A Non-modal Conception of Secondary Properties[*]
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Abstract: There seems to be a distinction between primary and secondary properties; some philosophers defend the view that properties like colours and values are secondary, while others criticize it. The distinction is usually introduced in terms of essence; roughly, secondary properties essentially involve mental states, while primary properties do not. In part because this does not seem very illuminating, philosophers have produced different reductive analyses in modal terms, metaphysic or epistemic. Here I will argue, firstly, that some well-known examples fail, and also that there are deep reasons why such approaches should do so. Secondly, I will argue that it is acceptable to remain satisfied with the non-reductive account in terms of essence. To that end, I will indicate how such an explication could be put to use to support the claim that properties like colours and values are secondary. In a series of recent writings, Kit Fine has argued that essence cannot be reductively analysed in modal terms. Fine offers some examples to motivate his claim. I suggest that the primary/secondary distinction constitutes a philosophically interesting illustration.

1.

Many philosophers think that there is a distinction between fully objective properties on the one hand, which are independent of the mental states constitutive of subjects, and not so fully objective properties on the other, which are dependent on those states. The distinction has been invoked for different philosophical purposes. Writers like McDowell (1985) and Wiggins (1998), among others, have found it

useful to account for the otherwise perplexing metaphysics of normative facts and properties. The distinction is paradigmatically made among perceptual contents, between on the one hand properties independent of the perceptual states representing them and on the other properties dependent on the perceptual states representing them. This is Locke's distinction between, respectively, primary and secondary properties; shapes and force-related properties like solidity, pressure or weight are usually given as paradigm examples of the former, colours and sounds of the latter.

Notwithstanding this widespread assumption that such a distinction is conceptually well-founded, it is not unfair to say that attempts at explicating it can claim a rather poor rate of success, using only for this appraisal philosophical explications of other distinctions. Famously, Locke's own proposals provide a good measure for this failure. I will illustrate the problem by discussing (without going into exegetical detail) recent proposals by Wright (1992, 108-139) and Johnston (1998). The suggestions on which these writers rely, although different in important respects, are elaborations of proposals invoking the notion of a dispositional property: a secondary property is as a disposition to cause certain mental responses, while a primary property is one independent of subjective states. The difficulty I will be discussing is in fact related to the problem of explicating in a satisfactory way the distinction between dispositional and categorical properties, although here I lack the space to show this.

Given the examples that render the distinction initially sensible to so many philosophers, it seems reasonable to adopt the following criterion (C) to guide our search for an acceptable elucidation of the distinction:

(C)   The more *prima facie* plausible an elucidation renders the claim (I) that the distinction is actually instantiated in that, while paradigm cases like circularity and solidity are primary properties, paradigm cases like colours and sounds are secondary properties, the better it is; whether or not claim (I) turns out to be true, given the elucidation.

Assuming an acceptable elucidation of the distinction, claim (I), being the assertion of a conjunctive proposition, can be disputed on two different sorts of grounds. On one sort of grounds, phenomenalists and other idealist philosophers, for instance, would dispute that there are any primary properties at all, not to mention shapes or force-related properties. On the other, radical externalists about thought-contents would presumably dispute the claim that there are any secondary properties, not to mention colours or sounds.

Wright is sympathetic to the part of claim (I) asserting that colours are secondary, while Johnston rejects it. However, Johnston (and other writers similarly critical of subjectivism about colours, like Stroud (2000)) at least find the distinction not only intelligible, but actually instantiated; for they mention examples of properties which they are prepared to consider secondary: the painfulness of a thumbscrew (Stroud's example), the nauseating character of rotten meat (Johnston's). The problem I want to discuss in this paper is made salient by this fact; for I think that, if the primary/secondary distinction is elucidated the way Johnston and Stroud assume when they criticize claim (I), then, exactly for the same reasons they provide against the secondariness of colours, neither the painfulness of thumbscrews nor the nauseating character of rotten meat would be secondary either. Wright's own proposal does not rank well relative to the criterion either, although for different reasons. My main goal is to provide a more satisfactory elucidation of the primary/secondary distinction; I will not try to defend claim (I) itself here.

Critical examination of proposals alternative to one's own is a convenient argumentative strategy. In this case, however, it is almost mandatory, because the proposal I will make in the end is rather disappointing. In brief, my proposal has a positive and a negative part: firstly, secondary properties are constitutively (i.e., in virtue of their essence) dispositions to cause mental responses in us, while primary properties are not; secondly, no further analysis of the relevant notion of essence in modal terms is going to serve to provide the required

explication. For this disappointing proposal to be persuasive, I should convince the reader that *prima facie* more interesting suggestions fail, and that there are deep reasons for them to fail. I will rely on a general claim recently made by Fine (1994), that essence cannot be reductively analyzed in modal terms. Fine offers some examples to motivate his claim; the present paper vindicates Fine's broader metaphysical view by providing the best available elucidation relative to (C).[1]

2.

Johnston (1998) refers to secondary properties as 'response-dependent', and provides the following account: 'a property, Being F, is response-dependent if there is some predicate "is f" which expresses the property (i.e., whose extension across possible worlds is just the things which have the property) such that some substantial way of filling out "R", "S" and "C" makes *a priori* and necessary' the following biconditional (R-D$_n$) (Johnston *op. cit.*, 9):

(R-D$_n$) x is f if and only if x is disposed to produce x-directed response R in all actual and possible subjects S under conditions C

As Johnston explains, the aim of the restriction to *substantial* ways of filling out 'R', 'S' and 'C' is to rule out trivializing 'whatever it takes' specifications, amounting to understanding, say, 'R' as meaning 'the response, whatever it might be, which is issued by subjects S in C just when x is f'. 'Instead we require characterizations of the conditions, subjects and response along such lines as "normal lighting conditions", "those who fail no discrimination test passed by other human subjects" and "believing or seeing that x is f"' (*ibid.*, 10). In the present context, this restriction might be interpreted as an attempt at meeting our criterion (C); without the restriction, all properties would trivially count

as response-dependent, so that the proposal could hardly stand in view of (C). Given that the biconditional (R-D$_n$) is supposed to be known *a priori*, however, I assume that in cases like those contemplated in (I)— predicates for shapes, colours and so on —the ways of filling out the schematic letters, even though substantial, are available to ordinary users of those predicates: they do not use characterizations of aspects of the actual world known only to scientists. They should be, as I will say, *commonplace* in spite of being also substantial. Johnston (*op. cit.*, 10) also rejects rigidified ways of filling out the variables; it is not *actually* normal lighting conditions, but normal lighting conditions, whatever they are.

Given an account like this, the objection to (I) is that alleged paradigm secondary properties are not response-dependent, because the relevant biconditionals (R-D$_n$) for colours and sounds are not necessary. As Wright (who so far concurs) puts it, 'had the typical visual equipment of human beings been very different, or had the lighting (by day) on the earth typically been of a quite different character—perhaps resembling the illumination generated by sodium street lighting—that need have made no difference to the colours things actually are. The extensions of "red" and "green" would not have been different if all human beings had been colour blind, and would not change if they were to become so' (Wright *op. cit.*, 113).[2] Like Wright, however, I do not take this to be a problem for claim (I), but rather for the account of response-dependence on which the criticism is based. It is not that, in so far as we accept the consequences of this conceivability intuition, we should conclude that claim (I) is false. It is rather that, because this is an intuition that all of us (including would-be defenders of claim (I)) find clear-cut, the account does not satisfy (C): it makes it difficult to see why someone could contend that claim (I) is correct.

Johnston takes some properties (*being painful, being nauseating*) to be response-dependent; but given his account, I do not see how they can be. There are possible worlds where yellow objects are not disposed (say)

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1 Wedgwood (1998) has argued for a closely related view. I hope that the rather different argumentative strategy, which results from its independent conception, and some details make the present paper complementary rather than otiose.

2 Stroud (2000, 128-130) develops the point in more detail.

in normal lighting conditions (*normal* relative to the counterfactual worlds) to cause (say) subjects who fail no discrimination test passed by standard human subjects (*standard* relative to the counterfactual worlds) to believe or see (say) that yellow is around, or to have a yellow' quale instantiated in their visual fields.[3] But there also are possible worlds where painful thumbscrews and nauseating rotten meat are not disposed to appear painful or nauseating to standard subjects in standard circumstances (standard in the alternative worlds). Stroud agrees, for he acknowledges that a painful instrument 'might not cause pain to beings who differ from us in certain ways, or to beings just like us who live in very different circumstances' (*op. cit.*, 133). This presupposes a possible situation such that painful instruments do not cause pain to certain subjects under certain circumstances; if this is possible, given a 'recombination principle' which we straightforwardly apply in modal reasoning (Lewis 1986, 86-92), there is also a possible situation in which those are all subjects determining what counts as standard.[4]

Johnston denies this modal claim; he states instead that the biconditional 'x is nauseating iff suitable subjects are disposed to feel nausea when exposed to x' is necessary. Do we just have here a clash of modal intuitions? I do not think so. There are good reasons why we should have those modal intuitions questioning not just that colours are response-dependent on Johnston's account, but also that *being nauseating* or *being painful* are. We can derive those reasons from Johnston's own objection to (I), which is not merely based on modal intuitions that the relevant biconditional for colours is not necessary, but elaborated by means of his 'Missing Explanation Argument'. The argument departs from the premise that our cognitive dispositions to respond to colours mentioned in the purported response-dependent account are; in our

conception of them, to be empirically *explained* by the colours of things. As he puts it, those cognitive responses are 'a form of receptivity': 'sensing and perceiving are both capacities to respond to objects and their qualities. These capacities are "forms of receptivity" to objects and their qualities. That is, the relevant responses are *reliably dependent* on how things are' (Johnston, 1998, 15). This *reliable dependence* involves empirical generalizations linking the properties and the dispositions to sense or perceive them. Now, modal intuitions like those invoked—given Johnston's account—against claim (I) are, I think, manifestations of this assumption. That we have a conception of colours instantiated in worlds where standard cognitive responses to them differ from ours conceptually manifests the assumption that our colour-responses are 'forms of receptivity', in Johnston's sense; but, I will argue, an analogous point applies to cases like *being nauseating* or *being painful*.

Johnston (1998) makes it clear that the main premise of his 'Missing Explanation Argument' is not that *particular cases* of sensing or perceiving are reliably dependent on instances of the property. As Grice aptly put the matter: 'The non-contingent character of the proposition that the presence of a red (or round) object tends to make it look to particular people as if there were something red (or round) before them does not, of course, in itself preclude the particular fact that it looks to me as if there were something red before me from being explained by the presence of a particular red object; it is a non-contingent matter that corrosive substances tend to destroy surfaces to which they are applied; but it is quite legitimate to account for a particular case of surface-damage by saying that it was caused by some corrosive substance. In each case the effect might have come about in some other way' (Grice 1961, 245-7). Johnston's premise is rather that, on our conception of the relevant cognitive capacities, they (the capacities themselves, not just their instances) are explained by the properties to which they are directed.

Keeping this in mind, let me now elaborate on why the modal intuitions on which the previous argument against (I) relies are just a

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3 Using Peacocke's (1983) well-known expressive resource to distinguish qualia from properties of material objects.

4 Stroud also says: 'it makes no sense to suppose that a thumbscrew remains a painful instrument even if it would never cause pain to anyone to whom it is applied' (*op. cit.*, 137). The view I will present later provides a plausible way of interpreting this.

manifestation of this conception of the cognitive dispositions at stake as forms of receptivity. The variables 'R', 'S' and 'C' in instances of (R-D$_n$) have to be filled out in substantial ways, hut those instances must still be *a priori*. For the two requirements to he satisfied, as already indicated, the variables should be filled out in *commonplace*, sufficiently common-sense terms. The extension of 'normal lighting conditions' across possible worlds should be understood to include everything that would appear so to a well-informed but ordinary thinker, without recurring to special research methods to determine the quality of the light; similarly with the extension of 'does not fail discrimination tests passed by other human subjects'.

Now, any reflective thinker familiar with our scientific explanatory practices will assume that there is a *deep* explanation of our issuing the relevant response (experiencing a given colour quale, say) under those conditions, thus superficially understood. To insist: not just that a particular case of issuing (or not issuing) the response is empirically explained in that the property is in fact instantiated and the circumstances are appropriate (or the opposite); rather, that the fact that subjects superficially like us have the capacity to issue the response in the superficially specified circumstances has, in general, a scientific explanation. The ultimate basis for this lies, I think, in a general fact about dispositions, which can be put thus: non-vacuous folk dispositional concepts really picking out properties are associated with equally folk laws, whose obtaining cannot just be taken for granted, but is to be empirically justified, among other things by successfully integrating them with the rest of our empirical knowledge. The dispositional properties picked out by non-vacuous folk dispositional concepts have scientifically specified bases. I do not take this to be an *a priori* truth, but rather as an assumption sustained by explanatory practices successfully pursued in recent intellectual history.

I think that this is what accounts for our conceiving of circumstances where the property is still instantiated, while the response is not regularly issued in subjects and circumstances that satisfy the common-sense characterizations. Given that we assume that there is a non-trivial explanation that subjects like us have the disposition to respond to particular instances of the property in the relevant circumstances, we do not take it to be constitutive of the property that those subjects would so respond in those circumstances. This is why we take this to be contingent, contradicting (R-D$_n$).

Johnston will not concur with my general explanation of the modal intuitions, as based on explanatory practices regarding dispositions in general; his explanation appeals instead to our conception of what specifically *sensing* is.[5] This is why he assumes that no Missing Explanation Argument applies to the feeling of nausea, or the pain produced hy thumbscrews: we do not feel these as 'forms of receptivity'. Thus, he takes for granted that, while no instance of (R-D$_n$) for colours is necessary, some is for *being nauseating*. However, I think that the general point just made applies to reactions like feelings of nausea with respect to *being nauseating*, to feeling pain in the case of *being painful* or to hecoming poisoned in the case of *being poisonous*.

In all these cases, reflective thinkers familiar with our explanatory practices also assume that there is a non-trivial empirical explanation that subjects common-sensically like us have those capacities to issue the response in the common-sensically specified circumstances. This supports the analogous modal intuition that we also have here, that there are possible worlds where commonplace standard subjects in commonplace standard circumstances are exposed to instances of the relevant properties but do not issue the response, or issue it without being exposed to its instances. Hence, the disagreement with Johnston is not just a clash of intuitions; to defend his intuitions, he should reject that deep explanations should also exist in the relevant cases. Alternatively, he could agree that the explanations exist, but argue that they are not provided by the properties at stake, but only hy their physical bases. However, without a principled basis to distinguish the

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5 See the elaboration of the argument for the case of colours by Johnston, *op. cit.*, 15-20.

cases, this would just beg the question; for the same could be said for the case of colours. Intuitively at least, in all cases it is instances of the relevant properties that causally explain the relevant responses.

Johnston has something else to say to argue that no Missing Explanation Argument applies to *being nauseating*: 'The sensation of nausea is located within our body, it is not experienced or presented as a feature of the rotten meat that is there anyway, independently of our feeling nausea in the presence of the meat. Nothing in the ordinary phenomenology of nausea encourages the idea that if we lost our capacity to feel nausea we would lose our access to a way the rotten meat is even when it is not producing nausea in us .... Bodily sensation, unlike external sensing and perception, is not a form of receptivity to the properties of external things' (1998, 23-4). But I cannot find any relevant difference in phenomenology between sensations of an ovoid shape, a red expanse, or nauseating meat; and even if it exists, it is neither here nor there. For there are two senses of the 'internal/external' distinction mixed up in Johnston's quotation, and at least the most relevant one does not help Johnston's case. There is firstly a literal spatial sense. In this sense, there is a distinction; I do not think it is enough to support Johnston's claim, but in any case it is irrelevant for us. It is true that feelings of nausea involve sensing property-instances located inside my body (say, the initial stages of the vomit reflex). However, in this very same sense the experience of shapes or colours can involve sensing properties located inside my body (in adequate circumstances, one could see coloured shapes located inside one's body). Hence, the fact that bodily sensations are involved in our experience of nauseating things seems to me neither here nor there.

If we consider instead a more relevant, metaphorical sense of the 'internal/external' distinction, experiences of the three types appear to present me with properties instantiated independently of my becoming aware of their instantiation in conscious experience. In the same sense that, phenomenologically, an expanse would remain being red or a shape ovoid even when one is not sensing them, phenomenologically

nauseating meat could remain being nauseating when it is not producing feelings of nausea in one. One can learn to control somehow one's feelings of nausea in the presence of nauseating meat. One can perhaps learn to focus one's imagination on something more pleasant in the presence of nauseating meat, and thus avert the feeling of nausea. Nauseating things do not affect people in the relevant ways equally at all times; it makes a difference, for instance, how emotionally close to one the producer of the nauseating item is. It is precisely because of reasons like this that reflective subjects familiar with scientific habits think that there should be non-trivial explanations of our nausea-reactions; and this is why we make sense of counterfactual possibilities such that, being suitable subjects standardly different from what we actually are, or suitable circumstances standardly different from what they actually are, nauseating rotten meat is not any more disposed to cause feelings of nausea to those suitable subjects under those standard circumstances.

If I am right, this is no accident of the examples. The fact that we have the notion that things can remain being nauseating, valuable, coloured, or shaped when we are not experiencing them as such; that they will remain so, even if we lost completely our disposition to experience them as such, and that we can think of counterfactual situation were the latter possibility become the norm instead of the exception, these facts are I think related to the way we think of these properties, and ultimately to our explanatory practices. They are related to the fact that we predicate them of material objects in the assertoric mode by means of simple predicates (i.e., saying *this is F*, as opposed to, say, *this seems to me to be F*). Thus, I take Johnston to be wrong in counting this as a response-dependent property relative to his own account; and this seems to me good reason to doubt that the account fares well relative to our criterion (C).[6]

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6 I do not question Johnston's intuition that 'rotten meat is not nauseating independently of our feeling of nausea'; my own proposal below captures this. But the point has little to do with the alleged phenomenological differences that Johnston appeals to; similar considerations could apply to colours.

3.

The way out from the difficulties occasioned by Johnston's account, as Wright sees, is rigidification: it is only *actual* responses of *actual* standard subjects under actual standard circumstances that matter. The modified analysis would then be: a property, *being F*, is response-dependent if there is some predicate 'is f' which expresses the property such that some substantial but commonplace way of filling out 'R', 'S' and 'C' makes (R-D$_a$) *a priori* and necessary:[7]

(R-D$_a$) x is f if and only if x is disposed to produce x-directed @-response R in all @-subjects S under @-conditions C

The problem with any proposal along this lines—as both Stroud (*op. cit.*, 135-7) and Johnston (*op. cit.*, 39) see, which is why, I guess, they resort instead to the flawed proposal we have just examined—is that it also fares poorly regarding our criterion (C), now because of the contrasting problem: paradigm cases of primary properties would count as response-dependent by any such account. For it seems that in the case of primary properties we can also find mental responses by *actual* standard subjects under *actual* standard circumstances, necessarily connected with them as stated in relevant instances of (R-D$_a$). Thus, if we just consider the necessity of the modified biconditionals, no asymmetry between shapes and colours is to be revealed.

Wright contends that it is the epistemic modality mentioned in the previous account, apriority, which captures the difference: 'no proposition whose necessity is owing entirely to actualizations can be known *a priori*. By contrast, the truth, if it is true, that the extensions of colour concepts are constrained by idealized human response—best opinion—ought to be accessible purely by analytic reflection on those concepts, and hence available as knowledge *a priori*' (*op. cit.*, 116-7). However, I do not think this suggestion works either.

Rigidification is a theoretical device for capturing the modal effect of descriptive material that, in Kripke's (1980) terms, merely 'fixes the

referent' of the predicate 'is f', instead of being 'meaning-giving'. Now, the connection between reference-fixing material and the entity referred to by means of it (on the assumption that there is any) is in my view known *a priori*.[8] Consider first the simpler case of an indexical like 'I'. According to views inspired by Kripke like Kaplan's (1989a), 'I' only makes a truth-conditional contribution when used in a context C, and its truth conditional contribution when used in such a context C is its referent. On these views, the referent is linguistically fixed to be whoever uniquely uttered a case of 'I' in C. By thus saying that the description 'whoever uniquely uttered a case of "I" in C' merely fixes the referent—instead of giving the meaning of that case of 'I'—the view captures the following semantic fact, corroborated by our intuitions: if we evaluate the truth-condition expressed by uttering a sentence including 'I' relative to counterfactual circumstances (or if modal expressions occurring in the sentence force this), then it is only how things are with whoever uttered the case in the context of utterance that matter, independently of whether or not the alternative circumstance includes the context with its unique utterer of a particular case of 'I'. The relevant context of utterance is a part of the actual world; therefore, it is only whoever *actually* uttered the case of 'I' in that context which individuates the asserted truth-condition.

Now, in spite of not counting the description as 'meaning-giving' in this sense, Kaplan's view is that the relevant proposition expressed by a case of 'I am whoever uniquely uttered that case of "I" in that context, if anybody uniquely is' (and other similar cases, like utterances of 'I am here now') is known *a priori*. It is reasonable to consider that proposition as a case of the contingent *a priori*; but the explicitly rigidified 'I am whoever actually uniquely uttered that case of "I" in that context, if anybody uniquely is' appears to express both an *a priori* and necessary truth, and its necessity is *due to rigidification*—under the present

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7 '@-x' stands for the proper rigidifications of the relevant substantive specifications.

8 To express my own proposal, later (section 6) I will appeal to a different way to understand rigidification; that may capture part of what Wright's quotation suggests.

assumption that this is just a way to theoretically capture the semantic role of the descriptive material associated with indexicals.

So-called *two-dimensional* semantic proposals (advanced in different guises by writers such as Davies & Humberstone (1980), Evans (1979) and Stalnaker (1978), among others) provide an interesting treatment of these matters. Consider necessary *a posteriori* utterances like 'water is H_2O' or 'he is John C. Smith'. For reasons given by Kripke (1980), these utterances express necessary propositions. We obtain these propositions if, to determine whether or not a possible world w belongs to them, we consider w *as (possibly) counterfactual*. The contribution made by 'water' and 'he', respectively, to each proposition is determined in the actual world, and we take this as already fixed when we come to determine whether or not w is one of the worlds with respect to which the utterance is true. However, there is a different proposition we could associate with those utterances; this proposition is contingent, and we could account for the *a posteriori* character of the utterance in terms of the contingency of this other proposition.

To obtain this epistemically contingent proposition, we fix only the 'character', or linguistic meaning, of the expression-types instantiated in the utterance; for our purposes, 'water' and 'he'. To determine now whether a possible world w is among those belonging to the proposition, considering this time w *as actual*, we use w first to determine the propositional import of the expression-tokens; and then to establish whether, thus interpreted, what the utterance says obtains at w. This so-called 'diagonal proposition' is, in the cases we are considering, contingent. For there are possible worlds where XYZ instead of H_2O is the colourless, odorless and tasteless drinkable liquid filling the lakes, rivers and oceans; and, with respect to those very same words, the utterance of 'water is H_2O' is false. Similarly, there are possible worlds where someone else than John C. Smith is the salient male when that token of 'he' in that very same context was uttered; if we evaluate with respect to them the proposition we obtain by interpreting the token also with respect to them (keeping the rest fixed), 'he is John C. Smith' is

false. Compatibly with Kripke's insight that the utterance is necessary, we explain the *a posteriori* character of the utterances in that our understanding of the expressions involved allows us to know merely these contingent 'diagonal propositions'. Necessary diagonal propositions correspond to *a priori* knowledge. If these proposals are along the right track, properly understood utterances of, say, 'he is whatever male was actually uniquely salient when that case of "he" was uttered, if anybody uniquely is' count as necessary and *a priori*.[9]

Suppose that we were entitled to assume that a predicate 'is f' signifying a primary property is nonetheless associated with 'reference-fixing' material, and also that that material includes the specification of mental responses which the instantiation of the property is disposed to cause in actual subjects under actual circumstances. It would follow then that some biconditional like $(R-D_a)$ is necessarily true, and known *a priori*.

When we consider concrete examples, the assumption seems correct. Few philosophers would be prepared to take, say, a straightforwardly Millian attitude regarding 'is water', even if they share Kripke's and Putnam's views that it rigidly designates a property whose nature we have come to know only *a posteriori*. Competent speakers know reference-fixing properties, and this is enough for them to know what they are talking about, even though they ignore what the nature of water is. In every context C in which we utter a token of 'water', we assume that there is a kind recognizable in paradigm applications of other tokens of 'water' with which that in C is conventionally linked as colourless, odourless, tasteless, falling from the sky as rain and filling up rivers, lakes and seas; and this fixes the property that we refer to, as that of instantiating the kind thus picked out. To the extent that counting as a fully competent user of 'water' requires fixing its referent in those terms, there will be a necessary *a priori* instance of $(R-D_a)$ for 'is water'; or—

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9 García-Carpintero (2006) develops the outlined interpretation of the two-dimensional framework, and defends it from some criticisms.

putting the point in two-dimensional jargon—there is an instance of (R-D_a), without rigidifiers in the descriptions, true in all possible worlds *considered as actual*.

What we have said about 'is water' applies also, intuitively, to other paradigm cases of primary properties. Kripke makes the analogous point that also the reference of 'is hot' is conventionally fixed relative to sensations of heat specified in certain circumstances. The same seems intuitively to apply to spatial or temporal properties, 'is circular', for instance. We can agree that we can only know *a posteriori* the true nature of the property designated by that predicate; for that requires to empirically choose among *prima facie* equally possibly correct geometries. But this is compatible with insisting that knowing of which property we are talking about requires relating the predicate, say, to the limit of what we visually recognize as more and more circular in perceptually adequate circumstances. The point seems intuitively correct even in the case of theoretical properties introduced by scientific theories, like 'is a black hole'. Being a competent user of these terms appears to require the capacity to fix what they refer to in terms not only of the relevant theoretical claims, but also in terms of their potential contextually available empirical applications.

This only shows that the assumption two paragraphs back that we are entitled to think that a predicate 'is f' that signifies a primary property is associated with 'reference-fixing' material involving cognitive responses in us is intuitively correct for particular cases. However, there also are general reasons for thinking that this should be generally correct. First, a view of primary properties along the lines of the Kripke-Putnam view of natural kinds has as a consequence that there are modal illusions (the illusion, say, that 'water is H_2O' is not necessary). By ascribing reference-fixing descriptive material to the predicates, we can explain the illusions, more or less along the same lines that Kripke (1980) indicates. Second, the suggestion provides a plausible form of the intuitions giving rise to dubious views like phenomenalism or verificationism. A predicate might well designate a property of material objects regarding which the

predicate allows us to form statements whose truth-values we ignore, and perhaps lack any means to ever come to establish. Still, for us to understand the predicate (for us to know what we are talking about), its use should rely on instances of the property producing, in contextually available situations, recognizable manifestations. This would be a form of the quasi-Fregean view that we could not be in a position to isolate in thought and language objective entities (particular objects, primary properties, natural kinds) unless the expressions signifying them were associated with descriptive material (playing at least a 'reference-fixing' role), specifying relations between the entities and our intentional states.

Both general rationales for the assumption are of course questionable, and this is not the place to defend them; fortunately, I do not need to. For present purposes, it is enough that the view seems correct concerning alleged paradigm cases of primary properties. It follows that the proposal we are currently considering, like Johnston's, fares rather poorly in view of our criterion (C).[10]

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The problem with (R-D_a) becomes more obvious when we consider a related difficulty, which actually leads Wright to weaken the previous

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10 Wright admits (*op. cit.*, 130-1) that instances of (R-D_a) for primary properties might be counted as known *a priori*. He says, however: 'no proposition whose necessity is owing entirely to actualizations can be known *a priori*'; and, right after this, he says that concepts of primary properties (and natural kinds) 'hold out hostages to fortune' that concepts of secondary properties do not thus hold out. This suggests that he is invoking two conceptions (or two 'degrees') of the *a priori*. The view might he put as follows. The necessity of biconditionals (R-D_a) is entirely an artifact of rigidification when they concern primary properties. For concepts of those properties still 'hold out hostages to fortune', and therefore the connections (known *a priori*, according to the two-dimensionalist explication) between properties and mental responses mentioned in the biconditionals do not suffice on their own to account for such necessity. The world has to cooperate, as it were; because of this, those connections would not be counted as known *a priori* in more traditional conceptions. The necessity of biconditionals (R-D_a), on the other hand, is not just an artifact of rigidification when they concern secondary properties; for in this case the *a priori* connections at stake do not hold out hostages to fortune. Once again, my own proposal below provides for a way of developing this suggestion, which seems to me intuitively on the right track.

proposal; for once weakened, it becomes even more doubtful in the light of what we are objecting to it. The problem is caused by 'finkish' dispositions (Martin, 1994), and it is particularly acute for a particular line of reductivist theorizing with antirealist leanings. This view opposes *de re* necessities: objective necessities, not reductively explainable in whatever subjective terms are found congenial. It would, for instance, provide reductive accounts of causal states of affairs in terms of counterfactual conditionals, hoping then to reductively explain the relevant counterfactual conditionals in terms of non-modal generalizations that have certain subjectively ascertainable properties, (say, predictive power, systematic integration, simplicity). Intuitively, most dispositions are causal powers: powers to cause the manifestation of the disposition, under certain conditions. Because of that, the view I am alluding to would try to provide a reduction of dispositions to counterfactuals, in the formerly indicated hope of accounting later for the remaining modality in more acceptable terms. This is the frame of mind for which Carnap's and Goodman's problem of dispositional terms arises.

Such an analysis would replace explicit reference to causal dispositions in an account like the one we are discussing by counterfactual conditionals in the biconditionals:

(R-D$_c$) x is f if and only if x would result in x-directed response R in all actual subjects S if they were under conditions C

An analysis along these lines is objectionable in that, intuitively, the dispositions in which a response-dependent property consists might be *finkish*. A finkish disposition D to M under conditions C (Martin, 1994; cp. Lewis 1997) is one such that, in some circumstances, although the disposition is had by x, the actualization of condition C causes x not to instantiate D any longer, and therefore not to issue M; or one such that, although it is not had by x, the actualization of C causes x to instantiate D, and therefore to issue M. It seems intuitively the case that, to the extent that C and D are just filled out in terms of ascertainable

conditions acceptable for an antirealist reduction, there are finkish dispositions; but, if so, the counterfactual analysis will not work.

For instance, it makes sense to think that a surface is white, even though, if it received ordinary daylight, it would not appear white to us (because daylight causes a relevant modification in the surface, as with photo-sensitive paper). Or consider the disposition some wires have of *being live*. In conditional terms, it would be analyzed by a conditional such as: if a conductor touched the wire, electric current would flow from the wire to the conductor. However, the following seems a perfectly conceivable possibility: a wire is dead; but it 'is connected to a machine, an *electro-fink*, which can provide itself with reliable information as to exactly when a wire connected to it is touched by a conductor. When such contact occurs the electro-fink reacts (instantaneously, we are supposing) by making the wire live for the duration of the contact' (Martin 1994, 2-3). Thus, the truth of the counterfactual conditional is not sufficient for the dispositional ascription. Johnston provides another example: a 'shy but powerfully intuitive chameleon which in the dark was green but also would intuit when it was about to be put in a viewing condition and would instantaneously blush bright red as a result' (Johnston 1992, 231). It seems thus that, if we restrict the concepts we might use in our substantive characterizations of the relevant actual subjects, responses and conditions to commonplace characterizations available for the project of antirealist reduction, we will always leave intuitively open the possibility of finkish dispositions; and therefore that, for such a reductivist philosopher, finkish dispositions are indeed a problem.

Given that Wright finds such a problem in them (*op.cit.*, 117-120), he weakens his analysis, resorting not to biconditionals but to 'provisoed equations' which only give conditions for application of response-dependent terms under the proviso that circumstances are normal:

(R-D$_p$) If C, then (it would be the case that x is f if and only if x would produce x-@-response R in all @-subjects S)

This is O.K. even if C, R and S are to be specified only in terms acceptable to the anti-realist. The problem now, of course, is that (R-D$_p$) does not say what has to be the case for the predicate signifying the response-dependent property to apply when conditions are not normal. Because of this, Wright assumes that the response-dependent property supervenes *a posteriori* on a physical basis, and that it is the instantiation of this physical basis that allows for the extension of the application of the predicate to non-normal circumstances. This makes the problem discussed in the preceding section even sharper. If it is on the basis of identity at the level of the supervenience bases that the application of the predicates is extended from cases where circumstances are standard to other cases, it is even more obvious that the relevant provisoed equations are also true of predicates signifying paradigm primary properties like shapes or solidity.[11] Wright claims (*op.cit.*, 120) that, provided that provisional equations hold, truth is '*partially* determined' by appropriate responses; but the same would apply to primary properties (provisoed conditionals are also true for them, and there exists a common physical supervenience basis for instances both meeting and failing to meet the condition in the provisoed conditional), which makes it clear that this proposal also fails to satisfy (C).

5.

Let us take stock. Neither an appeal to the metaphysical necessity of non-rigidified biconditionals (R-D$_n$), nor an appeal to the epistemic

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11 Alternatively, Wright's attempt discussed in the previous footnote at tracing the distinction between primary and secondary properties on the basis of whether or not 'hostages are held to fortune' cannot be made to work. For, on the interpretation there suggested, the distinction between ascriptions of response-dependent properties and ascriptions of primary properties would consist in that, unlike the former, the latter 'will not be defeasible by the discovery that there is no interesting physical unity in the class of objects to which they apply' (*op.cit.*, 131). But, if so, it appears to be possible that there be objects which are red, although they never come under standard conditions to produce the relevant response on the relevant subjects *nor* do they share any physical property with red objects which do come under standard conditions and produce those responses. What would account for this possibility? And, if that is not a real possibility (if red objects not actually placed in standard conditions to produce redness-responses *must* be physically identical to those which are), what remains of the difference between redness and solidity?

necessity of rigidified ones (R-D$_a$) makes proper theoretical sense of the intuitive distinction between primary and secondary properties, and this for deep reasons. The problem with the first suggestion is that we have good scientific reasons not to take dispositional properties in general, and paradigm cases of secondary properties in particular, as trivially specified across possible worlds relative to their commonplace characterizations, the standard effects they have in standard circumstances. Rather, we expect to have a more precise scientific characterization of the actual circumstances where instances of secondary properties do bring about their characteristic mental effects. Because of that, we take the commonplace generalizations associated with our conception of secondary properties (and dispositions in general) to be contingent, to allow for exceptions in metaphysically possible worlds. The appeal to the epistemic necessity of biconditionals (R-D$_a$), on the other hand, does not distinguish intended cases of primary properties from intended cases of secondary properties, because both paradigm cases of primary and secondary properties are linked *a priori* with actual responses in us, by means of which we gain a conception of them. And this seems to be required by general considerations on intentional contents: we cannot single out any properties in thought and language, no matter whether primary or secondary, unless we have a conception of them; and we form conceptions of natural properties on the basis of the cognitive impacts they have on us.

I think that these proposals go wrong in trying to reductively analyse essence in modal terms. The difference between primary properties on the one hand, and secondary properties on the other, lies simply in the following fact. Those cognitive responses that we know *a priori* to be connected with these properties and single them out for us *are not constitutive or essential* of primary properties; but they *are constitutive or essential* of secondary properties. Our problem is a case of one recently diagnosed by Kit Fine (1994, 1995a). We have been trying to reductively capture essence in terms of modality; but this cannot be done. An example that Fine gives is 'Socrates belongs to the singleton set

containing Socrates'. This is a necessary truth; but we do not want to count *belonging to the singleton set containing Socrates* as part of the essence of Socrates. (It is rather the other way around: having Socrates as a member is part of the essence of the singleton set containing Socrates; which is what accounts for the necessity of the truth that Socrates belongs to the singleton containing him.) Likewise, 'Socrates is not identical to Plato' is a necessary truth; but we do not want to count Plato as involved in the essence of Socrates. If p is a truth in virtue of the essence of an object, p will be, because of that, a necessary truth; but the necessity of a truth is not in any case sufficient for that truth being one in virtue of the essence of a given object. Similarly, the epistemic necessity of a claim (the 'diagonal proposition' corresponding to out biconditionals in the case of primary properties) does not suffice either for the truth being one in virtue of the essence of the relevant property.

According to Fine, the notion of *truth in virtue of the essence of O* is primitive; it cannot be reductively analyzed in modal or other terms. We know truths fitting this schema. As in other cases (the concepts of *set* and *membership*), we as theoreticians are not limited to acknowledge them. The truths about essence we think we know are systematically related; an interesting theoretical project in this regard is to capture this system. The usual way to do that proceeds by regimenting the truths in a formal system, by isolating some of them as axiomatic, and by providing a semantics for the formal system, striving to achieve reflective equilibrium with our pre-theoretical intuitions. Fine has done a lot in this direction, a crucial step in vindicating the otherwise suspect concept of essence (see Fine 1995b, 2000).

The solution to our conundrum is thus rather disappointing for the reductively inclined mind. In addition to distinguishing metaphysical necessity from apriority—as Kripke (1980) convinced us to do—the problem that has been bedeviling us lies in that we have overlooked to distinguisb essence from both modalities. In fact (as I have argued in García-Carpintero 1998a) I think that Kripke's main lesson lied in his insistence, against empiricist philosophers, on the ineliminability of *de re*

modality; and I think that to properly capture this lesson also requires distinguishing essence, a more fine-grained notion than metaphysical necessity, from epistemic modality. My final proposal is thus as follows. A property, Being F, is response-depeudent if there is some predicate 'is f' which expresses the property such that some substantial way of filling out 'R', 'S' and 'C' makes (R-D$_e$) *a priori* and true in virtue of the essence of Being F:

$(R\text{-}D_e)$ x is f if and only if x is disposed to produce x-directed @-response R in all @-subjects S under @-conditions C

The reference-fixing responses in us *a priori* associated with a secondary property are constitutive of the essence of the property; the property is, constitutively, a disposition to actually cause those responses. It is here that lies the 'subjectivity' which is also part of the traditional conception of secondary properties. For corresponding properties are not constitutive of a primary property; such a property is not constitutively a disposition to produce such responses.[12] Its essence is rather to be discovered *a posteriori*, although it is epistemically necessary that primary properties actually produce in us the responses. Compatibly with this, secondary properties and dispositions in general may have (non-constitutively, but necessarily) categorical bases known *a posteriori*, perhaps physical properties.[13]

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12 To the extent that our only motivation is to offer a proposal meeting (C), we could as well based an essentialist one on (R-D$_e$), as opposed to basing it on (R-D$_a$), as I have done. Thanks to Joseph Tolliver for pointing this out.

13 The proposal supports a claim by Stroud previously quoted: 'it makes no sense to suppose that a thumbscrew remains a painful instrument even if it would never cause pain to anyone to whom it is applied'. Given a modal analysis of response-dependence, taken literally the claim is refuted by the existence of counterfactual possibilities that Stroud shonld admit. No problem results if we read it as our proposal suggests—as stating the constitutive dependence of the painfulness of thumbscrews on the *actual* pain responses in *actual* people. It does not then contradict the possibility that, while in the actual world thumbscrews cause pain in human beings under standard conditions, in some counterfactual circumstances painful thumhscrews do not cause any pain in the there uaturally anesthetized only relevant subjects.

6.

The paper's title describes the present account as *non-modal*, following contemporary practice. If *essence* counts as a modality together with operators like *necessity*, the subjunctive and so on, however, the account is of course modal. This would accord better with philosophical tradition. Medieval philosophers would see Fine's proposal as granting that modal operators on propositional constituents are more basic that modal operators on propositions—after decades of taking the opposite for granted, on the spur of Humean or Tractarian motivations.

Be that as it may, my claim that it is a mistake to try to reductively capture response-dependence in an independent modal idiom does not mean that the idea lacks modal consequences, in the standard conception of them; but the modal consequences it entails should be carefully stated, if we want to trace the distinction between primary and secondary properties in terms of them. Let me put it firstly impressionistically. Because pain actually caused is constitutive of the painfulness of thumbscrews, we can think of possible worlds were painful thumbscrews do not cause any pain *only on the assumption that these worlds are counterfactual*: assuming that in the actual world painful thumbscrews cause pain on standard subjects, it is conceivable that in non-actual worlds they do not do so. When a response is not only *a priori* connected with a property, but it is constitutive of it, we can still coherently conceive possible situations were the property is instantiated without producing the response; but this conception is *counteractual*, necessarily made on the assumption that the actual world is not like that.[14] When a response, even if *a priori* connected with a property, is not constitutive of it, we not only can coherently conceive possible situations were the property is instantiated without producing the response; but also that, for all we are saying, the actual world might well be one of those situations. If pain actually caused were not constitutive of the property (if it were primary),

we could think, not just of possible worlds such that thumbscrews do not cause pain, but it would be compatible with the content we are asserting to take the actual world as one of them. Johnston's claim that the nauseating character of rotten meat is not there 'independently of our feeling nausea in the presence of the meat' would be correct if understood as making this point.

Contemporary semantic explanations of rigidification allow us to capture the modal distinctions I have been trying to make in the preceding paragraph. Kaplan (1989a y 1989b) distinguishes two ways to rigidify a description *the F* associated with an expression *e*.[15] One uses the indexical 'actual' to form a description: *the actual F*, the rigidified description being synonymous with *e*. The second makes use instead of the operator 'dthat': *dthat(the F)*. Semantically, these procedures are not equivalent. 'Dthat', and the descriptive material on which it operates, behaves like a complex demonstrative; while 'the actual F' behaves rather like a definite description. Kaplan's 'dthat' operator theoretically captures the semantic role of descriptive material that merely 'fixes the referent' of a genuinely referring expression *e*; no description (not even a rigidified description) is synonymous with *e*. The relevant difference between the two procedures is therefore this. Consider assertoric utterances of sentences like *the actual F is Q* and *dthat(the F) is Q*. In the first case, the descriptive material *actual F* is part of the asserted proposition; in the second, it merely 'fixes the referent', while only the referent itself becomes part of the asserted proposition.

To appreciate the difference, consider the analogous case of more intuitively accessible aspects of the descriptive meanings of indexicals and demonstratives other than 'actual'. Imagine that A asserts in context C 'you are hungry'; on the two accounts, the case of 'you' uttered in C is associated with a description determining its referent as the addressee when the case was uttered. However, on the 'reference fixing' view, the

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14 For more on counteractual possibilities, together with a criticism of two-dimensionalism based on it (which I think can be resisted), see Yablo (2006).

15 Soames (2002, 39-50) provides useful elaboration on the two ways, which has been influential on what follows.

asserted content does not involve such a case of 'you'; only the referent itself. Thus, someone else might make in a different context a speech act with that same content (or take a propositional attitude towards it) *without referring to the case of 'you' uttered in C*. If the description is meaning-giving, this cannot be so; for someone in another context to make an assertion with the same propositional content, a reference has to be made to the case of 'you' uttered in C. It is in part the fact that we find this intuitively implausible (i.e., that we take for granted that we can assert the same content that A asserted in C with 'you are hungry' without having to refer to the case of 'you' that A used in C) which, theoretically elaborated, supports a 'reference-fixing' account of the descriptive content of indexicals like 'you'.[16]

Consider now the role of 'actual' or 'actually' in the descriptive material we are contemplating. Given that these expressions work like corresponding indexicals, contextually referring to the possible world that includes the context, the point just made applies to their content, the actual world. Given a meaning-giving view of descriptions including them associated with an expression *e*, any content asserted using *e* involves reference to the actual world; not so, given a merely reference-fixing view of those descriptions. This applies whether we consider embeddings under alethic or epistemic modalities. We can thus theoretically capture the modal difference between primary and secondary properties expressed in the previous paragraph by these means: the rigidification affecting primary properties derives from the application of the operator 'dthat' to the descriptive material associated *a priori* with the property, while in the case of secondary properties it derives from the use of the indexical 'actual' to obtain a synonymous

description.[17] The actual world itself is thus a constituent of propositions expressed by sentences including expressions for secondary properties, but need not be of those expressed by sentences including expressions for primary properties.[18]

I should stress that this semantic elucidation of the primary/secondary distinction has a rather limited scope. It is the previous explanation in terms of essence that allows us to understand the semantic apparatus, not the other way around. The distinction between expressions synonymous with rigidified descriptions and expressions with merely reference-fixing associated descriptions rigidified by the 'dthat' operator is the distinction between expressions constitutively allowing us to assert genuinely *de re* necessities, and those that do not. And this distinction is ultimately to be understood in terms of the primitive truths in virtue of essence we appealed to for the non-illuminating explication in the previous section.

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16 In these paragraphs, I have taken for granted controversial and partly idiosyncratic views about the behaviour of indexicals, which I have argued for at length elsewhere; see in particular García-Carpintero (1998b) and (2000). Given that a full defence is out of the question here, I have just tried to make the view sufficiently understandable, hoping that the interested reader will look for some arguments in those other papers.

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17 The rigidification of 'commonplace' properties is also intended to capture the epistemic properties of the account, its being knowable *a priori*. It is an open possibility, of course, that empirical research would allow us to state, in a general way and without reference to actual individuals and their circumstances, the conditions required for the manifestation of the relevant response-dependent properties. This would capture the intuition that they are necessarily existent properties, properties not contingent on the existence of actual individuals.

18 We can perhaps interpret in these terms Wright's view that the necessity of the biconditionals relative to primary properties is 'entirely due to rigidification' and therefore is not, in some sense, really known *a priori*; for we hold ont more hostages to fortune in our presumption that a given concept refers to a primary property, than by conceiving the referred property as secondary. In thinking of a property as primary, we presume that it has an essence to be discovered *a posteriori*; this might prove wrong. In conceiving a property as secondary, its only principle of identity lies in its manifest character, in the responses it disposes to cause to the entities having them. As I have insisted, we still hold out hostages to fortune in making assertions abont secondary properties; we are in fact presuming that a certain causal law holds in the actual world. Under some circumstances, we could still come to the conclusion that the property does not exist. (There is no such property as *being caloric* even if we think of it as a dispositional response-dependent property; there is nothing in the world that satisfies the basic propositions constitutive of our concept of such property.) But there is no reason to think that the property does not exist only because it proves to be 'multiply' and variegatedly realized.

7.

For the present account to be correct, it should fare better relative to our criterion (C) than the alternatives; i.e., it should provide a framework in which we can make better sense of traditional arguments by Democritus, Galileo or Locke that colours, sounds and so on differ ontologically from shapes, forces and so on, whether or not we accept those arguments.

How do those traditional arguments go? Here I can only sketch what I take to be the main one, borrowing from Evans (1980, 268-272), who provides some interesting suggestions on the distinction between secondary properties (or *sensory properties*, as he calls them) and primary properties. Because primary properties are sensible or observable by us, he notes, they also involve as a matter of fact some relation to cognitive responses to them in us; but this does not mean, he contends, that they are sensory properties. This is of course in agreement with my main contention against Wright's account. Primary properties are such that a 'theoretical [...] grasp of them rests npon implicit knowledge of a set of interconnected principles in which they are employed', 'which make up an elementary theory—a primitive mechanics—into which these properties fit, and which alone gives them sense' (Evans 1980, 269). I find this very much congenial, for it is in agreement with my assumption that predicates for primary properties are associated with reference-fixing descriptions. I do not think, however, that this is enough to distinguish primary from secondary properties; because I think that grasp of colours, even if they are secondary, also involves implicit knowledge of a set of interconnected principles. Evans suggestion is nonetheless interesting. The initial idea is that our intuitive conceptions of both alleged paradigm cases of primary and secondary properties (which, as I have said in reply to Johnston, are indistinguishable at this intuitive plane) consist in tacit belief of a series of interconnected principles; principles, among other things, establishing non-negotiable relationships among the intended referents that any candidate should satisfy, to count as such.

This allows us to see how there could be reasons to think that properties like colours should be constructed as secondary on the present account. In the case of shapes or force-related properties, the assumption that they (the very same properties we perceive, on the basis of sensory responses they produce on us in standard circumstances) have essences to be discovered *a posteriori* appears so far to be justified, for all we know. By having recourse to scientific findings, we can hope to give characterizations of those properties that appear to have some chances, relative to what we now know, of being correct; i.e., of meeting the conditions imposed on them by the tacit theory. In the case of colours or sounds, however, given what we now know, a case can be made that the corresponding claim would be difficult to maintain.

Take colours. Even dispositional properties like reflectances fall short of satisfying acceptable requirements for counting as the properties we perceive. Among the colours we perceive, four of them are pure; but no set of reflectances are thus non-arbitrarily distinguishable. It is only the colour-sensations (of particular individuals at particular stages in their lifes) that are pure; colours could only count as such if they are constitutively dispositions to produce those colour-sensations. Other similar non-negotiable requirements which do not appear to be satisfied by independently specifiable properties include: that the properties responsible for the appearance that we are confronted with the same colour, in different but still normal circumstances, are indeed the same (so-called metamers falsify this); or that facts about colour-properties explain the commonalities in the chromatic vocabulary of otherwise unrelated linguistic communities.

In Evans' terms, the primary/secondary distinction lies in that any set of principles which provides an accurate conception of secondary properties essentially involves facts concerning cognitive responses in us; while in the case of primary properties, it is possible to have a correct conception of them not involving such facts. Although it might look otherwise at first sight, I do not take this characterization to be an alternative to the proposal I have made. For to say that it is possible to

have a *correct* conception of a property which does not involve facts about cognitive responses in human beings is only another way of saying that the property has an essence independent of those responses. And, on the other hand, if any correct conception of secondary properties must involve facts about cognitive responses, this is because of the sort of motivation suggested in the previous paragraph to conclude that a predicate designates a secondary property; namely, that aside from the responses, nothing independent can be found in the world satisfying the non-negotiable interconnected principles constitutive of our implicit conception.

The argument just outlined was not intended as a full-fledged defence of claim (I). I am well aware that much more should be done for that.[19] A rather obvious manifestation of it is that on the basis of similar considerations, it could be argued that the shapes and force-related properties that we observe are not primary either. For all properties we can be said to observe are vague; but vagueness is not easily considered a feature of objective properties.[20] My goal was only to make it clear that an acceptable non-modal elucidation of the distinction between primary and secondary properties makes a defense of claim (I) in principle more feasible than the modal alternatives we have contemplated so far. These alternatives had the consequence that the primary/secondary distinction is not instantiated by the usual examples; either all count indistinctly as primary, or all count indistinctly as secondary. Moreover, these consequences were rather obvious, and based on non-accidental, deep facts immediately related to the relevant accounts of the distinction. It is therefore difficult to understand how anybody could maintain that the distinction is instantiated by the traditional examples, if the proposals provide correct elucidations of the kind of distinction they had in mind. The constitutive account lacks this problem; it suggests a promising line of argument that can be invoked to sustain the instantiation of the distinction, as traditionally understood. Perhaps the claim proves ultimately to be wrong, but this is not obvious. In this way, the present proposal fares better relative to our initial criterion (C) than the modal proposals we have been considering.

In the present proposal, empirical findings are required to sustain claim (I); but this is as it should be. It was on the basis of empirical beliefs, not far away from the considerations of a disparity between the scientific and the manifest images that I have outlined (even if of course based on the science of their times), that Democritus, Galileo, Descartes and Locke defended claim (I). Moreover, this agrees well with the relatively more sophisticated nature of the propositions that, according to the theoretical reconstruction offered on section 6, are expressed by sentences including terms for secondary properties. The natural (naïve) attitude would be to take all properties signified by the kind of terms we have been considering to be primary. This is also in agreement with the views of the philosophers just mentioned.

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19 See Cohen (2004) for a recent forceful elaboration of considerations akin to the ones suggested before. Cohen invokes them to defend 'relationalism', but he makes it clear that he only wants to defend specific forms in which colors are relations to subjects (fn. 8, 494). (Cohen's characterization of the distinction between relationalism and nonrelationalism, pp. 453-4, suffers from the difficulties I have been pointing out.)

20 See, in addition, Akins's (1996) considerations on narcissistic properties; but in my view, and against Akins, the facts she mentions are compatible with the view that properties sufficiently close to the shapes and force-related ones we do perceive are primary.

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