Deflationary nominalism and puzzle avoidance

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In a series of works, Jody Azzouni has defended deflationary nominalism: the view that (1) reality contains no numbers (nominalism), but (2) existentially quantified sentences (including those quantifying over mathematical objects), as well as their natural language counterparts, can be strictly and literally true without conferring no ontological commitment to what they quantifier over (the “separation thesis”). For example, the following sentences are all literally true on Azzouni’s view:

“Some rational numbers are not natural numbers”

“There is exactly one even prime number”

“Some but not all natural numbers are divisible by 16”

On the face of it, these sentences contain standard objectual quantifiers ranging over numbers, which might encourage us to think that they couldn’t be true unless numbers existed. But Azzouni rejects Quine’s quantificational criterion of ontological commitment and maintains that ‘There is’-sentences can be strictly and literally true without implying the existence of the objects quantified over. Thus, deflationary nominalism promises to satisfy two seemingly contradictory desiderata

1 [Acknowledgments removed].

2 The moniker is due to Bueno 2014.

3 In later work, Azzouni (2017) also refers to this general view as “quantifier neutralism”.
in the philosophy of mathematics: like standard forms of nominalism it dispenses
with commitment to abstract objects, but like standard forms of platonism it “takes
mathematics seriously”. Although deflationary nominalism is a view about
mathematical objects, it can be (and has been) extended to other kinds of things in
obvious ways, for example to hallucinations (Azzouni 2010: Ch. 2), fictional
characters (Azzouni 2010: Ch. 3), holes (Azzouni 2012: 957), and even material
objects (Azzouni 2017: Ch. 6). In what follows, my main focus will be on numbers,
though many of the points I will raise are easily generalizable to other kinds of
things.

Deflationary nominalism should be distinguished from neighboring positions
whose initial statement might look superficially similar. First, deflationary
nominalism isn’t a Meinongian view. Meinong-inspired views come in a number of
varieties, but they all treat existing objects as a proper sub-class of all objects, and
take non-existent ones to have properties, be distinct from other existent and non-
existent objects, and so on. By contrast, as Azzouni often puts it, non-existent things
don’t have properties at all. They lack any ontological status whatsoever; otherwise
quantification over them couldn’t be neutral. Second, and perhaps less obviously,
deflationary nominalism differs from the view that the existential quantifier or its
natural-language counterpart is polysemous between a notion that carries ontological

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4 See Bueno and Zalta 2005 and Bueno 2009 for presentations of platonism and nominalism as
different ways of prioritizing these desiderata.

5 Azzouni makes such remarks in a number of places; see, e.g., 2004: 55–57, 2007: 209, and 2010: 8,
commitment and a notion that doesn’t. Rather, Azzouni thinks that the existential (or more neutrally, particular) quantifier and natural language expressions such as ‘there is’, ‘exists’, etc., are univocal as they stand but don’t by themselves confer ontological commitment. In fact, Azzouni thinks that no linguistic device in natural languages expresses ontological commitment unambiguously; we always have to fall back on features of the context, as well as non-semantic cues such as intonation and body language. Thus each ‘there is’-sentence can be read either committingly or non-committingly, although one of these readings will often stand out as more natural or salient on a given occasion. ‘Exists’ is no different: although it’s often used to emphasize ontological commitments, it can still figure in utterances that are more naturally interpreted non-committingly. (For instance, one can utter “Strategies for circumventing anger exist; many are found in self-help books” without taking on a commitment to such things as strategies.) For stylistic reasons, in what follows I will often use ‘exists’ to convey ontological commitment, but I don’t thereby mean to go against anything Azzouni says.

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6 See Azzouni 2017: 64–67. For a thorough defense of the ambiguity view, see Hofweber 2016.
8 See Azzouni 2017: 61 for this example.
9 In fact, Azzouni himself accepts that we could introduce an expression that is stipulated to carry ontological commitment, such as ‘exist’ (Azzouni 2017: 71–72; cf. 2004: 79 and 2007: 218). Some might go even further here than Azzouni himself does. For example, Parent (2014) argues that the vocabulary we use for ontological theorizing is ambiguous between committal and non-committal uses through and through: there is no formal criterion of ontological commitment, and even the vocabulary that has been designed to express ontological commitment (i.e., what in section 3 I will call the “ontological jargon”) has non-committal uses. However, Parent still thinks that we can understand
Why accept deflationary nominalism? Azzouni defends the view partly on the basis of semantic considerations: he argues that it’s an empirical matter whether ‘there is’-statements in mathematical discourse are used in an ontologically committing way, and that our linguistic behavior indicates that they aren’t. Hence, he proposes that mathematical ‘there is’-sentences are typically literally true but ontologically neutral. In this paper, I won’t be concerned with the empirical arguments for deflationary nominalism. What I’m interested in is a certain kind of philosophical motivation for it. The view is often thought to be attractive because it’s supposed to help us avoid philosophical puzzles about numbers and other problematic kinds of entities. These entities raise several familiar puzzles: What sorts of things are they? How can we individuate them? How can we have knowledge of or even justified belief in them, given that they aren’t in space and time and are not accessible to perception? And so on. On the face of it, deflationary nominalism offers the best of two worlds: it allows us to agree that certain sentences we are strongly inclined to accept are strictly and literally true, but it avoids positing strange philosophical entities, and along with that, the various puzzles surrounding them. Call this the problem avoidance motivation.

Problem avoidance is often considered a major appeal of deflationary nominalism. In the introduction of his 2004 book, for instance, Azzouni emphasizes the he can avoid the problems traditionally associated with realism about problematic entities (especially numbers):

certain terms to be univocally committing within a fixed conversational context. (Relatedly, see also Parent 2015 for a more general worry about how we can zone in on the meanings of metaphysical terms.)
“The main advantage of the separation thesis, overall, is that it simplifies so many
metaphysical tangles. [...] The separation thesis provides so many simplifications in
metaphysics simply because it eliminates the need to postulate something as existing just
because certain truths prove indispensable; many metaphysical entanglements arise because
this is taken for granted.” (Azzouni 2004: 5)

Later in the book, Azzouni discusses several philosophical problems about numbers,
and his discussion makes it clear that he attributes a significant role to his
deflationary nominalism in addressing (or rather, dissolving) them. On this point,
even Azzouni’s critics tend to agree. For example, in the Stanford Encyclopedia of
Philosophy entry on mathematical nominalism, Otávio Bueno mentions a number of
problems for realist interpretations of mathematics (§2) and presents Azzouni’s view
as a potential solution to them (§5). And while deflationary nominalism has been
criticized on many other grounds, there seems to be a consensus that at least it
avoids the problems usually thought to beset views that posit abstract objects.¹⁰

I think this consensus is mistaken: problem avoidance is a poor motivation for
deflationary nominalism. This is because the puzzles that motivate the position have
close analogues that are, surprisingly, no less challenging for deflationary nominalism
than the original problems that motivated the view in the first place. To be clear, this
doesn’t mean that deflationary nominalism is false, or that there are no good reasons
to accept it. It’s just that the ability to avoid the traditional puzzles isn’t among them.
Nor do I claim that Azzouni is unable to avoid the familiar puzzles. Rather, if he can
avoid them, this is because he accepts optional add-ons that neither entail nor follow

¹⁰ For example Bueno and Zalta (2005), Colyvan (2005, 2010, 2012) and Raley (2009), while objecting
to other aspects of deflationary nominalism, don’t call into question its puzzle-solving potential.
from deflationary nominalism. Even so, the view itself plays no significant role in solving these problems – or so I will argue.

To streamline the discussion, I will focus on one particular problem for one particular kind of philosophical entity: Field’s reliability challenge to belief in numbers. Though I think that my main point generalizes to other problems for other kinds of things, I won’t argue for this in detail. In section 2, I will present Field’s original challenge and explain why deflationary nominalism may be thought immune to it. In section 3, I will make my initial case that there is a close relative of this challenge that the view doesn’t address. In section 4, I will consider a natural response based on Azzouni’s independence criterion of existence and argue that even if this response succeeds, it does so independently of deflationary nominalism and could be (and sometimes has been) co-opted by realists. In section 5 I will close with the surprising conclusion that the ontological import of ‘There is’-sentences, and the distinction or lack thereof between ontological and quantificational commitments, is ultimately irrelevant to Field’s reliability challenge. I will also briefly sketch how the argument could be generalized to other puzzles about other entities.

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Field originally proposed his reliability challenge as an improved version of Benacerraf’s argument against mathematical realism.\textsuperscript{11} It goes roughly as follows. If there are numbers – non-spatiotemporal, causally inert abstract objects –, then that’s what mathematical truths are about. And in that case, there should be an explanation of how mathematicians can reliably track truths about such objects. But precisely

\textsuperscript{11} See Benacerraf 1973.
because numbers are non-spatiotemporal and causally inert, there can be no causal explanation of this. Moreover, it’s unclear what an appropriate non-causal explanation would look like. So if there are numbers, there is no explanation of mathematician’s reliability about them, contrary to our starting assumption. This is implausible, so we should conclude that there are no numbers. In premises and conclusion form:

(F1) If there are numbers, then there is either a causal or a non-causal explanation of why mathematicians are reliable with respect to forming beliefs about them

(F2) There is no causal explanation of why mathematicians are reliable with respect to forming beliefs about numbers

(F3) There is no non-causal explanation of why mathematicians are reliable with respect to forming beliefs about numbers

(F4) So, there are no numbers¹²

Field’s reliability challenge has generated a large and impressive body of literature, and various different solutions have been proposed in response to it. Some philosophers reject F1 on the basis that mathematical statements are necessarily true, if true at all, and since they couldn’t be false, there is no need to explain why we are reliable about them. There is no possible scenario in which the mathematical beliefs we actually have are false because the mathematical truths are different.¹³ Others


reject F2 and insist that there is a causal explanation of mathematical reliability, since we are in causal contact with states of affairs that also involve numbers. For example I can see that I have ten fingers, and thereby acquire perceptual access to the number ten. More recently, there have been serious attempts to reject F3 by constructing a substantive non-causal explanation of our mathematical reliability; the basic idea is that we have intellectual access to mathematical entities, which in many ways works analogously to our perceptual access to concrete objects. Finally, some philosophers attempt to partially meet the demand for explanation and partially reject it as illegitimate. For example, Rosen and Burgess (1997: 42–49) argue that there is a kind of causal explanation of our mathematical reliability, in which the development of mathematics in past centuries and the evolutionary forces that influenced of our mathematical beliefs play a significant role, but that any further pressure for a deeper explanation ought to be resisted. Since the causal explanation they invoke doesn’t feature any mathematical facts as causes, it seems best to interpret Rosen and Burgess as rejecting F1 rather than F2. A different solution in this spirit is that of Balaguer (1995), who argues that mathematical reliability is an easy epistemic achievement because for any consistent set of mathematical beliefs, there are some mathematical objects of which those beliefs are true. Again, it’s not fully obvious whether we should take this as a rejection of F1 or a rejection of F3.

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14 Maddy 1990: Ch. 2

15 Chudnoff 2013, Bengson 2015

16 See also Clarke-Doane 2016 for a related strategy.
The former seems more appropriate to me, since Balaguer denies that we either have or need an explanation in terms of non-causal access to mathematical objects.\footnote{Balaguer does take himself to have given an explanation of mathematical reliability, so he wouldn’t accept my classification of his view. This is just a matter of bookkeeping, and depends on how much we demand from an account to count as an explanation.}

So far, so good. But how should a deflationary nominalist respond to Field’s challenge? A seemingly obvious answer is that she should simply accept the argument as sound. F1-F4 are naturally given an ontologically committing reading, and on the committing reading the sentence ‘There are no numbers’ is true. After all, the deflationary nominalist is a \textit{nominalist} and hence rejects the existence of abstract objects. Moreover, Field’s argument can be seen as an argument for nominalism.

This may be right so far as it goes, but it doesn’t give us a complete answer. For even if F1-F4 are more naturally interpreted as containing ontologically committing quantification over numbers, surely it’s possible to interpret them in a non-committing way instead. Of course, this plausibly isn’t how Field himself understands his argument (although he doesn’t use the lingo of ontological commitment). But nothing prevents \textit{me} from presenting a version of the argument that uses neutral quantifiers through and through. On the assumption that Field proposed F1-F4 with an ontologically committing intent, what the neutral interpretation strictly speaking gives us is a \textit{homophonic counterpart} of Field’s own argument. Throughout the rest of the paper I will focus on this modified argument, and will refer to it as the “Field-homophonic argument”.

The distinction between Field’s own argument and the Field-homophonic argument is important because by the deflationary nominalist’s own light, the latter
cannot be sound. When read non-committingly, the sentence ‘There are no numbers’ is \textit{false}. Thus, it’s reasonable to ask what a distinctively deflationary nominalistic response to the Field-homophonic argument would look like. Presumably, it would go roughly as follows. Field’s original challenge attacked the idea that reality contained mathematical objects. The deflationary nominalist claims that although ‘There are’-sentences in mathematics are literally true, they have no such ontological implications. Thus, there is no need to establish the kind of “thick” explanatory connection between mathematical truth and mathematicians’ beliefs that true believers in numbers are obliged to establish. So, once we clarify that ‘There are numbers’ carries no ontological commitment to numbers, the challenge posed by the Field-homophonic argument evaporates.

Unfortunately, matters are not so simple – or so I will argue in the next section. In fact, there is nothing in deflationary nominalism that automatically makes it immune to Field-style puzzles.

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In this section, I will argue that deflationary nominalism offers no distinctive solution to the Field-homophonic argument. My case for this will be pretty straightforward. If the view did offer such a solution, it would have to provide us with some guidance as to which of F1-F3 has to be rejected. But it gives us no such guidance, and therefore fails to address the challenge.

In the previous section, I deliberately phrased what might \emph{seem} like a natural deflationary response in somewhat vague terms, without specifying which premise we should understand this response as attacking. But on reflection, it is far from
clear where, by the deflationary nominalist’s lights, the culprit with the Field-homophonic argument lies. To be clear, I don’t deny that Azzouni can reject one premise or other of the argument – after all, I’m not assuming that the Field-homophonic argument (let alone Field’s original argument) is sound. All I say is that deflationary nominalism gives us no special reason to reject any of its premises. To see this more clearly, let’s go over them.

F1 is plausible, since its consequent is plausible: it shouldn’t be a brute fact that mathematicians are reliable in forming number beliefs. And of course they have many such beliefs, even if the sentences that express them don’t confer ontological commitment to numbers. Moreover, it’s an analytic truth that if mathematicians’ number beliefs are explained, they are explained either causally or non-causally, provided that by ‘non-causal explanation’ we mean ‘an explanation that is not causal’.

F2 seems plausible as well. If anything, F2 should be even more plausible when read non-committingly. Field’s own rationale for F2 was that if there were numbers, we couldn’t have causal access to them. But of course, if numbers don’t even exist, then it’s even harder to have causal access to them. So, whatever we think of Field’s reasons for maintaining that mathematicians’ reliability has no causal explanation, those reasons remain at least as good on the assumption that although ‘There is’-sentences about numbers are true, numbers don’t exist. At this point, it’s worth recalling the kind of “modest” causal explanation of our mathematical reliability that I mentioned in the previous section. Burgess and Rosen (1997) offered such an explanation when they focused on the history of mathematics but assigned no explanatory role to mathematical objects themselves. Perhaps such an explanation is workable, and if so, deflationary nominalists can make use of it in responding to F2.
But in this regard, the position is no better off than garden-variety nominalism: either both can rest satisfied with a causal explanation entirely based on mathematical history or neither can. So, F2 is not a premise deflationary nominalists have special reasons to reject.

Finally, it’s unclear what special reason deflationary nominalists have for rejecting F3. As we have seen, some mathematical realists reject it on the basis that we have intuitive/rational access to abstract objects. But presumably, if numbers don’t exist, this doesn’t make it easier to have such access to them. (I don’t know how hard it is to have non-causal access to things that don’t exist, but plausibly it’s as least as hard as having it to existing things). I expect that at this point, Azzouni would complain that he does have a special non-causal explanatory story about mathematician’s reliability: our epistemic access to numbers is “ultrathin”, as he often puts it, roughly because there is nothing for us to discover about their nature. I will consider this response in the next section; in the meantime, we can at least conclude that there is no obvious distinctively deflationary response to Field’s reliability challenge.

The above line of reasoning will no doubt strike many as deeply confused. After all, deflationary nominalism was all but designed to avoid puzzles like Field’s challenge, and that challenge obviously concerned mathematical ontology; when read non-committingly, F1-F3 aren’t about ontology at all. One might think, then, that one can be tempted to think of these sentences as relevant to deflationary nominalism only by tacitly reading into them things that aren’t there. However, I just don’t see that. Azzouni frequently warns us that with the tool of neutral quantification under our

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belt, we shouldn’t automatically think of existential/particular quantification as having a domain with objects in it. But I’m assuming no such thing; I’m happy to grant that the numbers the Field-homophonic argument talks about aren’t objects in whatever sense of ‘object’ Azzouni has in mind. All I assumed above was that there were numbers, a trivial consequence of the truth of the sentence (when read non-committingly) ‘There are numbers’. Nor do I assume, as Azzouni warns us not to, that this proposition makes true the sentence that expresses it; I assert nothing more than that since the sentence is true, so is the proposition it expresses. It’s just that F1-F3 strike me as prima facie plausible even when I merely focus on the literal truth of these sentences, rather than their ontological content (or lack thereof). Similarly, Azzouni identifies what he calls the “aboutness illusion” as a pernicious influence on much metaphysical theorizing: we easily slip into assuming that in talking and thinking about non-existents, we stand in relations to some entities that our thought and talk are about. Elsewhere, he even distinguishes notions of aboutness and reference (he calls them “aboutness” and “reference”) that carry no such implication. But, again, I’m not presupposing that F1-F3 are “about” numbers in any sense in which Azzouni thinks they aren’t. I don’t take them to be anything other than what they uncontroversially are: true (if non-committing) sentences that imply that there are numbers. In short, I’m not questioning here any of the machinery Azzouni introduces to “de-ontologize” number-talk. What I question is that the

19 Azzouni 2017: xxiv, xxviii-xxix.
20 Azzouni 2017: Ch. 4.
21 Azzouni 2017: xi-xii
22 Azzouni 2016: 43–44. See also Azzouni 2004: 61 – 62, where the preferred terminology is ‘refer*’.
machinery helps address the Field-homophonic argument. If deflationary nominalism gives us an interesting response to the Field-homophonic argument, this needs to be shown by pointing at the faulty premise and carefully spelling out why the view gives us special reasons to reject it. Generic reminders about the content of the view won’t do.

In the next section I will consider a more specific (and more promising) response on the deflationary nominalist’s behalf. But first, I want to give a general diagnosis of why there is no quick route from deflationary nominalism to puzzle-avoidance. Azzouni’s separation thesis is a view about the relation between ontological commitment and quantificational statements. As such, it essentially appeals to certain pieces of philosophical jargon (the “ontological jargon”, as I’ll refer to it in what follows): ‘ontological commitment’, ‘out there in reality’, and the like. Azzouni frequently asks what gives ‘There is’-statements “ontological force”\(^{23}\), which of them are “ontically saturated”\(^{24}\), how to determine the folk’s “ontic predilections”\(^{25}\), and what the “furniture of the universe”\(^{26}\) includes. Now, some have complained that the way he uses the ontological jargon makes his position obscure.\(^{27}\) However, I’m not making this complaint. I simply observe that Azzouni’s position cannot even be stated without appealing to the jargon. By contrast, F1-F3 of the

\(^{23}\) Azzouni 2004: 77

\(^{24}\) Azzouni 2017: Ch. 3

\(^{25}\) Azzouni 2007: 210

\(^{26}\) Azzouni 2007: 206

\(^{27}\) Hofweber (2007) raises a similar concern when he worries that it’s not clear what question Azzouni’s deflationary nominalism is trying to answer.
Field-homophonic argument require no appeal to the ontological jargon. They are phrased plainly in terms of what there is (once again, consistently with the alleged ontological neutrality of ‘there is’); considerations pertaining to “ontological commitment”, “ontological status” or the “furniture of reality” don’t enter the argument at any point. For this reason, it’s hard to see how deflationary nominalism could be relevant to the Field-homophonic argument. This simple observation has nothing to do with whether the ontological jargon is in good standing. For all I know it is; it just doesn’t help with the problem at hand.

If you prefer, call truths like the one expressed by ‘There are prime numbers’ in its non-committing use shmontological truths. I’m happy to give Azzouni the word ‘ontology’ and allow that ontology concerns the entities we are ontologically committed to. Shmontology, by contrast, is simply the study of literally true “There is/are…”-sentences and their consequences. The deflationary nominalist can emphasize all he wants that the truth of ‘There are prime numbers’ has no ontological import. It still has shmontological import, since it disquotationally entails that there are prime numbers, and therefore numbers. It doesn’t matter that these numbers are not objects or things, that they have no properties, or that they aren’t among the furniture of reality; what matters is that it’s true that there are numbers. The Field-homophonic argument threatens to undermine this claim, and with it the truth of ‘There are prime numbers’ (on its non-committing reading). It is therefore generally unclear how a position like deflationary nominalism could possibly help with Field-style puzzles.28

28 This moral is analogous to a point recently made by Korman (2015) about material object ontology: reformulating once-familiar thesis about which material objects there are as views about which
We can refer to the kind of problem I introduced in the preceding paragraphs as "the puzzles of shmontology". The puzzles of shmontology pose a serious challenge to would-be deflationary nominalists moved by the problem-avoidance motivation. However, this is not the end of the matter. Although a blanket acceptance of deflationary nominalism doesn’t make the Field-style puzzles go away, Azzouni may well have extra theoretical resources that go a long way toward addressing them. In the next section, I will argue that even if there are such resources, they are independent from deflationary nominalism itself and are also available to those who reject the view. Thus, deflationary nominalism offers no distinctive answer to Field-like puzzles.

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Azzouni’s complete account of mathematical discourse doesn’t stop at deflationary nominalism; rather, it consists of a negative and a positive thesis. The negative one is the aforementioned rejection of Quine’s criterion of ontological commitment. According to Quine (1948), a regimented theory’s ontological commitments are the entities that have to be values of the variables bound by the theory’s existential quantifiers in order for that theory to be true.29 The full package, however, also material objects fall into the domain of the most joint-carving existential quantifier will fail to solve the puzzles that originally motivated these positions. In short: which objects exist in the most fundamental sense is irrelevant to puzzles concerning which objects exist, in the plain old English sense of ‘exist’.

29 Or so goes the textbook recap. As Azzouni (2004: Ch. 3) quite rightly notes, there are many interpretative puzzles concerning Quine’s criterion, and it’s far from clear what the criterion ultimately comes down to. However, none of what follows hangs on these interpretative difficulties.
contains a positive criterion of existence in place of Quine’s, which Azzouni calls the *ontological independence* criterion: something exists just in case it doesn’t depend on mental and linguistic phenomena. This requires clarification on two scores. First, Azzouni uses the expression ‘ontological dependence’, but he doesn’t have in mind the relation usually at issue in the specialized literature on ontological dependence. The latter is usually taken to be an ordering relation that holds between less and more fundamental things of any ontological category, comes in various species (rigid and generic, existential and essential, etc.), and perhaps figures in the definition of substance. To avoid confusion, for the rest of the paper I will follow standard terminology and refer to Azzouni’s notion simply as “mind-independence”. The second point to clarify is that Azzouni doesn’t base the independence criterion on substantive philosophical arguments but thinks we should accept it because our linguistic community reserves the word ‘exists’ for mind-independent things.

Once this background framework is in place, Azzouni’s argument for deflationary nominalism is fairly straightforward. Given the independence criterion of existence, mathematical objects exist only if they are mind-independent. But if mathematical objects are mind-independent, we aren’t justified in assenting to our mathematical sentences. However, we are justified in believing that ordinary mathematical statements are true, although the

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30 Azzouni 2004: Ch. 4
31 See, for instance, Koslicki 2013 for a useful survey of this notion. Azzouni is aware that he deviates from standard usage; see Azzouni 2012: 955.
32 Azzouni 2004: 92-99
objects they are about don’t exist. Which is to say, deflationary nominalism is true.

It’s worth quoting the argument in Azzouni’s own words:

“Here’s an argument that we shouldn’t take mathematical abstracta to exist any more than we take fictional items to exist: Mathematical abstracta are ontologically dependent on our linguistic practices in just the same way that fictional items are […] This argument, however, requires establishing that mathematical abstracta are ontologically dependent on us in the appropriate sense. How do we manage that? It’s easy. Mathematical objects can’t be ontologically independent of us because then we wouldn’t be justified in claiming that the statements we take to be true of such mathematical objects are true. But that we’re so justified is simply a datum of mathematical practice” (2004: 103)

Azzouni moves somewhat freely between the literal truth of mathematical sentences and our justification for believing that they are literally true. I won’t dwell on this point, since none of what follows will hang on it; I will simply follow Azzouni and phrase the argument in terms of justification:

(A1) If mathematical objects exist, they are mind-independent and our mathematical sentences are about them

(A2) If our mathematical sentences are about mind-independent mathematical objects, we are unjustified in asserting them

(A3) We are justified in asserting our mathematical sentences

(A4) So, mathematical objects don’t exist, but our mathematical sentences are true. So, deflationary nominalism is true

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The first half of A1 (that if mathematical objects exist, they are mind-independent) is a straightforward consequence of the independence criterion, and its second half (that if mathematical objects exist, our mathematical sentences are about them) is independently plausible. To establish A3, Azzouni relies on the Quine-Putnam indispensability argument. Of course, he doesn’t believe that the argument establishes the existence of mathematical objects, but he thinks it secures the literal truth of (at least a large number of) mathematical sentences.33

Azzouni’s remarks on A2 are somewhat condensed, but he clearly accepts it on the basis of epistemological problems in the vicinity of the Field-Benacerraf challenge.34 Why does he think that his own view is immune to the challenge? The answer lies in the special epistemic significance he attributes to mind-dependence:

“If something is ontologically dependent [that is, mind-dependent] on an author, for example, then he or she isn’t seen as needing to square the properties of that thing with something else: There is no requirement that he or she justify the claim that the item in question has the properties attributed to it. If someone isn’t making something up, then he or she is trying to square its properties with something else and thus is required to provide an explanation for why the properties attributed to the item must be the properties it has.” (Azzouni 2004: 99)

33 Azzouni concedes that the argument doesn’t immediately secure the truth of unapplied mathematics (2004: 48).

34 Azzouni usually focuses on Benacerraf’s argument rather than Field’s. He also adds an argument of his own, the “epistemic role puzzle”. Azzouni takes this to be different from Benacerraf’s problem (Azzouni 1994: 55–64), but his assessment has been challenged; see McEvoy 2012 and Azzouni 2016 for discussion.
The upshot is that mind-dependent things are epistemically cheap because they don’t have the properties that we could go wrong about; our epistemic access to them is “ultrathin”. Depending on the exact construal of the relation between minds and mind-dependent things as causal or non-causal, we can take Azzouni to deny either F2 or F3 of the Field-homophonic argument. Either way, there is an explanation of mathematician’s mathematical reliability: the things their beliefs are about are mind-dependent (and therefore non-existent) things; in Azzouni’s words, we “make them up”.

Now, it’s not obvious that mind-dependence automatically shields something from Field-style concerns. But never mind. Notice instead that Azzouni’s radical view about the relation between quantification and ontological commitment plays no role in his proposed way out of the problem. All the heavy lifting is done by the claim that numbers are mind-dependent; the independence criterion of existence is an optional add-on of no epistemological significance.

This becomes especially clear when we direct our attention to views that also treat numbers as mind-dependent objects but make no revisionary claims about their ontological status. Julian Cole (2009) has recently defended just such a view. In line with platonist views, Cole maintains that numbers and other mathematical objects are abstracta, but contrary to platonists, he also thinks that they are mind-dependent things that owe their existence to our creative powers. Since mathematical objects are

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36 Suppose, for example, that we have one-way causal access to created abstract objects: we can cause them to exist, but they can’t cause anything. In that case, how can we know that the abstracta we created are the way we intended them to be? (Cf. Field 1989: 27, Liggins 2010: 74-75.)
abstract, Cole doesn’t think that their dependence on us is causal. Instead, he categorizes them (along with games and social groups) as constitutive social constructs: constructed entities that exist “in virtue of a group of individuals having granted some item a normative role in certain of their activities”. Moreover, just like games but unlike social groups, mathematical entities are pure constitutive social constructs in that they don’t require the antecedent existence of any mind-independent entity that members of the group would only need to endow with certain features.

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37 Cole 2009: 597. See also Thomasson 1999 for socially constructed, mind-independent artifacts in general.

38 Bueno (2009: 70–71) has independently developed a similar view, which he calls “fictionalism”: mathematical statements can be interpreted as referring to human-created abstract artifacts. Unlike in the case of Cole, it’s not entirely clear if Bueno thinks it’s these mind-dependent things that mathematical statements already refer to according to our standing practices, since he is merely agnostic about (but doesn’t deny) the existence of mind-independent platonic abstracta (see Azzouni 2015 for a criticism of this aspect of Bueno’s view).

Sometimes Dummett, too, speaks as if he held views in this vicinity. For example, he suggests an interpretation of Frege according to which the world “does not come to us as articulated in any way; it is we who, by the use of language [...] impose a structure on it” (1981: 504), and “pure abstract objects [abstracta that don’t require the existence of any concrete objects, e.g. pure sets] are no more than the reflections of certain linguistic expressions” (1981: 505). Elsewhere, he says that it’s “pointless” to ask whether mathematical entities are discovered or invented (1991: 227), and that the real question concerns whether the domain of quantification (rather than individual mathematical objects) are discovered or invented (228). It’s not entirely clear what Dummett’s answer to this question is. He appears to deny that mathematical objects are mental constructions (1991: 240), but then again adds that “it would certainly be wrong to say that [a mathematical] system existed in advance of our conceiving it” (1991: 311). Ultimately, it’s unclear what Dummett’s position on
Cole claims that his view (which he calls Practice-Dependent Realism) addresses the Field-Benacerraf challenge, and his story is essentially the same as Azzouni’s: since our mathematical practices determine the features of mathematical objects, and we have causal access to these practices, there is no deep puzzle about the reliability of our mathematical beliefs. The availability of Practice-Dependent Realism makes especially vivid why deflationary nominalism as such is irrelevant to Azzouni’s solution to the reliability challenge: what matters is the idea that mathematical objects are dependent on thought and language; whether such dependence implies that mathematical objects don’t exist is neither here nor there.

It might be objected that we should still prefer deflationism to Practice-Dependent Realism on independent grounds. Indeed, Azzouni offers extensive linguistic evidence to the effect that our conventional criterion of existence is mind-independence. If he is right, then (barring other differences between the two views) Practice-Dependence Realism should give way to Azzouni’s view. This may well be true, but it’s irrelevant to my main point. My point has been merely that it’s misguided to accept deflationary nominalism on the basis of its potential to help us get rid of philosophical puzzles. Even if linguistic evidence favored deflationary nominalism over structurally isomorphic Quinean views, that wouldn’t tell against this point. I therefore conclude that Azzouni’s deflationism isn’t properly motivated

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30 Cole 2009: 607

mathematical ontology was; his remarks strike me as indeterminate between contemporary neo-Fregean views and a mind-dependent view similar to Cole’s.
by problem-avoidance considerations and offers no distinctive solution to the Field-homophonic argument.\textsuperscript{40}

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Azzouni’s deflationary nominalism tells us that ‘There is’-sentences can be strictly and literally true without conferring ontological commitment to what they quantify over. It’s prima facie reasonable to expect such a radical view to have interesting consequences for Field’s reliability challenge for numbers. But when we take a closer look, we find this not to be the case: surprisingly, deflationary nominalism leaves the puzzle – or at least a very similar homophonic counterpart of it – entirely intact. It’s another matter that the view can be combined with some other doctrine (e.g., that mathematical objects are mind-dependent), which might go a long way to solving the puzzle. But the doctrine in question is independent from deflationary nominalism; we can easily verify this by noticing that the solution it suggests would work just as well (or just as badly) even if we dropped the nominalist component.

Although I didn’t try to do so, it’s not hard to see that my argument could be generalized to other problems about other philosophical entities. First, it can be extended to puzzles similar to Field’s about properties, propositions, possible worlds, and the like. These, too, are non-spatiotemporal, causally inert objects on their standard construal, so any set of beliefs about such entities faces a challenge similar

\textsuperscript{40} In this regard, my conclusion agrees with the letter of Schechter’s (2010: 439), who argues that the Field-Benacerraf challenge doesn’t concern mathematical \textit{ontology}. However, he would also make a stronger claim I disagree with: that the challenge doesn’t even concern mathematical “shmonontology” in my sense. See also Clarke-Doane 2016: 17–25 for further discussion.
to Field’s about mathematical objects. Moreover, the familiar arguments concerning them also have counterparts that use homophonically indistinguishable (albeit ontologically non-committal) premises. Deflationary nominalism offers no obvious response to these modified arguments, and for the same reason I discussed above: it is a thesis about ontological commitment in mathematical discourse, but the puzzles in question can be formulated without any appeal to ontological commitment, ontological status, or the ontological jargon in general. Moreover, deflationary nominalists could (and presumably would) argue that these objects, too, are mind-dependent (and so don’t exist). But as in the case of numbers, these responses would be entirely independent from deflationary nominalism itself, and could be co-opted by realists about the requisite objects.

The argument could be extended not only to similar puzzles about different entities, but also to different kinds of puzzles about those entities. I cannot defend this claim in any detail here, but by now, the argument should be predictable. Take Benacerraf’s individuation problem about numbers, Bradley’s regress about relations, or any other familiar puzzle about entities that are considered philosophically problematic. The setup of none of these problems requires us to use the ontological jargon. Hence, they (or their homophonic counterparts) can be formulated as puzzles resulting from the traditional realist’s view of which ‘There is’-sentences are true. Moreover, the deflationary nominalist agrees with the realist on

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42 Benacerraf 1965

43 See Maurin 2012 for a helpful overview.
which of these sentences are true, provided that they are interpreted non-committingly. The most the deflationary nominalist can do is transform these ontological problems into shmonto logical ones, but this doesn’t make the need to solve them any less pressing. And of course, the deflationary nominalist is free to adopt supplementary theses such as the mind-independence of the relevant entities. But that route is also open to realists, which means that radical as Azzouni’s separation thesis is, it ultimately plays no role in solving these puzzles.

Where does this leave us? There may be perfectly legitimate reasons to accept deflationary nominalism. Perhaps the view gives us a better understanding of which questions we should count as genuinely ontological. Perhaps there is also strong empirical evidence for some version of the view, because attention to ordinary speakers’ linguistic behavior reveals their underlying non-committing tendencies. Any of these claims, and perhaps some more, might provide strong motivation for deflationary nominalism. But you shouldn’t endorse the view on the basis that the view offers a distinctive solution to puzzles that is not open to its realist rivals. Any appearance to this effect is an illusion arising from excessive reliance on the ontological jargon.
References


Colyvan, Mark (2012), “Road Work Ahead: Heavy Machinery on the Easy Road,”

Mind, 121: 1031–1046


Field, Hartry (1989), Realism, Mathematics and Modality, Oxford: Blackwell


Miguel Hoeltje, Benjamin Schnieder, Alex Steinberg (eds.), Varieties of Dependence, pp. 31–64, Munich: Philosophia Verlag


Maddy, Penelope (1990), Realism in Mathematics, Oxford University Press


Parent, Ted (2014), “Ontic terms and metaontology, or: on what there actually is,”

*Philosophical Studies, 170: 199–214*


247-265


Nominalism,” *Philosophia Mathematica, 17: 73–83*


University RSSS, Canberra

Schechter, Joshua (2010), “The Reliability Challenge and the Epistemology of

Logic,” *Philosophical Perspectives, 24: 437–64*


*Philosophical Perspectives, 10: 243–64*


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