Précis of *Morality and Mathematics*

Philosophy is a broad church. Historians, value theorists, scientists, and mathematicians all belong. This is no accident. While individual researchers focus on neoplatonism or neuroscience, ethics or mathematics, philosophy craves synthesis. How do things fit together?

The question is outrageous. We do not even have a provably consistent theory of interacting quantum fields (in 4 dimensions) – much less one that meshes with Einstein’s theory of gravity, incorporating dark matter and energy.¹ And that is just fundamental physics. There is a lot more to the world than that! How does consciousness fit in? What about value, mathematics, or philosophy itself?

While speculative, such questions are hard to avoid. The right theory of one area must mesh with the correct theories of the others. Any true physical theory must cohere with accurate accounts of mathematics, value, and consciousness, whatever those turn out to be. Penrose (2004, fig. 1.3) marvels at ‘the…mathematical, the physical and the mental’ worlds, adding, ‘Of less obvious relevance – but of clear importance… – is the question of an absolute ideal of morality: what is good and what is bad and how do our minds perceive these values (2004, 22)?’

One way of getting a grip on such questions is via the problem of realism. To what extent are the subjects of our thought and talk real? A common form of naturalism combines realism about the sciences with anti-realism about value, especially morality (Carroll 2010). Naturalists, in the pertinent sense, believe in independent facts about quarks, quasars, and plate tectonics, but not in independent facts about what is good. Naturalists contend that knowledge of independent evaluative facts would be mysterious in a way that knowledge of the natural world is not.

There is a complication, however. Scientific realism would seem to entail mathematical realism. Consider the Schrödinger Equation of quantum mechanics (or its relativistic surrogate). This tells us how the state vector evolves through time. It is difficult to see how there could be an independent fact about this if there were no such facts about vectors. This is a problem for naturalists because mathematical knowledge is notoriously mysterious in its own right (Benacerraf 1973). Rosenberg remarks, ‘[t]he criticism [of naturalism]…that…I take seriously focuses on…our knowledge of mathematics—this is a serious problem for all naturalistic epistemologies (2018).'</p> Whether naturalism, as that position is often understood, makes sense would appear to depend on whether one can be a moral anti-realist and a mathematical realist.

¹ Thanks to Charis Anastopoulos and Hans Halverson for confirming this for me.
It might be expected that there is extensive literature on this question, given its importance for systematic philosophy. But while there are longstanding associations between morality and mathematics (Plato, Republic, Book VII), the question of whether one can be a moral antirealist and a mathematical realist has never been treated in detail. The problem is specialization. Moral philosophy and the philosophy of mathematics are mutually isolated fields, with little interaction.

*Morality and Mathematics* (*M&M*) aims to rectify this situation. It studies whether moral realism and mathematical realism ‘stand or fall together’, and whether comparisons between moral knowledge and mathematical knowledge have anything else to teach us. The result is complicated. Our mathematical beliefs have no better claim to being self-evident or provable than our moral beliefs. Nor do our mathematical beliefs have better claim to being empirically justified than our moral beliefs. It is not even true that the genealogy of our moral beliefs establishes a lack of parity between the cases. In general, if one is a moral antirealist on the basis of epistemic considerations, then one must be a mathematical antirealist too. And, yet, moral realism and mathematical realism do not stand or fall together – and for a surprising reason. Moral questions -- or the practical ones at stake in moral debate -- are *objective* in a way that mathematical questions are not. But the way in which they are objective can only be explained by assuming practical anti-realism. One upshot of *M&M* is, thus, that the concepts of realism and objectivity, which have been widely identified, not only bifurcate. They are in tension.

*M&M* concludes with a general account of ‘armchair’ inquiry inspired by the preceding, *pragmatist pluralism*. The general idea of pluralism about an area, $F$, is that any $F$-like theory that we might have easily adopted is true of the entities which it is about, independent of minds and languages. *M&M* defends pluralism about mathematics, morality, (meta)logic, modality, and more. Pluralism is pragmatist insofar as divergent theories are all true, albeit of subtly different subjects. So, truth factors out. The only non-semantic questions (i.e., questions that are not just about what we happen to mean by words) in mathematical, modal, moral, or (meta)logical debates are *practical*. Instead of asking whether every set has a Choice function, we ask whether to use a concept of set that satisfies the Axiom of Choice (for a purpose). Instead of asking whether we could have had different parents, we ask whether to use a concept of possibility that satisfies the Necessity of Origins. Instead of asking whether anything follows from a contradiction, we ask whether to use a concept of consequence that satisfies the Principle of Explosion. And instead of asking evaluative questions, like whether we ought to kill the one to save the five, we ask whether to use a deontological, consequentialist, or other concept of ought – where this cannot be the question of whether we *ought* to use such a concept (in any sense of ‘ought’) on pain of triviality. Intractable armchair questions get traded for practical ones.
Summary of Chapters

*M&M* proceeds as follows. Chapter 1 explicates (in Carnap’s sense) the concept of realism, and distinguishes it from related concepts with which it is often identified. *M&M* argues that, properly conceived, realism has no ontological implications, and that common objections to moral and mathematical realism fallaciously assume otherwise. The chapter concludes with a distinction between realism and objectivity. Objective questions are those which admit a unique answer. By contrast, in a disagreement over a non-objective question, we can both be right. *M&M* uses the Parallel Postulate, understood as a claim of pure mathematics, as an archetype of a claim that fails to be objective, even if mathematical realism is true. Conversely, *M&M* shows how realism about an area, $F$, may be false even though $F$-claims are objective in the way that the Parallel Postulate is not.

Chapters 2 and 3 discuss how our mathematical and moral beliefs might be (defeasibly) justified, realistically construed. Chapter 2 argues that our mathematical beliefs have no better claim to being self-evident, provable, plausible, ‘analytic’, or initially credible than our moral beliefs, despite widespread allegations to the contrary. It considers the objection that pervasive and persistent moral disagreement betrays a lack of parity between the cases, and argues that there is no *epistemically important* sense in which moral disagreement is more pervasive or persistent. A common argument to the contrary simply confuses logic -- what is true if the axioms are -- with mathematics. Chapter 1 concludes that the extent of disagreement in an area, in any familiar sense of ‘extent’, is of little epistemological consequence -- contrary to what is widely assumed.

Chapter 3 argues that our mathematical beliefs also have no better claim to being empirically justified than our moral beliefs, focusing on Harman’s influential argument to the contrary. *M&M* argues that Harman’s reasons to think that the contents of our moral beliefs fail to be implied by our best empirical scientific theories serve to show that the contents of our mathematical beliefs do too. *M&M* then formulates a better argument for a lack of parity between the cases. It argues that while the ‘metaphysical’ necessity of mathematics is no bar to developing a mathematics-free alternative to empirical science, some mathematics, like the theory of syntax, is indispensable to all theorizing. But this at most shows that a subset of our mathematical beliefs have better claim to being empirically justified than any of our moral beliefs. And *M&M* argues that it does not even show that. This is because our full range of moral beliefs may be empirically justified in a different way. Unlike mathematics, there may be no basis on which to rule out so-called ‘moral perceptions’ as being on an epistemic par with ordinary perceptions ascribing high-level properties. Chapter 3 concludes with additional reasons to doubt that there is a principled distinction between a priori and a posteriori justification.

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2 The following summary draws from Section 0.3 of *M&M*. 


Having shown that our mathematical beliefs have no better claim to being (defeasibly) justified than our moral beliefs, Chapter 4 considers attempts to undermine the latter by appeal to their genealogy – i.e., Genealogical Debunking Arguments. It argues that, as standardly formulated, such arguments misunderstand the epistemological significance of explanatory indispensability. Debunkers observe that whether the proposition that \( P \) is implied by some explanation of our coming to believe that \( P \) is predictive of its having epistemically desirable qualities when the fact that \( P \) would be causally efficacious if it obtained. The problem is that these things are independent when the fact that \( P \) would be causally inert, and genealogical debunking arguments assume otherwise. For example, when \( P \) would be causally inert, then whether the proposition that \( P \) is implied by some explanation of our coming to believe that \( P \) is independent of whether our belief that \( P \) is safe (i.e., roughly, whether we could have easily had a false belief as to whether \( P \)), sensitive (i.e., roughly, whether had it been that \( \sim P \), we would not still have believed that \( P \)), and (objectively) probable. M&M proposes a principle, ‘Modal Security’, which constitutes a criterion of adequacy for debunking arguments. It says, roughly, that if such arguments undermine our targeted beliefs, then they must give us (direct) reason to doubt their safety or sensitivity. But Chapter 4 shows that this is something that they cannot do. Even if Modal Security is false, however, it is argued that Genealogical Debunking Arguments have little force absent an account of the epistemic quality that they are supposed to threaten. Chapter 4 concludes that the real problem to which Genealogical Debunking Arguments point is an application of the so-called Benacerraf-Field challenge. The challenge is to explain the reliability of our moral beliefs, realistically construed. But this challenge has nothing to do with whether the truth of our moral beliefs is implied by any explanation of our coming to have them.

Chapter 5 considers the Benacerraf-Field Challenge, or what M&M calls the ‘reliability challenge’, in detail. After substantially clarifying the dialectic, a variety of ways in which to understand the challenge are assessed. Chapter 5 begins with Benacerraf’s preferred way, and then turns to improvements on it. M&M argues that none satisfies a key constraint that has been placed on the problem – namely, that the apparent impossibility of answering it undermines our mathematical beliefs, realistically construed. The chapter then turns to more promising analyses, in terms of variations of the truths and variations of our beliefs. The best version of the former is the challenge to show that our beliefs are sensitive. This challenge is widely supposed to admit of an evolutionary answer in the mathematical case, but not in the moral. M&M argues that, on the contrary, the sensitivity challenge may admit of an evolutionary answer in the moral case, and not in the mathematical. But this is only because the sensitivity challenge is trivial to meet when the truths in question ascribe supervenient properties of concrete things, and impossible to meet when they do not. This leaves analyses in terms of variation of our beliefs. M&M argues that the best version of these is the challenge to show that our beliefs are safe. Understanding the reliability challenge as the challenge to show that our beliefs are safe explains the otherwise mysterious conviction that, whatever its costs, the view that M&M calls ‘mathematical pluralism’

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3 I borrow the label ‘reliability challenge’ from Schechter (2010).
at least affords an answer to the reliability challenge. It also illuminates the epistemic significance of genealogy and disagreement. Chapter 5 concludes that whether the reliability challenge is equally pressing in the moral and mathematical cases depends on whether realist pluralism – or what $M&M$ thereafter simply calls ‘pluralism’ – is equally viable in the two areas.

Chapter 6 argues that, while standard formulations of pluralism are dubiously coherent, the view can be refined, and the resulting theory answers the reliability challenge for $F$-realism, qua the challenge to show that our $F$-beliefs are safe. It does so by giving up on the objectivity of the truths, in the sense of Chapter 1, but not on their mind-and-language independence. But there is a difference between the mathematical and moral cases. Assuming mathematical pluralism, mathematical questions get ‘deflated’. They become verbal in the sense in which the Parallel Postulate question is, understood as a question of pure mathematics. By contrast, assuming moral pluralism, all the pressing questions remain. If we call those questions practical, then we can frame the point as a radicalization of Moore’s Open Question Thesis. Practical questions remain open even when factual questions, including evaluative ones, are closed. The upshot is that mathematics and morality, insofar as morality is practical, differ. But the concept of realism alone is too crude to do justice to the difference. Although practical realism is false, practical questions are objective in a paradigmatic respect. Conversely, while mathematical realism is true, mathematical questions fail to be objective. An important consequence of the discussion is that the concept of objectivity has methodological ramifications. The concept of realism does not.

$M&M$ concludes by rehearsing key themes of the book, and sketching their broader significance. $M&M$ proposes a general partition of areas of philosophical interest into those that are more like mathematics and those that are more like morality. In the former category are questions of counterfactual possibility, grounding, nature (or essence), (non-normative) logic, and mereology. In the latter are questions of (normative) epistemology, political philosophy, aesthetics and prudential reasoning. $M&M$ argues that the former questions, factually understood, are like the question of whether the Parallel Postulate is true, qua a pure mathematical conjecture. They are verbal – but not because they are about words. They are verbal because reality is so rich as to witness any answer to them we might have given. $M&M$ illustrates this conclusion with questions of modality. It argues that, just as there are different concepts of geometrical point and line, all equally realized, there are different concepts of counterfactual possibility. While it is, say, metaphysically impossible that you could have had different parents, it is logically possible that you could have, and there is nothing more real about metaphysical than logical possibility. In general, while typical questions of modal metaphysics are not about the word ‘possible’, they might as well be. All we learn in answering them is how we use words, rather than learning what modal-like reality contains. By contrast, evaluative -- or, rather, practical -- questions are immune to deflation in this way. But the reason that they are is that they do not answer to the facts. So, their objectivity is not compromised if the facts are abundant. $M&M$ concludes that
the pressing questions in the neighborhood of those in mathematics, (meta)logic, and modality are nonfactual practical question too. Practical philosophy should, therefore, take center stage.

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