain how causal relationships hold where agential manipulation is impossible; it likewise examines whether the dispositional theory of colour can explain how colours can be truly ascribed to objects where the conditions of a dispositional definition of colour cannot be satisfied. This will lead us towards the more general question of whether these theories are unacceptably anthropocentric, which will be explored in the next chapter.

James Woodward argues that P&M face a set of dialectical difficulties (2003: 123-7). He argues that there is a problem with P&M's argument that we can understand agency independently of understanding causation. As argued in preceding chapters, they do need to show this, having rejected the possibility of mutually supportive definitions of agency and causation in favour of an independent, ostensive understanding of 'bringing about'. According to Woodward, the problem with this is that "To show that the notion of agency is independent of or prior to the notion of causality, one needs to give human actions or manipulations a special status; these can't be ordinary causal transactions" (2003: 123). And there are two reasons why Woodward finds this idea objectionable: firstly, it requires agency to be a fundamental and irreducible feature of the world; secondly, it leads to an unacceptably anthropocentric account of causation. Woodward adds that if we can only understand causation through our prior grasp of agency then we also face the problem of extending the notion of causation to unmanipulable causes; cases where manipulation of the putative cause is simply not possible. This matter of unmanipulable causes is the subject of this chapter, and will help us to understand the importance of Woodward's claim that P&M's account is unacceptably anthropocentric, which is the topic of the next chapter.

Woodward's considerations suggest that even if it were successful, P&M's attempt to avoid circularity by saying agency is grasped separately from, and prior to, causation would come at the expense of leading to the problems of unmanipulable causes and anthropocentrism (Woodward does not seem to treat these two problems separately, but for my purposes I have kept them separate, as P&M do.)

The first thing to say on this subject is that we should agree with Woodward that it is not tenable to say that agency has a special status as a form of causation whereby it is a fundamental feature of the world. It is correct to say that this would accord a status to agency that seems implausible. Yet we should be careful here that this is really an objection to P&M. It will be seen that it is, but it is necessary to explain this more fully, since P&M do explicitly state that they are not arguing for the view that agency is a special kind of causation (1993: 187n.2), but rather that agency has a special role to play in an account of causation because agency necessarily enters into the causal conditions of any causal situation (1993: 189n.5).

In order to see the force of Woodward's point, therefore, it must be noticed that if agency is to play this role, it is necessary that it be considered as *prior to* causation. And the fact that agency has to be prior to causation suggests that it is considered to be either more fundamental than causation, or else it is at least the paradigm form of causation, and thus it is only through understanding of agential causation that any other causation could be understood. This follows on from chapter two's discussion of the problem of priority between agency and causation.

Since we have seen that agency does have to have priority on P&M's view, Woodward's argument that P&M's position renders agency a fundamental and irreducible feature of the world, at least if P&M are intending to be fully realist about causation[33], seems to be correct. And it is right to argue against P&M that we simply have no reason to believe that agency is as fundamental as this.

Although they are separate problems, the objection of unmanipulable causes can help us to see the objectionable nature of making agency a fundamental and irreducible feature of the world; this is because the possibility of causal relationships obtaining where there are no agents highlights the fact that we have no reason to think that the world would not carry on in very much the same way as it currently does, with causal

[33] Of course if they were not fully realist about causation, agency might not have to be such a fundamental, irreducible feature of the world; for if causation were not 'real', then agency would not have to be either.

relationships as we know them still obtaining, even if there were no agents present.[34] Let us now consider the unmanipulable causes objection in detail.

As P&M acknowledge, and as we have just seen Woodward discuss, the agency account of causation faces a problem from unmanipulable causes because of the special role it accords to agency. The problem is that if we understand 'cause' to mean something susceptible to the manipulation of agents, we seem restricted in the causal claims we can make, and problematically we seem unable to say that causation occurs in cases where agential manipulation is impossible. As an example, P&M offer the case of the movement of continental plates causing the 1989 San Fransico earthquake (Menzies and Price, 1993: 195). It is impossible for human agents to manipulate the movements of continental plates, and so this case does not fit P&M's definition of causation; there is no way an agent could bring it about that continental plates move.

P&M state that the parallel problem for the dispositional theory of colour is cases where it is physically impossible for a normal observer to observe the colour of an object under standard conditions. For example, "the [Sun's] photosphere is thought to emit light of the kind which would look red in other circumstances" (Menzies and Price, 1993: 195); it appears, however, that it must be false to say that the photosphere is red because it is disposed to look red to normal observers under standard conditions, on account of the fact that "it is physically impossible for a normal observer to get into a position to observe the photosphere under standard conditions" (Menzies and Price, 1993: 195). The problem is that there could never be a normal observer under standard conditions observing the photosphere, so whatever it is that makes us say that the photosphere is red, it cannot be the way it looks to such observers because they are an impossibility.

The obvious response in the case of colour, which P&M do mention, is to argue that the dispositions are counterfactuals and are well defined such that even though the situation is physically impossible, if an observer "*per impossibile*" were to observe the photosphere, it would look red (Menzies and Price, 1993: 196). They reject this

[34] We will see later that even if the problem of unmanipulable causes could be remedied, however, the concern that the agential account wrongly accords agency a fundamental role in the world would remain. This is essentially the problem of unacceptable anthropocentrism that is the topic of the next chapter.

solution, however, believing that problem cases still remain, and continue to develop a different solution. Let us now discuss those further cases.

In the process of developing their solution, P&M consider some further problem cases for the colour dispositionalist, along the lines of those used by Mark Johnston.[35] One of these problems is the case of 'masking': "material made of flourescin is described as having the surface-colour green, even though it radiates a bright orange colour under standard lighting" (Menzies and Price, 1993: 196). Or, as Johnston puts it:

"Consider a transparent object whose surface is green but never looks and almost never would look surface green because the object's interior *radiates* orange light at such an intensity that the greenness is masked or obscured. It is nonetheless surface green even though it would never look so, as shown by the fact that it *reflects* just the same kind of light that some other surface green things reflect" (1992: 231-2).

Johnston argues that we can resolve this problem by defining dispositions differently such that the disposition an object has is due to some intrinsic features of the object which would cause a certain response in certain perceivers under certain conditions, 'oddities aside', i.e. assuming no factors extrinsic to the object (or in the case of surface colours, the object's surface) are there to interfere. The relevant disposition is a matter of how the object's surface itself is disposed to appear, even if it is never perceptually available without this extrinsic interference.

P&M's solution is based on this idea. They write as follows:

"we would argue that when an agent can bring about one event as a means to bringing about another, this is true in virtue of certain basic intrinsic features of the situation involved, these features being essentially non-causal though not necessarily physical in character…In its weakened form, the agency account states that a pair of events are causally related just in case the situation involving them possesses intrinsic features that *either* support a means-end relation between the events as is, *or* are identical with or closely similar to those of another situation involving an analogous pair of means-end related events…The paradigm example of such a situation would be that created by seismologists in their artificial simulations of the movement of continental plates" (1993: 197-8).

[35] P&M cite a seminar given by Johnston entitled 'Colour as a Philosophical Paradigm' at the ANU in August 1989 as the source of these cases. Similar examples can also be found, however, in his 'How to Speak of the Colors' (1992)

So, what P&M are arguing is that in cases where agential manipulation is impossible, we can still claim that there is a causal relationship because this non-manipulable relationship possesses intrinsic features in common with, or suitably similar to those found in, relationships that are manipulable.

Unfortunately, this kind of response is not acceptable in either the case of colour or the case of causation, and ultimately for much the same reason in each case. Let us consider colour first.

It is tempting to think that if we are talking about *surface* colour, it must be right to talk about how the surface would look were it the same surface on a different object that did not suffer from extrinsic interference. The problem with this response is not that it is straightforwardly wrong, but that it undermines the very dispositional theory it is supposed to support. For if the colour of an object is actually dependent not on how it appears to normal observers under standard conditions, but rather how it would look in other circumstances *thanks to some of its intrinsic features*, then the colour we judge it to truly have, though we never see it, is one we say it has by way of those intrinsic features. This means that colour is determined by possession of certain intrinsic features, and not by a disposition to appear a certain way under imagined circumstances.

To see this point more clearly, consider: why do we say that the object is surface-green if it is impossible for us to see it that way? It is certainly not because we perceive it to be green; it is because, presumably, we have identified green appearances as being caused by these certain intrinsic features the object has in common with other green objects, and thus make an assumption about how it would look in different circumstances. This seems to be an implicit acceptance of the idea that colour is determined by certain features of the object, rather than by how it is ordinarily disposed to appear.[36]

Johnston's case here may be confusing, because we have difficulties talking about the surface-colour as opposed to the object-colour. The problem is that the object is

[36] Bearing on this discussion is Johnston's point that in fact the distinction between the primary and secondary quality accounts for saying that the world is really coloured is actually rather subtle (1992: 236). It is difficult to adjudicate between the claim that objects are coloured because of their surface properties (the primary quality view) and that they are coloured because of their disposition to produce colour experiences (the secondary quality view), dispositions they may have by virtue of their primary qualities.

radiant orange and the object is surface-green. The real problem here is to establish whether or not the dispositional theory can allow the object to have both of these colours. It is clear that the object is disposed to appear (radiant) orange to normal observers under standard conditions. One might think that when talking about the object's surface-colour, standard conditions exclude the 'oddities' (as Johnston calls them) of features such as radiating innards, and hence under standard conditions the object's surface looks green, and hence for the dispositional theorist *is* green. This could suggest that there is no problem.

There is still a problem, however, for what now can we say about the object's orange appearance? Surely we would like to be able to say that the object is orange, given that it radiates orange light; its orange colour is not an illusion. But we cannot say that the object is orange, on the dispositional theory, if we have had to claim that standard conditions exclude radiating innards in order to say that the object's surface is green. If one of the aims of the dispositional theory was to vindicate colour experience, as Boghossian and Velleman (1989) argue it is, then this really is a problem case because we seem unable to claim both that the object is green and that it is orange, yet we have good reason to want to say that it is both of those colours. The best we might be able to do is to say that standard conditions differ between discussion of radiant colour and non-radiant colour. But we might question whether this is a satisfactory response, since the dispositional theory seems to attempt to give a blanket definition of colour, and to have to list different definitions for different types of colour seems slightly *ad hoc* and potentially somewhat profligate.

And now let us consider causation. Here the response seems to do even worse. For first of all it is not at all clear what the 'basic intrinsic features' that are 'essentially non-causal though not necessarily physical' are or could be. Developing this thought, Woodward argues against this solution that

> "It is well-known that small-scale models and simulations of naturally occurring phenomena may nonetheless fail to "scale-up" – because causal processes that are not represented in the model become quite important at the length scales that characterize the naturally occurring phenomena. Thus, when we ask what it is for a model or simulation that contains manipulable causes to "resemble" phenomena involving unmanipulable causes, the relevant notion of resemblance seems to require that the same *causal* processes are operative in both" (2003: 125)

The point I wish to make here is that even if we did understand what these 'non-causal' features are supposed to be, it seems unlikely that they would be adequate for P&M's purposes; i.e., having non-causal features in common would not be sufficient for the unmanipulable case to be modelled by a manipulable case. What Woodward has explained is that in order to be an adequate model, we do require the same causal features to be present in both cases.

This is highly problematic for P&M, because there cannot be causal features in the natural phenomena we seek to explain precisely because, by their theory, to be a cause is to be susceptible to agential manipulation, and these natural phenomena are not susceptible to such manipulation; this means that they do not contain any features P&M could describe as causal, yet without causal features, as Woodward has argued, they cannot be modelled by manipulable causal relationships.

At this point Woodward presents P&M with a dilemma (2003: 125-6): either

(a) the intrinsic features they speak of are such that we have been given no reason to suppose they would be modelled by existing manipulable causal relationships, because the models may well fail to 'scale-up'
or else
(b) it is the presence of these intrinsic features themselves that makes the relationship a causal one, and not the fact that very similar features appear in an agentially manipulable causal relationship which models the unmanipulable relationship.[37]

We have already seen why the first option is a real problem. We should not agree that P&M's proposal of modelling based on non-causal features would work. Indeed, on reflection this seems a weak suggestion, for it seems highly unlikely that it would be possible for two relationships we wish to call causal to be actually causal in virtue of their similarity regarding some non-causal features; why, we might ask, would we think that non-causal features would 'scale-up' to result in causal similarities? It is far more natural to think that if they do model one another, it is because what they have in

[37] Woodward argues that the latter option amounts to an endorsement of his own interventionist position.

common is *causal* features in the first place. But if it is the possession of common causal features that does the work, as option (b) suggests, then P&M's position is still in trouble, for the point of the objection is that P&M's definition does not allow for causation in these unmanipulable cases, so P&M cannot allow that the two cases have causal features in common without first establishing a way for the unmanipulable case to have causal features.

This second option faces the same problem as the one I argued faces the dispositionalist about colour. If it is in virtue of the possession of certain intrinsic features that the relationship is causal, then why make the further claim that these features model another relationship, and that this is what makes the first relationship causal? Surely the position has slid into the claim that causal relationships are those that contain certain basic, intrinsic features, rather than that susceptibility to agential manipulation is necessary. The normal observers and the agents have become redundant. We are, according to the positions the responses leave us in, able to identify colours and causal relationships in virtue of the possession of certain features. There is no further reason to impose the role of humans on the definitions.

If there is a role left for human capacities, it is their ability to identify these features of the world. For, as we have already discussed, there is nothing wrong with saying that colours are only perceptually available to those with visual capacities. It is likewise open to P&M to claim that our having the particular manipulative powers we have is what enables us to identify causal features in the world. It is plausible that we might extrapolate from causal relationships that we can manipulate to understand those that we cannot, but this claim is compatible with a number of definitions of what a causal relationship metaphysically is.[38] This position will be developed in the next chapter.

What we have seen in this chapter is that there is a problem both for the dispositional theory of colour and for the agential theory of causation that stems from the way each ties the phenomenon it attempts to explain to particular human capacities. The dispositional theory of colour cannot account for colours that cannot be observed by normal observers under standard conditions; likewise the agential theory of causation

[38] This is very similar to the point made regarding the psychological literature, which was that agential powers may play a role in causal learning.

cannot account for the existence of causal relationships where manipulation of the cause by an agent is impossible.

What this appears to suggest is that explaining phenomena we ordinarily take to be a part of the world regardless of our own existence, such that they are defined in terms of human capacities, is a serious problem. Given that reference to human capacities was a key reason for labelling something a secondary quality, the fact that reference to human capacities for causation brought trouble suggests that thinking of causation as a secondary quality is not right. For in fact this is a case in which the idea that causation is like a secondary quality and hence depends on human capacities is what is driving the objection.

The fact that there is a problem explaining colour and causation where human observation and manipulation are respectively impossible suggests a broader concern; it leads us to the question of whether such theories are unacceptable for their anthropocentric picture of the concept in question; they appear to give humans and their capacities an essential role that we do not think they play. It is therefore natural for us to now turn to the objection of unacceptable anthropocentricity, which is closely related, but raises a more general concern than the question of unmanipulable causes.

5. Unacceptable Anthropocentricity

This chapter considers the objection that the agential theory of causation renders causation an unacceptably anthropocentric phenomenon. The objection claims that if agents' manipulative powers were different, causation would also have to be different, and that this is surely false. Fuller exploration of the analogy with colour here brings to light the possibility of a selectionist view about causation, which is thus able to maintain the objectivity of causation. The introduction of subjective facts may enable the preservation of a useful role for the agent's perspective in a theory of causation without making causation anthropocentric in an unacceptable way.

Unacceptable anthropocentricity

The final objection P&M consider to their view is that it "makes causation an unacceptably anthropocentric phenomenon" (1993: 198). The problem is that if causation is defined in terms of the manipulative powers that agents actually have, then if things had been different, or if we inhabited a different possible world, such that agents had a different or restricted set of causal powers compared with our own, then different causal relationships would obtain. In a case where, for example, agents have a restricted set of powers compared with those that they possess in the actual world, P&M say "it might appear that the agency approach is committed to saying, quite implausibly, that the truncated manipulative powers of the agents imply a truncated set of causal relations" (1993: 198). The analogy that P&M draw with colour here is that in a possible world where all normal observers are red-green colour blind, the dispositional theory of colour would be committed to the claim that there is no distinction between red and green (because both would be disposed to appear the same way to normal observers under standard conditions.)

The first option for responding to this objection is to rigidify to the actual world, such that no matter which possible world is inhabited, that is, no matter what manipulative or visual capacities agents have, the definitions of causation and colour to be used are the ones that refer to the powers of agents in this, the actual world. P&M dismiss this response as unsatisfactory. They say that it does nothing to allay the intuition that if we, in the actual world, had had different manipulative powers, but had still developed

our idea of causation through our manipulative abilities, we would have arrived at a different meaning for 'causes', even though there is a sense in which it would have had the same meaning, which is that it would still have meant something to do with the susceptibility to agential manipulation by us (Menzies and Price, 1993: 199).

The problem at the heart of this objection is that it implies that the notions of causation and colour are determined by our particular capacities, and that this just strikes us as false. This is, perhaps, a natural development from the 'unmanipulable causes' concern; in that instance, the worry was that there are relationships agents cannot exploit and hence would not count as causal; similarly in this case, the concern is that if we had different exploitative powers, different relationships would count as causal because the relationships that can be exploited would be different, or would be a subset of those that can actually be exploited. P&M, however, are prepared to accept this. In what follows, I will explain how this is so, and show that while P&M may be on the right track with this response, there is an improvement available to them that has been overlooked.

Woodward's objection

Before discussing the objection in full, it is worthwhile to explain away an easy misinterpretation of the problem. This misunderstanding is found in Woodward, who objects to P&M's position (2003: 118-127). Woodward makes some comments about P&M's position regarding its being described as projectivist, expressing the worry that it is unclear exactly what is meant by projectivism[39]. He suggests that the most obvious reading of the claim is that causal relationships are in some way dependent of the beliefs or desires of agents, and that this is highly implausible. Woodward makes this comment:

"Consider, for example, the hypothetical experiment where I step in front of a speeding bus. Whether I will be injured in such an experiment does not depend, either causally or in some other way, on my beliefs or desires" (2003: 119).

[39] Woodward writes "Menzies and Price (1993) take their version of a manipulability theory to imply that causation is a "projection" onto the world of our experience of human agency and that causation is thus a "secondary quality" like color" (Woodward, 2003: 118). P&M do not actually use the term "prjoectivist" in their (1993); Price does however speak of the need to understand causation as a projection in his (1991), which P&M draw on.

The absurdity of such a claim is indeed obvious. But this is unlikely to be P&M's position, given how implausible it sounds; it is not a charitable interpretation of P&M to think that this is their position.

Price addresses this kind of problem in his (2007). He says:

> "Am I committed to denying that [the difference between effective and ineffective strategies] is objective? To maintaining that it is an anthropocentric matter that oiling swamps controls malaria, but burying blankets does not? [No]…From the homogeneous deliberative perspective that we humans all share, it is an objective fact that oiling Nicaraguan swamps is an effective strategy for reducing malaria. Indeed, it is an objective fact that when the swamps were oiled, that oiling *caused* a reduction in malaria. But again, the objectivity of these matters, from this viewpoint, does not imply that there is no viewpoint involved" (2007: 285-6).

We might be a little concerned about the notion of 'objectivity from a viewpoint', but if we recall that it is necessary to have a viewpoint on the world in order to see anything at all, we might be reassured that the idea does make sense; for example, I can see from my viewpoint that, objectively, there is a computer in front of me at the moment, but the particular view of it that I am experiencing is only available from the viewpoint I currently occupy. This may not be Price's meaning either, however. Price's argument is probably more like a Kantian view about space, namely that space is a projection of an abstract structural feature of human sensibility we all share, yet it is not up to us where objects are located in space.[40] For Price, causation is likewise a feature of the human viewpoint that we all share, without this meaning that we may choose which relationships are causal.

We can thus see that it is no part of Price's position that the beliefs or desires of an agent have any bearing on the causal relationships that obtain. An agent's possessing a certain viewpoint, the particular way they look at the world, means that they perceive certain relationships to be causal, but this does not mean that what they believe or desire can affect the nature of that perceived relationship. Woodward's objection here misses its mark, and Price's response will be of even more importance shortly, as we now return to the serious question of the anthropocentricity of P&M's theory.

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[40] This analogy with the Kantian view of space is due to Rory Madden (personal communication.) Kant's views on space and time are explained in Janiak (2009), and are found in the 'Transcendental Aesthetic' in the *Critique of Pure Reason* (Kant, 2007).

An analogy with taste

P&M make an analogy with taste, as well as with colour, to attempt to defend their position against the anthropocentrism charge. They explain that lemons normally taste sour, but that it is a perfectly acceptable conclusion that had we evolved differently such as to find that lemons taste sweet to us, that would be a case in which lemons are not sour, without there having been any change in the lemons themselves. That is to say, whether or not lemons are sour is dependent on human capacities, and P&M claim that nobody finds this troubling. Sourness is allowed to be relative to the perceiver. This does not damage the role of terms such as 'sweet' and 'sour' in our vocabulary. P&M want to argue that causation can be relative to humans in the same way, and that this is similarly unproblematic.

A point worth noting concerning the sourness of lemons is that the conclusion we should draw about what P&M have said concerning taste properties such as sweetness and sourness is that they are relational properties. The taste property an object has is a matter jointly determined by properties of the object itself (probably chemical properties), and properties of the taste detection system in the perceiver. Tastes are one object of perception where many people would be happy with this relational response that means that there is no such thing as flavour without someone to taste it. When we say that in the alternative evolution described lemons would not be sour, what we mean is that lemons would not be sour-for-humans.

To make the suggestion that causation is perceiver-dependent in the same way that taste is more palatable, P&M make a second point. They claim that there is an important sense in which it is not possible for things to turn out with causation the way they might with lemons not being sour: there could not actually be different concepts of causation for different agents. They claim that "the extension of the notion of causation is very much less sensitive to possible variations in the human condition than are the notions of taste and colour" (1993: 200). For, as we have seen in their response to the objection of unmanipulable causes, they believe that agents can extrapolate from manipulations that they can actually carry out to others that in practical terms they cannot. They thus argue that if agents have any causal powers at all, they will be able

to extend their understanding to arrive at the notion of causation that we have in the actual world by this process of extrapolation.

P&M then claim that the limiting case is that of Dummett's intelligent trees (Dummett, 1964: 338): cognitive beings with no manipulative powers whatsoever, which are thus beings that are not agents at all (Menzies and Price, 1993: 200-1). P&M claim that in this case only, things would be different; in this case, the being would simply possess no notion of causation at all.[41] So, in summary, P&M argue that in the case of causation, as opposed to the cases of colour and taste, things are very much less complicated, for there are only two possible outcomes: either agents have the notion of causation that we actually have, or else they have no notion of causation at all (Menzies and Price, 1993: 200-1). P&M might thus argue that they are not guilty of *anthropo*centrism, because any being with any kind of agential powers will have the same understanding of causation as we do. This would mean that P&M's view is agent-centric, rather than specifically anthropocentric.

P&M's conclusion here is that their approach need not "conflict with the intuition that causation is significantly 'more objective' than colour or taste" (1993: 201). We should have some concerns with this conclusion. Firstly, it is no wonder 'more objective' is placed in quotation marks, since it is not at all clear that objectivity admits of degree; it is quite plausible that either a concept is objective or it is not. This may be merely a minor worry, however, since P&M admit that this places us in the territory of larger concerns such as whether there is a sharp distinction between the subjective and the objective, or whether that is all a matter of degree (1993: 201).

Secondly, the more serious problem with P&M's response here is that it does not answer the real objection. The true nature of the objection is arguably that P&M make causation mind-dependent by making it dependent on the nature of agents, rather than that the agential theory is problematic because it ties causation specifically to human agents. The problem is that intuitively causation is mind-independent. For example, convection currents could still cause magma to move beneath the Earth's

[41] This is, of course, contrary to what Dummett says on the matter; Dummett believes that his intelligent trees would still possess a notion of causation, merely one that is very different from our own. P&M believe that the difference between themselves and Dummett on this point is merely terminological. I am not convinced that they are correct about this, but there is not space to go into the matter here, and it is not important for our purposes.

surface, which could cause the movement of tectonic plates, which could cause earthquakes, which could cause landslides etc., regardless of the existence of agents. P&M's reply, in short, is that causation is dependent on a universal feature amongst agents, namely their agential powers. This is unsatisfactory because establishing this inter-subjective agreement amongst agents about causation falls short of making causation mind-independent as it is ordinarily assumed to be.

In a way P&M address this concern, commenting that

"some readers may feel that a mere difference of degree just isn't good enough; that there must be some more principled distinction between the 'objectivity' of causation and the 'subjectivity' of the ordinary secondary qualities. We disagree, and take the view that the onus now lies with our opponents." (Menzies and Price, 1993: 201)

One might well wonder why the onus should be on P&M's opponents at this point. Nevertheless, we will shortly see that a different position is possible whereby we can sidestep these problems of subjectivity altogether.

The mind-independence problem

Let us go back and look more closely at the analogy with colour in this case. As the analogy of the objection in the case of colour, P&M chose the possibility of normal perceivers being those who were red-green colour blind. If they had chosen a different analogy from the philosophy of colour, however, they might have found that there is a better response available, a response which does not require that they agree to causation's being less than fully objective, without denying that there is a sense in which their definition makes causation an anthropocentric phenomenon, or at least an agent-centric phenomenon. For we do not need to move to another possible world to find different normal observers, since the philosophy of colour already faces this kind of problem in the form of inter-species variation.

As Keith Allen explains (2009), the idea that colours are mind-independent faces a serious difficulty in the form of inter-species variation in colour perception. As a definition of the mind-independence of colour, Allen offers the following:

"To say that colours are mind- independent is to say that what it is to be a colour is constitutively independent of the experiences of appropriately constituted, appropriately situated, perceiving subjects; or more roughly speaking, that colours are one thing, and experiences of colour another."
(Allen, 2009: 197)

We can see that this leads us into the territory of anthropocentricity quite easily. For if colours are not mind-independent, then it appears that they do depend on the experiences of these perceiving subjects, and so if those subjects are people, colour becomes an anthropocentric phenomenon.

We could therefore follow up this account of the mind-independence of colour with the following claim for causation: for causation to be mind-independent is to say that what it is to be a causal relationship is independent of the experiences of appropriately constituted, appropriately situated, perceiving subjects. Or, considering that P&M have asked us to regard action as on a par with perception as a means of access to the world (1993: 191-2), we might think that in the case of causation we can substitute action for perception in the definition of mind-independence (stretching the use of 'mind' slightly, perhaps to a meaning more closely captured by 'subject-independent'), giving us the following:

To say that causation is mind-independent is to say that what it is to be a causal relationship is independent of the experiences[42] of appropriately constituted, appropriately situated, acting subjects.

We should analyse this a little further to see its consequences in relation to P&M's position. The point is that for causation to be mind-independent (or subject-independent), it must be something that does not depend on the experiences of agents. Does P&M's theory involve such dependence? It seems that it does. For P&M, agency is plays a constitutive role in causation; recall that they say "the ordinary notions of cause and effect have a direct and essential connection with our ability to intervene in the world as agents" (1993: 187). As discussed in chapter two, P&M are committed to Ahmed's claim (A) that:

"(A) Constitutive: the concept of agency features in a necessary, sufficient and elucidatory condition for 'X is a cause of Y'" (Ahmed, 2007: 121).

[42] Where 'experiences' includes actions.

So for P&M, agency plays a constitutive role in causation; on their view, causation could not be independent of the experiences of agents; it is impossible to understand causal terms without agency, because agency is a necessary part of an elucidatory condition for causal explanations. This leads to the conclusion that for P&M, causation is mind-dependent (subject-dependent), since it violates the conditions for mind-independence (subject-independence). Again, this is to make causation an anthropocentric, or at least agent-centric, phenomenon, since it means that causation is constituted in part by the concept of agency, and there would be no concept of agency if there were no agents.

Anthropocentric colours and selectionism

I shall now explain the threat to the mind-independence of colour from inter-species variation. The problem is that different species appear to have different powers of colour perception from those that humans have. This can be seen in the physiological structure of their visual systems; I can only offer an outline of the explanation for this here: humans perceive colour thanks to their possession of three different types of cone cell on their retinas. These determine the colours we perceive through opponent processing channels. Other species, however, have different numbers of these cone cells; cats have just two, pigeons have at least four. This means that humans typically have trichromatic colour vision, whilst it seems that cats have dichromatic and pigeons have tetrachromatic colour vision.[43]

A certain line of reasoning about the closed nature of colour space leads us to the conclusion that other species see objects as being coloured differently from the way we see them.[44] Whilst there is not space to go into the reasoning in detail, it can be outlined as follows: there has to be a phenomenological difference between pigeon colour vision and human colour vision, and this is as a result of their differing visual systems. As an example of some of the empirical support for this theorizing: pigeons seem to see a hue boundary at a light wavelength of 540nm, yet this does not mark a hue boundary for humans (Thomson, 1995: 150-1, cited in Allen, 2009: 204). So it is unlikely that other species simply perceive fewer or extra hues as compared with those

[43] This explanation is due to Allen (2009: 199-201)

[44] The reasoning I present here is a summary of the arguments given by Allen (2009: 199-208). There is not space here to defend the arguments, but I take it that their initial plausibility is clear.

that humans perceive; it rather seems that they must perceive completely different hues; this is a conclusion we should expect, because colour space is closed; no 'extra' hues are possible, since colours must all fit around the dimension of hue on the colour solid. To fit in a 'new' hue, it must bear relations to the existing hues, yet if it does so, it is already in the colour solid – an extra hue cannot be 'squeezed in'; but equally if it does not already bear relations to the existing colours, then it is not part of the colour solid, and so is not a hue after all. Of course this requires the highly plausible assumption that the relations colours bear to one another are essential to them. Thus it seems that pigeons' visual systems could not allow them to see extra hues, but rather that they must see entirely different hues, compared with humans.

This brings us to the problem of perceptual variation, which is summarised by Allen as follows (2009: 198):

"(1) an object x appears F to subject S and appears G to subject S* (or: appears F to subject S in conditions C and appears G to S in conditions C*)
(2) F and G are incompatible: x cannot be both F and G;
(3) there is no non-arbitrary reason to suppose that x really is F and merely appears G; conversely, there is no non-arbitrary reason to suppose that x merely appears F and really is G;
(4) therefore, x is really neither F nor G: F and G are both equally apparent."

It may seem as though objects cannot really be coloured at all, since they appear one way to humans, and another way to pigeons; they cannot have both colours, and it would be arbitrary to call one species' perception veridical and the others' false, and so the only viable option is to say that the object really possesses neither colour.

We can see that a quite similar problem applies to P&M's causation: if a different concept of causation could have arisen because agents had different causal powers, then different and incompatible sets of causal claims could arise, such that one set of agents will think of *A* as a cause of *B* and another set of agents will not. There may be no non-arbitrary way to adjudicate between these options either; what one thinks of as a cause simply depends on what causal powers one, or one's species, has.

P&M have attempted to argue that the only notion of cause is the one we actually have, but since we saw in the previous chapter that the extrapolation argument this

rests on is highly dubious, we have no reason to think that they are right about this either. Having said that, we are left still needing a way to vindicate our own notion of causation. Yet with this anthropocentric notion of causation, where others could exist, or could have existed, it looks as though causation ceases to be an objective notion, as P&M argued we should accept. Is that really the case?

The short answer is no. We have a way of accepting that causation as we know it becomes an anthropocentric notion without accepting that this makes causation unattractively subjective. This addresses the real nature of the problem, I contend, because when one worries that a concept has been made anthropocentric, one is really evincing the worry that it has been made subjective when we more naturally think of it as an objective feature of the world. Our answer here will come from an idea in the philosophy of colour. The answer is to be a selectionist.

In the case of the problem of inter-species variation for colour, we can argue that instead of saying that this means that colour is relative to the perceiver in the way that was discussed for tastes, it is simply the case that the perceiver's perceptual system determines which from a range of mind-independent colours, or perhaps better, colour spaces, the perceiver is able to perceive. The incompatibility of step (2) of the argument from perceptual variation is thus denied.[45] The two perceived colours turn out not to be incompatible. And this is not because they are relational properties.[46] It is rather because the colour seen by a human is from one set of colour properties, and the colour seen by the pigeons is from a completely different set. They are, however, both still sets of mind-independent colours.

In the case of causation, we can say that agents with different sets of manipulative powers may have a different concept of causation, but that this is not incompatible with the existence of causation as we understand it. Both are genuine forms of causation, but which form we are able to understand depends on what set of manipulative powers we have. This idea seems to be similar to Price's later suggestion of causal perspectivalism (Price, 2007). It is not exactly the same as Price's position, however, since Price does not endorse the possibility of causation being objective in the

[45] This colour selectionism is that which is argued for by Allen (2009).
[46] This point is made by Mark Kalderon (2007: 583).

sense in which I have been using the term. A careful examination of Price's comments on the subject is therefore required.

Price's Causal Perspectivalism

In 'Causal Perspectivalism' (Price, 2007), Price argues that causation, at least causation as we know it, is found only from a certain point of view, namely our agential point of view. Perspectivalism could be defined as the position that some concepts are necessarily linked to a certain perspective, or viewpoint, such that one can only possess the concept in question if one inhabits a certain viewpoint (alternatively, has a certain perspective on the world.) Price suggests that it may be difficult to notice that causation is perspectival because we all share the same viewpoint on the world, being the kind of agents we are. If we cannot imagine seeing things differently, this is precisely because of our unavoidably inhabiting this certain point of view. Price also says that perspectivalism does not straightforwardly lead to subjectivism or anti-realism (2007: 251; 253), pointing out that even once we have noticed the perspectival character of a concept such as 'foreigner', we may continue to use the term meaningfully. This essentially seems to be the point that some concepts are indexical and that this does not lead to anti-realism about those concepts.

This key insight that perspectivalism does not lead immediately to anti-realism is correct, although perhaps not for the reasons Price suggests. We have already seen how it is true in the case of colour, since sets of colours could be visually available only to creatures with a certain perceptual system, without this meaning that the colours are not real (in the sense of being mind-independent features of objects in the world). That was the selectionist's argument.

Price does, however, argue against objectivism about causation, saying that it is incompatible with the perspectivalist intuition, as can be seen in his discussion of interventionist accounts of causation:

"[Interventionists] think of their project in objectivist terms. They think of the causal structure of the world…as something that exists independently of human agents. But there is a deep tension in such a viewpoint…stemming from the fact that intervention is a deeply perspectival notion." (Price, 2007: 268)

We can deduce from this and Price's subsequent argument that he is against objectivism about causation. Although he claims that perspectivalism does not lead directly to subjectivism and anti-realism, he does nevertheless ultimately argue for such a position, merely one he thinks can be made palatable in certain ways. To put it another way, this passage gives a clear indication that Price does not think that 'the causal structure of the world' can truly be said to 'exist independently of human agents.' And for Price, this means that objectivism about causation is impossible.

Physics again

Price's position here is probably at least partially motivated by the argument that physics has no place for causation, not least because 'Causal Perspectivalism' (Price, 2007) appears in a volume he co-edited which is focused on Russell's eliminativism, and how the insight that fundamental physics does not mention causation can be reconciled with our ordinary experience (Price and Corry, 2007: 1-10). Price does not wish to be an eliminativist about causation, as Russell was, but neither does he think that full-bodied realism is tenable, hence his argument for projectivism about causation. The claim that we should be projectivists about causation also appears in Price (1991). The idea is, I think, that we should endorse the claim that causation is only a feature of the world in so far as our viewpoint allows us to formulate and project that concept onto what we experience.[47]

One can also be a projectivist about colour, of course; Boghossian and Velleman's view might be an example of this (Boghossian and Velleman, 1989). Such positions are those which argue that colour appearances are something that occur because of the way our visual systems work, but that we are merely projecting these colours onto objects 'out there' in the world, which are not coloured in any stronger sense than this; colour is in fact mind-dependent in this way. We need to determine whether the motivation for these two varieties of projectivism is the same in each case.

As discussed in chapter one, it certainly seems that because both causation and colour have been argued not to exist at the level of fundamental physics, there must be at least a partial motivational analogy, since in both cases philosophers are attempting to find

[47] Recall from the discussion of Woodward's objection above that this does not mean that agents actually choose which relationships are causal based on their own beliefs or desires.

a way to bridge the gap between the claim that physics says the concept has no place in the world it describes, and the intuition that the concept does nevertheless have a rightful place in our world. To an extent this might be seen to be the familiar problem of reconciling Sellars' manifest and scientific images (Sellars, 1962).

In fact, the best way to characterize the motivation for positions such as Price's is that they are asking the question: might not the idea that everything must be either described by physics, and thus objectively there, or else not described by physics, and hence not objectively there (and so in some way illegitimate), just be false? It may even seem slightly obvious that we should agree. The difference between Price's view and the argument I am making here is that Price believes that objectivism is not possible for causation, but that this does not make causation an illegitimate concept, whereas what I am suggesting is that it is not even necessary to concede that causation cannot be an objective phenomenon.

It might be that there are some things that exist but that are not described by fundamental physics; after all, as Tim Crane points out "Objectivism…is not physicalism, since the former does not entail that all of objective reality is physical" (Crane, 2003: 69). This is where I suggest we should depart from Price's projectivism; the admission of a level of properties not detailed in fundamental physics does not require the admission that those properties are "less real", or not objective, compared with those that are so described.

To continue the analogy we have been examining, let us take some examples of this kind of objective, non-physicalist position in the philosophy of colour. There is the naïve realist's position that colours are a kind of *sui generis* property, not described by fundamental physics but nevertheless mind-independent.[48] There is also McGinn's supervenience dispositionalism, in arguing for which he says:

"We have become accustomed to this kind of picture of an irreducible hierarchy when articulating the relation between the special sciences, but now we must enrich our ontology by adding an extra layer for the colors. We need mental and physical properties and then colors. To the old question, 'Are colors

[48] See, for example, Campbell (1997).

mental or physical, subjective or objective?', we must answer, 'Neither: they constitute a third category, just as real as, but distinct from, mental and physical properties'." (McGinn, 1996: 548)

The idea of a realm of properties that supervene on other features of the world but are themselves not easily categorized as either mental or physical has gained much support in recent philosophy, even though we must always be wary of being profligate in adding properties to the world.[49] And indeed supervenience for causation seems quite attractive. Consider the following comments from Peter Menzies:

"[A] defender of the causal concept could well argue that, even though causation is not explicitly mentioned in fundamental physics, it is implicitly present in the picture of reality given in fundamental physics, since causal relations supervene on the pattern of fundamental physical facts and physical laws. In the period since Russell wrote, causal realism has become philosophical orthodoxy. The currently popular versions state that causal relations supervene on objective, mind-independent structures…Though these theories differ in detail, they all subscribe to the doctrine that causal relations depend completely on a substructure of mind-independent relations." (2007: 191-2)

Menzies himself argues against the possibility that causal relations do supervene on the fundamental physical structure of the world in the paper from which this is taken. But I suggest that we can unite the ideas we have been considering in this chapter to get the best combination of all of these positions. We can argue for the objectivity and reality of causation as well as endorsing the insight that the causation we perceive is not described by fundamental physics and may only be available from certain viewpoints on the world. That is to say, we can accept that it may not be possible for non-agents to understand causation, without thus agreeing that this means causation itself actually depends on agency for its very existence. Moreover, this allows for the possibility that if there were beings with different agential powers such that, for example, they were able to observe only at a microphysical level, perhaps having perceptual access to quantum effects, they could have a very different understanding of causation from our own. This would plausibly because they were perceiving a different kind of causation.[50]

[49] Of course some who argue for the existence of supervenient properties would also argue that they are not guilty of ontological profligacy because the properties that supervene are not adding anything over and above the thing they supervene on. This is explained in McLaughlin and Bennett, 'Supervenience' (2011).

[50] Of course one might think that the kind of causation we are familiar with is somehow built up out of quantum level effects. It is not possible to enter into a discussion of this here. The comment is merely intended to suggest the possibility that having metaphysical room for more than one kind of causation may be a good thing.

A comment from John Campbell suggests the plausibility of the idea that causal explanations have a legitimate existence somewhere further up the scale than what is described by physics:

"There is a wide range of causal explanations which are not themselves given at the level of basic physics – in zoology, in economics, in meteorology and by common sense, for instance" (Campbell, 1997: 183)

What might be suggested, then, is the following: causal relationships supervene on features of the objective, mind-independent world, but the causal relationships that we have a grasp of are those that have relevance to us thanks to our agential capacities.

There is already some support for a form of selectionism about causation in that

"most causal realists are prepared to allow that pragmatic principles of 'invidious selection', as Lewis calls them, govern the way in which we select as 'the cause' a salient part of the vast network of events leading up to an event." (Menzies, 2007: 192)

It is a convincing suggestion that when we describe causal relationships we do not take account of a great many background features of a situation and merely select the ones that are relevant to us; we might notice that we select as relevant those upon which through our actions we might have had an effect. So P&M's insight that our agential capacities bear on what we perceive as causation in the world is probably right, but this does not have to mean that we project causation onto the world. There are relationships between events that we can describe as causal, but we describe them in the particular ways we do because the ones we notice are the ones we have the capacity to notice. Just as for the selectionist about colour, the world is not only really coloured, but may contain a great many more colour properties than the human viewpoint will ever be able to see (Allen, 2009: 213), likewise for the selectionist about causation; there may be a great many more causal relationships in the world than we will ever be able to notice from our viewpoint. But neither of these positions has to endorse the idea that this makes their subject matter subjective or mind-dependent. Colours and causes can be allowed to supervene on other features of the world quite independently of the existence of humans or agents. A nice way to characterise this selectionist insight is offered by David Wiggins:

"the size and mesh of a net determine, not what fish are in the sea, but which ones we shall catch" (2001: 152).

So the best thing to say about the absence of causation from fundamental physics is that there is little reason to suppose that the only 'real' features of the world are those that are mentioned there, as this would leave us with very few features indeed. It seems much better to deny that mention by fundamental physics is the measure of legitimacy for a property than to accept eliminativism about a great many ordinary features of the world. We are not obliged, however, to accept that this results in causation itself being a subjective phenomenon.

Subjective facts

The other motivation for P&M's position was that introduction of the agential perspective helped to deal with the problems of spurious causation faced by other theories of causation, and in particular by probabilistic theories of causation. The introduction of probabilities as assessed from an agent's perspective was argued to resolve this problem. Thus it might seem that there is still another good motivation behind P&M's position that must be addressed by any view that claims to advance their position.

I argue that there is a way of maintaining this insight that the agent's perspective is useful whilst continuing to deny the subjectivity of causation itself. We might endorse the existence of 'subjective facts' about causation (and indeed colour) without denying that causation (and colour) have a mind-independent existence as objective features of the world. A subjective fact, as Crane describes it (2003), is a fact only knowable from a particular point of view on the world. A familiar variety of such facts are indexical statements involving the first-person, such as "I am here", which can only be known from a particular perspective.

Indexical facts such as "I am here" in no way imply that the person thinking it or the place they are thinking about are less than fully mind-independent. And in Crane's paper, the argument is that Frank Jackson's Knowledge Argument (Jackson, 1982) shows not that physicalism is false, but that there are subjective facts based in experience; regardless of the nature of the colour red, there will always be special

subjective facts concerning the experience of red. Hence whatever theory of mind one adopts (for example a physicalist theory; a dualist theory), Jackson's argument would still show that there are certain facts about the experience of the colour red that should be labelled subjective facts; this does not disprove physicalism.

The use subjective facts may then be put to here is this: there may be subjective facts, for agents, concerning causal situations, which enable them to make causal judgements about that situation; this does not have to mean that causation itself is subjective. To take Price's example of the migraine-suffering chocolate eater again, it is a fact that he knows from his own perspective that his decision over whether or not to eat the chocolate is guided not by whether or not he is in a pre-migrainous state, but rather by the unique history of his thought-process on this occasion. We might think that his perspective gives him access to the fact of whether or not his decision is an instance of the generalization 'when I choose to eat chocolate, I am more likely to be in a pre-migrainous state.' And it is knowledge of this perspectival fact, that is, of this subjective fact, which enables him to determine which causal situation he is in, whilst it remains an objective matter that eating chocolate does not cause migraines.

What we have now seen is that P&M's position appeared to make causation unacceptably anthropocentric, or agent-centric, but the true nature of the problem was that the subjectivity of causation was thought to be unacceptable. This was because there was no obvious reason to doubt that causal relationships would obtain in a world without agents. Consideration of the analogy with colour, however, has shown that it may be possible to accept an anthropocentric theory of causation without accepting subjectivity about causation. It is thus possible to find a home for causation amongst a level of properties not described by fundamental physics but which are also not mind-dependent in the way that was found to be objectionable. I have also gestured at a way in which the insight from P&M that the agent's perspective can help to resolve problems faced by theories of causation might be maintained by accepting the existence of subjective facts about causation.

6. Causation, Colour and Tertiary Qualities

In this final section, I summarise the reasons we have seen to deny P&M's argument that causation should be regarded as a secondary quality. I then give an outline of how the positive position suggested in chapter five might suggest that causation is more like a tertiary quality. Finally, an outline is provided of whether or not the objections to P&M's position discussed in this thesis would apply to this new view. It is concluded that causation is not a secondary quality, but it may be something like a tertiary quality.

Causation is not a secondary quality

We have now seen in detail a series of objections to P&M's position, and to the dispositional theory of colour, and examined the connections between the objections and responses in each case. The analogy with colour has been insightful and illuminating. Yet it seems that the idea of causation's being a secondary quality is not a tenable position. The reason for this, however, is not that causation is not similar to colour. If anything, it is because they *are* similar, but neither is a secondary quality.

We have seen that the objections the theories face, contra to what P&M argued, are all problematic. P&M's reason for arguing that causation should be treated as a secondary quality was that this enabled the agential theory to respond to a series of objections it faced. The idea was that for each objection, accepting perceiver-dependence, or more accurately (since P&M think that action and perception should be treated on a par as means of access to the world) agent-dependence, in the same way as one would accept perceiver-dependence in a secondary quality theory of colour would show that the objection was not a good one after all.

I have argued, however, that P&M's arguments do not succeed in dealing with those objections. The introduction of metaphysical dependence on agency for causation has not helped. In the case of circularity, ostensive definition of 'bringing about' was seen to be implausible as a solution because experience could not play the role P&M required it to. Hence the motivation for the secondary quality view of causation was undermined, because the introduction of agent-dependence in this case did not help to solve the problem, and this had been the reason for its introduction.

In the case of unmanipulable causes, the fact that causation was tied to agential capacities brought problems with it. The idea of defining causation by the susceptibility to agential manipulation was seen to be unnecessary given that P&M argued that the problem could be solved by the presence of certain features which may be modelled by agentially manipulable situations; given that it was the presence of these features that made the situation causal, I argued that there was no further reason to take the agential case as the paradigm here; it seems more plausible to claim that causal relationships are those which possess certain features, regardless of whether or not agents can manipulate those features. Hence again the agent-dependence that would lead to labelling causation a secondary quality did not help, and so the secondary quality view of causation remains under-motivated.

Finally, in the case of unacceptable anthropocentricity, it was shown that instead of being forced to accept a kind of subjectivity about causation, which this secondary quality view would demand, there is an alternative available whereby the objective, mind-independent nature of causation can be maintained. Thus once again the secondary quality option seemed not to be the most useful.

Taken together, the fact that for each objection understanding causation as a secondary quality was not a good way to solve the problem serves to undermine the idea that we should think of causation as a secondary quality; the motivation for treating causation as a secondary quality was that this provided responses to these objections. We have seen, however, that this does not work.

Causation as a tertiary quality?

Secondary qualities were supposed by P&M to be perceiver-dependent, but what I have argued is that although there may be a dependence on the perceiver's capacities for the ability to detect the properties in question, we can argue that those properties are genuine features of the objective world nonetheless. If we wished to stay within the same Lockean vocabulary, we might say that this made causation more akin to a tertiary quality. Locke's initial description of these is

"The power that is in any Body, *by* Reason of the particular Constitution of *its primary Qualities, to* make such a *change* in the *Bulk, Figure, Texture and Motion of another Body,* as to make it operate on our Senses, differently from what it did before. Thus the Sun has a Power to make Wax White, and Fire to make Lead Fluid. These are usually called Powers." (Locke, 1706: 2.8.23)

Mark Kalderon makes these comments on the idea of colour as a tertiary quality:

"If colors were qualities determined by ways of affecting light, then colors would be Lockean tertiary qualities, at least on a reasonable generalization of that notion. Surface color, so conceived, would be determined by a power of surfaces, by reason of the particular constitution of their material properties, to make such a change to the spectral composition of the light so as to make it operate on our sense of sight differently from what it [would otherwise have done]…Specifically, surface color, such as the red of Norm's tomato, would be a sensible quality of material surfaces determined by their disposition to reflect light…The conception of colors as tertiary qualities, as described here, is neutral between reductive and nonreductive understanding of the colors. Chromatic tertiary qualities of material surfaces might be reflectance properties represented by sets of surface spectral reflectances – the surface's disposition to reflect a certain amount of light at each of the wavelengths of the visible spectrum…or they might be primitive qualities that supervene on these…On either understanding, tertiary qualities are objective features of the material environment." (Kalderon, 2008: 961-2)

My suggestion as to how the agency theory of causation might be improved upon may be seen as something similar to this. As can be seen from this passage from Kalderon, there is a sense in which a tertiary quality view is rather minimal, making no commitment as to whether colour properties should be understood reductively or non-reductively, yet it is a view on which colour is an objective feature of 'the material environment', i.e. a view on which colour is mind-independent.

What we then might call the tertiary quality view of causation, as I have outlined it, would be the non-reductive version, whereby causal relationships supervene on some other features of the objects and events concerned, being a quality of that pair of objects or events. On this view, causal relationships are like tertiary qualities in that they do affect perceivers (agents) in certain ways, yet are 'objective features of the material environment.' Causal relationships might be a power of pairs of events to produce causal judgements in agents in a similar way to the way that, understood as tertiary qualities, colours might be powers of objects to affect light so as to change the way it operates on our visual system. The role of agency, on such a view, would be much like the role of our visual system on the tertiary quality view of colour; it would

be essential to be an agent in order to grasp this kind of causation, but that would not mean that there would be no causation if there were no agents. As a visual system is required for an experience of red, so an agential system would be required for an experience of causation.

We can still avoid the (pseudo-)problem that the properties are not described by fundamental physics by invoking the idea that they supervene on features of the world that are so described, and do so in a way that does not involve perceivers or agents. This is really to deny that something's not being described by fundamental physics is a good motivation for denying its existence. For if we only accepted as existent those things that are described by fundamental physics, it looks as though we would not be left with very much! Current theorising seems keen to accept the legitimate existence of a great many ordinary things that do not feature in fundamental physics.

If a tertiary quality view were accepted, it might be that causation could be rescued from Russell's conclusion in a way not dissimilar to that suggested by P&M, but which is further developed from their position. It is already clear that the problem of unacceptable anthropocentricity, and even of agent-centricity, can be avoided in this way; that was a large part of how the tertiary quality view came about. Causation has been described as a mind-independent phenomenon of a pair of events, which is thus more like a tertiary quality than a secondary quality. And if causation is, as suggested, a mind-independent feature of the objective world, then there should be no problem of anthropocentricity; the theory would explicitly claim that there would be causation at times or places where there are no agents, and in worlds or cases where agents have different causal powers from the ones we have. The only sense in which it is anthropocentric is at the epistemological level, since one may need human agential powers to learn about this causation; that does not result in metaphysical anthropocentrism, which is what would be objectionable.

What of the other objections? I believe there is hope here, too, that adopting a tertiary quality position for causation may be shown to be advantageous compared with P&M's theory. The problem of metaphysics confused with epistemology would be rendered irrelevant. The metaphysics of causation has been divorced from the empirical activities of agents learning about it more fully than was the case for P&M's

theory. The issue as discussed in chapter two was ultimately a question of the order of priority for agency and causation; P&M's position was troubling because it appeared to depend on claiming that agency is prior to causation in the same way that for the dispositionalist about colour 'looks red' is given priority over 'is red'. A tertiary quality view has no need to make such a claim, because the existence of causation can no longer appear to depend on the activities of agents discovering the concept; rather, thanks to their particular capacities, agents merely have the ability to perceive objectively existent causal relationships that supervene on the fundamental physical world. Thus the metaphysics of causation is adequately independent of other considerations.

As regards the circularity problem, I confess that the answer is not yet clear. A tertiary quality view as presented here has yet to be developed into a full theory of causation, and until it is, it will not be obvious whether or not it is circular. What can be said at this stage, however, is that it seems unlikely that the ability of an agent to bring something about will enter into the causal conditions, and so at least the very same circularity will not arise. In addition, if a tertiary quality theory of causation does turn out to be circular, it may be that it is circular in a non-problematic way more like the circularity of the definition of 'courage', as discussed by Boghossian and Velleman, which was described in chapter three.

The problem of unmanipulable causes should not be so troubling either. Thinking again of the analogy with colour, selectionism about colour certainly does not have to agree that there is a problem of unperceivable colours; i.e. that ascribing colours to objects where standard observers or conditions are impossible is problematic. This objection is only a problem if one thinks colours should be defined in a perceiver-dependent way, i.e. as secondary qualities, and although it might be possible to combine a form of selectionism with a secondary quality view, the versions we have been examining do not endorse this, but rather uphold the claim that colours are perceiver-independent. Likewise the parallel position outlined for causation does not endorse the idea that causation is agent-dependent in the way that P&M argued for. Thinking of causation as more akin to a tertiary quality, it is once again an agent-independent phenomenon, metaphysically speaking, with the result that there is no problem for a tertiary quality view describing events such as the San Francisco

earthquake as caused by the movement of tectonic plates; such a new view would say that there is a causal relationship there, which supervenes on some physical features of the events concerned.

One might be concerned that any view which accepts a role for agency, as this tertiary quality view does, will face a problem from unmanipulable causes unless it endorses the extrapolation argument. The reason for thinking this is that if one endorses the idea that subjective facts about causation are relevant to agents' causal judgements, there need to be such subjective facts about causation even in situations agents cannot manipulate. Hence extrapolation to those situations would be required. This is not the case, however. The key to understanding how to resolve the problem of unmanipulable causes was that it was the presence of certain features that made it appropriate to call the relationship causal. As a result, although the agent might use their subjective causal understanding to extrapolate to understand that causal relationships also obtain in volcanic eruptions and so on, the extrapolation is not problematic in the way that it was for P&M. This is because it is recognition of similar *causal* features in each case that allows the agent to understand that the relationships are causal; P&M's extrapolation was problematic because it required recognition of similar non-causal features, and there was no reason to suppose that this would work to result in similar causal relationships. A tertiary quality position requires only something much more like what is suggested by the psychological literature, which is that agency greatly assists the acquisition of an understanding of causation.

The role of agency is now as a kind of perceptual power in the sense that just as possession of a certain visual system enables colour perception, so possession of a certain set of manipulative powers enables perception of causation; neither of these claims entails the claim that the phenomenon perceived is thus subjective; there is no implication that colour or causation would not exist if we did not have those powers; the position is consistent with that kind of perceiver-dependence, but it is not compulsory to endorse perceiver-dependence. There is a sense, then, in which the tertiary quality-style view I have suggested is rather minimal; many further choices would be needed to make it a full theory of causation. The key insight, though, when comparing this view with P&M's, is that on this view, objectivism about causation and colour are equally tenable positions.

So although P&M's argument that causation should be treated as a secondary quality has been denied, what I have shown here is that the analogy with colour is nevertheless very useful. For since theories of both colour and causation are similarly motivated to avoid eliminativism, it is not so surprising that we can make similar arguments in the case of both. And it is possible to preserve the objectivity of both without denying that they might be anthropocentric in some way. The exact nature of the supervenient properties is left to be filled in, and doubtless a number of positions will be compatible with this selectionism, but the framework that selectionism provides is highly useful. Causation is not a secondary quality, but it may yet be a tertiary one.

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