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KANT, FREGE, AND THE NORMATIVITY OF
LOGIC: A REPLY TO MACFARLANE

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Abstract

According to what was the standard view (Poincaré, Wang, etc.), although Frege endorses, and Kant denies, the claim that arithmetic is reducible to logic, there is not a substantive disagreement between them because their conceptions of logic are too different. In his “Frege, Kant, and the logic in logicism,” John MacFarlane aims to establish that Frege and Kant do share enough of a conception of logic for this to be a substantive, adjudicable dispute. MacFarlane maintains that for both Frege and Kant, the fundamental defining characteristic of logic is “that it provides norms for thought *as such*” (MacFarlane, 2002, p. 57). In this essay, I defend the standard view against MacFarlane’s argument. I show that it rests on conflating two separate ways Kant’s pure general logic is normative, and that once these are distinguished the argument is blocked.

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KANT, FREGE, AND THE NORMATIVITY OF LOGIC: A REPLY TO MACFARLANE

1 Introduction

Frege attempted to reduce arithmetic to logic. Kant, however, held such a reduction was impossible, because he thought arithmetic required intuition.¹ So there is an apparent dispute over whether arithmetic is reducible to logic—over logicism. Still, one might wonder whether this apparent dispute is substantive, because Kant and Frege have quite different conceptions of logic. And unless there is a common agreed on conception, it might turn out both that arithmetic is reducible to Frege’s logic, while it is not reducible to Kant’s.

Poincaré and Hao Wang think that this is in fact how things go, and maintain that the apparent dispute lacks substance. According to Wang:

Frege thought that his reduction refuted Kant’s contention that arithmetic truths are synthetic. The reduction, however, cuts both ways. [...] if [Frege’s] reduction is really successful, one who believes firmly in the synthetic character of arithmetic can conclude that Frege’s logic is thus proved to be synthetic rather than that arithmetic is proved to be analytic. [...] In the same vein, if one believes firmly in the irreducibility of arithmetic to logic, he will conclude from Frege’s or Dedekind’s successful reduction that what they take to be logic contains a good deal that lies outside the domain of logic.²

Thus, Wang holds there is a standoff. Frege thinks he has refuted Kant and shown arithmetic to be an analytic matter of logic, but Kant is free to conclude that Frege’s logic includes synthetic elements, and is not properly logic—or not properly logic in the relevant sense.

John MacFarlane, in his “Frege, Kant, and the logic in logicism,” attempts to overcome this standoff and show that Frege and Kant do share enough of a conception of logic for them to have a substantive, adjudicable dispute over

¹(B16). A key for my abbreviations of Kant’s works can be found at the end of the essay.
²(Wang, 1963, p. 80), cf. (Poincaré, 1914, p. 162).

logicism. MacFarlane argues that for both Frege and Kant, the fundamental defining characteristic of logic is “that it provides norms for thought *as such*,”³ and that because they share this conception, Kant should accept Frege’s logic as a species of his own pure general logic, even though these logics differ in other, less fundamental respects, such as whether they abstract away from objects.

Since its publication, MacFarlane’s essay has become the go-to essay both on the general relationship between Kant’s and Frege’s conceptions of logic and on their specific dispute over logicism.⁴ This is surely in part because MacFarlane’s essay is at the center of what Clinton Tolley describes as the “growing consensus that Kant and Frege ultimately agree on the nature of the generality of logic,” where, “whatever else they might disagree about, Kant and Frege agree that logic’s laws and forms are constitutive of all thought and reasoning as such, no matter what its object.”⁵ Despite its influence, and the bevy of scholars who seem to agree with the core of MacFarlane’s interpretations, MacFarlane’s argument itself has not received very much attention.⁶ In this essay I examine it, and argue we should not reject Wang’s position on its basis, because it trades on an equivocation between different kinds of normativity.

MacFarlane’s argument has two parts. First, he aims to establish that Kant and Frege share the same fundamental normative conception of logic. Second, taking his cue from a passage in the *Jäsche Logic*, MacFarlane argues that logic’s abstraction away from objects, on Kant’s view, only follows from his extra-logical commitments. The second part builds on the conception of normativity developed in the first, and my focus will be on showing this first part does not hold up. Specifically, I argue that there are two different ways that the laws of Kant’s pure general logic are normative: for coherently exercising the faculty for thinking, and for forming true thoughts about objects. MacFarlane

³(MacFarlane, 2002, p. 57)

⁴E.g. (Longuenesse, 2005, p. 89, n14), (Beaney, 2006, p. 52, n4), and (Hofweber, 2017).

⁵(Tolley, 2013, p. 431-432). As Tolley is well aware, of course, within this ‘consensus’ there are disputes. Perhaps most notably, neither Kant nor Frege scholars are in agreement on how exactly logic’s laws are constitutive of all thought.

⁶An exception is (Tolley, 2012). I discuss his response further in note 38 below.

conflates these and assimilates the resulting normativity with the normativity he finds in Frege's logic. Once we distinguish the two kinds of normativity of pure general logic, however, MacFarlane will face a dilemma. If he holds it is their normativity for the faculty of thinking that is definitive of logical laws, then logic's abstraction away from objects will be an essential feature of it. If it is their normativity for truth that is definitive, this will be insufficient for showing the candidate law is analytic. And in neither case is there ground enough for a substantive dispute over arithmetic's analyticity.

2 MacFarlane's normativity

In this essay, I am not going to be discussing Frege's conception of logic or its normativity *per se*, but only MacFarlane's readings of them. I will discuss this, as well as MacFarlane's case for why the normativity of Kant's pure general logic is similar to the normativity he finds in Frege in this section. In the next, I will argue that we should distinguish two normative roles for Kant's pure general logic. In the one after I will argue that MacFarlane assimilates the normativity of Kant's logic to the normativity he finds in Frege's logic. And in the final section, I will look at why this is problematic.

Since Frege, we have become accustomed to conceiving of logic as the study of entailment relations between sentences or thoughts. On this conception entailments are justification relations that obtain independently of specific acts of thinking by any given thinker, or even independently of the faculties for thinking of all thinkers. This stands in sharp contrast to Kant, who conceives of logic as "the science of the rules of the understanding in general," where the understanding is the faculty for thinking and judging.⁷ Further, according to Kant, there are two such sciences: pure general and transcendental logic. Of

⁷(A52/B76). Here Kant has in mind the understanding in his "broad designation," which incorporates all of the higher faculties of cognition: "understanding, the power of judgment, and reason" (A130-131/B169; cf. *PöLL*, 24:505). In general, throughout this essay I will be examining the understanding in this broad sense.

these, it is pure general logic that will be our central concern. This is because, by and large, the laws of transcendental logic and the truths that it studies are synthetic, while the laws and truths of pure general logic are analytic. And since we are concerned with whether the truths of arithmetic are analytic or synthetic, it is the reduction to pure general logic that is relevant.

To begin, although neither Kant nor Frege use the contemporary term, ‘normative,’ we find both deploying something like our notion. As Lanier Anderson has argued, there was a normative/descriptive divide that structured much of the German anti-psychologism debates of the late nineteenth century,⁸ and we find a version of the distinction in Frege.⁹ For Frege, normative laws say how things ought to be, and one example are moral laws. Descriptive laws say how things are, and one example are physical laws.

This conception of the normative and descriptive structures MacFarlane’s account of the normativity he claims is common to Kant and Frege. He develops it by beginning with Frege.¹⁰ According to MacFarlane’s Frege, logical laws are like laws of physics in that both have “the form ‘such and such is the case,’ not ‘one should think in such and such a way.’”¹¹ Nonetheless, both have normative consequences: the laws of physics, for thought *about the physical world*, and the laws of logic for thought *as such*.¹² Frege claims that the laws of logic “only deserve the name ‘law of thought’ with more right [than the laws of physics] if it should be meant by this that they are the most general laws, which prescribe universally how one should think if one is to think at all.”¹³ Because of statements like this, MacFarlane concludes that for Frege the defining characteristic of logic is its normativity for thought as such.

If we turn to the ‘generality’ and ‘purity’ of Kant’s pure general logic, we will see why MacFarlane takes the defining characteristic of this logic to be the

⁸(Anderson, 2005)

⁹(Frege, 1893, p. xv) & (Frege, 1918, p. 58).

¹⁰(MacFarlane, 2002, p. 32-37; 43-44)

¹¹(MacFarlane, 2002, p. 35)

¹²(MacFarlane, 2002, p. 37)

¹³(Frege, 1893, p. xv)

same as the one he finds in Frege. First, its generality. MacFarlane takes Kant’s distinction between general and particular logics to track the same distinction as the one Frege was getting at with his distinction between the rules for thinking about physical things and the rules for thinking in general. This is because Kant’s particular logic of physics will also study the rules for thinking about physical objects, while his pure general logic will study the rules for thought *as such*.¹⁴ On these grounds, MacFarlane concludes that both Frege’s quantificational logic and Kant’s pure general logic are normative in the same way: they both provide unconditional norms for any thinking whatsoever.¹⁵

Second, although MacFarlane does not use Kant’s distinction between applied and pure logic to make his case, he could have, because when Kant draws this distinction he often seems to deploy a normative/descriptive contrast. According to Kant, logic will be “applied if it is directed to the rules of the use of the understanding under the subjective empirical conditions that psychology teaches us.”¹⁶ For this reason applied logic is a branch of the (mostly) descriptive science of empirical psychology.¹⁷ In pure logic, however, “we abstract from all empirical conditions under which our understanding is exercised,”¹⁸ and its “rules are not ones according to which we think, but [ones] according to which we ought to think.”¹⁹ Pure logic abstracts away from the concrete empirical facts that condition our thinking, and studies the *a priori* rules that will govern thinking in any being. In these passages, then, we see Kant carving off the descriptive, empirical, psychological study of the rules of our thinking, from the normative, *a priori* science of logic proper. And so, to the right ear, these passages will have an undeniably Fregean ring.

¹⁴(A52/B76; *JL*, 9:12; *PöLL*, 24:502)

¹⁵(MacFarlane, 2002, p. 43)

¹⁶(A53/B77)

¹⁷At points Kant will even claim that it is not properly called logic (*PöLL*, 24:507), despite discussing topics like the sources of prejudice (e.g., *DW-L*, 24:737ff), which are squarely in the realm of applied logic, in his logic lectures.

¹⁸(A52-53/B77)

¹⁹(*DW*, 24:694; cf. *JL*, 9:14; *WL*, 24:791; *BusL* 24:611; *PöLL*, 24:504; *PhiL*, 24:321; *BlomL*, 24:25, 18; 16:29-30 R1599; 16:36, R1612; 16:43-50 R1627, R1628, R1629.)

3 Two kinds of normativity of pure general logic

Despite the shared ‘generality’ and ‘purity’ of Kant’s and Frege’s logics, the ‘normativity’ that we can justifiably attribute to Kant’s pure general logic is not quite the same as Frege’s (or our own). Specifically, in this section I will argue there are two ways Kant will view the normativity of pure general logic: as standards for thought’s agreement with itself and as standards for thinking true thoughts or thinking about objects.

The core of the case that pure general logic is normative rests on Kant’s consistent claims that it is a “canon.”²⁰ For Kant a canon is “the sum total of the *a priori* principles of the correct use of certain cognitive faculties in general.”²¹ As a canon, the use of pure general logic will be for critique: the correction of judgments. And among the laws of pure general logic, one of the most fundamental is “the proposition that no predicate pertains to a thing that contradicts it,” or what Kant calls “the principle of contradiction.”²² Kant maintains any violation of the laws of logic will also be a violation of this principle, and a cognition will be “in complete accord with logical form” if it does “not contradict itself.”²³

Both kinds of normativity are wrapped into this characterization. What distinguishes them is related to two aspects of thoughts as ‘cognitions’ (*Erkenntnisse*) or representations of an object. As Kant consistently points out, all our cognition has a *twofold* relation: first, to the object that the cognition or thought represents; second, to the thinking subject to whom the cognition or thought belongs.²⁴ This twofold relation is the source of the dual normativity of pure general logic. On the one hand, its laws can be considered in relation only to the activity of thinking of the subject, without yet looking outside that action to the object. On the other hand, its laws can be considered in relation to their

²⁰(e.g., A53/B77)

²¹(A796/B824)

²²(A151/B190)

²³(A59/B84)

²⁴(*Pöl*, 24:510; *BusL*, 24:616; *JL*, 9:33, 9:58; R1693 1773-77)

objects, since violating logic's laws makes it impossible for the representation to be true of the thing it purports to represent.

Developing these, pure general logic can be said to be normative in the first faculty-oriented sense merely because it is a canon. Canons give rules for the correct use of a faculty, in this case the understanding.²⁵ As a canon for the understanding it provides rules for the understanding's agreement with itself, or rules governing "what is formal" in its use.²⁶ We will arrive at these formal rules through the "mere analysis of the actions of [the understanding or] reason into their moments, without taking into consideration the particular nature of the cognition about which it is employed."²⁷ For, merely as an act of the understanding, a thought that contradicts the laws of logic will be flawed, no matter how things stand with its material, the object the thought is about. This is because the laws of pure general logic are "conditions under which the understanding can and ought to agree with itself alone."²⁸ In this way, pure general logic will be normative for the correct use of the understanding merely insofar as these are the rules for its agreement with itself, which will be formal rules for all thinking, judging, or cognizing, apart from whatever relation these thoughts might stand in to their object.

Pure general logic can be said to be normative in the second object-oriented sense because it provides rules for thinking true thoughts. Truth "is the agreement of cognition with its object,"²⁹ and a minimal requirement on such agreement is that the cognition not contradict itself. If a cognition contradicts itself, then it cannot have an object because no object can have contradictory features, and so for any object, one or the other of the contradictory features will not be in it.³⁰ For these reasons, if I take a cognition to be possibly true of an object, then this cognition should not be contradictory. And in this sense pure general

²⁵(A796/B824)

²⁶(e.g., A53/B77, A59/B84)

²⁷(A131/B170)

²⁸(*JL*, 9:13)

²⁹(A58/B83)

³⁰(A571-572/B599-600)

logic will prescribe rules that cognitions must follow, if they are to be true or have an object, and is a *conditio sine qua non* of truth.³¹

Now, in the first instance, pure general logic is normative in the faculty-oriented sense because the normativity of pure general logic stems from its nature as a canon, and canons are rules for the correct use of a faculty. Because thoughts are cognitions, however, and the purpose of cognitions is to correctly represent objects, it's laws are also normative in the object-oriented way. Or, to come at this point from another direction, consider that logic is the science of the understanding, the faculty for thinking. Through sensibility, objects are given to be cognized. As the science of the understanding, logic abstracts away from sensibility, treating thinking in isolation from the influence of sensibility. Since objects are given through sensibility, the faculty-oriented normativity of pure general logic is more proper to it, but once we consider that thoughts are about objects, then the second object-oriented normativity comes into the picture.³²

We see Kant relying on this relationship between the two kinds of normativity when he explains why the rules of pure general logic present rules of truth. There he says, “that which contradicts these [rules] is false, *since* the understanding thereby contradicts its general rules of thinking and thus contradicts itself.”³³ In this passage he explains why a contradictory cognition cannot be true through an appeal to the internal coherence of an act of the understand-

³¹(A59/B84; A151-2/B191)

³²There is a complication here that I will be setting to one side in what follows. Unless we say more, neither of these descriptions of dependence would be sufficient for distinguishing pure general from transcendental logic. This is because with transcendental logic we will also be able to distinguish a faculty- and an object-oriented kind of normativity, and we will find the same kind of relationship between them. After all, transcendental logic is also a canon and a logic, and so, also, in a sense, studies the understanding in isolation from its objects or sensibility. Nonetheless, the way in which it studies the understanding in isolation is different: whereas pure general logic abstracts away from how objects can be given to thought, transcendental logic does not. This means that even the faculty-oriented normativity of transcendental logic is its normativity for the understanding and its actions, as we find them in thinking *about objects*, whereas the faculty-oriented normativity of pure general logic does not share this lingering connection to objects. For this reason, even though we might distinguish a faculty- and an object-oriented normativity of transcendental logic, below I will treat this as one kind of normativity that is essentially object-oriented.

³³(A59/B84, my emphasis)

ing. And so in this passage we see why he would explain the object-oriented normativity of logic in terms of its faculty-oriented normativity.

4 Thought about objects

In this section I argue MacFarlane elides the distinction between the two kinds of normativity of pure general logic and assimilates the resulting normativity to the normativity he finds in Frege. He does this, I claim, because he is not attentive to the different presumptions Kant and Frege make about the nature of thinking and the place of the singular judgment form in logic.

To see these different presumptions, consider the following. The quantificational structure of Frege’s logic builds in that concepts divide their referents, and that thought *as such* is about discrete objects. Kant’s pure general logic does not do this. Rather, for Kant, another branch of logic—transcendental logic—is what studies the laws of thinking *about objects* in general. Indeed, the form of singular judgments only cleaves from universal judgments once we look beyond pure general logic and towards transcendental logic. Kant does this explicitly in the first *Critique’s* table of the logical functions of thinking in judgments, and in the ensuing remarks he makes clear that although logicians who are only concerned with “the use of judgments with respect to each other” are right not to distinguish these, when we look beyond the internal validity of judgements to their nature as cognitions, or representations of an object, this distinction is required.³⁴ Prior to this, logic studies only the four judgment forms of the Aristotelian square of opposition—‘all A is B ,’ ‘no A is B ,’ ‘some A is B ,’ ‘some A is not B ’—together with the hypothetical and disjunctive judgment forms, and it is not supposed that thoughts are about discrete objects.³⁵

³⁴(A70/B85-A71/B86). For further defense of the claim that the singular judgment form ‘ $F(a)$ ’ does not belong to Kant’s pure general logic, strictly speaking, while it is the foundational judgment form of Frege’s logic, see (Wolff, 2007).

³⁵N.B. When I use the term ‘object’ I am following MacFarlane in meaning a countable entity—a quantity—whose name can figure in a singular judgment of the form ‘ Fa .’ Although this Fregean conception is weaker than Kant’s—which requires thinkability through all of the categories, not just quantity—I will not make much of this difference here.

MacFarlane, like Frege, presumes that thoughts are about objects, and assimilates the normativity of pure general logic to that of Frege’s logic. This is apparent in how he draws the distinction between pure general and transcendental logic. In MacFarlane’s initial characterization, he rightly says, “transcendental logic supplies norms for ‘the pure thinking *of an object*’ (A55/B80, emphasis added), not norms for thought *as such*.”³⁶ In an attached footnote, however, he clarifies that he takes pure general logic to supply norms for thinking of objects in general, without a spatio-temporal restriction, while transcendental logic only treats spatio-temporal objects in general. He says, “Kant seems to regard the restriction of transcendental logic to objects capable of being given in human sensibility as a domain restriction like the restriction of geometry to spatial objects.”³⁷

However, this cannot be how Kant is thinking of the distinction between pure general and transcendental logic because this rules out the treatment in transcendental logic of other kinds of objects (e.g., sensibly given objects, for which it has not yet been specified what the form of sensibility in question is, and objects that cannot be sensibly given at all, like God). What is more significant for our purposes, however, is that MacFarlane thinks the supposed wider scope of pure general logic means that its laws govern all objects whatsoever, and so its domain should be assimilated to that of Frege’s logic. This is a problem, not only because it precludes the possibility of thoughts that are not about objects, but also because it leads to treating the normativity of Kant’s and Frege’s logic as though they were the same when they are not.³⁸ And this, as we are about

³⁶(MacFarlane, 2002, p. 48)

³⁷(MacFarlane, 2002, p. 48, n35).

³⁸Tolley (2013) develops the first point—that pure general logic on Kant’s account has a wider application than does Frege’s quantificational logic—more fully than I do here. What Tolley does not remark upon, however, is that even if their application was the same, the Kantian distinction between the faculty-oriented and object-oriented normativity of logic would obtain. The former would be prescriptions for thinking merely *as such*, while the latter would be prescriptions for thinking *about objects*. It would so happen that the two kinds of norms would apply to the same things, since all thoughts would be about objects, but they would apply to these for different reasons. Because of this, even if all thoughts were about objects, MacFarlane’s argument would still fail. And so while Tolley’s argument is right as far as it goes, distinguishing the faculty- and object-oriented normativity of pure general logic gets us

to see, is the root of the problem with MacFarlane’s argument.

5 The supposed common ground

In his essay, MacFarlane attempts to establish that there are grounds on which one could adjudicate Kant and Frege’s dispute over the plausibility of logicism—the reduction of arithmetic to logic. MacFarlane argues that there are such grounds because at root Kant and Frege share the same fundamental conception of logic: it provides norms for thought *as such*. The major obstacle to finding such common ground, according to MacFarlane, is that Kant thinks logic abstracts away from the relation that representations stand in to their objects, while Frege does not. MacFarlane thinks that if Kant takes this to be a defining characteristic of pure general logic, then there will not be the kind of substantive shared conception of logic that he is looking for.³⁹ His reason is that “unless Kant and Frege can agree, in general terms, about what logic *is*, there will be no basis [...] for saying that they are disagreeing about a single subject matter *logic*, as opposed to saying compatible things about two subject matters, *logic_{Frege}* and *logic_{Kant}*.”⁴⁰ Thus, by MacFarlane’s lights, it is critical that while the fundamental defining characteristic of pure general logic is its normativity, it is a merely derivative feature of this logic that it abstracts away from the relations representations stand in to their objects.

Now, to see why MacFarlane’s argument faces the dilemma I mentioned at the outset, grant that the fundamental defining characteristic of pure general logic is that it provides norms for thinking as such. Which kind of normativity is it? On the one hand, suppose it were the object-oriented normativity. Both pure general, and transcendental, logic provide norms for thinking about objects in general. Thus, the object-oriented normativity of a candidate law—that it is a necessary criterion on truth—is insufficient for deciding whether the law belongs

closer to the crux of the problem.

³⁹(MacFarlane, 2002, p. 30)

⁴⁰(MacFarlane, 2002, p. 28)

to pure general or transcendental logic. And a criterion that only distinguishes a candidate law as logical, without deciding which of these logics it belongs to, is not sufficient for establishing substantive common ground for a dispute over logicism. This is because, as I mentioned at the outset, there is only a substantive dispute if the logics in question would both count their truths as analytic. On Kant's account, this only holds of pure general logic. If a candidate law could belong to transcendental logic, then it could be synthetic. And so a reduction of arithmetic to it would be insufficient for showing arithmetic is analytic.

On the other hand, suppose the faculty-oriented normativity of pure general logic were definitive. This kind of normativity does not have a relevant correlate for Frege, because of his anti-psychologism. Even setting that fact to one side, it still would not do as a foundation for a substantive dispute over logicism. This is because it is essential to the faculty-oriented normativity of pure general logic that it abstracts away from objects. After all, the faculty-oriented normativity of pure general logic is its normativity as a canon for the operation of the understanding on its own, in isolation from sensibility and the objects thoughts are about. And so if it is the faculty-oriented normativity of pure general logic that is definitive, then its abstraction away from objects is not a derivative feature of it. But that is what MacFarlane's argument required. Thus, distinguishing these two ways in which pure general logic is normative blocks MacFarlane's argument.

Let me pause for a moment, finally, over that text from the *Jäsche Logic* that I mentioned MacFarlane uses to motivate the second part of his argument. Here he claims to find Kant inferring from logic's normativity for thought *as such* to its abstraction from the objective content of thought.⁴¹ I don't think the text bears out MacFarlane's reading.

[1] If now we put aside all cognition that we have to borrow from *objects* and merely reflect on the use just of the understanding, we

⁴¹(MacFarlane, 2002, p. 46).

discover those of its rules which are necessary without qualification, for every purpose and without regard to any particular objects of thought, because without them we would not think at all. [2] Thus we can have insight into these rules *a priori*, i.e., independent of all experience, because they contain merely the conditions for the use of the understanding in general, without distinction among its objects, be that use pure or empirical. [3] **And from this it follows** at the same time that the universal and necessary rules of thought in general can concern merely its *form* and not in any way its *matter*. [4] Accordingly, the science that contains these universal and necessary rules is merely a science of the form of our cognition through the understanding, or of thought.⁴²

According to MacFarlane, [1] expresses logic's normativity for thought *as such*, while [3] infers from this that logic will abstract from the objective content of thought. It is crucial for MacFarlane's reading that Kant is only discussing logic's normativity in [1], not its abstraction from objects. But Kant explicitly says in [1] that he is putting "aside all cognition that we have to borrow from *objects*." So contrary to MacFarlane's interpretation, in [1] he is already abstracting away from objects.

In the transition to [3] we should not read Kant as drawing an inference, so much as unpacking information that was already included in [1], through an implicit contrast between pure general and transcendental logic. In [1] Kant is giving a standard faculty-oriented characterization of pure general logic through its relation to the understanding. In [2] he is implicitly contrasting pure general with transcendental logic through his qualification that here the use is "pure or empirical." This is because in transcendental logic it is only pure.⁴³ In [3] he is developing this contrast further. He is making explicit that pure general logic concerns merely the *form* of thoughts, while implying that transcendental logic also concerns their *matter*. Pure general logic's abstraction away from the material of thought is already implicit in [1], but through the implicit contrast with transcendental logic, it is thrown into sharper relief in [3]. In this way, we can see that it is pure general logic's abstraction away from objects that marks it

⁴²(*JL*, 9:12, boldface MacFarlane)

⁴³(cf. B79/A55-B82/A57)

off from transcendental logic. And as we saw above, from a Kantian perspective it is only once this distinction is in view that the issue of the reduction of arithmetic to logic could bear on the question of whether or not arithmetic is analytic.

6 Conclusion

In this essay we have been examining MacFarlane's claim that Kant and Frege share the same fundamental conception of logic as 'the science of the rules governing thought *as such*.' We have seen that although Frege and Kant might agree on this nominal specification of logic, this agreement papers over a deeper disagreement about the senses in which each would take logic to be normative. Thus, if there is a substantive adjudicable dispute between Kant and Frege over the plausibility of logicism, MacFarlane has not uncovered it.

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