**What is Field’s Epistemological Objection to Platonism?**

Ylwa Sjölin Wirling

KTH Royal Institute of Technology, Stockholm

Correspondence: ylwa.wirling@gmail.com

Published in T. Hansson Wahlberg & R. Stenwall (eds.), *Maurinian Truths – Essays in honour of Anna-Sofia Maurin on her 50th birthday* (2019)*,* pp. 123-133.

Full electronic version available at: <https://portal.research.lu.se/portal/en/publications/maurinian-truths(35448559-6bf9-4974-8663-ee04ff83a679).html>

*1. Introduction*

This paper concerns an epistemological objection against mathematical platonism, due to Hartry Field (1989). Platonism is a view according to which mathematical truths are about mind- and language-independent, abstract, and acausal entities. The argument poses an explanatory challenge – *the challenge to explain the reliability* of our mathematical beliefs – which the platonist, it’s argued, cannot meet. Is the objection compelling? Philosophers disagree, but they also disagree on (and are sometimes very unclear about) how the objection should be understood. Here I distinguish some options, and highlight some gaps that need to be filled in on the potentially most compelling version of the argument.

*2. Two characteristics*

Here are two characteristics (C1 and C2) that any good reading of Field’s objection should have.

It’s commonly agreed that Field’s argument constitutes an improvement on Paul Benacerraf’s (1973) influential dilemma for platonists, primarily because it doesn’t rely on any particular theory of knowledge. Benacerraf’s dilemma (BD) can be stated as follows: platonism is our best theory of mathematical truth, seeing that it preserves our strong conviction that mathematical truths are objective and mind-independent, but platonism is incompatible with the claim that we have mathematical knowledge, seeing that our best theory of knowledge has it that knowledge requires a causal dependence of beliefs on the relevant facts. Read as an epistemological objection against platonism, the upshot is that assuming platonism, mathematical knowledge is impossible. This relies on the outdated causal theory of knowledge, which makes it uncompelling. But BD does point to something interesting, according to Field, namely the puzzling question of how our mathematical beliefs can be so accurate if they are about platonic objects (1989: 25-26). Field shows that this can be posed as a problem for the platonist without appeal to any particular theory of knowledge. He proceeds from the assumption that our mathematical beliefs are largely true. That is, our methods for supporting mathematical beliefs are reliable with respect to finding out about the mathematical facts.[[1]](#footnote-1) Such reliability must be explained. This explanatory challenge is at the heart of Field’s objection (FO), and the point is that assuming platonism, it cannot be met.[[2]](#footnote-2) Thus, FO should be independent of any particular theory of mathematical knowledge (C1).

Second, FO is distinct from two standard nominalist arguments against platonism (C2). Platonist often claim that mathematical objects are indispensable to our best scientific explanations, and therefore we are justified in postulating their existence (see e.g. Colyvan 2001, Baker 2005, 2009). One common nominalist argument seeks to establish that this indispensability claim is false. It’s well-known that Field gives such an argument elsewhere (1980), but FO is supposed to be a distinct objection against platonism. Another common nominalist strategy attacks the indispensability project more generally, i.e. questions the Quinean idea that we are justified in postulating the existence of an entity *x* if *x* is indispensable (see e.g. Maddy 1992, Melia 2000, Leng 2002, Finn 2017). But Field clearly accepts indispensability as ontological justification, so FO should be compatible with that general idea.

In sum, FO should not rely on the correctness of any particular theory of mathematical knowledge, and the argument should be relevant even assuming that there is an indispensability argument supporting the claim that mathematical objects exist. Is there a compelling version of such an argument?[[3]](#footnote-3)

*3. Two readings, in light of C1*

The conclusion of FO is that the reliability of our mathematical beliefs, like the belief that 2+2=4, cannot be explained, given platonism. There is no doubt that this is supposed to “lower philosophers’ confidence” in platonism, as Liggins (2018) puts it. But *why* is it bad for platonism if this reliability is unexplainable? There are at least two possible answers here, which can be presented as two readings of the following passage by Field:

The idea is that *if it appears in principle impossible to explain this* [the reliability of our mathematical beliefs], then that tends to *undermine* the belief in mathematical entities, whatever reason we might have for believing in them (1989: 25-26, emphasis in original).

First, we may read it as saying that if reliability is unexplainable then our mathematical justification, for beliefs like 2+2=4, is undermined. This reading gives us what I call the sceptical version of Field’s objection, SFO for short. It can be constructed as follows:

1. If it seems in principle impossible to explain the reliability of our mathematical beliefs, then any *prima facie* justification we have for our mathematical beliefs is undermined.
2. Assuming platonism, it seems in principle impossible to explain the reliability of our mathematical beliefs.
3. Assuming platonism, our mathematical beliefs are not justified. (*a, b*)

In a nutshell, unexplainable reliability implies mathematical scepticism, and *that’s* why we should reject platonism if SFO is sound. The sceptical reading is endorsed by e.g. Baras (2017), Burgess and Rosen (2005), Clarke-Doane (2017), Pust (2004), and Rosen (2001).

On another, less popular but more literal, reading, what is undermined (“the belief in mathematical entities”) is *an ontological belief,* about the existence of the entities postulated by the platonist. This makes a difference: not being justified in claiming that 2+2=4 is one thing, not being justified in claiming that platonic numbers exist is quite another. We may thus construct the objection as follows:

1. If it seems in principle impossible to explain the reliability of our mathematical beliefs given some theory *T*, then the ontological postulates of *T* should be rejected.
2. Assuming platonism, it appears in principle impossible to explain the reliability of our mathematical beliefs.
3. Platonic mathematical objects should be rejected (*d, e)*.

I’ll call this the ontological version of Field’s objection, OFO for short. In a nutshell, we should reject platonism because its core ontological claim – that there are platonic mathematical objects – should be rejected. Something like this reading is endorsed by Liggins (2006, 2010, 2018).

The two readings differ importantly, in light of C1. Both readings are independent of any particular theory of mathematical *knowledge,* but SFO very centrally rests on a claim about the necessary conditions of justified mathematical belief, since it ties the badness of rendering reliability unexplainable to the undermining of justification for mathematical beliefs. Clarke-Doane (2017: 20), willingly acknowledges this:

According to Field, if one’s beliefs from a domain *F* are justified then it does not appear to her in principle impossible to explain the reliability of her *F*-beliefs.

This is expressed in the argument by *a*. But insofar as justification is a necessary condition for knowledge, this also involves a substantial assumption about the conditions of mathematical knowledge. To be sure, it’s not considered as implausible an assumption as the causal theory of knowledge assumed by BD. Nevertheless, there is about as little in the way of consensus when it comes to theories of justification as there is when it comes to theories of knowledge. OFO, in contrast, does not make any assumptions about what is required for knowledge *or* justification of mathematical beliefs. Nor does it make any assumptions about whether our mathematical beliefs actually amount to either knowledge or justified belief. It only has it that they are reliably true (whatever else that might entail, epistemically speaking) and that this must be explained.

OFO thus seems preferable if the aim is to have an objection independent of theories of knowledge. It’s potentially more compelling than SFO, since the platonist won’t be able to reject it on the basis of not subscribing to any particular epistemological theory. Now, it might well seem an odd ambition for an epistemological objection to be independent of any epistemologically substantial assumptions, so C1 itself could perhaps be questioned. But even then, SFO has problems. It has been argued at length by e.g. Baras (2017), Burgess and Rosen (2005) and Clarke-Doane (2017), who all assume SFO to be the correct reading, that the epistemological argument against platonism is uncompelling because premise *a* is false. For the moment then, OFO seems to be the most promising version.

*4. Defeating ontological justification*

But for OFO to present a compelling case against platonism, some gaps must be filled in. Most obviously perhaps: what does unexplainable reliability have to do with ontological justification (or lack thereof)? Differently put, why should one accept *d*? There is no good answer in the literature to date. Liggins just says that the lack of reliability explanation is an embarrassment for platonism because the reliability of our mathematical beliefs is “the sort of phenomenon which demands explanation”. Field himself similarly stresses that it’s bad because it forces the platonist to regard this reliability of ours as a *brute fact* (1989: 238), which is highly unpalatable. Granted, it’s perfectly legitimate to regard *some* facts as brute, but this reliability-fact just isn’t one of them. But how, or why, should we take this to impact the question of ontological justification?

Now, recall that the most common, and most forceful, reason to believe in the existence of platonic objects comes from an indispensability argument. And by C2, the point of FO can’t be that platonic objects are *not* indispensable. The point must be that even if they are, this does not justify the claim that they exist. Platonism’s commitment to the bruteness of a fact which appears to demand an explanation, is thus supposedly some form of *defeater* for the justification from indispensability.

It’s common to distinguish between *rebutting* and *undercutting* defeaters for some claim that *p*. A rebutting defeater for *p*, is a reason to believe not-*p*. An undercutting defeater for *p* is a reason to think that one’s original justification for *p* is not sufficiently indicative of the truth of *p*. Either the commitment to a brute fact can be pitched as a rebutting defeater, i.e. as a reason to think that platonic objects do *not* exist. Or, it can be pitched as an undermining defeater, i.e. as a reason to think that the apparent justification for the claim that platonic objects exist isn’t sufficiently indicative of the truth of this claim. In particular, OFO either gives a reason to reject the existence of platonic objects *to be weighed against* the reason to affirm their existence, afforded by an indispensability argument. Or, it gives us a reason to think that their indispensability isn’t, after all, sufficiently indicative of their existence – it breaks the link between the conclusion of a valid indispensability argument and the platonic existence claim.

Both of these options are interesting, but badly in need of further elaboration. Consider first the rebutting strategy, according to which the principled absence of a reliability explanation is a reason to reject the existence of platonic objects. Is this plausible? Is it the job of an entity to enable us to explain how we come to have reliable beliefs about it? Undoubtedly, it’s intellectually frustrating if our reliability turns out to be a brute fact, and in some sense unintuitive. But is *that* really a reason to doubt the existence of the entities that seemingly put us in this situation? Moreover, for OFO to be a real threat to platonism, it must be a pretty strong reason, if it is to compete head-to-head with the positive reason afforded by an indispensability argument. Because remember that in light of C2, the objection should be independent of whether mathematical objects are indispensable.

Consider next the undercutting strategy. It needs to be specified how commitment to brute reliability can break the link between indispensability and existence. Since, again by C2, the point with FO isn’t a wholesale attack on indispensability arguments, the wielder of this strategy would presumably be saying something like this: indispensability of *x*s is only a reason to assume the existence of *x*s under certain circumstances, and the commitment to a brute reliability fact suggests that these circumstances are not at hand in the case of platonic objects vis-à-vis our best scientific explanations. But what are the relevant circumstance, and why should we doubt that they obtain when reliability turns out to be a brute fact?

In sum, on either way to pitch OFO there are a number of assumptions about ontological justification and how certain explanatory tasks play into such issues, which must be spelled out and then assessed, before it can be decided whether there is a compelling version of Field’s epistemological objection to platonism.

*5. Conclusions*

Is there a compelling version of Field’s epistemological objection to platonism? Assuming we want an argument free of substantial epistemological assumptions, the most compelling reading of the objection has it targeting the justification for the existence claim at the heart of platonism. However, challenges lie in wait for someone wishing to pursue this version of the argument. I distinguish between two ways to pitch it: as a rebutting defeater and as an undercutting defeater for the justification afforded by an indispensability argument. In either guise, the objection raises multiple questions concerning ontological justification, especially in light of how Field’s objection is supposed to relate to other arguments in the literature. Assuming the objection is uncompelling on the sceptical reading (seeing that it rests on substantial assumptions about mathematical justification, the tenability of which have been questioned elsewhere), whether there *is* a compelling version of Field’s epistemological objection thus depends on the tenability of certain assumptions about ontological justification that are yet to be spelled out. Doing so is further work awaiting anyone wishing to argue that unexplainable reliability defeats the platonist’s ontological justification.

*References*

Baker, A. (2005) Are there genuine mathematical explanations of physical phenomena? *Mind: A Quarterly Review of Philosophy, 114* (454), 223-238.

Baker, A. (2009) Mathematical Explanation in Science. *British Journal for the Philosophy of Science, 60* (3), 611-633.

Baras, D. (2017) Our Reliability is in Principle Explainable. *Episteme, 14* (2), 197-211.

Benacerraf, P. (1973) Mathematical truth. *Journal of Philosophy, 70* (19), 661-679.

Burgess, J. P., & Rosen, G. (2005). Nominalism reconsidered. In Shapiro, S. (Ed.), *The Oxford Handbook of Philosophy of Mathematics* (pp. 515-535). New York: Oxford University Press.

Clarke-Doane, J. (2017) What is the Benacerraf Problem? In Pataut, F. (Ed.), *New Perspectives on the Philosophy of Paul Benacerraf: Truth, Objects, Infinity* (pp. 17-43). Switzerland: Springer International.

Colyvan, M. (2001) *The Indispensability of Mathematics*. Oxford: Oxford University Press.

Field, H. (1980) *Science Without Numbers* (Vol. 17): Princeton University Press.

Field, H. (1989) *Realism, Mathematics & Modality*. Oxford: Basil Blackwell.

Finn, S. (2017) The Role of Existential Quantification in Scientific Realism. *Philosophy, 92* (3), 351-367.

Leng, M. (2002) What's wrong with indispensability? *Synthese, 131* (3), 395 - 417.

Liggins, D. (2006) Is there a good epistemological argument against platonism? *Analysis, 66* (290), 135–141.

Liggins, D. (2010) Epistemological objections to platonism. *Philosophy Compass, 5* (1), 67-77.

Liggins, D. (2018) The Reality of Field’s Epistemological Challenge to Platonism. *Erkenntnis, 83* (5), 1027-1031. doi:https://doi.org/10.1007/s10670-017-9925-z

Maddy, P. (1992) Indispensability and practice. *Journal of Philosophy, 89* (6), 275-289.

Melia, J. (2000) Weaseling away the indispensability argument. *Mind, 109* (435), 455-480.

Pust, J. (2004) On explaining knowledge of necessity. *Dialectica, 58* (1), 71-87.

Rosen, G. (2001) Nominalism, Naturalism, Epistemic Relativism. *Noûs, 35*, 69 - 91.

Schechter, J. (2010) The Reliability Challenge and the Epistemology of Logic. *Philosophical Perspectives, 24* (1), 437-464.

1. Schechter (2010, pp. 441-443) has pointed to the importance of focusing on the reliability of the method rather than the reliability of the beliefs. [↑](#footnote-ref-1)
2. Notably, the problem is not that platonists haven’t *actually* provided an explanation, but that it seems they couldn’t, even in principle. [↑](#footnote-ref-2)
3. I want to stress that my aim here is not exegetical, i.e. not to pin down the argument Field actually had in mind, but to find the most compelling version of the argument given certain constraints that arguably distinguish Field’s general approach here from other arguments in the same ballpark. [↑](#footnote-ref-3)