

EXISTENCE AND NUMBER

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The Frege-Russell view is that existence is a second-order property rather than a property of individuals. One of the most compelling arguments for this view is based on the premise that there is an especially close connection between existence and number. The most promising version of this argument is by C.J.F. Williams (1981, 1992). In what follows, I argue that this argument fails. I then defend an account according to which both predications of number and existence attribute properties to individuals.

1. The Frege-Russell View of Existence

The following theses are constitutive of what I will call *the Frege-Russell view of 'exists'*:

- (i) Propositions such as 'Tame Tigers exist' and 'Lying Politicians exist' are not about individuals but rather are about *concepts* (or, if you like, *properties* or *propositional functions*). Instead of asserting something of some individuals, they assert something of a higher-order entity, such as a concept, and specifically, say of it that it has at least one instance.
- (ii) When one utters sentences of the schema 'x exists' in which the substitution-instance for *x* is a proper name, one is not saying something about a specific individual, *x*, despite appearances that one is; rather to utter a sentence of that schema is to say either nothing at all or it is to say something about a concept or property, such as *being identical with x*. And what one says of this concept or property, whichever one it might be, is that it is exemplified at least once.¹ In short, 'exists' is not a first-order predicate attributable to individuals.

The Frege-Russell view about 'exists' supports the Frege-Russell view about *existence*:

- (iii) *Existence* is not a property of individuals, but rather a higher-order property, identical with the property of having an instance.²

1. The fan of the Frege-Russell view need not hold the property in question is a property like *being identical with x*. Other possibilities include the views that existential predications attribute *having at least one instance* to 'primitive thinsesses' such as *being x* or to complex properties that are uniquely satisfied by *x* (or would be uniquely satisfied by *x* were *x* to exist).
2. See Frege (1980a, 1980b, pp. 64–65; p. 38) and Russell (1968, pp. 232–233) for representative articulations of the view. Kenny (1995, pp. 75–76) and Vallicella (2002, pp. 110–113) discuss Frege's view. Resnik (1980, pp. 185–186), Welker (1970), and Williams (1981, 1992) provide defenses of the view.

To see why one attracted to thesis (i) might accept thesis (ii), consider the following sentences:

- (a) Elected officials exist.
- (b) Barack Obama exists.

According to the friend of the Frege-Russell view, 'exists' as used in (a) is revealed by logical investigation to function as a second-order predicate. It is plausible that the change in conjugation from (a) to (b) does not mark a change in meaning: 'exists' is used univocally in (a) and (b). Since 'exists' is being used to say something about a 'higher-order' entity, such as a concept, in (a), 'exists' must be used to say something about a concept in (b). Contrary to appearances, (b) also says nothing about an individual.

What then does (b) assert? On the view defended by C.J. Williams (1981), (b) asserts nothing at all.³ On Williams's view, (b) is nonsense on a par with 'Tony is rare'. A less radical view is that (b) says of some concept or property uniquely satisfied by Barack Obama that it is exemplified at least once.

Some argue against the Frege-Russell view of 'exists' by attacking (ii). For example, Nathan Salmon (2005, p. 19) and William Vallicella (2002) argue that 'exist' is used as a first-order predicate in 'I exist'.⁴ Their claim here is plausible: the upshot of Descartes' *cogito* is an epistemologically certain proposition the subject of which is *me*, rather than some property, however intimately related to me in some way it might be. Vallicella (2002, p. 110) claims that, contrary to appearances, 'exists' in (a) has a different meaning than 'exists' in (b). However, on his view, 'exists' is not simply equivocal in the way that 'bank' is, but displays a kind of 'systematic ambiguity', since (according to Vallicella) it is a necessary truth that, if a property is instantiated, it is instantiated by something that exists.

In what follows, I will argue against the Frege-Russell view by attacking (i). I agree with Vallicella and Salmon that (ii) is false as well. But I disagree with the claim that 'exist' is equivocal in (a) and (b).

If (i) and (ii) are false, the case for (iii) is undercut. Conceptual space is thereby made for the possibility that *existence* is a property of individuals. But exploring this space is a task for another time.

On the view that I prefer, 'exists' is a first-order predicate in sentences like (a) and (b). Sentence (a) *metaphysically implies* but does not have the same meaning as:

- (c) The concept *elected official* is exemplified.

Let us say that a proposition *P* metaphysically implies a proposition *Q* just in case, necessarily, if *P* is true, then *Q* is true. (Some use the term 'semantic entailment' to represent what I call 'metaphysical implication', but I prefer an

3. Williams is following Russell (1968, p. 241) who also denied that existence can be said of individuals. Vallicella (2002, p. 33) calls theories of this sort 'eliminativist theories of existence'.

4. Vallicella (2002) discusses Frege's view (pp. 108–112). Nathan Salmon (2005, p. 19) makes the same observation about Descartes' *cogito*.

expression that does not suggest that the relation between propositions that metaphysically imply each other always obtains in virtue of the meanings of the sentences that express those propositions.) Let us grant a Platonic metaphysics of concepts, propositional functions, and the like. If there are concepts or whatnot, then 'elected officials exist' is true only if the concept *elected official* is exemplified at least once. This is what I mean by saying (a) metaphysically implies (c).

However, even though (a) metaphysically implies (c), sentences like (a) are not wholly about concepts. They are about individuals primarily, and in the case of (a), about elected officials.

Think for the moment of propositions as 'Russellian', that is, structured propositions that have what they are about as their constituents. On this view of propositions, 'Kevin is intelligent' has as its constituents Kevin and the property of being intelligent. 'Intelligence is exemplified' has as its constituents the property of being intelligent and the property of being exemplified. On the Frege-Russell view of *existence*, if there is a proposition expressed by 'Kevin exists', it does *not* contain Kevin as a constituent, but rather contains some complex property such as being identical with Kevin and the property of being exemplified. 'Kevin exists' expresses a second-order proposition, one that contains *only* properties, rather than a first-order proposition that contains some individual or individuals.

By way of contrast, on the view that I prefer, the constituents of the proposition 'Kevin exists' are Kevin and the property of existing.⁵

In order to contrast the view about existence with the Frege-Russell view on existence, I assumed that propositions were Russellian. This assumption, however, is ultimately eliminable: the key thing is that 'Kevin is intelligent' and 'Kevin exists' both express propositions that are true if and only if Kevin has the respective property that in some way corresponds to the respective predicate.

2. 'Exists' and Numerical Predication

One important argument for the Frege-Russell view turns on the claim 'exists' in belongs in the same category as other answers to 'how many?' questions, along with 'is many', and 'is few'.⁶ It has been claimed by Williams (1981) among others that none of these is a first-order predicate, because none of them can form a significant sentence when attached to a name. For example, 'Aristotle is numerous' and 'Aristotle is one' are, according to Williams, meaningless.⁷

5. Obviously, some existential predications express propositions that contain only properties as constituents. But such propositions are ones in which the entity whose existence is being acknowledged is itself a property, as in, for example, the proposition expressed by 'Red exists'.

6. See Welker (1970, p. 377).

7. There is a long philosophical tradition of according great importance to sentences like 'Aristotle is one' and 'Everything is one.' Williams (1981) acknowledges this tradition, and tries to undercut it. In what follows, it will be clear why I do not think that Williams has succeeded.

Here is a charitable reconstruction of Williams' argument:

- 1 'are numerous', 'is one', and 'are few' are second-order predicates.
 - 2 'exists' is relevantly like 'is numerous', 'are one', and 'are few'.
 - 3 If (1) and (2), then 'exists' is a second-order-predicate.
- ∴ So 'exists' is a second-order predicate.

In what follows next, I will focus on (1). (I won't challenge (2), although I am skeptical about (2) as well.) Perhaps there are second-order uses of predicates such as 'are numerous', and perhaps corresponding to these uses are distinct meanings. But there are first-order uses of these predicates as well. To say that the philosophers are numerous is to say something about the philosophers rather than philosopherhood, just as to say that the philosophers at the Eastern APA smoker outnumber the bartenders at the Eastern APA smoker is to say something about philosophers at the smoker, bartenders at the smoker, and the numerical relation between both.

The following definitions, taken from McKay (2007, p. 5), will be useful in what follows. Let us say that a predicate *F* is *distributive* just in case, whenever some things are *F*, each one of them is *F*. For some purposes, we might wish to consider a stronger definition of 'distributive' according to which this equivalence holds in virtue of the meaning of the predicate, but this definition will suit our purposes here. An example of a distributive predicate is 'is red': whenever some things are red, each one of them is red. A predicate is *nondistributive* just in case it is not distributive.⁸ An example of a nondistributive predicate is 'surrounds the building': some students engaged in a protest might surround a building without it being true of any particular student that he or she is surrounding a building.

I have been convinced that plural predications are irreducibly plural: they are not covert singular predications in which a property is attributed to a single individual or entity.⁹ For this reason, plural quantification and plural predication are properly called *first-order* quantification and predication. Plural quantifiers are clearly *syntactically* first-order: a plural quantifier binds plural variables that occupy the subject position just as much as singular quantifiers do in standard first-order logic, that is, the proper substitution-instances for those variables are subject-terms like names, demonstratives, perhaps rigid definite descriptions, and so on. By contrast, a kind of quantification is syntactically second-order just in case the 'quantifier' binds variables that are 'predicate' variables, that is, the proper substitution-instances for those variables are predicates.

But one might hold that nonetheless, plural quantifiers are *ontologically second-order* because they are to be ultimately analyzed as singular quantifiers over sets, properties, groups, or somesuch. For our purposes here, say that a *substance* is

8. A similar distinction is drawn by Dummett (1991, p. 75), who distinguishes between 'distributive' and 'collective' predicates.

9. For arguments for this claim, see Lewis (1991), McKay (2007), Oliver and Smiley (2001), and Yi (1999a). Boolos (1984) is of course also important.

neither a set nor a property, and in general is the kind of entity that is incapable of having members or being instantiated, and say that a kind of quantification is ontologically first-order just in case substances are among the entities ranged over by the variables bound by the quantifiers. A kind of quantification is ontologically second-order just in case no substance is ranged over by the variables.

On the view I like, plural quantification is both syntactically and ontologically first-order. By way of contrast, if logical analysis revealed that plural quantifiers were actually disguised singular quantifiers over sets, then plural quantification would be syntactically first-order but ontologically second-order. For a final contrasting view, consider the position explored by Boolos (1984) according to which (monadic) second-order quantification is syntactically second-order but ontologically first-order (and plural).

When I say of some students that they are surrounding the building, I say something of some *things* not of some single thing. I do not attribute a property to any entity that has these students either as parts or as members. Perhaps there is something composed of the students whenever they surround a building. Even if there is such an entity, I am not talking about *it* when I say that the students are surrounding the building. (Perhaps what I say metaphysically implies something about it, but it would not follow that what is metaphysically implied by my utterance is really what I was uttering all along.) Likewise, perhaps there is a class of those students that are surrounding the building. The predicate 'are surrounding the building' does not, in that utterance, attribute a property to that class.¹⁰ (Perhaps classes can surround buildings. I have no opinion on this. Nonetheless, whether they can or do, with that utterance I did not say of one of them that it surrounds a building.)

Let us revisit the hypothesis that propositions are 'Russellian', that is, structured entities that sometimes contain individuals as constituents. When I utter, 'They are surrounding the building', the proposition that is expressed contains as constituents them, the relation of surrounding, and the building. It contains as a constituent neither the class of those students nor the mereological sum or complex whole composed of those students. Of course which entities are referred to by 'they' can differ from context to context, and I grant that in any context in which 'they' refers to somethings, all and only those things referred to in that context share a common property. It might even be the case that we refer to those things with 'they' only by having in our minds some such common property. Nonetheless, that property, whatever it may be, is not a constituent of the proposition uttered in that context: the proposition uttered is about them rather than that property.

'Are numerous' can be used as a nondistributive predicate true of individuals. Suppose I say of some things that they are numerous. As before, I do not say of any particular thing that it is numerous. And since 'are numerous' is a nondistributive predicate, although it is true of them that they are numerous, it does not follow that any one of them is numerous.¹¹

10. Similar remarks are made by McKay (2007) and Yi (1999a).

11. That numbers are plural properties is ably defended in Yi (1999a).

'Exists' might or might not be relevantly similar to 'are numerous', but given that 'are numerous' can be used as a predicate true of individuals, their putative similarity provides no comfort to the friend of the Frege-Russell view of existence.

Friends of the Frege-Russell view take the following arguments to be analogous.¹²

Argument 1:

- (1) Aristocratic Australians are numerous.
- (2) Aristides is an aristocratic Australian.
- ∴ So Aristides is numerous.

Argument 2:

- (1*) Human beings exist.
- (2*) Ben is a human being.
- ∴ So Ben exists.

Moreover, friends of the Frege-Russell view hold that both arguments fail for the same reason. Contrary to (putative) appearances, neither premise (1) nor (1*) are of the form ' $\forall x Fx \rightarrow Gx$ '. Were they to be of that form, the arguments would both be valid. And, on their view, one ought to take these arguments to be valid if one holds that 'are numerous' and 'exists' are first-order rather than second-order predicates.

The first argument is indeed a bad argument, but not because the predicates in premise one is a second-order predicate. Clearly, premise (1) is not of the form ' $\forall x Fx \rightarrow Gx$ ' and so the argument is not a valid instance of universal instantiation. Rather, premise (1) has a more complex form, which on my view is 'there are some things that are the Fs and they are G'. (We will revisit this claim in section 4.) The important thing is that the argument fails because the predicate in question is a nondistributive predicate, just as the following argument fails for that very same reason:

Argument 3:

- (1**) Aristocratic Australians are surrounding the parliament building.
- (2**) Aristides is an Aristocratic Australian.
- ∴ So Aristides is surrounding the parliament building.

Argument 3 is obviously terrible even though the predicate 'are surrounding the parliament' is a first-order predicate rather than a second-order predicate. One need not hold that either argument 1 or argument 3 is valid just because 'are numerous' or 'are surrounding the parliaments' are first-order predicates. One need only be careful with one's plurals.

For the record, I find argument 2 unobjectionable, since (i) 'exists' is a distributive predicate and (ii) necessarily, something is a human being if and

12. See Williams (1981, pp. 68–70) from which argument 1 is drawn; basically the same argument appears in Russell (1968, p. 233). Williams (1992, pp. 9–19) is also relevant.

only if it is one of the human beings. Whether the form of that argument is strictly *logically* valid is an interesting question, but one which we need not pursue here.¹³

For an even cleaner and clearer example of why arguments such as Argument 1 are unsound, consider the following:

Argument 4:

- (1) They are surrounding the building.
- (2) She is one of them.
- ∴ So she is surrounding the building.

Argument 5:

- (1) They are numerous.
- (2) She is one of them.
- ∴ So she is numerous.

The logical form of both of the first premises is comparatively simpler; it is 'they are F'. In both cases, the arguments fail for the same reason: both 'surrounding the building' and 'numerous' are nondistributive predicates. There is no need to claim either that 'surrounding the building' or 'numerous' are second-order predicates in order to defuse the arguments.

One argument for the Frege-Russell view turns on the purported close connection between number and existence. For the sake of argument, I will grant a close connection between 'exists' and number. I will grant that to say of some things that they exist is in some way equivalent to saying of those things that they are at least one in number. Frege insisted that predicates such as 'at least one in number' cannot be ascribed to individuals but must ultimately be ascribed to concepts. Frege was mistaken about this. 'At least one in number' is a perfectly acceptable predicate of individuals: it is true of the people at my dinner party last night that there were at least three of them, and hence they were at least one in number. When inspecting an army, it is important to know of your soldiers how many of them there are, and a perfectly reasonable answer to the question of how many of them there are is 'the soldiers are one-hundred in number.' (It would also be perfectly acceptable to simply say 'They are one-hundred in number.') Numerical predicates, such as 'are three', 'is one', etc. can be used as plural predicates of individuals, just as 'are numerous', 'are many', and 'are few in number'.¹⁴

13. I am inclined to hold that argument 2 is not strictly logically valid. Consider a simpler argument form 'the xs are F, this is one of the xs, so this is F'; there are substitution instances of this form that have true premises and a false conclusion. I think something relevantly similar could be said about the form of argument 2. But, regardless, argument 2 is 'semantically valid' or 'analytically valid' in much the same way as 'Bob is shorter than Fred; therefore Fred is taller than Bob' is 'semantically valid'. For what it is worth, I am also inclined to hold that the argument 'Ben is a human being; so, Ben exists' is semantically valid.

14. As noted earlier, Yi (1999a) provides a compelling defense of the view that one can attribute number to individuals by way of such predicates.

One of Frege's reasons for claiming that numerical predicates are never true of individuals stemmed from considering the following sort of examples.¹⁵ Consider a deck of cards, which has four suites and fifty-two cards. What is the number of the deck? At least initially, 'one', 'four', and 'fifty-two' suggest themselves as reasonable answers, but it seems that they cannot all be right, since the predicates 'is one', 'is four', and 'is fifty-two' seem to be contraries. A puzzle thereby arises, and Frege's response to the puzzle was to hold that the true bearers of numerical predicates are concepts: the concept of being this deck is exemplified once, the concept of being a suite of this deck is exemplified four times, and the concept of being a card of the deck is exemplified fifty-two times.

There is a simpler response available. The deck of cards is one. No other numerical predicate is appropriately applied to the deck. Everything is one thing, just as Aristotle taught us. It is true, however, that the deck has proper parts. Some of those parts are suites of cards. Those suites are four in number. Some of those parts are individual cards, and although each individual card is one, *they* are fifty-two in number. It would be a mistake to infer from the facts that the cards are fifty-two in number and the cards are parts of the deck that the deck is fifty-two in number, just as it is a mistake to infer from the fact that my atomic parts are small that I am small.

On the view I am attracted to, numerical predicates are nondistributive. They might be fifty-two in number, but it is not true that each of them is fifty-two in number; each of them is one. If numerical predicates correspond to properties, then numbers are, for the most part, nondistributive properties of objects. There is one counterexample to the claim that numbers are across-the-board nondistributive properties: the number one is a distributive property. One says truly 'they are one' only if there is exactly one of the they or 'one' is used distributively, that is, one is saying that they are each one. One number, the number one, can be successfully predicated of an individual in a first-order *singular* proposition.

One of Frege's complaints about the view that numbers are properties of objects rests on the claim that Frege is

. . . able to think of the Iliad either as one poem, or as 24 books, or as some large number of verses. [Frege 1980a, p. 28]

In a similar vein, Michael Resnik writes

Suppose that I look at two boots, a matched pair. I can say with equal right 'here is a pair of boots, one pair,' or I can say 'here are two boots.' In either case, what I see is exactly the same, so the same physical fact or situation supports both my claims. The difference between the two claims is that I have decided in one case to count using the term 'pair' and in the other case using the term 'boot.' But if the number of the collections of objects before me were . . . a directly observable property of the collection, such as the color

15. See Frege (1980a, pp. 28–29).

of the boots, then the collection would have the number it has without any choice of mine to describe it under one rubric or another. But, of course, a collection cannot both have the numbers 1 and 2 absolutely. [Resnik 1980, p. 155] Mill's view of numbers as properties of aggregates must be abandoned once we have resolved to stick with a physicalist ontology. . . . If classes or other abstract objects are available, then the aggregate of the two boots can be distinguished from their pair by identifying the former with the class containing the boots and the latter with the concrete pair itself, that is, with an individual with detached parts. Otherwise, the pair and the aggregate, considered as a concrete individual too, would be indistinguishable and would possess the property of being one as well as that of being two. [Resnik 1980, pp. 157–158]¹⁶

With respect to the passage by Frege, I must respond that I am not able to conceive of the Iliad as twenty-four books or as a large number of verses. Rather, what I am able to think of is the Iliad as one poem, or as *composed of* twenty-four books, or as *composed of* a large number of verses. No puzzle arises when one says of those things that are the books that compose the Iliad that they are twenty-four, even though the Iliad is one.

I respond in a similar way to Resnik. The relation between the boots and the pair of boots is one of composition, not one of identity. In general, composition is not identity. I am not my parts. The fact that my parts are a certain number does not imply that it is at all appropriate to ascribe that number to me.¹⁷

Although I have nothing against an ontology that includes sets or classes, their postulation is not needed to respond to Resnik. 'The boots' is a plural description that is collectively satisfied by the two boots; it is not a singular term that designates a single entity.¹⁸ Perhaps 'the pair of boots' is a singular description that is satisfied by a single entity. But if so, there is little reason to think that these descriptions codesignate.

But what if composition is identity? Then those things designated by 'the boots' just are (is) that thing designated by 'the pair of boots'. If composition is identity, does the Fregean worry re-arise?

No. Even if composition is identity, there is a simpler solution to the puzzles raised by Frege and Resnik. If composition is identity, then *many* things can be identical to *one* thing. In short, something can be both one and many. And if this is so, why couldn't a thing be both one in number and twenty-four in number? Just as the friend of the view that composition is identity gives up the

16. Compare with Frege (1980a, pp. 32–33).

17. For contemporary discussions of the view that composition is identity, see Baxter (1988), Lewis (1991), and Sider (2007). Note that only Baxter provides a full-fledged defense of composition as identity; Lewis and Sider defend the view that composition is strongly analogous to identity. See Van Inwagen (1994) for worries about the coherence of the doctrine that composition is identity. See McDaniel (2008) and Yi (1999b) for arguments against composition as identity.

18. Compare with Dummett (1991, p. 75) who writes, 'A plural subject does not, in any context, denote a whole made up of parts. . . .' Dummett, however, does not agree with the view affirmed here about what a plural subject does do. Note also that Oliver (1994) argues that Dummett is mistaken about this claim *as an interpretation of Frege*. We will discuss Oliver's interpretation of Frege on plural subject terms momentarily.

intuition that one thing cannot be many things, so too she should abandon the intuition that something cannot be both one in number and twenty-four in number. The simple solution to Frege's puzzle of the poem is to claim that the numerical predicates in question are not contraries. This seems to me exactly what the friend of composition as identity should say. So regardless of whether composition is identity, neither Frege's reflections on the Iliad nor Resnik's Fregean-inspired remarks on footwear should lead one to claim that numbers are properly attributed only to higher-order entities such as concepts and never to individuals such as books.

Alex Oliver (1994) argues that Frege held that plural descriptions, such as 'The Romans', are names of complex individuals, such as the whole composed out of all the Romans.¹⁹ If this is correct, we need not worry about whether Frege believed that composition is identity in order to make sense of his argument against the possibility of attributing numbers to individuals. Given this view, one could say that 'The Iliad', 'The twenty-four books (of the Iliad)', and 'The verses (of the Iliad)' each refer to the same composite individual. On this view, 'The Iliad is identical with the twenty-four books (of the Iliad)' is not a sentence that says of one thing that it is identical with many things, but rather says of one thing that it is identical with one thing. Presumably one would not want to attribute different numbers to this self-same individual.

The nice thing about the recent development of the logic of plurals by philosophers such as McKay (2007), Oliver and Smiley (2001), and Yi (1999a) is that it shows us that there is neither a need nor a reason to hold that a plural expression designates a single individual. The reconstruction of Frege's argument that depends on this assumption is unmotivated from the start.

Frege thought that in order to make sense of a numerical predication one needed to appeal to a concept. This is not true: the proposition expressed by 'they are 15 in number' makes no appeal to some covering concept and is perfectly fine as it stands. What is true is that this sort of utterance is uncommon; most of the uttered sentences in which numerical predications appear are of a form like that of 'The dogs in Alaska are becoming scarce', and these sentences upon analysis do involve descriptive concepts. But it is the subject term of these sentences that demands that a concept be explicitly predicated in the analysis of the sentence, not the numerical predicate.

It is also true that we frequently appeal to a covering concept or kind to clarify *which* entities we are counting, especially in cases in which using a bare demonstrative such as 'they' will not communicate to our audience the proposition we thereby express. If I hand you some cards and merely ask you, 'how many of them are there?', you will probably say 'fifty-four' since the natural interpretation of 'them' is one in which 'them' refers to the cards. But if I tell you then that the answer is not 'fifty-four' you will struggle to answer correctly unless I clue you in on what the 'them' referred to in the context of my utterance. (Perhaps 'them' referred in that context to the suits, in which case the correct answer was 'four'.) But similarly, if I ask you 'what color is that?', you are not in a position to answer this unless you know which object I am

19. Oliver draws this example from Frege (1979, p. 95).

pointing at. I might help you by telling you that ‘that’ referred to that car. But do not infer from this that colors are properly attributed not to cars but to concepts of cars.

Finally, it is true that often we have a concept in mind in any given context in which we use a demonstrative such as ‘they’, and that having this concept in mind is part of what determines what entities ‘they’ refers to in that context. But the proposition thereby expressed does not contain that concept as a constituent. Rather, the proposition contains them and the property corresponding to the predicate appended to ‘they’. These truths about the relations between concepts and numbers in no way support the Fregean thesis that numbers are properties of concepts rather than properties of individuals.

The argument from the premise that there is a close connection between number and existence to the conclusion that existence is a second-order feature is faulty. We can grant Frege that there is a close connection between number and existence while holding that both are features had by individuals.

3. Plural Plato’s Beard

Call sentences of the same form as ‘John does not exist’ *singular negative existentials*. How is it possible for singular negative existentials to be successfully used? It initially seems that, if a singular negative existential is true, then it must fail to express a proposition and therefore not be true. Sentences about single individuals express *singular propositions*, which, let us assume, are complexes of some sort constructed out of individuals and properties.²⁰ If an individual does not exist, then it cannot be an element of a singular proposition that is about it. If ‘exists’ is a first-order predicate, then ‘does not exist’ is also a first-order predicate. So in order for ‘John does not exist’ to express a singular proposition, John must exist in order to be an element of that proposition. So no singular negative existential is ever true; the only singular negative existentials that express propositions are ones that express false propositions. (A similar argument can be mustered for the claim that there are no false singular positive existentials.)

Quine (1953) called the problem of negative existentials *Plato’s Beard*. A similar puzzle arises for *plural* negative existentials such as ‘The Illuminati do not exist’. (Grant for now that ‘The Illuminati’ is a plural proper name.) On the view defended here, ‘exist’ is a first-order predicate that can be predicated plurally. ‘Do not exist’ is also a first-order predicated that can be predicated plurally. But then how can one ever truly utter a plural negative existential? On a related note, the apparent close connection between existence and number suggests that asserting a plural negative existential and ascribing the feature being less than one in number are speech acts that are in some important sense necessarily equivalent. How then can one successfully utter

20. In what follows, I will assume that propositions are Russellian. This assumption does not make defending my view easier.

‘the sober-minded deconstructionists are less than one in number’? Call this puzzle *Plural Plato’s Beard*.

It seems to me that both Plato’s Beard and Plural Plato’s Beard deserve a similar treatment. Let us first briefly consider some responses to Plato’s Beard.

One response, recently defended by David Braun (1993, 2005), is to posit *gappy propositions*. Normal propositions are complex entities consisting of individuals and properties or relations, perhaps along with a structuring component that unifies the others.²¹ A gappy proposition is a proposition in which one of the items that would otherwise be unified by the structuring component is not present. Consider the proposition that Donald Rumsfeld is a war criminal. This proposition has the following constituents: Donald Rumsfeld, *being a war criminal*, and a structuring component which for convenience we will call ‘*Fx*’. The proposition that Zardo is a war criminal has the following constituents: *being a war criminal* and *Fx*. (There is no individual named ‘Zardo’.)

On Braun’s view, the sentence ‘Zardo does not exist’ succeeds in expressing a proposition, but the proposition expressed is gappy. Moreover, this proposition is true, since on Braun’s view the truth-conditions for a simple atomic proposition are as follows:

If P is a proposition having a single subject position and a one-place property position, then P is true iff the subject position is filled by one, and only one, object, and it exemplifies the property filling the property position. If P is not true, then it is false. [Braun 1993, p. 463]

It follows from these truth-conditions that it is false that Zardo exists, and since the negation of a false proposition is a true proposition, it is true that Zardo does not exist.

A similar treatment could be given for plural sentences that have empty plural terms. If you find Braun’s solution attractive when you consider ‘Zardo does not exist’, extend it so that it applies to ‘Sober-minded deconstructionists do not exist’.

In what follows, I treat the expression ‘sober minded deconstructionists’ as a kind of plural name. It is probably incorrect to do so, since the expression seems to function more like a plural description; we will discuss this more in section 4. Note that if expressions of this sort are plural descriptions, then there is no reason to posit gappy propositions to account for how they can appear in meaningful (as well as true) propositions. But we will still need to have something to say about sentences such as ‘They do not exist’ and ‘They are zero in number.’ It is not plausible that ‘they’ functions as a disguised definite description, plural or otherwise.

We could extend Braun’s view in the following way:

If P is a proposition having a single plural subject position and a one-place plural property position, then P is true iff the subject position is filled by some

21. Braun is neutral on whether the structure of a proposition is itself a part or component of the proposition. For ease of exposition, I will assume that structured propositions have a structuring component.

objects that exemplify the property filling the property position. If P is not true, then it is false.

Since there are no sober-minded deconstructionists, the gappy proposition that sober-minded deconstructionists exist is false while the gappy proposition that sober-minded deconstructionists do not exist is true.

Does this solution allow us to preserve the allegedly close connection between existence and number? If we accept the extension of Braun's view to cover plural atomic propositions, we can say the following:

- (1) 'Sober-minded deconstructionists exist' expresses a proposition.
- (2) 'Sober-minded deconstructionists are at least one in number' expresses a proposition.
- (3) These two propositions are necessarily equivalent.

And more generally:

- (4) Each sentence of the form 'a exists' (where 'a' may be a singular or plural term) expresses a proposition.
- (5) Each sentence of the form 'a is at least one in number' (where 'a' may be a singular or plural term) express a proposition.
- (6) These proposition expressed by 'a is at least one in number' is necessarily equivalent to the proposition expressed by 'a exists'.

And this is all to the good. So on this view some close connection between existence and number is preserved.

However, one might worry about what we should say about the proposition expressed by 'Sober-minded deconstructionists are zero in number'. Is this proposition true or false?

In order to assess this question, let us return to Braun's view. Braun distinguishes between the following propositions:

- (a) It is not the case that Zardo exists.
- (b) Zardo is nonexistent.

On Braun's view, (a) is true whereas (b) is false. Sentence (a) employs 'external negation', that is, it simply denies that Zardo exists, and so by the truth-condition given above, it is true. Sentence (b), however, has the form <_, is nonexistent>, and so by the truth-condition given above, it is false. (For similar reasons, Braun holds that it is true that it is not the case that Zardo is a man, but false that Zardo is a nonman.)

One could follow Braun here by distinguishing:

- (c) It is not the case that they are at least one in number.
- (d) They are zero in number.²²

22. Dummett (1991, p. 96) notes that assertions of this sort appear to be 'positive' assertions.

Suppose 'they' is being used in a context in which (c) is true. On this view, in this context (d) is meaningful but false. Presumably, there would be no context in which (c) is true and (d) is true as well, and so in a sense propositions like (d) are guaranteed to be false (but meaningful).

This upshot does not strike me as problematic. In any context in which one has a reason to assert, for example, that unicorns are zero in number, one can satisfy one's communicative intentions by asserting instead that there are no unicorns. And I grant that the latter claim attributes nothing to individuals, but really is a second-order claim, and most importantly is true.

Moreover, note that a view about the semantics of numerical expressions is not required to treat every numerical predication as alike with respect to their possible truth-values, but merely alike with respect to their semantic function: if one of them can be *meaningfully* attached to a subject term, then *all* of them can.

I do not want to give the impression that the view that existence is a first-order property is committed to gappy propositions. There are other possible accounts of negative existentials other than Braun's, and these accounts can also be extended to cover both plural negative existentials and attributions of being zero in number. The nice thing about Braun's view is that it allows that singular negative existentials can be literally true. Without gappy propositions, it is not obvious how this could be the case. (A meta-linguistic account, according to which to say that, e.g., Fred does not exist is just to say that 'Fred' does not refer, does not strike me as plausible.)

However, if need be, we can settle for a view that allows some singular negative existentials to be meaningful albeit always false. (We should not conclude from this view that true singular negative existentials are necessarily true, or that their denials are self-contradictions. Neither consequence follows from a view of this sort.)²³ Further, we could hold that the reason that there are no true singular negative existentials is that, were there to be any, they would have nonreferring names and hence would be meaningless. Likewise, one could settle for a view that allows that attributions of being zero in number can be meaningful, but when meaningful are always false. The main worry about such views is that it is not obvious why we would sincerely and frequently utter these sentences given that they are guaranteed to be meaningless or false.

There are many possible explanations for this behavior. One explanation by Fred Kroon (2000) is that sincere utterances of singular negative existentials are utterances in which the negative existential functions metaphorically rather than literally. According to Kroon, singular negative existentials are examples of 'quasi-paradoxical disclaimers' which employ a subject and a predicate that are in tension with one another to communicate a content not literally expressed by the sentence. An example of a quasi-paradoxical disclaimer is 'that red thing is white'. One can envision contexts in which such an utterance might be useful even though the literal content is untrue. 'Zardoz does not

23. For some reason, many philosophers have thought that, if 'exists' is a predicate, then negative existentials are self-contradictory. See, for example, Ayer (1952, p. 43), Broad (1953, pp. 182–183), and Williams (1992, p. 38). For a convincing rebuttal, see Nakhnikian and Salmon (1957).

exist' when used sincerely states something literally false but communicates something true, perhaps something to the effect that, actually, there is nothing that has all of the properties that belong to our concept of Zardoz. An equally appealing account is that what is communicated is meta-linguistic, specifically, that 'Zardoz' does not actually refer.²⁴

It is easy to see how one can extend this account to cover sincere uses of the predicate 'are zero in number'. Positive ascriptions of being zero in number are meaningful albeit literally false. But they communicate something literally true. 'The sober deconstructionists are zero in number' is on this view literally false, but what it communicates is obvious: there are no sober deconstructionists. And this is literally true.

There are numerous other accounts of negative singular existentials that are consistent with the view that existence is a first-order property. I suspect that they can all be extended to make sense of attributions of being zero in number. Accordingly, there is no special reason stemming from considerations of the number zero to take attributions of being n in number to be second-order attributions.²⁵

4. Plural Expressions and Numerical Predication: Further Complications

Even if we can attribute numbers to individuals, some tricky questions still remain. If 'are at least one in number' and 'are seventeen in number' can be predicated of individuals, then so can 'are numerous' and 'are scarce'. Consider then the following:

- i. Dogs are numerous but had social practices been very different, they would have been scarce.

A sentence like this might well be true, and any event makes perfectly good sense to say. Compare sentence (i) with (ii):

- ii. They are fifteen in number but could have been six in number.

(ii) is not the sort of sentence that can be literally true. Just as one thing cannot be identical with two things in some other possible world, fifteen things cannot become six. (Compare: is it possible that Tom, Dick, and Jane be

24. One could accept these claims without holding that, in general, although sentences containing proper names express singular propositions, speakers using these sentences communicate some general or descriptive proposition as well. Ben Caplan (2007) calls this view 'Millian Descriptivism' and raises some serious objections to it.
25. There are more complicated sentences involving tense and/or modality as well as predication of existence, such as "before Socrates existed, people weren't very good at philosophy" and "If you had never existed, my life would be less rich." But the question of how to handle cases involves tricky questions about time and possibility that go beyond questions about existence simpliciter, and so won't be addressed here.

identical with Tom and Jane?) What might be literally true is that there are possible worlds in which some of the fifteen things fail to exist, and those of the fifteen that would remain are six in number. But that isn't what (ii) says; (ii) is not apt to be reasonably uttered. The worry is that, by treating numbers as plural properties, one must say that (i) is like (ii) in being not sensible, and indeed is necessarily false if read strictly. Some things that are large in number are not possibly identical with some things that are small in number.

Should one treat expressions such as 'dogs' as being something like plural names, akin perhaps to 'Tom, Dick, and Jane'? It does seem that, if 'dogs' really functions as a plural name, then (i) really is analogous to (ii) and so not a sensible thing to say.

One popular view is that in this sentence the expression 'dogs in Alaska' denotes a higher-order entity, such as the kind DOGS IN ALASKA or the property of being a dog in Alaska, or the set of dogs in Alaska.²⁶ If 'dogs in Alaska' denotes a higher-order entity, then 'are numerous' and 'are scarce' as used in this context denote higher-order properties. If this is the case, then there is no problem explaining the difference between (i) and (ii): in the first sentence, the apparently plural phrase really is kind-referring, but in (ii) the pronoun really is plurally referring.

Presumably if we go this route, we should say something similar about 'exists' in 'Dogs in Alaska exist'. But this should be of little comfort to the friend of the Frege-Russell view. Perhaps 'exist' in this context can be used to ascribe a property to higher-order entities. But it is in no way special in this regard: on a view like this, virtually every predicate can be used to ascribe a property to higher-order entities as well. Consider 'Dogs in Alaska like raw meat'; on a view like this, 'like raw meat' also can be used to ascribe a property to higher-order entities. But it would be absurd to conclude that it can never be used to ascribe a property to first-order entities, and drawing a similar conclusion about 'exists' would be equally rash. Similarly, perhaps numerical predicates can sometimes be used to ascribe properties to higher-order entities, but it does not follow that they do not also have a first-order use as well.

My preference would be to not bring in higher-order entities into the picture at this stage of analysis. Recent work on plural predication and plural quantification illustrates that theorists have tended to impute singular reference to kinds, properties, or sets, where plural reference to individuals was all that was originally intended. So it is worthwhile exploring whether we need to take expressions like 'Dogs in Alaska' as kind-referring in this context.

So suppose we do decide to think of expression such as 'dogs' as analogous to plural names: they refer, plurally, to individuals, in this case, dogs. If one is attracted to a counterpart theoretic account of *de re* modality according to which propositions of the form *x is possibly F* are made true by the existence of some counterpart of *x* that has the property *being F*, one might wish to claim that (i) and (ii) are not analogous.²⁷ According to many counterpart theorists, even if two co-referring terms function as directly referential in nonmodal

26. See, for example, Carlson (1977) and Chierchia (1998).

27. For a defense of counterpart theory, see Lewis (1986, chapter four).

contexts, in modal contexts these two terms might evoke different counterpart relations, and so one could sensibly say (in different contexts) that (1) *a* is possibly *F* and (2) *b* is not possibly *F*, even though (3) *a* is identical with *b*. An extended version of counterpart theory for plural terms would presumably hold that propositions of the form *xs are F* are made true by the existence of counterparts of *xs* that are *F*. (Presumably, on this view, many of the counterpart relations that relate pluralities to pluralities are nondistributive.) Perhaps expressions such as ‘they’ evoke counterpart relations for which some plurality *ys* is a counterpart of the plurality *xs* referred to by ‘they’ only if *xs* are equinumerous with *ys*. Such a constraint would explain why ‘They are fifteen in number but could have been six in number’ expresses a false proposition. However, expressions such as ‘dogs’ might evoke counterpart relations that do not carry with them this requirement. (The following seems natural enough: some *xs* in world *w* are counterparts of the dogs in the actual world just in case something is a dog at *w* if it is one of the *xs*.) So perhaps (if counterpart theory is true) there is room to say that something like (i) could be true even though all instances of (ii) are false, even though all the terms appearing in them directly refer in non-modal contexts.

As a sidenote, by appealing to counterpart theory in this way, the theory brings itself closer to a common view in linguistics according to which kinds are functions from worlds to ‘plural individuals’, which themselves are sometimes taken to be sets, such as in Chierchia (1998, pp. 381–382). On the counterpart theoretic view, the plurally referring expression ‘dogs’ evokes, in its typical use, a counterpart relation that, for any worlds *w*₁ and *w*₂, obtains between some dogs *xs* at *w*₁ and some dogs *ys* at *w*₂ just in case *xs* are all the dogs at *w*₁ and *ys* are all the dogs at *w*₂. The kind of counterpart relation is effectively a functional relation (albeit one with plural argument slots) from dogs at worlds to dogs at worlds. The nice thing though is that we need not say that this relation, or anything else abstract or metaphysically unusual, is denoted by ‘dogs’.

That said, I do not think that sentences such as ‘Dogs in Alaska are scarce’ should be analyzed as having the form *xs are F*. I suggest instead that if we wish to avoid taking plural expressions to covertly refer to kinds or other higher-order entities, ‘Dogs in Alaska are scarce’ could be understood as expressing the same proposition as ‘there are some things that are the dogs in Alaska, and these things are scarce.’ Note that on this analysis ‘scarce’ is still a first-order predicate, just as ‘hardy’ is a first-order predicate in ‘Dogs in Alaska are hardy.’ (cf. in ‘there is something such that it is the world’s strongest philosopher and it is hardy’, ‘hardy’ is functioning as a first-order predicate.) If this is the correct account of the form of sentences like (i), there is no problem with making sense of (i). (i), unlike (ii), should be read *de dicto* rather than *de re*, namely, ‘There are some things that are the dogs and they are numerous, but had social practices been very different, there would have been some things that are the dogs and are scarce.’ Both ‘numerous’ and ‘scarce’ function as first-order predicates in that sentence. Compare the sentence with ‘Those things are numerous, but those (other) things are scarce’, in which ‘numerous’ and ‘scarce’ are functioning as first-order predicates as well.

Taking ‘dogs in Alaska are scarce’ to express, at least in its typical use, what ‘there are some things that are the dogs in Alaska and they are scarce’ does not require one to think that, in general, there are no important differences between bare plural expressions such as ‘dogs’ and plural expressions prefaced with ‘the’ such as ‘the dogs’. What is special about numerical predications is that when we typically use them, we intend to predicate something of the entirety of some salient collection of things. (I use ‘collection’ advisedly, as a dummy phrase, and not as a phrase intended to denote a higher-order entity.) When I say ‘dogs in my backyard are barking’ in a typical setting for its use, what I say is equivalent to what is said by ‘some dogs in my backyard are barking’ rather than ‘there are some things that are the dogs in my backyard and they are barking’, at least if ‘barking’ is understood as a distributional predicate, because what I said can be true even if there are also some dogs in my yard that are not barking.²⁸ But ‘scarce’ and ‘numerous’ are not only nondistributional predicates, they are also ones that when typically used are used in situations in which there is a salient plurality that is, in a sense, universally covering: when I say ‘dogs in Alaska are scarce’ I employ a plural predicate that is intended to nondistributively apply to *all* of those things that are dogs in Alaska.

That predicates such as ‘scarce’ and ‘numerous’ are typically only applied to all the members of some salient kind also closes some of the distance between the view I like and the standard view, but note this: even by closing the distance in this way, I do not commit myself to the view that such predicates are *true of* the salient kind rather than all of its members. And there are still uses of numerical predicates that are not in any straightforward way linked with kinds of things; consider for example, “Bob and Tina are two in number”.

So I think that there is little pressure to read (i) as a proposition that strictly says something false; there are plausible alternative readings according to which it does not have the same form as (ii). But, finally, note that, even if at the end of the day, we conclude that (i) should be read as expressing something false, it is clear that what we can use (i) to communicate the proposition mentioned above, which is strictly true. There are other occasions in which we use cross-referring pronouns in modal contexts to convey *de dicto* propositions. Consider, for example, ‘the temperature is ten degrees, but it could have been forty degrees’. More generally, we often use apparently cross-referring pronouns to convey something other than what appears to be strictly expressed. Consider ‘every semester the students in my class have trouble at this point and this semester they are finding it especially difficult.’ Read strictly, this sentence is odd, especially if spoken by a college professor rather than a grade school teacher. (College professors almost never have exactly the same students each semester.) But it is obvious what is communicated, and what is communicated is perfectly sensible.²⁹

28. Many linguists and philosophers of language have noted that sentences containing bare plurals have an existential reading. See for example Lasnik (2006) and Liebesman (2011).

29. I thank David Braun for discussing this issue with me and for suggesting these helpful examples.

None of the discussion here is conclusive; the semantics of plurals in general is very controversial. But it should be clear that the worry that prefaces this section can be responded to in a number of ways without abandoning the idea that numerical predications can be first-order.

5. Concluding Remarks

Friends of the Frege-Russell view of existence have appealed to a purported analogy between predications of number and predications of existence. I have argued that one can accept that there is such an analogy while holding that both predications of existence and number are first-order. The argument from the alleged analogy of existence and number to the claim that existence is a second-order property is unsound.³⁰

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