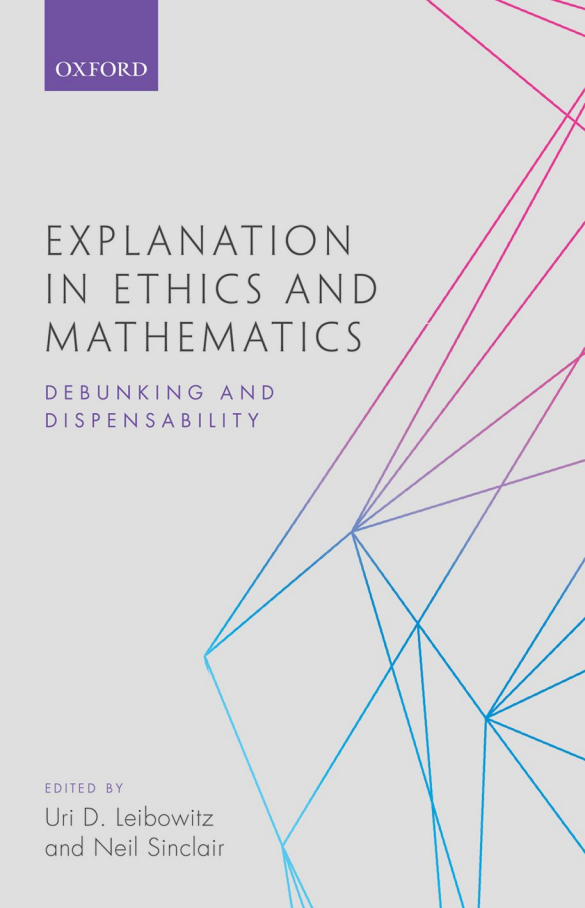


The background of the cover features a series of thin, intersecting lines in shades of pink and blue, creating a complex geometric pattern that resembles a network or a web. The lines are of varying lengths and angles, some radiating from a central point and others connecting different points across the frame.

OXFORD

EXPLANATION IN ETHICS AND MATHEMATICS

DEBUNKING AND
DISPENSABILITY

EDITED BY

Uri D. Leibowitz
and Neil Sinclair

Explanation in Ethics and Mathematics

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Debunking and Disposability

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Neil Sinclair & Uri Leibowitz

February 2016

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1

Introduction

Explanation in Ethics and Mathematics

Neil Sinclair and Uri D. Leibowitz

1.1 Morals, Mathematics, and Marzipan

Most people are marzipan realists. They accept (or would accept, if they were obtuse enough to consider such matters) that marzipan exists, that our term ‘marzipan’ refers to it, and that we are often fairly knowledgeable about the stuff. Marzipan realism is uncontroversial primarily because the existence of marzipan is manifest in perception (and recipe books). The entities of morality and mathematics are different. Values, virtues, obligations, numbers, sets, functions: none are manifest in perception and knowledge of them doesn’t seem to depend on experience. If they exist they would seem quite unlike marzipan and other medium-sized dry goods of our direct acquaintance. Hence moral and mathematical realism have proved more controversial than marzipan realism.

For those tempted to realism in general one potential route through this controversy is to align moral and mathematical entities with entities quantified over by our successful scientific theories, such as protons, ionic bonds, and viruses. It is often assumed that such entities earn their ‘ontological rights’ (Quine 1986 p. 400) through being parts of good empirical theories—that is, theories of empirical phenomena that provide illuminating generalizations and unique explanatory insight.¹ The presence of such entities in a scientific world-view would also be welcome insofar as it would make available naturalistic accounts of how we might come to talk and know about them.² If moral and mathematical entities can be shown to be parts of good empirical theories on a

¹ Railton (1998 p. 179).

² Railton (1998 p. 175), Boyd (1988), and Sinclair (2006).

par with those offered in the natural sciences, realists can borrow from the latter context the means to soothe philosophical doubts arising in the former.

The comparison with scientific entities is not, however, unquestionably favourable for the realist. Both in morals and mathematics opponents have questioned whether good empirical theories of the requisite sort can be established.³ Further, some anti-realists have argued that the absence of the realists' entities in particular theoretical contexts undermines realism.⁴ The success and desirability of the alignment strategy is, therefore, still up for grabs.

The current volume contributes to these debates, while in important senses moving beyond them. The papers collected here assess the prospects for realism in the domains of morals and mathematics (and, to a lesser extent, religion and chance) based on a consideration of the intellectual role (or lack of it) of the disputed entities. As we explain in Section 1.2, 'intellectual role' includes, but is not limited to, a role in good empirical theories.

1.2 Three Organizing Questions and the Companions in Illumination Strategy

More precisely, the papers that follow can be located with respect to three questions.

- Q1. Are moral properties intellectually indispensable, and, if so, what consequences does this have for our understanding of their nature, and of our talk and knowledge of them?
- Q2. Are mathematical objects intellectually indispensable, and, if so, what consequences does this have for our understanding of their nature, and of our talk and knowledge of them?
- Q3. What similarities are there, if any, in the answers to the first two questions? Can comparison of the two cases shed light on which answers are most plausible in either case?

Some brief remarks about these questions are in order. First, a moral property is, for example, the unjustness of a nation's constitution or the depravity of a person's character. Paradigm mathematical objects are numbers, such as the cube root of 27, and their properties, such as being prime. In this introduction, we group properties and objects under the label 'entities'. Talk of 'indispensability' is most common in the literature on mathematical entities, but has recently

³ E.g., Field (1980) and Leiter (2001).

⁴ Street (2006).

made its way into the moral debate.⁵ To say that an entity is intellectually indispensable is to say that eliminating reference to that entity in a particular intellectual endeavour results in a type of engagement in that endeavour that is less attractive, by reference to the standards that regulate that endeavour, than it would otherwise be.⁶ So, for example, to say that protons are intellectually indispensable to the practice of scientific theorizing is to say that eliminating reference to protons results in a scientific theory that is less attractive, *qua* scientific theory, than a theory that does involve such reference.⁷ As Baker notes (this volume, Ch. 12 §12.1), strictly speaking it is *quantification over* a domain of entities that is indispensable to an intellectual practice such as science, and talk of the entities themselves being indispensable is thus elliptical. This qualification is implicit in what follows.

Thus understood, Q1 and Q2 are broader than more commonly asked questions about whether moral or mathematical entities are *scientifically* indispensable, that is, indispensable to the intellectual endeavour of scientific theorizing (broadly understood to include all good empirical theorizing). It is, it seems to us, an open question whether an indispensable role in the intellectual practice of good empirical theory-building is the only way to speak to the philosophical issues concerning a realm of disputed entities. It may be, for example, that though moral entities are not scientifically indispensable, they are, as Enoch claims, indispensable to other of our intellectual practices, such as practical deliberation, and that this distinct type of indispensability is relevant to various philosophical issues concerning the moral realm. To echo a challenge laid down by Enoch (2011 pp. 55, 71) one might ask: What reason is there to take scientific indispensability seriously that is not also a reason to take other types of indispensability seriously?

This widening of scope from pure scientific to broader intellectual role is the first point of departure of the current volume from most of the literature on which it builds. The papers here by Leng, Baker, and Enoch share a concern for this broader type of indispensability. The second departure point is a focus on a specifically comparative methodology, highlighted by Q3. Although questions of the intellectual role of moral and mathematical entities have been addressed by philosophers of morals and mathematics respectively, there have been few attempts at explicit comparisons between the two cases. The chapters by Clarke-Doane, Tersman, Liggins, Roberts, Leng, Baker, and Enoch all pursue

⁵ For the former see Colyvan (2001); for the latter see Enoch (2011).

⁶ Or, at any rate, not sufficiently attractive. See Enoch (2011 p. 69).

⁷ Or, at any rate, not sufficiently attractive. See Colyvan (2001 pp. 76–7).

this methodology. Wielenberg's chapter further adds a comparison with the philosophy of religion, Handfield a comparison with the philosophy of chance, and Lillehammer a comparison between debates separated by nearly a century of theorizing about morality.

The comparative strategy employed by these chapters might be usefully compared to a related yet distinct strategy—that of companions in guilt. The latter is an argumentative gambit according to which worries about the metaphysical, semantic, or epistemological status of one type of entity can be assuaged by comparison with entities of other types, whose credentials in these areas are, if not wholly understood, at least not in (as much) doubt. Some have worried that this approach swaps frying pans for fires: first because the credentials of the guilty companions might dissipate on closer examination (or even be undermined by the very comparison) and second because the grounds of the comparison might themselves be questionable.⁸ The comparative approach pursued here is importantly different from the companions in guilt strategy insofar as the concern is not to deploy a comparison in defence of a particular metaphysical, epistemological, or semantic theory of the domain(s) in question, but rather as a tool for illuminating and assessing ways of arguing in both areas. To label the contrast, this might be called the 'companions in illumination' approach. As with any abstractly described strategy, and marzipan, the proof of this pudding will be in the eating. Whether the companions in illumination strategy presages philosophical progress is an issue that readers, by the end of this volume, will hopefully be better equipped to address.

To further locate the papers collected here with respect to existing debates, it is necessary to consider how the existing literature approaches the three organizing questions. And to do that, it is first necessary to define the philosophical thesis of 'realism'.

1.3 Realism

According to realism about a given domain (such as mathematics or morals) the assertoric claims of that discourse (such as 'seven is a prime number' and 'patience is a virtue'), when interpreted literally, offer descriptions of a corresponding domain. Further, some of those claims offer accurate descriptions (equivalently, state genuine facts) and are therefore true. These are the semantic claims of *descriptivism* (or *factualism*) and *success*, respectively. Second, since to have a belief is to accept a description of the way the world is, realists also

⁸ Lillehammer (2007).

typically accept the psychological claim of *cognitivism*: that sincere assertoric claims in a domain express beliefs about that domain. Third, realists typically accept the metaphysical thesis (sometimes by itself labelled ‘realism’) that there exist entities corresponding to some of the terms and claims of a discourse. For example: the abstract object **seven**, which is the referent of ‘seven’, and the moral fact that **patience is a virtue**, picked out by the true claim ‘patience is a virtue’. Realists of a *robust* (or objectivist) type take these entities to be mind-independent in a particular way: they are constitutively independent of our responses and thoughts about them.⁹ By comparison, realists of a *non-robust* (or subjectivist) type take these entities to be mind-dependent insofar as they are in part constituted by our (ideal) responses or thoughts about them. (Note that some self-professed realists—so called ‘quietists’—reject the metaphysical thesis. They hold that although there are mind-independent truths, they are not made true by any set of metaphysically or ontologically robust facts.¹⁰) Finally, realists of all species are typically epistemological optimists insofar as they hold that some of our current beliefs about the relevant domain are epistemically justified (or count as knowledge) and our current methods of forming such beliefs are reasonably good methods, that is, ones which, if deployed carefully, can produce beliefs that are epistemically justified (or count as knowledge). In short, realists hold that the assertoric claims of a discourse are maps of a genuinely existing and epistemically obliging reality.¹¹

Of particular interest in the current context are the epistemological and metaphysical claims of robust realists, who in the mathematical domain are known as ‘Platonists’ (Colyvan 2001) and in the moral domain as ‘Robust Moral Realists’ (Enoch 2011).

1.4 Harman and Critics

In the moral domain, the debate about the intellectual (in)dispensability of moral entities has historically focused on their (in)dispensability to good empirical explanations. This debate began on a sceptical note with a challenge from Harman (1977), who argued that moral entities, unlike physical entities, are not required to explain any of our observations. He concluded from this that the hypothesis that moral entities exist cannot be justified by empirical means. To

⁹ See, e.g., Enoch (2011 p. 4) and Shafer-Landau (2003 pp. 15–16).

¹⁰ See Enoch (this volume, Ch. 13, §13.3). For doubts about whether such views offer a genuine alternative see McPherson (2011).

¹¹ See Brink (1989 pp. 1–13) and Sayre-McCord (1988a).

illustrate, the best explanation of the observation of a proton in a cloud chamber is that there is, in fact, a proton in the cloud chamber. In contrast, Harman argues, the best explanation of the occurrence of moral observations need not posit moral entities—assumptions about the psychology and moral sensibility of the person making the moral observation will do.

Harman's argument was quickly critiqued in two distinct ways. First, defenders of moral explanations proposed examples of explanations that posit moral entities together with criteria of explanatory relevance that these examples seemed to satisfy.¹² Second, some questioned Harman's explanatory condition on justification, arguing (as Harman himself seems to admit) that while indispensability for explanation of observation is applicable for the justification of empirical hypotheses of natural science, it should not be taken to preclude the possibility of a priori forms of justification.¹³

1.5 Developments from Harman

Although debates concerning Harman's argument have continued, his work and that of commentators has also spawned two further types of argument relating to moral realism.¹⁴ The first is a more targeted attack often focused on the realists' epistemological optimism; the second a positive argument in favour of the realist's metaphysical thesis. Both types of arguments are paralleled in the mathematical domain.

1.5.1 *Evolutionary debunking arguments*

In recent years, a challenge to morality similar to Harman's has emerged, based on the claimed explanatory redundancy of moral entities in an evolutionary account of our moral beliefs and belief-forming mechanisms. These are so-called 'evolutionary debunking arguments' or EDAs. These arguments aim to undermine elements of the robust realist view of morality, either by undermining the metaphysical commitments of realism to the existence of moral entities or by undermining the robust realist's commitment to epistemological optimism.¹⁵ While different EDAs take different forms (and their conclusions vary in their scope and strength), what they all have in common is the view that insights into moral psychology gleaned from evolutionary theory are relevant to

¹² E.g., Sturgeon (1985), Brink (1989), and Sayre-McCord (1988b).

¹³ E.g., Quinn (1986) and Wedgwood (2007).

¹⁴ For some more recent debates concerning Harman's argument see, e.g., Yasenchuk (1994), Johnson (1998), and Tropman (2012).

¹⁵ For the former see Street (2006); for the latter Joyce (2016).

debates in metaethics and that these insights militate against robust realism. Despite their similarity to Harman's challenge, EDAs differ from and expand on it in the following way. Harman's challenge focused on moral observations and the role—or lack thereof—of moral entities in explaining their occurrences. Moral observations, in Harman's hands, are specific non-inferential judgements by specific individuals, for example the observation of the person rounding the corner that what the hoodlums are doing when they set a cat on fire is wrong. EDAs focus on different explananda, not least because it is questionable whether evolution is the right kind of theory to explain the occurrence of specific moral observations in the first place.¹⁶ The explananda of EDAs are, when carefully stated, phenomena at the level of populations, for example the fact that humans (generally) have moral concepts, that we have the capacity to make moral judgements, or that certain moral judgements are widespread. EDAs, therefore, can be viewed as expanding Harman's challenge by relinquishing the assumption that the only phenomena the explanation of which might require moral entities are moral observations. After all one might agree with Harman that moral entities are *not* required to explain moral observations but insist that such entities are indispensable for an explanation of other phenomena. If EDAs succeed, a realist who accepts Harman's explanatory criterion is now further pressed to identify phenomena the explanation of which requires moral entities.

Harman's argument and many EDAs can be understood as aiming to raise doubts about our epistemological access to moral entities, robustly construed. Interestingly, these doubts have been mirrored in the philosophy of mathematics by doubts about our access to mathematical entities, Platonically construed. This is sometimes known as the 'Benacerraf–Field' Challenge.¹⁷ According to the challenge, the realist needs to provide an epistemological theory that can 'bridge the chasm' between mathematical entities and human knowers. This problem is especially acute if the entities in question are taken to be *causally inert* (as mathematical entities, qua abstract entities, commonly are) and if one is attracted (as Benacerraf was) to a causal theory of knowledge, according to which knowledge requires causal congress with the objects known.¹⁸ One response to this acute version of the challenge is to reject the general applicability of the causal

¹⁶ Sober (1984) argued that evolution is suited to explain why a population consists of one set of individuals with certain traits rather than another set with different traits, but that evolution cannot explain why a particular individual has the traits it does rather than other traits. For criticisms of Sober's view see, e.g., Neander (1988, 1995) and Nanay (2005).

¹⁷ See, e.g., Benacerraf (1973), Field (1989), Linnebo (2006), and Clarke-Doane (forthcoming).

¹⁸ For an early formulation of the causal theory of knowledge see Goldman (1967).

theory of knowledge—and in fact it is now largely abandoned.¹⁹ But this point aside, the fundamental epistemological challenge remains: how do we come to have reliable beliefs about mathematics, given the realist picture of mathematical entities as mind-independent and causally inert? In recent literature, philosophers of mathematics have begun to focus on one particular version of this challenge, namely that provided by evolutionary debunking arguments of mathematical beliefs.²⁰ As in the moral domain, the challenge is to explain how, on a realist picture, our beliefs in the domain can be reliable, given that the realists' posited entities seem to play no explanatory role in the aetiology of our mathematical thought.

The papers in the first part of this collection address evolutionary debunking arguments in ethics, mathematics, and other areas.

The first paper, 'Debunking and Dispensability' by Justin Clarke-Doane, argues that EDAs do not threaten the *safety* or *sensitivity* of moral beliefs—where (roughly) a belief is *safe* just in case it could not easily have been false and *sensitive* just in case, had the relevant truth been different, then the belief would have been likewise. If, as Clarke-Doane claims, EDAs do not undermine the safety or sensitivity of moral beliefs, debunkers must explain *how* EDAs are supposed to undermine them. It might be tempting to suggest, as some debunkers have argued, that EDAs undermine the *reliability* of moral beliefs. But the challenge for debunkers, then, is to explain how EDAs might undermine the reliability of moral beliefs without undermining their safety or sensitivity. More generally, debunkers must reject the following principle:

Modal Security: If information, E, undermines all of our beliefs of a kind, D, then it does so by giving us reason to doubt that our D-beliefs are both sensitive and safe. (Clarke-Doane, this volume, Ch. 2 §2.4)

If *Modal Security* is true, and if, as Clarke-Doane claims, EDAs do not undermine the safety or sensitivity of moral beliefs, then EDAs simply miss their mark. Likewise, if the Benacerraf–Field Challenge to mathematical Platonism does not undermine the safety or sensitivity of mathematical beliefs it, too, misses its mark. Clarke-Doane submits that it is hard to see how *Modal Security* could be false and suggests that the question whether it is false is the key question for the debates over EDAs against moral realism and the Benacerraf–Field Challenge to mathematical Platonism.

Contrary to Clarke-Doane, Folke Tersman, in his paper 'Explaining the Reliability of Moral Beliefs', argues that establishing that a set of beliefs are both safe

¹⁹ Linnebo (2006).

²⁰ See, e.g., Clarke-Doane (2012).

and sensitive is not enough to ward off scepticism. Like Joyce (this volume, Ch. 7), he maintains that explaining the reliability of moral beliefs is another matter. Tersman focuses (among other things) on the issue of what exactly is being conceded by the anti-realist for the purpose of the EDA if such arguments are to be dialectically interesting. On his view, there is a genuine question-begging concern in the dialectic here. Tersman goes on to argue that there are non-question-begging ways for the anti-realist to develop her criticism and that these lead back to debates not unlike the traditional debates in normative ethics which employ the method of reflective equilibrium in the pursuit of the correct ethical theory.

Toby Handfield, in his paper ‘Genealogical Explanations of Chance and Morals’, claims that our justification for both beliefs about morals and beliefs about chances is undermined or weakened by plausible hypotheses about the genealogy of those beliefs. Like Clarke-Doane, Handfield evaluates justification in terms of sensitivity and safety. However, while Clarke-Doane claims that moral beliefs are both safe and sensitive, Handfield maintains that particular features of our chance and moral beliefs render them unsafe. In the former case, the problematic feature is the idea of chances as intrinsic properties of isolated systems that explain, but do not reduce to, observed frequencies. In the latter, the problematic feature is the idea that moral norms have inescapable force, that is, that they make demands regardless of the desires or inclinations of the agents to which they apply. Insofar as our chance and moral beliefs have these features, Handfield argues, they are undermined by EDAs.

Wielenberg is doubtful of the efficacy of EDAs in undermining moral beliefs. His paper exemplifies the companions in illumination approach by comparing the (de)merits of debunking arguments in religion and morality. The core of Wielenberg’s strategy is to show that premises in EDAs can reasonably be questioned. The conclusion is that EDAs fail to establish anti-realism and scepticism both in religion and morality. Whether this conclusion is sufficient to recommend realism is another question. Relatedly, Richard Joyce in his contribution to this volume—‘Reply: Confessions of a Modest Debunker’—argues that this conclusion is sufficient to ‘shift a burden of proof onto the moralist’s shoulders’. That is, according to Joyce, even granting that EDAs fail to establish anti-realism/scepticism, they do recommend that we suspend judgement about realism and moral knowledge in the absence of a successful independent argument on behalf of the realist/optimist. And suspension of judgement is, in effect, tantamount to moral scepticism.

In Hallvard Lillehammer’s paper—“An Assumption of Extreme Significance”: Moore, Ross, and Spencer on Ethics and Evolution—there is a further

demonstration of the companions in illumination approach, this time through comparing similar debates in different historical periods. The past fifteen years, following influential works by Ruse, Street, and Joyce, have seen a great deal of interest in EDAs. Lillehammer calls our attention to the fact that similar debates took place around the turn of the twentieth century when intuitionists like Moore and Ross responded to debunking challenges raised by the natural sciences of their day. Lillehammer argues that comparing these two debates highlights a number of core issues in moral epistemology. He evaluates the merits of the responses to scepticism offered by Moore and Ross and considers their similarity to contemporary responses to debunking arguments. Finally, he points to several responses to the epistemological challenge that may not have seemed attractive to the early twentieth-century intuitionists, but might be more palatable to contemporary philosophers due to various developments in the second half of the twentieth century.

1.5.2 *Indispensability arguments*

The second development from the work of Harman sees realists move from the back to the front foot. In responding to Harman's claim of explanatory redundancy, some realists began to consider that not only are moral entities explanatorily indispensable in a way that can answer the initial challenge, they are explanatorily indispensable in a way that can support the metaphysical thesis of realism. Much more recently, other realists, and most notably Enoch, have begun to move away from the emphasis on *explanatory* indispensability towards indispensability of other kinds. These moves generate two very different types of argument, but they have in common a premise to the effect that moral entities are indispensable for a certain intellectual practice and a conclusion that this gives us reason to believe in the existence of such entities. Both types of argument for realism are discussed in this volume.

1.5.2.1 EXPLANATORY INDISPENSABILITY

First then, some moral realists, reflecting the preoccupations of Harman and critics, have argued that moral entities are *explanatorily* indispensable. Common examples are explaining a revolution by citing injustice and explaining a person's abhorrent actions by reference to the depravity of their character. In the moral case, the move from such indispensability to belief in the existence of moral entities has been labelled the 'explanationist' argument.²¹ A similar argument has been developed, seemingly independently, in mathematics, where it is sometimes

²¹ See Sinclair (2011). This move is defended by, e.g., Sturgeon (1985, 2006) and Majors (2003).

called the enhanced or explanatory indispensability argument.²² Common examples in this case are explaining why cicadas have the life-cycle periods they do in terms of those periods being prime (Baker 2005 p. 233) and explaining the existence of ‘Kirkwood gaps’ in the asteroid belt between Mars and Jupiter by reference to the eigenvalues of the system—where eigenvalues are numbers (see Colyvan 2010 pp. 302–3). In both the moral and mathematical cases the arguments include as a major premise a broadly Quinean criterion of ontological commitment: roughly, the idea that we ought (or have reason) to believe in the existence of those entities that are indispensable to good empirical theorizing (Quine 1948). The minor premise of the moral argument is that some moral entities are explanatorily indispensable; the minor premise of the mathematical argument is that some mathematical entities are explanatorily indispensable. Although there is some divergence in the ways these arguments are formulated, the underlying similarity is undeniable.

Interestingly, explanatory indispensability arguments in the moral and mathematical spheres developed in very different ways. In the moral case, as we have seen, the argument grew out of responses to Harman’s challenge. In the mathematical case, by contrast, the enhanced indispensability argument developed from a distinct argument for the metaphysical claim of realism—an argument, which perhaps surprisingly, seems to have no historical parallel in the philosophy of morals. The earlier argument is the Quine–Putnam indispensability argument (Quine 1948, Putnam 1971), sometimes expressed as follows:

1. We ought to have ontological commitment to all and only those entities that are indispensable to our best scientific theories.
2. Mathematical entities are indispensable to our best scientific theories.

Therefore

3. We ought to have ontological commitment to mathematical entities.
(Colyvan 2001 p. 11)

As Putnam (1971) memorably puts it, this argument stresses that we should avoid ‘the intellectual dishonesty of denying the existence of what one daily presupposes’ (347).

Popular in the 1970s and 80s, the Quine–Putnam indispensability argument was subsequently criticized largely on the basis of its implicit commitment to confirmational holism, the view that empirical theories are confirmed or disconfirmed as wholes.²³ The thought is that it is conformational holism that motivates

²² See, e.g., Baker (2005, 2009).

²³ Maddy (1992, 1995, 1997).

ontological commitment to *all* entities required for our best scientific theories, since if such theories are confirmed as wholes, their ontological commitments should be treated likewise. In rejecting conformational holism, critics of this argument urged that we should follow actual scientific practice in rejecting the idea that all parts of our best empirical theories are equally confirmed. Given that it was this conformational holism that motivated the holism of ontological commitment enshrined in the ‘all’ part of premise 1, the rejection of the former undermines the support for the latter. This criticism was continued by others who highlighted the possibility of non-ontologically committing roles that mathematics might play in our best scientific theories, such as making it easier to formulate theories, describing through metaphor or more generally providing a relatively simple descriptive apparatus for discussing, and expressing truths about, an underlying non-mathematical reality.²⁴ According to these critics it is not enough for ontological commitment that mathematics be involved in scientific theorizing: it has to play the *right sort of role* in the scientific enterprise.

One way of cashing out ‘the right sort of role’ is as a direct explanatory role. This thought generates the first premise of the *enhanced* indispensability argument, which replaces the first premise of the Quine–Putnam argument with the claim that we ought to have ontological commitment to all and only those entities that are indispensable, not to the general practice of science, but to *particular explanations* provided by science. This shifts the argument from a claim about the indispensability of mathematics for the scientific project *tout court* to a claim about the indispensability of mathematics to particular explanatory projects, such as explaining the life-cycle periods of cicadas. The result is an argument structurally identical to the explanationist argument in the metaphysics of morals, but with a distinct aetiology.

The papers by Liggins, Roberts, and Miller, collected here, discuss these explanationist arguments, and their progress in the philosophy of mathematics and morals. Liggins and Miller are concerned with the minor premise of the arguments while Roberts’ focus is on the major premise.

Miller’s particular concern is arguments that contain as a premise the claim that judgement-independent moral properties are indispensable to the explanation of at least some of our moral judgements. Judgement-independent properties are, roughly, those countenanced by robust versions of realism (see Ch. 8 §8.3). Working with a Quinean criterion of ontological commitment, these arguments conclude that we ought to have ontological commitment to such properties. Miller responds by showing how taking moral properties to be

²⁴ See, e.g., Leng (2010, 2012), Melia (2000 pp. 468–9), Balaguer (1998 p. 134), and Yablo (1998).

judgement-*dependent* is consistent with seeing those properties as explanatory of some of our judgements about them. If successful, this strategy undermines the minor premise of the target explanationist argument, since it shows that judgement-independent moral properties are not, after all, explanatorily indispensable.

Liggins also questions the claim that moral properties are explanatorily indispensable, but in a more general way that, if successful, applies regardless of whether such properties are construed as judgement-dependent or judgement-independent. One popular way to resist the minor premise of an explanationist argument is to hold that any supposed explanation provided by moral or mathematical or other properties is in fact provided only by the non-moral or non-mathematical *grounds* of those properties. So, for example, rather than explaining the revolution by reference to the injustice of pre-revolutionary society, we might explain it by reference to the grounds of that injustice, e.g., a discriminatory legal system. Many realists have responded to this objection by urging that the explanations provided by the higher-level, moral and mathematical, properties are informative in a way in which their supposed replacements are not, and that this is because moral and mathematical properties are multiply realizable. Liggins responds to this manoeuvre by proposing a way in which moral and mathematical explanations might preserve the distinctive import this multiple realizability brings, without committing those who accept them to the existence of moral and mathematical properties.

One notable feature of Liggins' strategy is that although moral and mathematical *properties* are dispensed with in the relevant explanations, moral and mathematical *predicates* remain. Liggins notes that some contributors to the debate about moral properties seem to assume that such things will be explanatorily dispensable only if moral *predicates* are. But as others have pointed out, this assumption is unwarranted since what is first and foremost indispensable to an explanation is a *predicate* (or quantifying sentence), and it is always a further substantive issue whether that predicate (or quantifying sentence), so used, implies the existence of a corresponding entity.²⁵ It is in this logical wiggle room that Liggins' proposal operates.

Liggins' response to explanationist arguments is committed to offering alternative explanations to those put forward by realists (albeit ones still involving moral or mathematical predicates). A different approach is to accept the realists' explanations but question the claim that these explanations are ontologically

²⁵ See Sinclair (2011).

committing in the way realists suppose. This is to question the major premise of explanationist arguments, which is the subject of Roberts' paper.

Roberts deploys some helpful terminology that has been developed in the discussion of explanatory indispensability arguments in mathematics, but in fact has general application. Faced with an explanationist indispensability argument of any kind, one type of response, as we have seen, is to question the minor premise by offering replacement explanations that do not involve (or commit one to) the disputed entities. This is the 'hard road' to doing without the disputed entities—'hard' because it requires that alternative explanations are offered. In mathematics, where those who hope to do without mathematical entities are called 'nominalists', this approach is called the 'hard road to nominalism', and its most famous proponent is Field (1980).²⁶ Liggins' approach is another version of the hard road. Another type of response, however, is to accept the explanations the realists give but deny that such explanations justify ontological commitment to the disputed entities. This is to question the major premise of explanationist arguments. In mathematics, the approach has been called the 'easy road to nominalism'.²⁷ Although structurally similar moves have been suggested in the moral case, there has been no explicit discussion of how passable the hard and easy roads are in the moral case.²⁸ Roberts' paper addresses this deficit.

One problem for easy-roaders, extensively discussed in the mathematical case, is the question of motivation.²⁹ Easy-roaders draw a distinction between those parts of good empirical theories that are ontologically committing and those that are not. The issue is then how to motivate the claim that mathematical elements are in the latter camp. But, as Colyvan argues, all extant responses to this challenge ultimately require the anti-realist to be able to show that we can replace explanations involving the disputed elements with those that do not—that is, all extant responses require the anti-realist to ride the hard road. Thus, there is no easy road to anti-realism.

Roberts considers how the apparatus of the easy road, and Colyvan's critique, applies to the moral case. In a clear application of the companions in illumination strategy, she argues that the dialectic plays out in the moral case exactly as it has done in the mathematical case. In particular, she considers and rejects the thought that in the moral but not mathematical case there is reason to believe that the hard road might in principle be passable, namely the global

²⁶ For criticism see, e.g., Burgess and Rosen (1997).

²⁷ This view is represented by, e.g., Azzouni (2004), Melia (2000), Leng (2010, 2012), Balaguer (1998), and Yablo (1998).

²⁸ Sinclair (2011).

²⁹ See, e.g., Colyvan (2010, 2012), Azzouni (2012), Leng (2012), Liggins (2012), and Yablo (2012).

supervenience of the moral on the non-moral (roughly, the idea that any two situations that are exactly alike in non-moral respects will be alike in moral respects). According to Roberts, then, there is no particular reason, in the moral case, to think that the hard road of doing without moral explanations is feasible. Thus, for would be easy-roaders, the question of motivation remains equally unanswered in the moral case.

1.5.2.2 DELIBERATIVE INDISPENSABILITY

The second much more recent type of indispensability argument moves beyond the Harmanian preoccupation with explanatory purposes to argue that the reality of moral entities can be established by showing them to be indispensable in non-explanatory ways, most notably for the project of practical deliberation. This is the project of deciding how to act, which goals to endorse, and what to care about. This argument has been most forcefully developed by Enoch (2011). It is worth noting that Enoch's argument in fact aims to establish only the existence of robust *normative* entities, of which moral entities are a particular type. Enoch seeks to show that a commitment to the existence of normative entities is required if we are to deliberate about how to act in the world.³⁰

The first step of Enoch's argument is to generalize the criterion of ontological commitment used in the classic Quine–Putnam indispensability argument. As philosophers of mathematics have pointed out, indispensability is always indispensability *for* a particular type of intellectual project—Enoch calls this instrumental indispensability.³¹ So for example, protons seem to be indispensable *for* the project of good scientific theorizing but not indispensable for the (dubious) intellectual project of sorcery. This raises the question of what it is about the scientific project (but not the sorcery project) that makes it the case that entities that are indispensable to *it* are those to which we ought to (or have reason to) have ontological commitment. In Enoch's terminology, this is the question of what makes the scientific project *intrinsically* indispensable. Enoch's suggested answer is that the intrinsically indispensable projects are those that are rationally non-optional for beings like us, in the sense that they are projects that we 'cannot—and certainly ought not—fail to engage in' (2007 p. 33). This then provides a generalized criterion for ontological commitment: we ought (or have reason) to have ontological commitment to all those entities

³⁰ In some respects Enoch's argument is similar to Kant's transcendental arguments. It is beyond the scope of this introduction to explore the similarities/dissimilarities between these argumentative strategies.

³¹ See Field (1989 p. 14), Colyvan (2001 p. 6), and Enoch (2011 p. 67).

that are instrumentally indispensable to our intrinsically indispensable intellectual projects (Baker, this volume, Ch. 12 §12.2).

This claim provides a more general framework for indispensability arguments, of which the old-style Quine–Putnam indispensability arguments can be seen as one instance. More intriguingly, however, Enoch’s framework allows for the possibility of other, non-explanationist, indispensability arguments. In particular, Enoch argues that the intellectual practice of deliberation is intrinsically indispensable (that is, rationally non-optional) and that quantification over robust normative entities—precisely, normative reasons—is instrumentally indispensable to this project. The resulting argument is expressed by Enoch thus:

1. If something is instrumentally indispensable to an intrinsically indispensable project, then we are justified in believing that that thing exists.
2. The deliberative project is intrinsically indispensable.
3. Irreducibly normative truths are instrumentally indispensable to the deliberative project.
4. Therefore, we are justified in believing that there are irreducibly normative truths. (2011 p. 83)

This argument is clearly related to previous indispensability arguments yet distinctive insofar as it moves beyond a focus on explanation in the ontologically committing role.

In yet another example of the companions in illumination strategy, Baker’s concern is to examine how Enoch’s general framework for indispensability arguments—developed in the course of an argument for Enoch’s *moral realism*—applies to the mathematical case. Both Baker and Leng note that Enoch’s framework is inspired not by the more recent, enhanced indispensability argument in mathematics, but by the older, Quine–Putnam indispensability argument. One difference here, recall, is that the former addresses the issue of the indispensability of mathematics to particular scientific explanations (or explanatory mini-projects) whereas the latter addresses the issue of the indispensability of mathematics to the entire scientific project. Enoch’s argument for robust moral realism, and the wider framework of which it is a part, inherits this holism. It is concerned with the indispensability of entities to entire projects—such as the scientific project, and the deliberative project—rather than specific mini-projects, such as the explanatory mini-project of explaining the life-cycle periods of cicadas, or the deliberative mini-project of deciding what to do this evening.

As Leng and Baker both point out, and as was noted earlier, indispensability arguments in mathematics have latterly moved away from the holism inherent in