

# A Quinean Reformulation of Fregean Arguments

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#### **Abstract**

In ontological debates, realists typically argue for their view via one of two approaches. The *Quinean approach* employs naturalistic arguments that say our scientific practices give us reason to affirm the existence of a kind of entity. The *Fregean approach* employs linguistic arguments that say we should affirm the existence of a kind of entity because our discourse contains reference to those entities. These two approaches are often seen as distinct, with *indispensability arguments* typically associated with the former, but not the latter, approach. This paper argues for a connection between the two approaches on the grounds that the typical arguments of the Fregean approach can be reformulated as indispensability arguments. This connection is significant in at least two ways. First, it implies that indispensability arguments provide a common framework within which to compare the Quinean and Fregean approaches, which allows for a more precise delineation of the two approaches. Second, it implies the possibility of analogical relations that allow proponents and opponents of each approach to draw upon the ideas that have been developed regarding the other.

**Keywords** Quine · Frege · Indispensability Arguments · Linguistic Arguments

In ontological debates, realists typically argue for their view via one of two approaches. The first approach uses a roughly naturalistic style of argument according to which we should affirm the existence of a kind of disputed entity because our scientific theories or practices warrant belief in those entities. An example of an argument along these lines is the Quine-Putnam indispensability argument for mathematical Platonism (Colyvan, 2001; Quine, 1948, 1981). According to this argument, mathematical entities are indispensable to our best scientific theories, in the sense that if quantification over mathematical entities was eliminated from our best scientific theories, those theories would be compromised with respect to some

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important theoretical virtues.<sup>1</sup> The argument then proceeds with the claim that we should affirm the existence of all entities that are so indispensable, from which it follows that we should affirm the existence of mathematical entities. This argument is roughly naturalistic in the sense that it takes science to be the arbiter of existence for mathematical entities, arguing for a claim about mathematical ontology on scientific grounds. Similar arguments have been advanced for other kinds of disputed entities, and will be considered below.

A second possible and often-used route to realism proceeds via broadly linguistic arguments that say we should affirm the existence of a kind of entity because our discourse contains reference to those entities. An example of this kind of argument is Frege's argument for mathematical Platonism. Frege argued that we have reasons to affirm the truth of some sentences containing mathematical terms like.

The number of planets in the solar system is eight.

Moreover, according to Frege, we should treat terms like 'eight' in such sentences as singular terms referring to numbers. He then argued that the truth of such sentences containing reference to numbers implies the existence of numbers (Frege, 1960, pp. 68–69). This route to mathematical Platonism appears (at least initially) different from the one that proceeds via the Quine-Putnam indispensability argument. Instead of locating the arbiter of existence for mathematical entities in science, Frege's argument makes claims about mathematical ontology on the grounds of observations about our language. Following Eklund (2006), call these two routes to realism (in the general case) the *Quinean* and *Fregean* approaches to ontology, respectively.<sup>2</sup>

Although the Quinean and Fregean approaches appear to represent two separate routes to realism, this paper will argue otherwise, namely, that the two approaches are more similar and connected than they initially appear. Specifically, it will be argued that the arguments typically associated with the Quinean and Fregean approaches can be formulated as instances of the same argument form and, moreover, that comparisons and analogies can be drawn between Quinean-style and Fregean-style arguments using the framework of this broader argument class.<sup>3</sup>

<sup>&</sup>lt;sup>3</sup> Frege in *Grundgesetze* §91 might have argued for a realist attitude to mathematics on grounds of the applicability of mathematics to science, and this argument is sometimes taken to be a rudimentary predecessor of the Quine-Putnam indispensability argument (Balaguer, 1998, pp. 95–112; Colyvan, 2001, pp. 8–9; Sereni, 2014), though this connection has been disputed (Garavaso, 2005). The connection to be argued in this paper will differ from this. 'Fregean-style arguments' here refers to arguments premised on observations about a domain of discourse, independent of whether that domain is applicable to science. Thanks to an anonymous referee for highlighting this similar idea in the literature.



<sup>&</sup>lt;sup>1</sup> There is some disagreement over what indispensability consists in and, in particular, which theoretical virtues are key for determining indispensability—see Burgess (1983), Field (1980, p. 8), Colyvan (1999, p. 5; 2001, p. 77), and Panza and Sereni (2013). For the purposes of this paper, a rough characterisation of indispensability will suffice.

<sup>&</sup>lt;sup>2</sup> The characterisations of the two approaches so far has been only rough, depending on the somewhat vague descriptions of arguments are 'naturalistic' or 'linguistic'. This seems to be in line with the way the approaches are characterised in the literature. Section 4 will consider this imprecision and suggest a clearer delineation of the arguments that fall under each approach.

Section 1 lays out a general form for *indispensability arguments*, a class of arguments typically associated with the Quinean approach to ontology. Section 2 then lays out a general form for Fregean-style arguments, and Sect. 3 argues that instances of this latter form can be reformulated as indispensability arguments. Section 4 concludes by suggesting possible ways in which this reformulation can potentially be theoretically fruitful.

## 1 Indispensability Arguments

Other than the Quine-Putnam indispensability argument, several other arguments have been advanced in ontological debates that argue for an ontological commitment on scientific grounds. One example is the enhanced indispensability argument for mathematical Platonism, according to which we should affirm the existence of mathematical entities because they are indispensable to our best explanations of scientific phenomena (Baker, 2005, 2009; Colyvan, 2010; Lyon, 2011). Arguments have also been advanced for scientific realism (Smart, 1963), realism about grounding relations (Audi, 2012), and theism (van Holten, 2002) on the grounds that the respective disputed entities are indispensable to some aspect of our best scientific theories. These arguments fall under the Quinean approach to ontology because they share the naturalistic flavour of the Quine-Putnam indispensability argument, taking science to be the arbiter of existence for the target entities.

Clarification: In saying that Quinean-style arguments have a naturalistic flavour, it is not being claimed that these arguments depend on naturalism, nor even that their proponents hold naturalism. A strong form of naturalism might say that science is to be the *ultimate* arbiter for all ontological questions, such that ontological issues should be settled *only* on scientific grounds (Baron, 2013, p. 2414; Colyvan, 2001, p. 12). A weaker form of the thesis might impose a more general doctrine about how science should interact with philosophy (Colyvan, 2001, p. 24; Quine, 1981, p. 72) or other disciplines (Maddy, 1997, 2001). Even if such theses turn out to be false, Quinean-style arguments might still go through. Indeed, it has been argued that the Quine-Putnam indispensability argument does not depend on naturalism (Panza & Sereni, 2016; Resnik, 1995), and Putnam himself denies advancing a form of the argument that depends on naturalism (Putnam, 2006; also see Liggins, 2008). The arguments of the Quinean approach are roughly naturalistic only in the sense that they attempt to settle *some* ontological issues on scientific grounds, and thereby proceed in line with what naturalism would dictate.

Besides their naturalistic flavour, another feature shared by the above examples of Quinean-style arguments is that they are all *indispensability arguments*. That is, they depend on the claim that the respective disputed entities are indispensable to some aspect of our theories or practices, in the sense that if quantification over the disputed entities were eliminated from those theories, or if the disputed entities were eliminated from those practices, those theories or practices would be compromised



<sup>&</sup>lt;sup>4</sup> Also see Molinini, Pataut, and Sereni (2016).

with respect to some important virtues. The arguments then take this indispensability to be sufficient reason for accepting an ontological commitment to the target entities.

Formally, of the example-arguments thus far considered, those falling under the Quinean approach can be construed as instances of the following argument form: Indispensability argument

- (I)X-entities are indispensable to P.
- (II)We should affirm the existence of all entities that are indispensable to P.
  - ... We should affirm the existence of X-entities.

where X is a kind of disputed entity and P is some purpose to which X-entities are purportedly indispensable.

This observation is significant because the examples considered thus far seem to be *representative* of the kind of arguments typically advanced as part of the Quinean approach to ontology. That is, when thinking about arguments that seek to argue for an ontological commitment on scientific grounds, arguments like the Quine-Putnam indispensability argument and the Enhanced Indispensability Argument are the ones that typically come to mind, and other arguments might be thought to fall under the Quinean approach insofar as they resemble these examples in this respect. The fact that the considered examples are all indispensability arguments hence suggests that arguments in this class might have significant connections to Quinean-style arguments.

To be sure, it is by no means being claimed that the class of indispensability arguments *delineates* the class of Quinean-style arguments—not every argument falling under the Quinean approach has to be an indispensability argument, nor does every instance of the indispensability argument form have the naturalistic flavour of paradigmatically Quinean arguments.<sup>5</sup> Nevertheless, the fact that several representative examples of Quinean-style arguments are indispensability arguments suggests that even if an indispensability argument does not fall under the Quinean approach, that argument, by virtue of being an indispensability argument, might be thought to have important similarities to Quinean-style arguments.

## 2 Fregean Arguments

Consider now the arguments typically employed under the Fregean approach to ontology. Apart from Frege, Rayo (2009, 2013), Dummett (1956), Linnebo (2005, 2009), Hale (1984), Hale and Wright (2001), and Wright (1983) have also advanced Fregean-style arguments for mathematical Platonism. Though the details of these arguments may differ, they are all premised on the claim that we have reasons to

<sup>&</sup>lt;sup>5</sup> Indeed, §3 will argue that some indispensability arguments do not fall under the Quinean approach, and §4 will consider cases where it is unclear whether an indispensability argument falls under the Quinean approach. §4 will also suggest a restriction on indispensability arguments that might define a subclass containing just Quinean-style arguments.



affirm the truth of some mathematical sentences containing terms referring to mathematical entities.

The reasoning behind this premise proceeds as follows. According to *Frege's theorem* (Boolos, 1990; Frege, 1960, pp. 73–99; 1964; Wright, 1983, pp. 154–169), a significant part of mathematics can be derived from *Hume's principle*, which says that.

Fs are equinumerous with Gs if there is a bijection between Fs and Gs.

Moreover, the argument goes, Hume's principle is true, perhaps even analytically so (Wright, 1999). From this, it follows that some mathematical sentences like.

2 is an even number

are (analytically) true. Now, some such sentences contain number terms like '2' that function syntactically as singular terms, in that they validate the relevant inferences and admit an appropriate criterion of identity (Hale & Wright, 2001, pp. 32–72; Wright, 1983, pp. 53–64). This seems good reason to treat such terms as semantic singular terms, which refer whenever they occur in a positive true sentence. Moreover, if number terms do refer, the contexts in which these terms occur suggest that they refer to numbers (Linnebo, 2018, pp. 135–158; Wright, 1983, pp. 107–117). Therefore, according to this line of argument, we should affirm the truth of some mathematical sentences in which singular terms refer to mathematical entities.

Proponents of Fregean-style arguments then argue that this premise gives us sufficient reason to affirm the existence of mathematical entities. Similar arguments have also been employed in service of realism about fictional characters (Braun, 1993, 2005; Salmon, 1998; van Inwagen, 1977, 2003), moral values (Brink, 1989; Schiffer, 1990), propositions (Schiffer, 1994, 2003), and abstract in general (Linnebo, 2018; Schiffer, 1996). Each of these arguments make the case that we should affirm the truth of some sentences in which singular terms refer to the entities in question (though the precise arguments for this claim may differ between instances—see Sect. 3), and take this to be sufficient grounds on which to affirm the existence of those entities.

Formally, such arguments (henceforth, *Fregean arguments*) can be construed as instances of the following schema:

Fregean argument:

- (1) We should affirm that there are true sentences within *X*-discourse in which singular terms refer to *X*-entities.
- (2) We should affirm the existence of all the referents of singular terms in true sentences within X-discourse.
  - :. We should affirm the existence of X-entities.

where X-entities are a kind of disputed entity and X-discourse is the aspect of our discursive practices in which some sentences contain apparent reference to X-entities. (Henceforth, Arabic numerals denote the premises of Fregean arguments and uppercase Roman numerals denote the premises of indispensability arguments.)

It appears, at least initially, that the Quinean and Fregean approaches to ontology represent two distinct and quite separate routes to realism. After all, there seem to be



obvious differences between the two: the arguments typically associated with each approach appear different and the Fregean approach seems to lack the naturalistic flavour of the Quinean approach. It is sometimes also thought that the notions of object—and hence the kinds of realism yielded—under each approach differ (e.g., Eklund, 2006, p. 327; Linnebo, 2018, pp. 24–26). Moreover, Quine himself might have denied a central idea of the Fregean approach while arguing for realism. In a paper in which Quine presented an early formulation of the Quine-Putnam indispensability argument, he says:

We need no longer labour under the delusion that the meaningfulness of a statement containing a singular term presupposes an entity named by the term. A singular term need not name to be significant. (Quine, 1948, p. 25)

Nevertheless, the next section will argue that the two approaches are more similar than they initially appear, because Fregean arguments are in fact indispensability arguments.

### 3 Reformulated Fregean Arguments

Toward a generalisation, it may be observed that the reasoning behind premise (1) of the Fregean argument for mathematical Platonism depends on the following claims:

- (i) We should affirm the truth of some sentences in which some terms function syntactically as singular terms and purport reference to the disputed entities.
- (ii) Syntactic singular terms in such sentences should be taken as semantic singular terms.
- (iii) Terms that purport reference to the disputed entities, if they refer at all, should be taken to refer to the disputed entities (rather than entities of some other kind).
  - (i)–(iii) are jointly sufficient to imply premise (1).

If the arguments employed under the Fregean approach generally proceed along broadly similar lines to those for mathematical Platonism—and there seems no reason to doubt that they do—then, we might expect the reasoning behind premise (1) of Fregean arguments also to depend on (i)–(iii) in the relevant instances. To be sure, the details of how (i)–(iii) are argued might differ between domains. In the case of mathematics, (i) was argued on the grounds that the truth of the relevant sentences follows logically from analytic premises, and the argument for (ii) was based on the inferential behaviour of the relevant terms. In other domains, and perhaps more typically, it might simply be argued that accepting (i)–(iii) would yield the most straightforward interpretation of the relevant sentences. But regardless of the further details of how (i)–(iii) are argued, we might expect arguments for premise (1) of Fregean arguments to proceed via (i)–(iii).

This is significant because (i)–(iii) are claims about how we should interpret our *discourse* in the relevant domain. (i) is a claim about the truth of sentences in our interpretation of that discourse, (ii) is about terms in those sentences, and (iii) is



about the reference of these terms. So, broadly speaking, proponents of Fregean arguments generally make their case for premise (1) by arguing for an interpretation of our discourse in the disputed domain under which we accept (i)–(iii), and hence (1). This does not mean, of course, that (i)–(iii) are in fact the case. Indeed, it will be observed later in this section that some opponents of Fregean arguments might deny premise (1), and hence some of (i)–(iii), either by denying that the best interpretation of the relevant discourse abides by (i)–(iii) or by arguing that we should adopt a sub-optimal interpretation. The claim here is only that *according to proponents of a Fregean argument*, we should affirm premise (1) because of (i)–(iii), and (i)–(iii) are true because (in their view) the best interpretation of the relevant discourse abides by these claims.

If the above explication of the reasoning behind premise (1) is right, then this premise can be formulated in terms of indispensability as follows: the entities in question are indispensable to the best interpretation of our discourse in that domain. That is, if the relevant discourse were to be interpreted in such a way as to avoid reference to the entities in question, the resulting account would lack one of the features represented by (i)–(iii), and thereby be compromised with respect to some important virtues when compared to the interpretation suggested by the Fregean argument. What these virtues exactly are will depend on the particular reasons provided for (i)–(iii). In the case of the Fregean argument for mathematics, denying (i) might mean an inconceivable account of mathematical discourse under which some logical consequences of analytic principles are not taken as true. In the case of moral properties, if the most straightforward account of our moral discourse abides by (iii), an interpretation of our moral discourse under which moral terms refer to entities other than moral properties would be non-optimal with respect to straightforwardness.

Then, premise (2) can also be formulated in terms of indispensability, because its role in the argument is essentially to say that premise (1) gives us sufficient reason to affirm the existence of the entities in question. Hence, Fregean arguments may be recast like so:

Reformulated Fregean argument

- (I)X-entities are indispensable to the best interpretation of X-discourse.
- (II)We should affirm the existence of all entities that are indispensable to the best interpretation of X-discourse.
  - .. We should affirm the existence of X-entities.

The original and the reformulated Fregean argument forms are both valid. Moreover, an instance of one is sound just in case the corresponding instance of the other is. As argued above, if the argument for premise (1) of a Fregean argument goes through in a particular instance, then the entities in question are indispensable to the best interpretation of the relevant discourse, and the corresponding instance of premise (I) is true. If, moreover, premise (2) is true, then premise (1) can provide sufficient grounds on which to accept an ontological commitment to the entities in question. That is, this ontological commitment can be justified



on the grounds that the target entities are indispensable to the best interpretation of the relevant discourse—which is what the corresponding instance of premise (II) says.<sup>6</sup> Therefore, whenever a Fregean argument is sound, so is the corresponding reformulated Fregean argument.

Conversely, opponents of a Fregean argument who deny one of its premises may also be expected to deny a premise in the corresponding instance of the reformulated Fregean argument. To see this, consider three ways in which one might object to a premise of a Fregean argument.

First, an opponent might accept premise (1) but reject premise (2). That is, they might hold that premise (1) is insufficient grounds for accepting the argument's conclusion. Opponents who fall under this group must also deny premise (II) of the corresponding reformulated Fregean argument. For, as argued above, premise (I) is true whenever premise (1) is. So opponents who deny the inference from premise (1) to the argument's conclusion must also hold that premise (I) is insufficient grounds for accepting the conclusion of the corresponding reformulated Fregean argument (since the two arguments have the same conclusion).

Second, an opponent might *deny that premise* (1) *follows from the best interpretation of the relevant discourse*. Since an instance of premise (1) is jointly implied by the corresponding instances of (i)–(iii), such an opponent must say that the best interpretation of the relevant discourse need not abide by (i)–(iii). That is, they must hold that we can give an equally good interpretation of that discourse without affirming the truth of the relevant sentences, or without taking syntactic singular terms as semantic singular terms, or while taking the relevant singular terms to refer to something other than the target entities. Whatever the case, this opponent holds that the disputed entities are not indispensable to the best interpretation of the relevant discourse, since that discourse can be interpreted at least as well without reference to those entities. Hence, they deny the corresponding instance of premise (I).

Third, an opponent might deny premise (1) by adopting an alternative account of discourse. That is, they might accept that (i)–(iii) indicate the best interpretation of the relevant discourse, but opt for another interpretation that violates at least one of those claims, perhaps because other factors outweigh semantic considerations. Such opponents hold that even if the target entities are

<sup>&</sup>lt;sup>8</sup> For instance, fictionalists deny (i) by denying the truth of all sentences in which singular terms purport reference to the target entities (Field, 1989; Leng, 2005; Mackie, 1977). Some other opponents deny (ii) by affirming some of those sentences while denying that we can infer anything about the reference of terms therein (Azzouni, 2004; Yablo, 2009). Still others affirm the reference of the relevant terms but deny that they refer to the entities under dispute (Hellman, 1989; Moltmann, 2013, 2016), thereby denying (iii). If these opponents hold that their account of the relevant discourse is at least as good as the realists, they fall under the present category of opponents; otherwise, they choose to adopt a sub-optimal interpretation of the relevant discourse (see below).



<sup>&</sup>lt;sup>6</sup> It is not being claimed that premise (1) is true just in case the corresponding instance of premise (I) is, nor is the same being claimed about premises (2) and (II). See below for a case in which one might deny premise (1) while affirming premise (I).

<sup>&</sup>lt;sup>7</sup> Some Meinongians are an example of such opponents, who argue that non-existent entities can be the referents of singular terms in true sentences (Linsky & Zalta, 1995; Priest, 2005; Routley, 1980).

indispensable to the best interpretation of the relevant discourse, this is not a reason to be ontologically committed to those entities (because of the other factors). So, they deny the corresponding instance of premise (II).

The upshot is that whenever the original Fregean argument is unsound, so is the reformulated Fregean argument. Therefore, a Fregean argument is sound if the corresponding reformulated Fregean argument is. Since reformulated Fregean arguments have the form of indispensability arguments, the reformulation implies that the typical arguments of the Fregean and Quinean approaches to ontology, despite appearing different, in fact have the same form.

### 4 Implications

The reformulation proposed in the previous section, while perhaps interesting, would not by itself be significant if the connection between the Quinean and Fregean approaches stopped at a formal similarity. This section will suggest two ways in which the reformulation of Fregean arguments might have potentially significant implications. Though this exploration will not be exhaustive, it will, hopefully, bring to light some possible avenues for further investigation.

First, the reformulation of Fregean arguments provides a common framework within which to compare the Quinean and Fregean approaches to ontology. This common framework might be theoretically fruitful in several ways. The framework of indispensability arguments offers, for instance, the resources with which to give more precise delineations of the arguments that fall under each approach. Thus far, the characterisation of arguments that fall under the Quinean and Fregean approaches has been somewhat rough, depending on descriptions of arguments as either 'naturalistic' or 'linguistic'. This seems to be in line with the way the approaches, especially the Quinean approach, are often characterised only roughly in the literature. Eklund (2006), for example, characterises the Quinean approach vaguely by saying that 'Quine himself, and more orthodox Quineans, let science (natural science) be the arbiter of what there is', while allowing others who do not quite fit the mould to be 'Quineans in a broader sense' (p. 318).

This roughness in delineating the two approaches to ontology implies that it might sometimes be unclear whether an argument falls under a particular approach. Consider, as an example, the argument for modal realism—the view that concrete possible worlds exist—advanced by David Lewis (1986). Lewis argued that modal realists can give the best account of the role that *possibilia* play in our discourse about modality, and that we should hence affirm the existence of concrete possible worlds. It is perhaps unclear whether this argument falls under the Quinean or Fregean approach to ontology (or both). It might be thought to have something of the naturalistic flavour that characterises Quinean-style arguments—Eklund, for instance, considers Lewis' argument 'Quinean[] in the broader sense' (ibid.), but it does not seem naturalistic to quite the same degree as, say, the Quine-Putnam indispensability argument. At the same time, the argument is somewhat linguistic like all Fregean-style arguments, but is not as direct as the Fregean argument for



mathematical Platonism in moving from our modal discourse to an ontological commitment to concrete possible worlds.

The reformulation of Fregean arguments simplifies the task of delineating the Quinean and Fregean approaches because it implies that the typical arguments of both approaches are indispensability arguments. Therefore, in delineating the two approaches, we need not give an account of what it means for arguments in general to be naturalistic or linguistic, but only what it means for indispensability arguments to fall under those descriptions. This latter kind of account is simpler to give. All indispensability arguments are premised upon the indispensability of the entities in question for a particular purpose, and one possible way of explicating the target descriptions (when only indispensability arguments are in view) is to say that an argument is naturalistic or linguistic depending on the purpose in question. Specifically, an indispensability argument might be considered naturalistic insofar as it is premised on the indispensability of the target entities for a scientific purpose, and it might be described as linguistic insofar as it is premised on the indispensability of the target entities to some aspect of our discourse. And, the vagueness of these descriptions, insofar as they are vague, might be traceable to vagueness in what it means for a purpose to be scientific, or for an aspect of our practices to be discursive.

This characterisation, despite not being a fully precise definition, can help us to make better sense of cases like Lewis' argument. Cast as an indispensability argument, Lewis' argument is that we should affirm the existence of concrete possible worlds because they are indispensable to the best interpretation of our modal discourse. Thus construed, we can see why Lewis' argument might be seen as somewhat Quinean. The purpose for which the argument takes concrete possible worlds to be indispensable—the interpretation of our modal discourse—could be understood as scientific in some broad sense, but it does not fall squarely within our scientific practices the way our best scientific theories do. The similarity between this argument and paradigmatically Fregean arguments also becomes clear-Lewis' argument, like all Fregean arguments, is premised on the indispensability of a kind of disputed entity to the purportedly best interpretation of our discourse in a particular domain. What is distinctive about Lewis' argument, however, is the sense in which concrete possible worlds are taken to be indispensable to our modal discourse. With most Fregean arguments, the disputed entities are claimed to be indispensable to the best interpretation of our discourse (in the relevant domain) in the sense that under that interpretation, our discourse contains true sentences with singular terms referring to those entities. However, Lewis' argument does not proceed exactly along these lines because our modal discourse, for the most part, does not contain singular terms that apparently refer to concrete possible worlds. Hence, Lewis' argument has a Fregean flavour without being exactly like paradigmatically Fregean arguments.

This discussion of Lewis' argument demonstrates just one way in which the framework of indispensability arguments facilitates comparisons between

<sup>&</sup>lt;sup>9</sup> Lewis' argument is sometimes interpreted as an indispensability argument—see De (2018) and Eklund (2006).



the Quinean and Fregean approaches, and there might be yet other possible avenues for investigation along these lines.

A second way in which the reformulation of Fregean arguments might be significant is that it implies the possibility of analogical relations between the usual arguments of the Quinean and Fregean approaches. Such analogies could be theoretically fruitful for either proponents or opponents of the typical arguments, who, in defending or opposing the arguments of one approach, can draw upon ideas that have been developed regarding the other. As an example, we will consider a commonly raised objection to Fregean arguments.

It is sometimes argued that the Fregean approach to ontology does not present a genuine route to realism because its arguments, even if sound, do not show that the target entities exist in the sense typically intended by realists. According to this line of objection, Fregean arguments depend on inferences from our language in such a way that even if they were sound, they would show that we should affirm the existence of the target entities only relative to our linguistic framework, and not in any external objective sense. However, realism about a kind of entity, at least as typically conceived, holds that the entities in question exist objectively and, in some sense, independently of us and our language. Therefore, the objection goes, Fregean arguments do not yield realism, at least not in a form relevant to ontological debates.

An example of an argument along these lines is Carnap's (1950) argument that even if an existential sentence follows from our affirmations within a discourse, this does not commit us to the corresponding realist view as typically conceived. Hirsch (2002, 2005, 2008), likewise, argues that it is possible for an existential sentence to be true within our linguistic framework without the existence of the entities in question being a matter of metaphysical fact. For similar reasons, Putnam (1987, 1994) and Thomasson (2009, 2014) have employed Fregean arguments for views that resemble realism without taking themselves to be arguing for the existence of entities in any deep metaphysical sense.

Such objections are often raised against Fregean arguments, but they are not typically thought to affect indispensability arguments. It is usually thought that if an indispensability argument succeeds in making a case for an ontological conclusion, it establishes a *genuine* ontological conclusion. While there may be disagreement over whether each indispensability argument is sound, there seems to be some consensus that indispensability arguments, *if* sound, would make a genuine case for realism. In particular, it is doubtful that indispensability arguments make the case for their conclusion only in a deflationary sense—at least, it is unclear for now how this can be argued. Indeed, attempts to deflate ontological debates have thus far focused on linguistic arguments like Fregean arguments (e.g., Thomasson, 2014; Yablo, 2009), and little attempt has been made to deflate indispensability

<sup>&</sup>lt;sup>10</sup> There have been doubts regarding whether some indispensability arguments can make a case for metaphysical realism (under which a kind of disputed entity exists) and not merely for semantic realism (under which a disputed kind of sentence is true)—see Liggins (2008), Pincock (2012), and Putnam (2006). However, these doubts are separate from the line of objection considered here, according to which some apparent arguments for realism can establish the existence of a kind of entity, but only in a deflationary sense. Thanks to an anonymous referee for highlighting this similar argument.



arguments specifically.<sup>11</sup> Eklund also suggests that at least some indispensability arguments cannot be deflated in the above sense when, in comparing the Quinean and Fregean approaches, he remarks that although 'the Fregean approach is arguably deflationary', 'the Quinean approach...is clearly non-deflationary' (Eklund, 2006, p. 327).

There are two possible ways in which the reformulation of Fregean arguments as indispensability arguments might bear at this point. First, it might be taken to suggest a possible way in which proponents of Fregean arguments can begin to respond to such objections. For proponents of Fregean arguments, the fact that Fregean arguments can be cast as instances of a class of arguments not usually thought to be deflationary could provide *prima facie* reasons to think that the Fregean approach presents a legitimate route to realism. These reasons, though not decisive, suggest that those who seek to deflate Fregean arguments have a burden of proof to show either that Fregean arguments are somehow atypical indispensability arguments, or that some other indispensability arguments can also be deflated accordingly. Furthermore, these *prima facie* reasons can be developed into a more robust defence of Fregean arguments if positive reasons can be identified for thinking that indispensability arguments make a genuine case for realism, and if it can be argued that these reasons hold in the case of Fregean arguments.

Alternatively, the reformulation might be taken to suggest that Quinean-style arguments are possibly vulnerable to a line of objection not usually thought to affect them. That is, for those sympathetic to the line of objection above, since some indispensability arguments (namely, reformulated Fregean arguments) are arguably deflationary, it is possible that Quinean-style arguments are deflationary as well. At least, the Quinean approach should not be considered immune to deflation simply because it employs indispensability arguments. Moreover, it might be possible to develop this thought into an objection against the Quinean approach, if it can be argued that the typical reasons for deflating Fregean arguments also hold in the case of Quinean-style arguments.

This brief discussion is by no means intended to settle the issue either in favour of the Fregean approach or against the Quinean approach. What it shows, hopefully, is that the reformulation of Fregean arguments provides useful theoretical resources for proponents and opponents of either approach, who can draw upon the ideas that have been developed with one approach, and bring them to bear in analogous ways on the other.

#### **Declarations**

**Conflict of Interest** The authors declare no competing interests.

<sup>&</sup>lt;sup>11</sup> See Balaguer (1998) for an attempt at deflating indispensability arguments, though Balaguer does not argue that indispensability arguments are deflationary because they yield realism in a merely verbal sense.



#### References

Audi, P. (2012). A clarification and defense of the notion of grounding. In F. Correia & B. Schnieder (Eds.), Metaphysical Grounding: Understanding the Structure of Reality (pp. 101–121). Cambridge University Press.

Azzouni, J. (2004). Deflating existential consequence. Oxford University Press.

Baker, A. (2005). Are there genuine mathematical explanations of physical phenomena? *Mind*, 114(454), 223–238

Baker, A. (2009). Mathematical accidents and the end of explanation. In O. Bueno & Ø. Linnebo (Eds.), *New Waves in Philosophy of Mathematics* (pp. 137–159). Palgrave Macmillan.

Balaguer, M. (1998). Platonism and anti-Platonism in mathematics. Oxford University Press.

Baron, S. (2013). A truthmaker indispensability argument. Synthese, 190, 2413–2421.

Boolos, G. (1990). The standard of equality of numbers. In G. Boolos (Ed.), *Meaning and Method: Essays in Honor of Hilary Putnam* (pp. 261–277). Cambridge University Press.

Braun, D. (1993). Empty names. Noûs, 27, 449-469.

Braun, D. (2005). Empty names, fictional names, mythical names. Noûs, 39(4), 596-631.

Brink, D. (1989). Moral realism and the foundations of ethics. Cambridge University Press.

Burgess, J. (1983). Why I am not a nominalist. Notre Dame Journal of Formal Logic, 24(1), 93-105.

Carnap, R. (1950). Empiricism, semantics, and ontology. In P. Benacerraf & H. Putnam (Eds.), *Philosophy of mathematics: Selected readings* (pp. 241–257). Cambridge University Press.

Colyvan, M. (2001). The indispensability of mathematics. Oxford University Press.

Colyvan, M. (2010). There is no easy road to nominalism. Mind, 119(474), 285-306.

De, M. (2018). On the Humphrey Objection to Modal Realism. Grazer Philosophische Studien, 95(2), 159–179.

Dummett, M. (1956). Nominalism. Philosophical Review, 65, 491–505.

Eklund, M. (2006). Metaontology. Philosophy. Compass, 3(1), 317–334.

Field, H. (1989). Platonism for cheap? Crispin Wright on Frege's context principle. In M. Realism (Ed.), and Modality (pp. 147–170). Blackwell.

Frege, G. (1964). The basic laws of arithmetic. Cambridge University Press.

Frege, G. (1960). The foundations of arithmetic (J. Austin, Trans. Vol. 1). Oxford: Basil Blackwell.

Garavaso, P. (2005). On Frege's alleged indispensability argument. Philosophia Mathematica, 13(2), 160–173.

Hale, B. (1984). Frege's Platonism. The Philosophical Quarterly, 34(136), 225–241.

Hale, B., & Wright, C. (2001). The reason's proper study: Essays towards a Neo-Fregean philosophy of mathematics. Oxford University Press.

Hellman, G. (1989). Mathematics without numbers: Towards a modal-structural interpretation. Oxford University Press.

Hirsch, E. (2002). Quantifier variance and realism. Philosophical. Issues, 12, 51-73.

Hirsch, E. (2005). Physical-object ontology, verbal disputes, and common sense. Philosophy and Phenomenological Research, 70(1), 67–97.

Hirsch, E. (2008). Ontological arguments: Interpretive charity and quantifier variance. In T. Sider, J. Hawthorne, & D. W. Zimmerman (Eds.), Contemporary debates in metaphysics (pp. 367–381). Blackwell Publishing.

Leng, M. (2005). Revolutionary fictionalism: A call to arms. *Philosophia Mathematica*, 13(3), 277–293. Lewis, D. (1986). *On the Plurality of Worlds*. Basil Blackwell.

Liggins, D. (2008). Quine, Putnam, and the 'Quine-Putnam' indispensability argument. *Erkenntnis*, 68(1), 113–127.

Linnebo, Ø. (2005). To be is to be an F. Dialectica, 59(230), 235–252.

Linnebo, Ø. (2009). The individuation of the natural numbers. In O. Bueno & Ø. Linnebo (Eds.), New waves in philosophy of mathematics (pp. 220–238). Palgrave Macmillan.

Linnebo, Ø. (2018). Thin objects. Oxford University Press.

Linsky, B., & Zalta, E. N. (1995). Naturalized Platonism versus Platonized naturalism. The Journal of Philosophy, 92, 525–555.

Lyon, A. (2011). Mathematical explanations of empirical facts and mathematical realism. *Australasian Journal of Philosophy*, 90(3), 559–578.

Mackie, J. L. (1977). Ethics: Inventing right and wrong. Penguin Books.

Maddy, P. (1997). Naturalism in mathematics. Oxford University Press.



Maddy, P. (2001). Naturalism: Friends and foes. Philosophical Perspectives, 15, 37-67.

Molinini, D., Pataut, F., & Sereni, A. (2016). Indispensability and explanation [Special issue]. Synthese, 193(2), 317–657.

Moltmann, F. (2013). Reference to numbers in natural language. *Philosophical Studies*, *162*(3), 499–536. Moltmann, F. (2016). The number of planets, a number-referring term? In P. A. Ebert & M. Rossberg

(Eds.), Abstractionism: Essays in the philosophy of mathematics. Oxford University Press.

Panza, M., & Sereni, A. (2013). The indispensability argument: Structure and basic notions. *Plato's Problem* (pp. 196–216). Palgrave Macmillan.

Panza, M., & Sereni, A. (2016). The varieties of indispensability arguments. Synthese, 193, 469-516.

Pincock, C. (2012). Mathematics and scientific representation. Oxford University Press.

Priest, G. (2005). Towards non-being. Oxford University Press.

Putnam, H. (1987). Truth and convention: On Davidson's refutation of conceptual relativism. *Dialectica*, 41(1–2), 69–77.

Putnam, H. (1994). The question of realism. Words and life (pp. 295-312). Harvard University Press.

Putnam, H. (2006). Indispensability arguments in the philosophy of mathematics. In M. DeCaro & D. Macarthur (Eds.), *Philosophy in an age of science: Physics, mathematics, and skepticism* (pp. 181–201). Harvard University Press.

Quine, W. V. (1948). On what there is. The Review of Metaphysics, 2(5), 21-38.

Quine, W. V. (1981). Success and limits of mathematization. *Theories and things* (pp. 148–155). Harvard University Press.

Rayo, A. (2009). Toward a trivialist account of mathematics. In O. Bueno & Ø. Linnebo (Eds.), *New waves in philosophy of mathematics* (pp. 239–260). Palgrave Macmillan.

Rayo, A. (2013). The construction of logical space. Oxford University Press.

Resnik, M. (1995). Scientific vs mathematical realism. Philosophia Mathematica, 3(3), 166-174.

Routley, R. (1980). Exploring Meinong's jungle and beyond. Australian National University.

Salmon, N. (1998). Nonexistence. Noûs, 32(3), 277-319.

Schiffer, S. (1990). Meaning and value. The Journal of Philosophy, 87(11), 602-614.

Schiffer, S. (1994). A paradox of meaning. *Noûs*, 28(3), 279–324.

Schiffer, S. (1996). Language-created language-independent entities. *Philosophical Topics*, 24(1), 149–167.

Schiffer, S. (2003). The things we mean. Clarendon Press.

Sereni, A. (2014). Frege, indispensability, and the compatibilist heresy. *Philosophia Mathematica*, 23(1), 11–30

Smart, J. J. C. (1963). Physical objects and physical theories. Routledge.

Thomasson, A. (2009). Answerable and unanswerable questions. In D. Chalmers, D. Manley, & R. Wasserman (Eds.), *Metametaphysics: New essays on the foundations of ontology* (pp. 444–471). Oxford University Press.

Thomasson, A. (2014). Ontology made easy. Oxford University Press.

van Holten, W. (2002). Theism and inference to the best explanation. Ars Disputandi, 2, 1-20.

van Inwagen, P. (1977). Creatures of fiction. American Philosophical Quarterly, 14(4), 299-308.

van Inwagen, P. (2003). Existence, ontological commitment, and fictional entities. In M. Loux & D. Zimmermann (Eds.), *The Oxford handbook of metaphysics*. Oxford University Press.

Wright, C. (1983). Frege's conception of numbers as objects. Aberdeen University Press.

Wright, C. (1999). Is Hume's principle analytic? Notre Dame Journal of Formal Logic, 40(1), 6–30.

Yablo, S. (2009). Must existence-questions have answers? In D. Chalmers, D. Manley, & R. Wasserman (Eds.), Metametaphysics: New essays on the foundations of ontology (pp. 507–526). Oxford University Press.

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