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Cornell Realism, Explanation, and Natural Properties*

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Abstract: The claim that ordinary ethical discourse is typically true and that ethical facts are typically knowable (ethical conservativism) seems in tension with the claim that ordinary ethical discourse is about features of reality friendly to a scientific worldview (ethical naturalism). Cornell Realism attempts to dispel this tension by claiming that ordinary ethical discourse is, in fact, discourse about the same kinds of things that scientific discourse is about: natural properties. We offer two novel arguments in reply. First, we identify a key assumption that we find unlikely to be true. Second, we identify two features of typical natural properties that ethical properties lack. We conclude that Cornell Realism falls short of dispelling the tension between ethical conservativism and ethical naturalism.

Many of us desire a meta-ethical position that allows us to take ordinary ethical discourse seriously. It seems to those of us, that is, that much of what we say about right and wrong or good and bad, for example, is *true*. Even more, it seems to those of us that we typically *know* many of these truths. What many of us desire, in other words, is a meta-ethical position that sees our ordinary ethical discourse as tracking important features of an accessible reality, as opposed to seeing it as some kind of mistake, mystery, or fiction (however useful). As we will put it, this is a desire for conservativism about ethical discourse, or *ethical conservativism* for short.

Many of us, just as much, desire a meta-ethical position that respects the success of scientific inquiry. It seems to those of us, that is, that certain scientific explanations are the most impressive and secure examples of knowledge of the world around us, and that we are thereby required to conform our methods of inquiry and the ontological commitments of our theories to its methods and commitments. Put a bit differently, it seems that the correct scientific account of the world has a special kind of privilege: the methods it deploys, and the entities that it requires—which we will hereafter refer to as *natural*—are the ones that we have most reason to employ and believe exist. What those of us desire, then, is a meta-ethical position that does not commit us to non-scientific (non-natural) methods and entities. As we will put

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it, this is a desire for naturalism about ethical discourse, or *ethical naturalism* for short.

Ethical conservativism and ethical naturalism, however, seem in tension. We see this when we notice that ordinary ethical discourse seems on its grammatical surface no different than other familiar kinds of discourse about the world. Just as the claim 'cars are heavy' seems to predicate the property 'heaviness' to the object-type 'car', the ethical claim 'murder is wrong' seems to predicate the property 'wrongness' to the act-type 'murder'. Since ethical conservativism is committed to much of such discourse being true, it seems it is thereby committed to the existence of some such property as 'wrongness'.[1] And since ethical conservativism is also committed to much of such discourse being an expression of bits of knowledge, it seems it is thereby committed to some sort of successful cognitive access to the property of 'wrongness' as well. But 'wrongness' seems non-natural: it does not seem to be the kind of entity that is required for scientific explanations, and scientific methods of inquiry seem incapable of producing knowledge about it.

We here focus on one attempt to dispel this apparent tension. According to the meta-ethical position sometimes referred to as *Cornell Realism*, ethical properties are natural properties on a par with the properties that we find current in the sciences (cf. Sturgeon 1985, Boyd 1988, and Brink 1989). If so, then the fact that ordinary moral discourse predicates 'wrongness' is no more worrisome than the fact that scientific discourse predicates 'positive charge'. Though this suggestion has been criticized in different ways, an important weakness has yet to be properly exploited. In short, our claim is that there are important differences between scientific and moral explanations, such that only the former have privileged ontological insight.

Here is how we proceed. In the first section, we discuss philosophical naturalism more broadly, and J. L. Mackie's particularly influential articulation of the tension between ethical naturalism and ethical conservativism. What we will call *Mackie's Challenge* is, roughly, the claim that this tension simply cannot be dispelled: if one desires to be an ethical naturalist, then one best be ready to place ethical conservativism to the side. In the second section, we explain how Cornell Realism attempts to dispel that tension by claiming that ethical properties are natural properties. In

[1] This is a condensed version of what we can call the *surface-grammar* argument for the claim that ethical discourse is committed to properties such as 'wrongness' or 'goodness'. See Brink (1999: 196-99), Shaffer-Landau (2003: 23-6), and Cuneo (2006).

the third section, we offer an undermining argument: even granting them their central claims, Cornell Realists have not yet shown that ethical properties are natural. In the fourth section, we offer a rebutting argument: typical natural properties have certain features that ethical properties lack, giving us good *prima facie* reason for thinking that ethical properties are non-natural. We conclude that Cornell Realism falls short of dispelling the tension between ethical conservativism and ethical naturalism.

1. Wide Naturalism and Mackie's Challenge

When we consider the achievements of the scientific project—the explanatory power of molecular biology or modern chemistry, for example—the achievements of other kinds of inquiries seem to pale in comparison: none seems to rival the scientific progress towards consensus and increasingly accurate predictions. Philosophical naturalists take these achievements seriously. That is, they take seriously the fact that attention to certain kinds of features of the world, by way of certain tools and methods, has given rise to powerful explanations. As Hilary Kornblith (1994: 49) has put it:

> What does have priority over both metaphysics and epistemology, from the naturalistic perspective, is successful scientific theory, and not because there is some *a priori* reason to trust science over philosophy, but rather because there is a body of scientific theory which has proved its value in prediction, explanation, and technological application.

More importantly, philosophical naturalists believe that this priority of successful scientific inquiry should be reflected in the ontological commitments of our philosophical theories—their commitments as to what exists and as to what relations those things bear to one another. This is what we will call *wide naturalism*: the view that the ontological commitments of our theories should be in accordance with the ontological commitments of the correct scientific account of the world. Since we are using the term 'natural' to simply mean those entities required by the correct scientific account of the world, wide naturalism is therefore the claim that our ontological commitments should be consistent with the natural entities that exist.[2]

[2]For simplicity and brevity, we will not discuss important dimensions of the debates that follow, including (i) what it means to be 'in accordance with' a certain account or to be 'consistent with' certain entities, (ii) how to determine the ontological commitments of scientific theories, and (iii) the distinctly epistemological constraints imposed by wide naturalism.

We call this view wide naturalism since it leaves *wide open*, so to speak, what our ontological commitments should actually be—that is, it does not give us a list, or something equally useful, indicating which are the natural properties. According to wide naturalism, *whatever* the entities required by the correct scientific account of the world, those are the natural ones; and *whatever* the entities in tension with that account (in some suitable sense of 'tension') those are the non-natural ones, the ones to be avoided by our philosophical theories. Wide naturalism, then, is not the view that our ontological commitments should be in accordance with the ontological commitments of our current scientific account of the world (it is not the view that natural properties are the properties that figure in our current science). Wide naturalism is rather the view that our ontological commitments should be in accordance with the ontological commitments of the correct scientific account of the world, whatever that turns out to be.

Though important as the ground of philosophical naturalism, wide naturalism by itself does not provide us with a helpful way to divide philosophical theories into naturalistic and non-naturalistic. But wide naturalism in conjunction with current scientific *knowledge* does. Because our current scientific knowledge, for example, includes facts about the relationship between temperature, pressure, and the states of several substances, we have good reason to believe those facts will be part of the final, correct scientific account of the world (say, that H_2O will be in a gas state when heated above 100 °C under certain kinds of atmospheric pressure). What we have good reason to believe, in other words, is that the entities that are required by such pieces of scientific knowledge are natural by wide naturalist standards. So while wide naturalism leaves it in principle wide open which philosophical theories are deemed naturalistic, its conjunction with our ever increasing scientific knowledge *narrows down* the naturalistically permissible options by determining whether certain entities are truly natural or not. Though few would deny that wide naturalism has already widened-in or narrowed-out certain entities as natural and non-natural—hydrogen is already in, for example, while life-forces and phlogiston are already out—there is some disagreement with respect to other alleged widenings and narrowings. To be a philosophical naturalist in general, and an ethical naturalist in particular, then, is first and foremost to be a wide naturalist, and to then couple one's wide naturalism with the supplementary widening and narrowing commitments one finds most plausible.

We owe to J. L. Mackie, in fact, the influential articulation of a challenge stem-

ming from the conjunction of plausible assumptions in the philosophy of language and a particular narrowing commitment. We will call it Mackie's Challenge:

> **Mackie's Challenge (MC):** If ethical naturalism is true, then ethical conservativism is false.

Notice that wide naturalism by itself does not entail MC. Nevertheless, Mackie thought MC was true for the following two-stage reason. First, according to Mackie (1977: 38), the truth of ordinary ethical discourse requires the existence of 'objective values'. Here we see Mackie in agreement with the *surface-grammar* argument outlined in the introduction, even if his particular understanding of what it means for something to be an objective value is notoriously convoluted.[3] Secondly, for Mackie (1977: 38), objective values are 'entities or qualities or relations of a very strange sort, utterly different from anything else in the universe'.[4] Put a bit differently, Mackie here means that our current scientific knowledge has already narrowed-out objective values: nothing in our scientific knowledge countenances, for example, 'to-be-doneness' in the world. If Mackie is correct in both these ways—so that ordinary ethical discourse requires entities utterly different from anything in the natural world—then there is in fact a metaphysical tension between ethical naturalism and ethical conservativism: any version of the latter requires the existence of entities of a kind unacceptable by the former.[5]

Our focus in what follows, however, is more narrow than a full discussion of the merits of MC: our focus is on whether Cornell Realism (CR) has the resources for

[3]Consider a helpful bit of book-keeping by Alexander Miller (2003: 116): '[According to Mackie,] to call a requirement objective is to say that it can be an object of knowledge (24,31,33), that it can be true or false (26,33), that it can be perceived (31,33), that it can be recognized (42), that it is prior to and independent of our preferences and choices (30, 43), that it is a source of authority external to our preferences and choices (32, 34, 43), that it is part of the fabric of the world (12), that it backs up and validates some of our preferences and choices (22), that it is capable of being simply true (30) or valid as a matter of general logic (30), that it is not constituted by our choosing or deciding to think in a certain way (30), that it is extra-mental (23), that it is something of which we can be aware (38), that it is something that can be introspected (39), that it is something that can figure as a premise in an explanatory hypothesis or inference (39), and so on.'

[4]This is the *metaphysical* dimension of Mackie's famous argument from queerness. The *epistemological* dimension concerns 'the difficulty of accounting for our knowledge of value entities or features and of their links with the features on which they would be consequential' (Mackie 1977: 49).

[5]See Smith (1994) for discussion of Mackie's two-stage argument. See Joyce (2007) for an evolutionary restatement of Mackie's Challenge. See Brink (1989: 171-80) for the reply that objective values are not as objectionable as Mackie seems to think. The strength of Brink's argument, however, depends on the claim that moral properties are *natural*. Since our worry here is the justification of this very claim, Brink's reply to Mackie, though important, is presently besides the point.

rejecting it. We have the following argument in mind:

> **CR Against MC:**
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> 1. Ethical properties are natural properties.
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> 2. If ethical properties are natural properties, then MC is false—that is, a commitment to ethical properties does not entail a commitment to entities unacceptable by wide naturalism, plausibly narrowed.
>
> C. So, MC is false.

Even more exactly, our focus is entirely on premise 1. In the next section, we will explain the Cornel Realist (CRist) defense of premise 1, and in the rest of the paper we will be critical of that defense. Our conclusion will be that MC continues as a thorny problem for ethical naturalists interested in ethical conservativism.

2. Cornell Realism

CR claims that ethical properties are themselves natural properties. More exactly, CR claims that moral properties supervene on, but are not reducible to, non-moral properties. As Nicholas Sturgeon (1985: 239-40) puts it:

> Naturalism is in one clear sense a "reductionist" doctrine of course, for it holds that moral facts are nothing but natural facts. What I deny, however, is that from this metaphysical doctrine about what sorts of facts moral facts are, anything follows about the possibility of reduction in another sense... more familiar from the philosophical literature: that is, about whether moral expressions can be given reductive definitions in some distinctive non-moral vocabulary, in which any moral explanations could then be recast.

Notice that the sense in which CR is 'reductionist' is idiosyncratic: it does not hold that ethical statements can be either analyzed or paraphrased into non-ethical statements. Instead, CR claims that ethical statements are semantically meaningful and have ontological commitments of their own. We define it as follows:

> **Cornell Realism (CR):** For any moral term M, M picks out an ethical natural property that supervenes on, without being reducible to, some distinct non-ethical natural property (or properties) N.

If CR is true of all ordinary ethical discourse, or perhaps of a significant portion of it, then premise 1 of *CR Against MC* is true.

Non-reductionism in the philosophy of mind provides a useful analogy. Non-reductionists claim that the property of 'being in pain', for example, supervenes on, without being reducible to, neurophysiological facts (cf. Putnam 1967 and Fodor 1974). Analogously, CR claims that the property of 'being wrong', for example, supervenes on, without being reducible to, non-ethical properties. And just as non-reductionists hold that painess-claims are ontologically committing to the supervening property 'being in pain' instead of only to the neurophysiological supervenience base, CR holds that wrongness-claims are ontologically committing to the supervening property 'being wrong' instead of only to the non-ethical supervenience base as well. For CR, then, though ethical properties supervene on non-ethical properties, they are semantically irreducible: when we correctly say that 'murder is wrong', we are in fact correctly ascribing to the act-type 'murder' the ethical property 'being wrong'.

But what reason do we have for thinking that irreducible ethical properties such as 'being wrong' are themselves natural? The CRist answer is that ethical properties are natural properties since they play roles in what we will call *legitimate* and *valuable* explanations. Sturgeon offers two examples of ethical-properties playing roles in legitimate explanations. The first is an example of how facts about 'good and bad character' play such a role. The second is an example of how facts about 'rightness and wrongness' play such a role as well. Consider Sturgeon (1985: 234) on the former:

> We find it easy... to conclude from the evidence not just that Hitler was not morally admirable, but that he was morally depraved. But isn't it plausible that Hitler's moral depravity—the fact of his really having been morally depraved—forms part of a reasonable explanation of why we believe he was depraved? I think so.

The idea here is that *one* legitimate explanation for the non-ethical fact that we believe that Hitler was morally depraved is the ethical-fact that Hitler was morally depraved.[6]

[6]More precisely, one legitimate explanation for the non-ethical fact that Hitler behaved as he did is the ethical-fact that Hitler was morally depraved, and since one legitimate explanation for why we believe that Hitler was morally depraved is the fact that Hitler behaved as he did, one legitimate explanation for our belief requires the former ethical-fact. This forms the following general pattern,

There are two reasons for this. First, the ethical fact that Hitler was morally depraved is causally efficacious: it inherits causal powers from its supervenience base. Second, there exists a relation of counterfactual dependence between that ethical fact and the non-ethical fact that we believe that Hitler was morally depraved.[7] (These are jointly sufficient conditions, but not jointly necessary for being a legitimate explanation.) According to Sturgeon, then, 'moral depravity' is an example of an ethical property that plays a role in a legitimate explanation since the following is false: 'had Hitler not been morally depraved, we would still believe he was' (cf. Sturgeon 1985: 245-6).

According to CR, the same treatment is available to the ethical terms required by large portions of ordinary ethical discourse: the irreducibly moral entities they require do real explanatory work. Of course, others have offered competing explanations of the same non-ethical facts (our belief in Hitler's depravity, for example) that do not make reference to any ethical facts. So what reasons do we have for thinking that these admittedly legitimate explanations are either somehow valuable or the best around? In particular, why not think that one can explain the same non-ethical facts in terms of the supervenient base of these ethical facts, so that the ethical-facts become unnecessary for our explanations?

Here the reply is that these explanations produce the resources required for certain correct inductions. Consider again an analogy with the irreducible property of 'being in pain'. One would be hard pressed to adequately explain every single instance of someone being in pain without reference to the property 'being in pain' since there are many different supervenience bases, and no limit to the possible combinations that could instantiate it. Putting the point a bit differently, if we constrain ourselves to the resources of a supervenience-base explanation, then we lack the resources required to see all pain-phenomena as somehow unified. Importantly, we would then lack the resources to carry out inductions of the kind 'I think he will stop running because he is in pain.' After all, although we have observed the

as Sturgeon (1985: 243-4) puts it: 'cases in which we cite someone's moral character as part of an explanation of his or her deeds, and in which that whole story is then available as a plausible further explanation of someone's arriving at a correct assessment of that moral character'.

[7] Originally, Sturgeon (1985) claims that the legitimacy of such explanations rested solely on the condition of counterfactual dependence. But Harman (1986: 60-3) pressed the challenge that this was not enough; one must also have an adequate *explanation* for that dependence. This is why Sturgeon (1986: 74-5) added this first condition of causal efficacy: just like the irreducible psychological properties supervening on physical facts inherit causal powers through the supervenience relation (your *pain* causes you to stop running) ethical-facts become causally efficacious in the same way.

behavior of many people in pain, we have not observed the behavior of many people with that same particular supervenience base. According to CR, things are similar for ethical-properties. Though we might try to avail ourselves of explanations that do not make reference to ethical-properties, doing so robs us of the resources to see a certain class of phenomena as unified (cf. Boyd 1988: 197, and Brink 1989: 194-5). It is only when we avail ourselves of the property 'depraved moral character', for example, that we become capable of inductions of the kind 'I think she will behave thus-and-so in this situation because she has a depraved moral character', even if that situation is completely unique. So not only are ethical properties part of legitimate explanations, they are part of *valuable* and legitimate explanations: legitimate explanations that we would be impoverished to do without since they produce the resources needed for accurate inductive work.

According to CR, in short, ethical properties supervene on non-ethical properties but are not reducible to them since they play roles in legitimate and valuable explanations. Since wide naturalism, plausibly narrowed, does not insist that supervening non-ethical properties that play roles in legitimate and valuable explanations—psychological and biological properties, for example—should be ontologically reduced to their supervenience base or semantically 'explained away' via analysis or paraphrase, wide naturalism, plausibly narrowed, similarly should not insist that ethical properties that earn their keep in legitimate and valuable explanations should be reduced or explained away either (cf. Sturgeon 1985: 240-1).[8] The fact that a property plays a role in legitimate and valuable explanations, that is, is good enough reason to think that it will be part of the correct scientific account of the world. If this is right, then CR has carved-out an interesting version of ethical naturalism that seems well-suited to meet Mackie's Challenge. That is, premise 1 of *CR Against MC* seems true.

3. The Undermining Challenge to CR

We here concede to CR their controversial claim that ethical properties play roles in legitimate and valuable explanations.[9] Our claim is that even if ethical properties

[8]Some wide naturalists, of course, have particularly strict narrowing commitments which exclude even the psychological and biological properties being appealed to here as an analogy. See, for example, Rosenberg (2013).

[9]There are many serious challenges to these claims. Specifically, see Jaegwon Kim (1993: 237-65) for a challenge to the legitimacy of explanations by way of supervening properties, and see Michael Rubin (2008: 518-25) for a challenge to the inductive value of the property of 'being good' (or, at

play such roles, this is not yet enough to show that ethical properties are natural.

As we see it, the CRist is only entitled to the first premise of *CR Against MC* if the following claim is true as well:

> **The Key Assumption (KA):** If ethical properties play roles in legitimate and valuable explanations, then ethical properties are natural properties.

It is only if KA is true that showing that ethical properties play roles in legitimate and valuable explanations shows that they are natural. But is it true? This is not a trivial question, and our first argument in this section is that KA needs to be positively defended, as opposed to simply assumed. We then offer three reasons for thinking that KA is false. Notice that our aim in this section is modest: we aim merely to undermine premise 1 of *CR Against MC* by showing how, even after conceding all that previous debates have challenged about CR, one of its key assumptions remains in dire need of a so far non-existent defense.

To sharpen our focus by way of contrast, we begin by noticing a recent challenge posed to naturalistic moral realism in general by Charlie Kurth (2013). Somewhat like us, Kurth is interested in alleged similarities between moral and scientific explanations, and in the metaphysical implications that these may carry.[10] Nonetheless, there are two important differences between Kurth's arguments and ours. First, Kurth's argument focuses on the following three features of moral practice: the belief-independent nature of moral explanations, the possibility of genuine moral disagreement and error, and the apparent fact of moral progress. By contrast, our focus is on a more general feature of moral explanations: being legitimate and valuable (in the senses articulated just above).

The second and most substantial difference is that Kurth's target is an abductive inference which he thinks is illicit. The naturalistic moral realist, like the scientific realist, takes it that the three features mentioned just above are best explained by a realist construal of the relevant discourse. As Kurth (2013: 55-62) sees it, however, this inference is illicit in the moral case since a version of moral constructivism predicts the very features of moral practice that are supposed to stand as evidence for realism. Kurth's argument is no doubt interesting, but it requires a hefty assumption

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least, to Boyd's account of it).

[10] Strictly speaking, Kurth does not focus exclusively on explanations, but on moral and scientific "practices" instead. His targets, to be exact, are three abductive arguments for naturalistic moral realism that mirror abductive arguments for scientific realism.

that we avoid: that moral constructivism is a plausible meta-ethical alternative in the first place—in fact, at least as plausible as naturalistic moral realism, otherwise naturalistic moral realism remains a better explanation of the data. This assumption is required since simply identifying rival hypotheses that can predict the same data is insufficient to undermine a certain abductive inference. (Simply identifying the rival hypothesis that the world has been created 5 minutes ago so as to appear quite old, for example, is insufficient to undermine the many well-supported hypotheses of geological science.) Our argument, on the other hand, does not rely on the plausibility of rival meta-ethical positions. So while Kurth has a more or less similar target, our arguments either supplant or supplement his, depending on one's views about the plausibility of moral constructivism.

Our starting point, then, is the observation that wide naturalism allows a privileged ontological insight to *scientific* explanations, in particular, and not to legitimate and valuable explanations in general. For the wide naturalist, there is something special about explanations that are scientific, something that earns them their privileged ontological insight. But wide naturalism does not say that this something special is *simply* the fact that scientific explanations are legitimate and valuable. This is the heart of our worry with the CRist's argument that ethical properties are natural properties: while the argument (if successful) shows that ethical properties play roles in legitimate and valuable explanations, it in turn assumes that being legitimate and valuable is what earns scientific explanations their privileged ontological insight. If such assumption turns out to be false, however, then showing that ethical properties play roles in legitimate and valuable explanations is not enough to show that MC is false. Unfortunately, CRists so far have done nothing to defend the claim that being legitimate and valuable is what earns scientific explanations their privileged ontological insight.

This, we think, is sufficient to undermine the the CRist's argument: it shows that KA needs to be defended, not simply assumed. But we wish to go a bit further and argue by *disanalogy* that the prospects of defending the claim that being legitimate and valuable is what earns scientific explanations their privileged ontological insight are not good.

There are two important disanalogies between scientific explanations, in particular, and legitimate and valuable explanations, in general. First, there is the fact that all of the former, but not all of the latter, are embedded in the practices of a *scientific community*. This is a community that is characterized by a collaborative

attempt to examine and refine explanations by methods widely accepted as reliable. A legitimate and valuable explanation is not *scientific* until it has run its 'validating rounds', so to speak, through the minds and labs and pens of different scientists, with the results being replicated and the conclusions re-affirmed, and until it has survived competing legitimate and valuable explanations. The reliability of this communal aspect of the scientific process is a large part of what earns scientific explanations their privileged ontological insight. But not all legitimate and valuable explanations go through that process.[11]

To get at the second disanalogy, consider the fact that scientific explanations are part of scientific practices and theories which frequently aim (direct or indirectly) at producing explanations that are *theoretically good*: explanations which are accurate, generally consistent, that unify a general phenomenon, are not *ad-hoc*, and etc. Partly because scientific explanations are a product of practices having this aim, they use terms and concepts which are frequently precise or carefully defined, and are held to high standards of rigor and precision. For the same reason, it is no criticism of a scientific explanation, for example, that an average adult does not understand it, or that its terminology is not widely used, or that it took hundreds of years for it to reach the status of consensus. These claims fail as criticisms, since these features need not track theoretically good explanations (and in fact might be opposed to them). So another part of what earns scientific explanations their privileged ontological insight is that they belong to practices and theories which aim at theoretical goods (in the sense just explained) even if at the cost of great time, energy, resources, and pedestrian availability.

By contrast, ordinary practices and discourses seldom aim at producing explanations that are theoretically good. This is because ordinary discourse is primarily concerned with a wide range of pragmatic features that govern ordinary life. Thus, while explanations in ordinary life are often in some sense legitimate and valuable, their legitimacy and value has little or no connection to the theoretical virtues: they need not aim at consistency, unification, and so on. Partly because of this difference in *aim*, the terms used in these ordinary explanations, for example, are

[11] Boyd (1983) himself recognizes the importance of the communal reliability when restricting his version of scientific realism to a claim about the 'mature' sciences. Not just any scientific theory should be given a realist construal, according to Boyd, and it is not the explanatory and predictive power of standalone theories that would be 'miraculous' if scientific realism is false. The communal reliability of the mature sciences is thus at the heart of scientific realism. See Goldman (1999: ch. 8) for discussion of this kind of reliability.

seldom precise or carefully defined, and the explanations themselves are seldom held to high-standards of rigor and precision. For the same reasons, it is very much a criticism of an ordinary explanation that an average adult could not understand it, or that its terminology is not widely used, or that it would take longer than a lifetime to produce and establish it. While these are features that can be conducive to the value of scientific explanations, these are features that are a hindrance to the value of explanations in ordinary discourse and practice.

The second disanalogy between scientific explanations and legitimate and valuable explanations more generally, then, is that all of the former, and but not all of the later, are the product of aiming at theoretical goods, at the cost of various pragmatic features. Just as an archer whose central aim is to hit the bull's eyes is more likely to be accurate than an archer who has *many* other aims (such as to shock, amuse, look good, and so on), likewise it is plausible to think that part of what earns scientific explanations their privileged ontological insight is that they belong to practices and theories aimed at theoretical goods. One gets these theoretical goods more often when one is centrally focused on getting them. So simply showing that a property plays a role in legitimate and valuable explanations is not enough to give us reason to think that the property will be part of the correct scientific account of the world. Perhaps the legitimate and valuable explanation in question is more akin to the kind we find in ordinary discourse and practice, and does not at all possess the kind of privileged ontological insight that we bestow on science.[12]

As a reply to these two disanalogies, perhaps the CRist might once again lean on the recurring analogy with the property of 'being in pain'. This time the suggestion might be that if we insist on such a gap between scientific explanations in particular and legitimate and valuable explanations in general, then the wide naturalist will be forced to eliminate the property 'being in pain' from her ontology just as much. After all, (the thought goes) talk of being in pain is part of ordinary discourse just as much as talk of being wrong. There is nothing esoteric about that explanatory resource, and if eliminating it from our ontology is an undesirable result, then perhaps being a legitimate and valuable explanation really is the feature which earns scientific explanations their privileged ontological insight. But such a reply would be misguided. This is a point on which CR and non-reductivism about mental

[12]We are here setting aside challenges to the privileged ontological insight of scientific theories that are found, for example, in the work of Kuhn (1962) and Van Fraassen (1980). Discussion of these challenges is dialectically unimportant since CRists are themselves unsympathetic to the scientific picture that emerges from them.

phenomena are disanalogous. That is because 'being in pain' does, in fact, play a role in properly scientific explanations—biological and psychological explanations, to be exact. *This* is why the wide naturalist includes pain in her ontology, and not simply because it is part of more ordinary legitimate and valuable explanations. The disanalogies that we are suggesting, then, affect the relationship between wide naturalism and ethical properties such as 'being wrong', but not the relationship between wide naturalism and irreducible mental properties such as 'being in pain'.

We think these are three good reasons for thinking that the claim that being legitimate and valuable is what earns scientific explanations their privileged ontological insight is false: (i) not all legitimate and valuable explanations are validated by the communal aspect of the scientific process; (ii) not all are the product of aiming at theoretically good features; and (iii) the so-far-faithful analogy between CR and non-reductivism seems disanalogous in an important way. Without a positive defense against these reasons, CR is not entitled to KA, and the argument for the claim that ethical properties are natural properties is undermined.

4. The Rebutting Challenge to CR

In the previous section, we offered three reasons for thinking that the CRist argument that ethical properties are natural properties is incomplete. In this section, we offer two independent reasons for thinking that the conclusion of that argument is false: ethical properties, it seems, are not natural properties after all.

Our argument here can be seen as a companion to more common arguments of the form 'natural properties lack features x, y, z which are characteristic of ethical properties, so these are probably distinct kinds of properties' (cf. Parfit 1997, Hampton 1998, and Adams 1999). Here one has a grip on features of *ethical* properties, and a suspicion about their presence in natural properties. However intuitive, this argumentative strategy has a dialectical weakness: since the ethical naturalist privileges scientific accounts over philosophical accounts, she may well conclude by *modus tollens* that ethical properties do not have the alleged distinguishing characteristics. Whatever the merits of this response, it is toothless against our present strategy. We argue that 'ethical properties lack features x, y, z which are characteristic of natural properties, so these are probably distinct.' Here one has a grip on features of *natural* properties, and a suspicion about their presence in ethical properties. We submit that the ethical naturalist would be hard pressed to respond by *modus tollens* in this case.

We identify two features of typical natural properties that we would expect to find in ethical properties if they were natural properties as well. The fact that these typical features are absent from ethical properties gives us some reason for thinking that ethical properties are not natural properties after all. Of course, none of the features we suggest are necessary constraints on something being a natural property—at least not obviously so. We do not suggest otherwise. Instead, we take ourselves as adding to the cumulative case against the claim that moral properties are natural properties.[13]

First, typical natural properties—the ones that clearly play roles in scientific explanations—are affected by *empirical* breakthroughs. The experimental work of people like Boyle, Lavoisier, and Priestley—which we take as good examples of empirical breakthroughs—lead to the rejection of the phlogiston theory of combustion and to the discovery of oxygen—which we take as good examples of *scientific* breakthroughs. This is not an isolated case. There is a substantive relation between breakthroughs in our scientific explanations and breakthroughs in our empirical study of the world. This suggests that if ethical properties were natural, then we should expect some sort of similar relation between empirical breakthroughs and *ethical* breakthroughs as well (to match the relation between empirical and scientific breakthroughs). But there does not seem to be any relevant relation here. This is the first typical feature of natural properties that we find absent in ethical properties: ethical properties are insulated from empirical breakthroughs.

We wish to illustrate this point. Consider the increased opposition to slavery in the United States and Britain in the 19th century, or the civil rights movements in defense of minorities and women in the United States, or the increasing resistance to industrial farming practices of the last few decades. All of these, it is widely agreed, are properly seen as ethical breakthroughs with respect to how we ought to treat those who belong to the moral community (cf. Singer 1981). But none of these ethical breakthroughs seems to have a substantive relation to empirical breakthroughs: none of them originated somehow in the work of professional scientists, or are somehow directly connected to such work. Even more, consider the many scientific breakthroughs throughout the years: heliocentrism, the discovery that the earth is very old, the theory of evolution, molecular chemistry, Einsteinian

[13]Rubin (2008: 513-16) argues that ethical properties are not, specifically, natural kind homeostatic property clusters, as Boyd (1988) suggests they are. We here aim to be more general in our challenge to CR, since moral properties can be natural properties even if short of being a homeostatic property cluster.

general relativity, and so on. Which ethical breakthroughs have a substantive relation to any of these? There seems to be no correspondence whatsoever, then, not only between ethical breakthroughs and empirical breakthroughs, but also between scientific breakthroughs and ethical breakthroughs. Such *empirical isolation*, however, is not what one would expect of ethical theory, if ethical properties were truly natural.[14]

Here the CRist might reply that we should not expect any substantive relation since ethical properties are *supervenient* properties belonging to their own domain. But it should be clear that such a response is unpersuasive. For being a supervenient property does not mean being an isolated property, unconnected to anything else. In fact, quite the contrary: as a supervenient property, ethical properties are connected to their supervenient base, and so as we learn more about the supervenience base (as empirical breakthroughs increase or change our knowledge of them) we should expect to learn more about the supervening property as well. To put the point less abstractly, many of us are inclined to think that various kinds of biological properties are supervenient upon various kinds of microbiological and chemical properties. But surely no one is tempted to say, as we learn more and more about microbiological and chemical properties, that we should not expect any breakthroughs in our understanding of the biological properties themselves.[15]

The second feature of typical natural properties that we find absent in ethical properties is the following: natural properties are part of scientific explanations that have *testable consequences*, that give rise to new and different experiments that can test hypotheses regarding their extension. In the cases of heliocentrism and the phlogiston theory of combustion, for two examples, the addition of suitable auxiliary assumptions allows us to derive test implications which can confirm or disconfirm them to various degrees—say, by way of well-known experiments on the way in which different material burns, and even more well-known planetary observational data.[16]

[14]We do not mean that ethical naturalism must reject the so-called 'autonomy of ethics': the claim that ethical knowledge cannot be derived from non-ethical premises. Sturgeon (2002: 201) argues that such imposition misguidedly ignores that 'our thought about the natural world is highly populated by areas that are autonomous with respect to the evidence we bring to bear on them.' No knowledge of unobservables, to use one of Sturgeon's examples, can be derived from premises that are purely about observables. Our claim is rather that our ethical knowledge does not seem to be affected by the rest of our growing natural knowledge in any substantive way.

[15]Even worse, recall that CR holds that ethical properties are causally eficacious. Are we to expect that ethical properties are unilateral members of the causal chain: affectors, but never affected?

[16]Our claim here is sensitive to comfirmational holism, and thus escapes Sturgeon's (1985: 231;

But this is not the case for ethical theory. Is it at all obvious which experiments (in either the field or the lab) one can run, after the addition of suitable auxiliary assumptions (which exactly?), to confirm or disconfirm John Rawl's (1971) theory of justice, or Christine Koorsgaard's (1996) answer to the normative question, or Robert Adam's (2007) theory of virtue? Ethical properties, it seems, are simply not part of explanations that have testable consequences in the way that natural properties are part of scientific explanations that do. Once again, we think that the absence of this typical feature of natural properties in ethical properties is a reason for thinking that ethical properties are not natural.

We think there are three natural replies that the CRist might press. The first reply is that we are merely rehashing Gilbert Harman's (1977) original criticism regarding the absence of observation in ethics. But there are two important differences between our point and Harman's. First, Harman's concern was different from ours: he was concerned with a problem in ethics involving observation, while we are concerned with whether or not there is reason for thinking that ethical properties are natural properties. Second, and more importantly, Harman's discussion diverges from ours quickly. Harman (1977: 3-4) begins by asking 'Can moral principles be tested and confirmed in the way scientific principles can?' but this question quickly becomes 'You can observe someone doing something, but can you ever perceive the rightness or wrongness of what he does?' Like Harman, of course, we are concerned with similarities and dissimilarities between ethics and the natural sciences. But we are not hanging our hat on *observation*. Our claims here are about *experimentation* instead. The issue we are pressing is whether ethical properties and theories, properly outfitted with auxiliary assumptions, can give rise to testable consequences, to experiments, in the way that scientific theories can. And though observation often plays a role in experimentation, settling questions about observation does not, as we see it, settle questions about experimentation.

The second reply the CRist might press is to appeal to experimental philosophy. One could pass out surveys to see if people agree that children torturing a cat are doing something wrong, for example, and one could provide slightly different cases to see how people's judgments shift. Would this not show that ethical properties are part of theories that give rise to experiments? We do not think so. However carefully crafted, surveys are not experiments. Passing around a detailed questionnaire about microbiology, for example, and noting a surprising agreement on certain claims, is no

1998: 203) replies.

way to run an experiment on those claims—even if those answering are themselves accomplished microbiologists.

The third reply the CRist might press consists in counterexamples. According to one theory of envy, for example, an envious person is one who is disposed to perceive their own self-worth as inferior due to a negative comparison with another (cf. Perrine and Timpe 2014). This theory, however, seems to have a testable consequence: if a person is envious, then if they were presented with a person who outscores them along some important dimension, then they would perceive themselves to be inferior to that person. Constructing experiments testing this consequence seems relatively straightforward: find out which dimension of evaluation, D, matters for someone, S; find enough people (F_1, F_2, ..., F_3) whom S would reliably perceive as superior with respect to D; and observe S's behavior when confronted with them in some D-salient circumstance (cf. Sturgeon 1985: 243, and Brink 1989: 183-4). Here is a second counterexample. An ethical theory claiming that it is wrong to torture animals merely for the fun of it has a testable consequence as well: suppose a group of young children are taking turns bludgeoning a cat for laughs; if the view is true, then these kids are doing something wrong; if the view is false, they need not be (cf. Sturgeon 1985: 231-2). It seems equally straightforward to arrange for an experimental setting were we can observe which is the case.

But neither example succeeds. Consider the theory of envy. It claims that envious people have both (i) certain dispositional properties and (ii) certain ethical properties. But since ethical properties are not reducible to non-ethical natural properties—according to CR—devising an experiment aimed at detecting the dispositional properties is not exactly devising an experiment aimed at detecting the ethical properties. A social psychologist could reasonably accept that the people in her experiment have all the relevant dispositional properties postulated by this theory while denying that they have any of the ethical properties. This shows that an ethical theory might include non-ethical claims, that many of those might give rise to relevant experimental work, and that none of this shows the experimental testability of ethical properties themselves. Simply showing that ethical properties are part of theories that, given their non-ethical aspects, give rise to testable consequences is no defense against our disanalogy between ethical and natural properties.

Now consider the second alleged counterexample. None of what we have said denies that ethical claims can have logical implications. We thus agree that from 'it is wrong to torture animals merely for the fun it', and 'those children are torturing an

animal merely for the fun of it', it follows that 'those children are doing something wrong'. The issue is whether ethical claims have *testable* consequences, that is, whether they can give rise to experiments when properly outfitted with auxiliary assumptions. Nothing that the CRist has offered so far suggests that it can. Indeed, how would one *test* the claim that it is wrong to torture animals merely for the fun of it? What sorts of experiments would one set up? What factors would be controlled for? How long would it take to run these experiments? We can find no good answers to these questions. So while ethical properties can be part of claims and theories that have logical implications, it seems these claims and theories are still incapable of delivering testable consequences.

If our claims above are correct, then CR is once again in trouble. We have identified two features of typical natural properties that we find absent in ethical properties: (i) ethical properties are insulated from empirical and scientific breakthroughs, and (ii) ethical properties are not part of theories that have testable consequences. The fact that ethical properties lack these features is good reason for thinking that they are not natural properties themselves. These reasons do not amount to a refutation of CR, of course, but do amount to a serious challenge, specially when accumulated to the suggestion that natural properties seem to lack several features of typical moral properties.

5. Conclusion

We have critically engaged Cornell Realism on a novel battlefront by conceding some of its most controversial claims. We noted that the Cornell Realist argument for the claim that ethical properties are natural properties relies on a key assumption regarding the nature of the ontological insight characteristic of scientific explanations, and we argued that this key assumption is in need of defense. We also argued that legitimate and valuable explanations (in general) are distinct from scientific explanations (in particular) in at least two important ways, thus providing us with reasons for thinking that this key assumption is false. Finally, we argued that ethical properties lack two features that typical natural properties possess, thus providing us with reasons for thinking that the two are distinct. Of course, none of these criticisms should be taken as a *refutation* of Cornell Realism. Perhaps there are new trenches to be dug: the Cornell Realist might shore up their position by defending KA, for example, or they might point out other features of ethical properties that seem unique to typical natural properties. Until this work is done, however, Cor-

nell Realism falls short of dispelling the tension between ethical conservativism and ethical naturalism.

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