A Quinean Critique of Ostrich Nominalism

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CERTAIN OBJECTS ARE NATURALLY GROUPED TOGETHER; they have something in common. Realists claim that this fact demands explanation. For illustration, imagine that the world is restricted to the contents of a box, of which one might offer the following ordinary description:

> **Box World:** There is a blue sphere. There is a green cube. There is an orange sphere. There is a blue cone.

This world is supposed to share crucial features with our own. There are a number of objects that fall into natural groupings. For instance, the blue sphere and the blue cone naturally go together. They *share something* that the others don't. Realists posit an entity that is *instantiated* by both the sphere and the cone in order to explain what they have in common. This entity is called *a universal*. It is a *single thing* that the *many objects* have in common. Following David Armstrong (1980), let us call the realist's demand for an explanation of this grouping *the one-over-many problem*.

Nominalists see no reason to posit universals. According to the nominalist, the world contains only particular things. In this paper, we are concerned with a specific brand of nominalism that makes no concessions in response to the realist's demand for explanation. A nominalist of this brand acknowledges that the sphere and cone have something in common: they are both blue. However, she offers nothing further to explain this commonality. Armstrong (1978: 16; 1980) calls a nominalist of this variety an *ostrich*, since she purportedly sticks her head in the sand in response to the one-over-many-problem.[1]

The ostrich says that she does not posit or ontologically commit to universals. To support this claim, ostrich nominalists universally

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1. Devitt (1980) rejects the label 'ostrich nominalist' and argues that, instead, philosophers who posit universals in response to the so-called one-over-many problem are *mirage realists*: they adopt realism as a response to a problem that isn't really there. Despite this criticism, we shall use the label 'ostrich nominalist' for those philosophers who (i) do not posit universals, and (ii) do not view the realist's explanatory demand (*i.e.* the one-over-many-problem) as legitimate. We use this label solely for ease of exposition; the use of it should not be taken to indicate that we view the realist's explanatory demand as legitimate.

invoke Quine's criterion of ontological commitment. The ostrich follows Quine in holding that an agent commits to the ontology of the theory she endorses, and that the agent should endorse the best theory available to her. The theory's ontology is given by what it says there is:

> **Quine's Criterion:** A theory has an ontological commitment to *F*s if and only if it includes or entails a sentence that says that there are *F*s.[2]

According to the ostrich, the description of the box world given above is the best theory available. She argues that this theory does not entail that there is an element that the blue sphere and blue cone both instantiate. Thus, the ostrich's preferred theory of the world does not have an ontological commitment to universals. Moreover, the ostrich argues that there is no reason to supplement the description of the box world given above to produce a theory entailing that there are universals. The ordinary description, argues the ostrich, is not explanatorily worse off than a theory that also says there are universals: additional explanatory principles pressed by the realist (such as truth-maker principles) are either illegitimate or fail to motivate realism.

If the ostrich is correct that her theory meets any legitimate explanatory burden that the realist's theory does, then conventional wisdom says she is in a strong position. As Devitt (1980) says in his argument against positing universals in response to the one-over-many problem:

> In ontology, the less the better. Therefore the realist makes us ontologically worse off without explanatory gain. [97–8]

2. "We can very easily involve ourselves in ontological commitments by saying, for example, that there is something (bound variable) which red houses and sunsets have in common; or that there is something which is a prime number larger than a million. But this is, essentially, the only way we can involve ourselves in ontological commitments: by our use of bound variables" (Quine 1953b: 12). "When I inquire into the ontological commitments of a given doctrine or body of theory, I am merely asking what, according to that theory, there is" (Quine 1951b: 203–4).

According to this received view, the ostrich's preferred theory has the advantage of a more parsimonious ontology than the realist's when both are assessed by Quine's criterion. As the ostrich presents the matter, the realist's theory says that there are more things: it posits universals in addition to the particulars.

In this paper, we'll grant that standard demands for explanation should fail to move the ostrich. However, we'll argue that this is beside the point. The ostrich's claim to parsimony is simply wrong, even according to Quine's criterion. We'll argue that properly counting the ostrich's commitments using Quine's criterion yields a less parsimonious ontology than that of her realist rivals. To make our position clear: we are not trying to argue that any possible nominalist theory is less parsimonious than any possible realist theory. Rather, we aim to show that nominalist theories that have a chance of describing the actual world as we believe it to be are less parsimonious than corresponding realist theories. To make this point, we will continue to use our "box world" as a model of the actual world.

We concede that our claim may be surprising given the history of the debate, which often frames the choice between the theories as a tradeoff between ideology and ontology. We maintain, however, that this novelty issues from severe misinterpretations of Quine's criterion. In the course of this paper, we set out what we take to be the correct application of Quine's criterion and argue that this is precisely how Quine himself views the matter.

In Section I, we locate the disagreement between the ostrich and the realist more precisely. In Section II, we offer our new argument purporting to show that the ostrich has a less parsimonious ontology than the realist. The argument rests on our interpretation of Quine's criterion. As we understand this criterion, a theory has an ontological commitment to things of a sort just in case it says that there are things of that sort. (We use 'sorts', 'categories', and 'kinds' interchangeably.) We mean by this that a theory has an ontological commitment to, say, dogs in virtue of including the sentence 'there are dogs'. Yet, this theory needn't have ontological commitments to any specific dogs, since it

need not entail sentences that say there are any specific dogs. It need not say, for instance, that Fido or Rover exists. Similarly, a theory may have an ontological commitment to each particular dog without having an ontological commitment to *dogs*. This would happen if the theory says or entails of each dog (Fido, Rover, and so on) that it exists, but fails to say or entail that they are dogs. Importantly, in speaking of the sentence 'there are dogs' as generating an ontological commitment to things of the sort *dogs* we don't mean to reify sorts in a way that would prejudge the debate. We use this vocabulary solely to simplify discussion by marking the distinction between an ontological commitment to dogs in general and ontological commitments to some specific dogs. The remainder of the paper is devoted to defending the argument from Section II — and, in particular, our interpretation of Quine's criterion.

I.

The ostrich and realist disagree about whether to endorse a theory that ontologically commits to universals. One's theory can be divided into the set of sentences that one endorses and their logical consequences. This suggests that an ostrich and a realist may disagree at one of three places: (a) they may agree about which theory to endorse but disagree about how to assess the ontological commitments of this theory; (b) they may disagree about whether to endorse a given sentence or a set of sentences; or, (c) they may agree about whether to endorse a set of sentences but disagree about the logical consequences of these sentences. Disputes between nominalists and realists have, in fact, taken all three forms.

We will briefly survey these disputes as they pertain to the description of the box world. The ostrich and the realist agree that this description is fitting. Yet they disagree about whether this should lead them to posit universals. We will suggest that, from a Quinean perspective, the most important disagreements between the ostrich and the realist concerning the description of the box world are of type (c).

Type (a) disagreements
Ostrich nominalists propose to assess the ontological commitments of a theory using Quine's criterion: a theory ontologically commits to what it says there is. None of the statements in the description of the box world above says that there are universals. Moreover, the ostrich denies that these statements entail a sentence saying that there are universals. Thus, according to the ostrich, Quine's criterion dictates that these statements alone are not sufficient to commit a theory including them to universals.

Some realists, in arguing for the need to posit universals, have departed from Quine's criterion by supposing that a theory ontologically commits to an entity (*i.e.*, a universal) for every predicate deployed in expressing it.[3] Others, including (perhaps most prominently) Armstrong, have defended an alternative to Quine's criterion known as truth-maker theory.[4] According to a truth-maker criterion, a theory is ontologically committed to the entities required to make its sentences true.[5] We will briefly address the status of this truth-maker alternative

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3. See, *e.g.*, Bergmann (1952: 430) and Russell (1912: 93–4).

4. Schaffer (2008) and Devitt (2010) have both argued that a truth-maker criterion of ontological commitment isn't really an alternative to Quine's criterion. While we are sympathetic to the arguments of these two philosophers, we have reservations about fully committing to this view here. Our reservations issue in large part from the fact that there are truth-maker theorists who obviously view the truth-maker criterion (perhaps wrongly) as a genuine alternative to Quine's. Thus, Armstrong: "To postulate certain truthmakers for certain truths is to admit those truthmakers into one's ontology. The complete range of truthmakers admitted constitutes a metaphysics […]. I think that proceeding by looking for truthmakers is an illuminating and useful regimentation of the metaphysical enterprise […]. But this raises the question of Quine, and the signaling of ontological commitment by what we are prepared to 'quantify over'. Why should we desert Quine's procedure for some other method? The great advantage, as I see it, of the search for truthmakers is that it focuses us not merely on the metaphysical implications of the subject terms but also on their *predicates*," (2004: 23).

5. Armstrong (1997: 113–16; 2004) further develops the notion of a truth-maker. See also Heil (2003), and Cameron (2008: 4) for defenses of truth-maker criteria of ontological commitment.

to Quine's criterion, since appeals to it have been such a prominent feature of arguments against ostrich nominalism.

According to Armstrong, a truth-maker criterion of ontological commitment delivers different results from the Quinean criterion. In particular, Armstrong says that for Quine "predicates do not have to be taken seriously in considering the ontological implications of the statements one takes to be true" (Armstrong 1989: 89). We take ontological implications to be ontological commitments, since Armstrong says that he is comparing truth-maker theory to Quine's criterion of ontological commitment.[6] That is, we take the ontological implications of a statement to be the ontology that one endorses if one takes that statement to be true. To illustrate his statement, Armstrong says that truth-maker theory requires an ontological ground (what Armstrong calls "a difference in the word"), which accounts for the difference between, *e. g.*, the case in which 'red' applies to a surface and the case in which 'green' applies to it. We take this to mean that the truth-maker theorist supposes that if person A endorses the statement 'Surface S is red', and person B endorses the statement 'Surface S is green', then person A and person B suppose that there are different things in the world. In other words, their theories *posit* or *ontologically commit to* different things. Armstrong seems to think that the proponent of Quine's criterion doesn't agree with this: she thinks, according to Armstrong, that person A and person B do not suppose that there are different things in the world. And if the two do not suppose that there are different things in the world, then it seems that they have the same ontological commitments.

At this point we want to sound a note of protest. Quine's criterion assigns a great deal of importance to predicates in the assessment of ontological commitment. Returning to Armstrong's example, even the Quinean concedes that 'There are red surfaces' and 'There are green surfaces' require different things to be in the world in order for either to be true. The former requires red surfaces; the latter requires green surfaces. Similarly, one who endorses 'Surface S is red' ontologically

commits to red surfaces, since the sentence entails that there are red surfaces. On the other hand, one who endorses 'Surface S is green' ontologically commits to green surfaces. Thus, the two theories have different ontological commitments, or require different ontological grounds. One who endorses 'Surface S is red' posits something in the world that is different from that which is posited by one who endorses 'Surface S is green'.

In sum, the Quinean about ontological commitment specifies the ontological commitments of the statement using the very predicates that follow 'there are'. So, predicates are relevant to the ontological commitments of a statement. We will develop this point more fully when we compare the realist's and nominalist's theories with respect to their ontological parsimony.[7]

Type (b) disagreements

Many realists attempt to argue for the existence of universals by positing substantive (or even purportedly trivial) principles of explanation. For instance, some realists endorse principles, such as the following: if *a* is green, then *a* is *something* (namely, green).[8] Other realists explicitly endorse truth-making principles that in conjunction with the ordinary description provided above entail that there are universals. Ostriches offer a variety of responses to these arguments. Some simply deny that the relevant principles are true.[9] Others accept the principles but deny that

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6. Armstrong (2004) is quite explicit about this in the quote cited in our footnote 4 above.

7. We have framed Quine's criterion in terms of what a theory says or entails there is. Sometimes Quine frames the criterion in terms of what must exist in order for the theory to be true. We maintain that this modal formulation of the criterion has the same consequences as the formulation in terms of 'says that'. As before, the truth of a theory may necessarily entail that there are *F*s without necessarily entailing that there are any specific *F*s. A theory that says that there are green things cannot be true unless there are green things. Moreover, in our view, Quine uses 'must' in this context, as he does in others, to mean logical entailment. So 'what must exist if …' just means 'what the theory entails exists'. In particular, it cannot be interpreted to mean 'metaphysically necessary'. Burgess and Rosen (1999: 226) make a similar point.

8. See, *e. g.*, Schiffer (1996).

9. Devitt (1980) rejects principles of both sorts.

they have the entailments claimed by the realist.[10] Rather than entering debates over these issues, we are going to present a novel objection to ostrich nominalism that doesn't rely on these substantive principles.

Type (c) disagreements

Some realists would claim that the ordinary description of the box world (properly spelled out) simply entails that there are universals. Ostriches deny this. When disagreements over entailments arise, Quinean methodology dictates that a theory stated in ordinary (or even scientific) language should be replaced by — that is, *regimented* into — a notation that makes entailments perspicuous.[11] The resulting sentences need not uncover the "hidden meaning" of the originals, but should constitute the best theory that captures what is scientifically respectable in the original notation.[12] Essentially, disagreements of type (c) (disagreements over which inferences are valid) should be converted into disagreements of type (b) (disagreements over which sentences to endorse). Given this methodological principle, disagreements of the sort that occur between the realist and the ostrich nominalist become disagreements over which regimented theory to adopt. The realist thinks that the best regimented theory arising from

the ordinary description entails that there are universals. The ostrich denies this. We now turn to developing the realist's and ostrich's proposed regimentations. In the next section we compare their relative parsimony in order to argue that the realist's proposed regimentation results in a better theory than the ostrich's proposed regimentation.

The ostrich denies that one can infer that there is a universal, *blue*, from the sentence 'there is a blue sphere'. The expression 'blue' in this statement is not accessible to quantification. This suggests that the ostrich thinks that the best regimented theory arising out of the description of the box world can be axiomatized by combining some basic principles with the following sentences:

$$\exists x \, (\mathrm{Blue}(x) \wedge \mathrm{Sphere}(x)) \qquad \exists x \, (\mathrm{Green}(x) \wedge \mathrm{Cube}(x))$$

$$\exists x \, (\mathrm{Orange}(x) \wedge \mathrm{Sphere}(x)) \; \exists x \, (\mathrm{Blue}(x) \wedge \mathrm{Cone}(x))$$

In these sentences, expressions such as 'Blue(…)' occur as monadic predicates. They are inaccessible to quantification in standard first-order logic. This means that there is no sense in which the ostrich's theory entails that there is a universal, *blue*, that the sphere has.

A realist of the kind under consideration believes that it follows from the description of the box world that there is such a thing as the universal *blue*. Moreover, she believes that this entailment follows without additional substantive principles. Consequently, our realist believes that 'blue' is accessible to quantification in the sentences comprising the description. This suggests that, in her view, these sentences are best regimented as follows:

$$\exists x \, (\mathrm{IS}(x, blue) \wedge \mathrm{IS}(x, spherical))$$

$$\exists x \, (\mathrm{IS}(x, green) \wedge \mathrm{IS}(x, cubical))$$

$$\exists x \, (\mathrm{IS}(x, orange) \wedge \mathrm{IS}(x, spherical))$$

$$\exists x \, (\mathrm{IS}(x, blue) \wedge \mathrm{IS}(x, conical))$$

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10. Sellars (1962) and Van Cleve (1994) deny that from the claim that *a* is *F* and the principle that if *a* is *F*, then *a* is *something*, one can infer that there is something which *a* instantiates. Some philosophers accept truthmaker principles but deny that they, combined with the observed facts, entail that there are universals. For discussions, see Parsons (1999), Lewis (2003), Lewis and Rosen (2003), MacBride (2005), and Melia (2005).

11. In particular, theories are to be regimented into the language of first-order logic; the relevant notion of entailment is first-order entailment.

12. The goal of regimentation is to construct a *new* theory that fulfills the function of an old theory but clarifies it in certain respects. As Quine says, "we do not claim to make clear and explicit what the users of the unclear expression had unconsciously in mind all along. We do not expose hidden meanings, as the words 'analysis' and 'explication' would suggest; we supply lacks. We fix on the particular functions of the unclear expression that make it worth troubling about, and then devise a substitute, clear and couched in terms to our liking, that fills those functions" (1960: 258–9). Different proposals for regimenting a theory *just are* different theories.

In this regimented theory, 'IS(…,…)' occurs as a dyadic predicate and means roughly "instantiates". This expression is inaccessible to quantification in the realist's theory. By way of contrast, expressions such as '*blue*' and '*spherical*' occur as names in the realist's theory and are thus accessible to quantification.[13] This means that the realist's theory entails that there are universals such as *blue* that the sphere instantiates. In order to fully secure this entailment, the realist needs two supplementary principles linking being instantiated with being a universal, and being a particular with the failure to be instantiated:

Universal: $\forall x$ (Universal(x) iff $\exists y$ IS(y, x))

Particular: $\forall x$ (Particular(x) iff $\neg \exists y$ IS(y, x))

In the statement of these principles, the realist makes use of two additional monadic predicates, 'Universal(…)' and 'Particular(…)'. These expressions are inaccessible to quantification, just as expressions such as 'Blue(…)' are in the ostrich's theory. We note in passing that some philosophers might treat these as definitions rather than principles, but for the sake of argument we will treat 'Universal(…)' and 'Particular(…)' as primitives.[14]

II.

Now for the crucial question: which of these regimented theories is better? Above, we mentioned that Devitt argues that the ostrich nominalist's theory is to be preferred on the grounds that it is more parsimonious. The ostrich's claim to ontological parsimony derives from the

claim that her theory has fewer ontological commitments. She claims that the realist's theory shares all of the ontological commitments of her theory but is, in addition, committed to universals. Thus, the realist's theory purportedly has a greater number of ontological commitments than the ostrich's. We believe that this assessment is wrong and that realism has a more parsimonious ontology than ostrich nominalism does.

According to Quine's criterion, ontological commitments arise from existential sentences. Each theory entails a large number of existential sentences. Indeed, certain natural supplements to either theory of the box world (such as that there are only four objects in the box) will result in infinitely many existential entailments that are neither logically nor necessarily equivalent.[15] Presumably, one can compare the ontological parsimony of these two theories without taking into account all of their existential entailments. Therefore, we restrict our attention to a subset of existential entailments of each theory, which both the realist and ostrich will agree generate all of the ontological commitments relevant to comparing the ontological parsimony of their theories. We will offer a more theoretical motivation for this choice of existential sentences in Section VII.

The ostrich will agree that her theory has the following existential entailments and that these entailments generate all of the ontological commitments relevant to comparing the relative parsimony of her theory with that of the realist.[16]

$\exists x$ Blue(x)	$\exists x$ Sphere(x)	$\exists x$ Green(x)
$\exists x$ Cube(x)	$\exists x$ Orange(x)	$\exists x$ Cone(x)

What commitments do these sentences generate for the ostrich's theory? By Quine's criterion of ontological commitment, the ostrich's

13. It is open to the realist to develop a theory on which these expressions are replaced by definite descriptions. These descriptions may be purely qualitative if we assume that there are no indiscernible universals. Or the realist may replace the names with individualized descriptions in the manner of Quine's '*pegasizes*' (1953b: 8).

14. We are agnostic about whether particulars or universals are essentially so. Moreover, we take no stand about whether particulars are essentially uninstantiated. For discussion of the modal status of these theses, see MacBride (1999; 2005b).

15. See our footnote 27.

16. This is not to say that the ostrich's entire theory can be reconstructed from these existential sentences. All that we are claiming is that the ostrich will point to these as sufficient to determine the relative ontological parsimony of her theory. See, for example, the quote from Parsons (1999) in Section III.

theory has (1) an ontological commitment to *blue things*, (2) an ontological commitment to *spheres*, (3) an ontological commitment to *green things*, (4) an ontological commitment to *cubes*, (5) an ontological commitment to *orange things*, and (6) an ontological commitment to *cones*.

What about the realist's theory? The ostrich will agree that the realist's theory has the following existential entailments:

$$\exists x \exists y \text{ IS}(x, y) \qquad \exists x \exists y \text{ IS}(y, x)$$

$$\exists x \text{ Universal}(x) \qquad \exists x \text{ Particular}(x)$$

She will also agree that these entailments generate all of the ontological commitments relevant to comparing the relative parsimony of the realist's theory with that of her own. By Quine's criterion, the realist's theory has (1*) an ontological commitment to *instantiating things*, (2*) an ontological commitment to *instantiated things*, (3*) an ontological commitment to *universals*, and (4*) an ontological commitment to *particulars*.

Comparing the commitments of the ostrich's and realist's theories, we find ourselves perplexed by the ostrich's claim that her theory has a more parsimonious ontology than the realist's does. Counting ontological commitments naïvely, ostrich nominalism looks to have a *less* parsimonious ontology than does realism. By our count, the ostrich's theory has six ontological commitments. By way of contrast, we count the realist's theory as having four ontological commitments. Six is greater than four. Therefore, the ostrich's theory is less parsimonious than the realist's.

There are a number of places at which our naïve assessment of the relative parsimony of realism in comparison to ostrich nominalism will be challenged. These challenges can best be addressed by enumerating the principles by which are counting:

Counting Principle 1
The ontological commitments listed in (1)–(6) are all distinct from each other, as are the ontological commitments listed in (1*)–(4*).

Counting Principle 2
(1)–(6) and (1*)–(4*) are the only ontological commitments of the respective theories relevant to determining which is more parsimonious.

Counting Principle 3
One determines which of two theories is more ontologically parsimonious by counting their respective ontological commitments.

In what follows, we defend each of these counting principles.

In light of the current state of the debate, Counting Principle 1 will likely be viewed as the most controversial. The ostrich will protest that it turns out that all of the blue things are either spheres or cones. So her theory's ontological commitment to blue things, the ostrich argues, is not in fact distinct from its ontological commitment to spheres and its commitment to cones. We will argue that these commitments are distinct — that according to Quine's criterion, a theory's ontological commitment to *things of a given sort* (blue things) is distinct from its commitments to specific objects (the specific cone and the specific sphere) even if the objects happen to fall under that sort. We will spend a substantial portion of this paper defending this claim, and anyone who understands this defense will understand the gist of our argument.

Counting Principles 2 and 3 might be viewed as less controversial than Counting Principle 1. However, in the final sections of this paper, we'll discuss a difficulty with assessing parsimony by simply counting the theory's ontological commitments to things of a sort. This difficulty will lead us to argue that ontological commitments to things of *explanatorily basic* sorts weigh more heavily in the assessment of ontological parsimony than ontological commitments to things of other sorts. Thus, we will amend Counting Principles 2 and 3 as follows:

Counting Principle 2*
(1)–(6) and (1*)–(4*) are the only ontological

commitments to things of explanatorily basic sorts of the respective theories.

Counting Principle 3*

A theory with many ontological commitments to things of explanatorily basic sorts is less parsimonious than a theory with few ontological commitments to things of explanatorily basic sorts.[17]

III.

In this section, we defend Counting Principle 1. Specifically, we defend the claim that the ontological commitments listed as (1)–(6) are distinct, and that, consequently, the ostrich has at least *six* ontological commitments. The contrasting view, defended by the ostrich, is that she has only *four* ontological commitments. According to the ostrich, her ontology includes only the following: a cone, a cube, and two spheres. If the ostrich is right, not all of the commitments listed in (1)–(6) are distinct, and Counting Principle 1 is a form of double-counting.

It is important to understand the ostrich's position and to see why it is wrong. As the ostrich understands the Quinean conception of ontology, an ontological commitment to green things just is an ontological commitment to the specific things that turn out to be green. Therefore, since all of the green things in the box turned out to be cubes, a theory that says that there are green things carries no commitments beyond those of a theory that says only that there are cubes. So the ostrich charges us with double-counting her commitments because

17. We don't want to commit to the view that ontological commitments to things of explanatorily non-basic sorts carry no weight in the assessment of ontological parsimony. Rather, our view is that one assesses the relative parsimony of two theories by determining which has more ontological commitments to things of explanatorily basic sorts. If the two theories have the same number of ontological commitments to things of explanatorily basic sorts, one then compares the theories' respective ontological commitments to things of explanatorily non-basic sorts.

we suppose that (3) the ontological commitment to green things is distinct from (4) the ontological commitment to cubes.

The ostrich's way of thinking about ontological commitment validates the following two inferences, which we will argue are problematic:

(I-1) Theory T has an ontological commitment to *F*s. Therefore, there are some *F*s to which it is ontologically committed.

(I-2) All *F*s are *G*s. Therefore, in saying that there are *F*s, a theory incurs no ontological commitments beyond those it incurs in saying that there are *G*s.

That the ostrich reasons in accordance with these principles is reflected in Armstrong's claim above, which is echoed by Josh Parsons in defense of ostrich nominalism: "[A]ccording to Quine's criterion of ontological commitment, to say 'There is a red surface' commits us to no more things than 'There is a surface' commits us to" (Parsons 1999: 327). As Parsons understands Quine's criterion, a theory, T_1, that says there are red surfaces does not have any ontological commitments beyond those of a theory, T_2, that says there are surfaces. The idea is that when one ontologically commits to surfaces, one's theory thereby includes in its ontology all of the things that turn out to be surfaces. So the theory does not gain any additional ontology if it also includes the claim 'There are red surfaces'. This form of reasoning generalizes to (I-2).

By way of contrast, we endorse Counting Principle 1 because we believe (i) that a theory's ontological commitment to things of a given sort is distinct from its potential commitments to the specific things that happen to fall under that sort, and (ii) that if one can ontologically commit to *F*s without ontologically committing to *G*s, then an ontological commitment to *F*s is distinct from an ontological commitment to *G*s. From (i) it follows that a theory's commitments to red things, green things, cubes, and so on are different from its commitments to the specific things that happen to be red, green, cubes, and so on. As a result, one could have any of these commitments without having the others. Thus, from (ii), an ontological commitment to green things

differs from an ontological commitment to cubes, even if all and only the green things are cubes (as is the case in the box world). We believe that there are decisive reasons for anyone who endorses Quine's criterion to agree with us about (i) and (ii).

Our argument for (i) assumes that Quine's criterion is correct and demonstrates that (I-1) and (I-2) are false. The failure of (I-1) and (I-2) implies that the ostrich's way of thinking about ontological commitment is wrong, and that, consequently, we should think of a theory's ontology as including the things of various sorts that it says there are. The substance of our argument will substantially mimic Quine's in "On What There Is" as we understand it, though the argument is independent of exegetical considerations.

(I-1) is problematic because it entails that we can never criticize our opponents for having too many ontological commitments. If (I-1) is correct, a theory's ontological commitments include only things that exist. For example, the ostrich might complain that the realist's theory is profligate because it has an ontological commitment to universals. But (I-1) precludes her from doing so. Once the ostrich says that the realist theory commits to universals, (I-1) requires the ostrich to concede that there are universals. As Quine (1953: 1–3) says in discussing the tangle of problems he calls Plato's Beard, when the party saying that there are fewer things tries to "formulate [her] difference of opinion" she seems "to be in a predicament". She "cannot admit that there are some things which [her opponent] countenances but [she does] not".

Quine's criterion, as we understand it, is specifically designed to avoid this consequence. It says that a theory ontologically commits to Fs just in case it says that there are Fs. Starting with the premise that a theory can say that there are Fs even if there aren't any, it immediately follows that one can ontologically commit to Fs even if there are no Fs. There are no, say, unicorns, but some theories say that there are unicorns. It would be odd indeed (particularly from a Quinean perspective) to claim that such theories are not ontologically committed to unicorns. For this reason, we believe that any understanding of Quine's criterion that validates (I-1) is incorrect.

The failure of (I-2) is more relevant to our criticism of ostrich nominalism. Parsons seems to invoke (I-2) to argue that theory T_1 has no more ontological commitments than theory T_2 despite the fact that T_1 says that there are red surfaces and T_2 does not. We believe that this inference is invalid for reasons Quine explicitly cites in support of his criterion of ontological commitment.

The problem with Parsons's way of thinking can be shown using his own example. By Quine's criterion, T_1 is ontologically committed to *red* surfaces (because it says that there are some), whereas T_2 is not committed to *red* surfaces (because it doesn't say that there are any). Thus, T_1 has an ontological commitment that T_2 lacks, even if they agree on which specific surfaces there are. So, a theory's commitment to red surfaces in general cannot be identified with its commitments to specific red surfaces (or, for that matter, its commitments to some specific surfaces).

This point can be generalized. The ostrich thinks of a theory's ontological commitment to Fs as a commitment to all of the specific things that turn out to be F. Thus, if all objects fall under some predicate 'F', then any two theories that say that there are Fs share their ontologies. Consider ostrich nominalism and realism. Both of these theories agree that there are *self-identical things*, so they ontologically commit to self-identical things. As a matter of fact, everything falls under the predicate 'is a self-identical thing'. So on the ostrich's understanding, any theory that commits to self-identical things commits to all of the specific things that happen to be self-identical. Thus, the realist and ostrich are committed to the same specific things. But since specific things exhaust each theory's ontology, the realist and ostrich have the exact same commitments! Certainly this line of reasoning is wrong. The realist and ostrich have different ontologies. So any understanding of Quine's criterion that says otherwise is mistaken.

Quine (1953b: 1) offers a similar reason for rejecting (I-2). He notes that everyone will accept 'Everything' as an answer to the question 'What is there?'. But surely this doesn't entail that every theory has the same ontology. The interesting ontological disagreements concern cases — namely, whether there are such things as gods, universals, minds,

or material objects. A theory's ontological commitments should reflect its stance on these matters. For example, a theory that says there are self-identical things need not be committed to green things, even if it turns out that green things are among the self-identical things. To accept this, however, is to reject (I-2).

Our argument for (ii) from above relies on considerations already raised. Observe that a theory's ontological commitment to Fs is generated by the fact that it entails the sentence 'There are Fs'. A theory's ontological commitment to Gs is not generated by this entailment, but rather is generated by the fact that it entails 'There are Gs'. One could have either of these entailments without having the other. Thus, a theory could have either of these ontological commitments without having the other. So, by Leibniz's Law, the commitments must be distinct.[18] For example, a theorist who asserts the existence of *green things* has an ontological commitment to *green things*. However, unless she also asserts that there are *cubes*, she does not have an ontological commitment to *cubes*. Indeed, asserting the existence of green things is compatible with *denying* that there are any cubes (and vice versa). Since the commitments are not generated in the same way, and since one could have one commitment without the other, they are different commitments. Counting Principle 1, which counts ontological commitments to things of different sorts as distinct ontological commitments, follows immediately.

We note in passing that Quine explicitly agrees with us about (i), and seemingly about (ii) as well, when he says:

> My remaining remark aims at clearing up a not unusual misunderstanding of my use of them term 'ontic commitment'. The trouble comes of viewing it as my key ontological term, and therefore identifying the ontology of

a theory with the class of all things to which the theory is ontically committed. This is not my intention. The ontology is the range of the variables. Each of the various interpretations of the range (while keeping the interpretations of predicates fixed) might be compatible with the theory. But the theory is ontically *committed* to an object only if that object is common to all those ranges. And the theory is ontically committed to 'objects of such and such kind', say dogs, just in case each of those ranges contains some dog or other. [Quine 1969b: 315]

This is also how many of Quine's early expositors understood him. Church — echoing a point made in several places by Quine himself[19] — cites as an advantage of Quine's criterion that it does mark the distinction between a commitment to things of a sort and a commitment to specific things that fall under that sort: "[I]f an ontological issue concerns the existence, not of some particular entity, but of entities of a certain category, then the criterion of ontological commitment which has reference to the use of a variable is more direct, and may take precedence over the criterion which has reference to the use of a name" (1958: 1009). From the fact that Quine thinks one ontologically commits not merely to things, but to things of a given sort, it follows straightforwardly that, *on his own view*, a theory that says that there are green things has an ontological commitment to *green things* — and not merely to specific things that are green. On the other hand, a theory

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18. Suppose that theory T_1 ontologically commits to Fs but not Gs, and that theory T_2 ontologically commits to Gs but not Fs. It follows that any theory T_3 that commits to Fs and to Gs thereby has at least two ontological commitments. T_3 shares a commitment to Fs with T_1, and it shares a commitment to Gs with T_2. But T_1's commitment to Fs is not shared by T_2. So, T_1's commitment to Fs is distinct from T_2's commitment to Gs. Thus, T_3's commitment to Fs is distinct from its commitment to Gs.

19. A related point is made by Stevenson (1976), who points to (Quine 1953b: 13; 1953c: 103; 1969a: 96–7). It follows from the fact that an ontological commitment to green things is not a relation to specific green things that ontological commitment is an intensional relation. This intensionality was noticed by Church (1958: 1012–14 (footnote 3)). Church illustrates this claim by citing the fact that an ontological commitment to unicorns is not the same as an ontological commitment to purple cows. For a discussion of the function of bare plural expressions such as 'lions', see Carlson and Pelletier (1995). For reasons that we will discuss below, we reject as misunderstandings arguments that infer from Quine's general extensionalism that he takes ontological commitment to be an extensional notion (see discussions in Cartwright 1954, Chihara 1968, and Brogard 2008).

that asserts the existence of cubes does not thereby have this commitment, even if all and only the cubes turn out to be green.

IV.

Quine's (1951a) distinction between ontology and ideology might be offered as evidence against our interpretation. The distinction is rarely spelled out explicitly, but the following provides a rough idea. A theory's ontology is what it says or entails there is. A theory's ideology is to be assessed in terms of the meaningful expressions — often predicates — that are required to articulate it, though a precise measure is rarely given. Quine introduces the distinction as a response to arguments from philosophers such as Gustav Bergmann (1952: 430) who hold that the occurrence of a meaningful predicate in a theory automatically commits the theory to an ontology of properties or universals (see also Russell 1912: 93–4). These philosophers maintain that one is ontologically committed to the meanings of expressions contained in the sentences entailed by one's best theory. Quine rejects this view. According to Quine, theories expressed using more predicates and other expressions make use of more ideological resources than theories expressed using fewer.

The distinction between ontology and ideology would be problematic for us if it meant that different predicates play no role in generating ontological commitments. Some ontologists have interpreted Quine's distinction in this way. Oliver (1996) seems to be among them. According to Oliver, a theory's ontological parsimony is determined solely by the number of specific individuals it says there are:[20]

> The ontological economy of a theory is measured by the number of entities within its ontology. The ideological

economy of a theory is measured by the number of primitive, undefined predicates within its ideology. [3]

On Oliver's understanding, if two theories have minimal models of the same cardinality, then they are ontologically equivalent, even if one theory asserts that there are individuals of more sorts than the other.

In our view, this rests on a misunderstanding of Quine's distinction. Though the distinction is meant to allow for the fact that the use of a predicate in expressing a theory does not ontologically commit that theory to the referent of that predicate, it in no way follows from this that the use of a predicate brings no ontological commitments — and thus no effect on ontological parsimony — in its wake. Once again, a theory that says there are red surfaces has an ontological commitment to red things, but a theory that says merely that there are surfaces lacks this ontological commitment. Simply put, ideological differences can give rise to ontological differences.

It may be useful to provide another example. A theory expressed in a language containing a predicate such as 'unicorn' has more ideological resources than one that lacks this predicate. However, a theory may make use of this ideological resource without thereby having an ontological commitment to things of the sort *unicorn*. (The theory may even include the sentence 'There are no unicorns'.) In order to acquire this ontological commitment, the theory must include the claim that there are unicorns. The ideological resource 'unicorn', though it does not automatically generate a new ontological commitment, makes it possible for the theory to acquire one.

This is not to say that ideological differences always entail differences in ontology.[21] We recognize that theories can differ ideologically but agree ontologically. For example, ideological differences between theories may fail to entail ontological differences when the theories are intertranslatable. The idea is that when a theory can be translated into a more fundamental idiom, its ontology is thereby reduced to

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20. Lewis (1992) offers a related distinction between *whether things are* and *how they are.* An ostrich might attempt to apply this distinction to our discussion as follows: what a theory says about *whether things are* is its ontology and what a theory says about *how they are* is its ideology. This suggestion, however, does not lend any support to the thesis that a theory's ontological commitments are given by the specific individuals it says there are. Whether there are (*e. g.*) *dogs* or *things that are red* is a matter of *whether things are*, and yet doesn't concern the existence of any specific individuals.

21. Indeed, Quine says: "Two theories can have the same ontology and different ideologies" (1951a: 14).

　　　　　　　　　A Quinean Critique of Ostrich Nominalism

the ontology of the theory expressed in the more fundamental idiom. However, the ostrich nominalist is not proposing that the disparate predicates used in the expression of her theory ('blue', 'sphere', 'green', 'cube', 'orange', and 'cone') are eliminable by translation into a more fundamental idiom. Indeed, she takes these predicates as irreducible primitives: "[…W]e have nothing to say about what makes *a F*, it just *is F*; that is a basic and inexplicable fact about the universe" (Devitt 1980: 97). Irreducible primitives, we assume, are not translatable into a more fundamental idiom.

Importantly, we are not making the often-repeated point that realism, though more ontologically profligate, is more ideologically parsimonious than ostrich nominalism.[22] The ostrich's theory incurs an ontological (and not purely ideological) cost in virtue of saying that there are things of more sorts than the realist's theory does. The ostrich chooses a theory with things of more sorts in its ontology than are in the ontology of the realist's theory. Thus, the ostrich's theory is more ontologically profligate than the realist's.

V.

We've argued for Counting Principle 1: that the commitments listed in (1)–(6) are distinct, as are those listed in (1*)–(4*). As a consequence, the ostrich has more distinct ontological commitments (six) than does the realist (four). At this point, the ostrich might maintain that, though the realist's theory is more parsimonious insofar as it is ontologically committed to things of fewer sorts, her own theory is more parsimonious insofar as it is ontologically committed to fewer specific individuals (or that the cardinality of her universe is smaller).

We first note that the ostrich has lost her purported advantage. She has maintained all along (see, *e.g.*, Devitt 1980: 97–8) that her theory is more ontologically parsimonious (*simpliciter*) than the realist's. She may now maintain, at best, that her theory is better along one axis by which

ontological parsimony is assessed: she has fewer specific individuals in her ontology than the realist does. Nonetheless, given that sorts matter in the assessment of ontological commitments, her theory is worse along another axis by which ontological parsimony is assessed: she has more sorts of things in her ontology than the realist does.

This brings us to our defense of Counting Principle 2. We concede that the realist's universe contains more specific entities than the ostrich's, since it must also contain universals. In other words, the minimal model of the realist's theory is larger than the minimal model of the ostrich's theory. But we believe that one should compare the ontological parsimony of two theories by comparing their ontological commitments to things of various sorts. The more parsimonious theory has fewer of these commitments. On our view, the number of specific entities required by a theory matters very little, if at all, in the assessment of ontological parsimony. If this is correct, then we should compare the ostrich's and the realist's theories by determining whether the ontological commitments listed as (1)–(6) are greater in number than those listed as (1*)–(4*). Thus, (1)–(6) and (1*)–(4*) are the only ontological commitments relevant to comparing the parsimony of the respective theories.

This is an even more concessive position than is offered by some more sympathetic to ostrich nominalism than we are. For instance, Quine, whose lineage is, obviously, claimed by the ostrich nominalist, holds that no acceptable theory carries any ontological commitments to specific individuals. All ontological commitments, on Quine's view, are to things of a sort. This point arises from his discussion of the problem of Plato's Beard (1939; 1953b: 1–3). As discussed previously, Quine thinks that a theorist should be able to intelligibly deny the claims that give rise to ontological commitments in any given theory. This includes claims involving terms like 'Pegasus': it should be open to a theorist to reject an ontological commitment to Pegasus by denying 'Pegasus exists'. Quine worries that construing 'Pegasus' as a singular term renders this position unintelligible, and so he ultimately holds that all singular terms ought to be eliminated in favor of either (i) descriptive

predicates such as 'the flying horse', or else (ii) predicates such as 'pegasizes'.[23] So, strictly speaking, no theories that Quine would consider acceptable entail that any specific individuals exist. Rather, they entail the existence of some individual or other of a sort: pegasizers, red things, sunsets, magnetic fields, etc.

We concede that there may be some way of making sense of a theory's ontological commitments to specific individuals. One may, for example, consider the minimal cardinality of any model of a theory. We will call the aim of minimizing this cardinality *quantitative parsimony*, following Lewis (1973). A theory's quantitative parsimony is the measure of its commitments to specific individuals.[24] Its *qualititative parsimony* is the measure of its ontological commitments to things of various sorts. A standard view is that quantitative, as opposed to qualitative, parsimony is not a theoretical virtue. For example, Lewis says: "I subscribe to the general view that qualitative parsimony is good in a philosophical or empirical hypothesis; but I recognize no presumption whatever in favor of quantitative parsimony" (1973: 87). Here, Lewis assigns no weight to quantitative parsimony in the assessment of a theory's overall parsimony.

Daniel Nolan (1997) argues against Lewis that quantitative parsimony is a theoretical virtue in addition to qualitative parsimony, but even he would concede that qualitative parsimony matters more than quantitative in the overall assessment of ontological parsimony. Indeed, Nolan's notion of quantitative parsimony is itself relative to sorts: the quantitative parsimony of a theory can be assessed only relative to each sort it posits. This suggests that the postulation of things of a new sort weighs more heavily than the postulation of new instances

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23. Quine later comes to view names themselves as predicates. This change makes no difference to the overall point we're making. For a discussion of these issues, see Fara (forthcoming).

24. Richard (1998) hints at another way of making sense of a theory's commitment to specific individuals in terms of hyperintensionality. The concerns we will raise provide reason to think that quantitative parsimony weighs less in the assessment of ontological commitment, even if one accepts Richard's suggestion.

of that sort in the assessment of ontological economy. Theories that do not posit things of the same sorts will be strictly incomparable as regards quantitative parsimony. That is, one cannot compare the quantitative parsimony of a theory that posits seven protons to a theory that posits five electrons. Along these lines, a theory that postulates things of many sorts, as does ostrich nominalism, will be less parsimonious both qualitatively and quantitatively as regards each of these sorts than a theory that postulates things of fewer sorts, as does realism. It is less parsimonious qualitatively because it postulates things of more sorts. It is less parsimonious quantitatively relative to each of these sorts because it postulates more than zero instances of each sort.

Why would a philosopher think that ontological commitments to specific individuals count less in the overall assessment of ontological parsimony than ontological commitments to things of a sort, or, indeed, that they don't count at all? We see three types of reason for supposing this:

(R-1) In canonical philosophical disputes, qualitative parsimony is, in fact, preferred to quantitative parsimony.

(R-2) In canonical scientific disputes, qualitative parsimony is, in fact, preferred to quantitative parsimony.

(R-3) Comparisons of quantitative parsimony collapse for theories with only infinite models.

We will discuss these points in sequence.

(R-1): We believe it is standard in philosophical disputes to prefer qualitative parsimony to quantitative parsimony in the assessment of overall parsimony. To take an example that is directly relevant to our dispute with the ostrich nominalist, many philosophers are unwilling to posit universals at all, regardless of their number. We agree with Russell (1912: 112) when he says, "[…H]aving admitted one universal, we have no longer any reason to reject others."[25] We believe that many

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25. Russell makes a similar point in (1912: 95–7; 1918: 150). There is a long tradition of regarding inferences to things of new sorts as less secure than inferences to

nominalists would agree as well. If we ask a trope theorist if she prefers to posit one universal or twenty additional tropes, she will invariably choose the tropes. Similarly, if we ask an ostrich nominalist if she prefers to posit one universal or twenty additional blue things, we are certain that she'll choose the latter. These choices reflect a preference structure favoring qualitative over quantitative parsimony.

To take another example from a distant field, consider the difference between an atheistic theory of the world and a theistic theory of the world. The theistic theory needn't commit to any specific individuals beyond those of the atheistic theory, since many religions hold that their deity or deities are among the human beings or other individuals posited by the atheistic theory.[26] The claim is that such a being is both human and divine. Moreover, theistic theories, in many cases, are far more quantitatively parsimonious than atheistic theories. The reason for this is that they may use their additional resources (*i.e.*, deities) to explain phenomena where the atheist is forced to posit additional atheistically acceptable processes. Early atheistic theories had to posit additional phenomena to account for the weather, whereas theistic theories were able to invoke a deity or deities. Likewise, certain atheistic theories may posit that there is no beginning in time and, consequently, may be forced to posit an infinite chain of processes, whereas the theists may simply posit a first cause, thereby restricting their universe to a finite sequence of causes. We find it clear that such an atheistic theory is more parsimonious overall due to its qualitative parsimony. This is despite the fact that the atheistic theory explicitly posits an infinitude of specific objects while the theistic theory posits

only a finite number. This is not to say that theism is unjustified or untrue, just that its motivation cannot come from considerations of overall parsimony, as we think is conceded by many theists.

(R-2). We believe that the preference for qualitative over quantitative parsimony in philosophical disputes stems, as it should, from the same choice structure active in scientific disputes. Scientists are willing to posit more specific individuals if it simplifies their overall theory by reducing the things of various sorts that they posit. The pre-scientific view of the world posited things of disparate sorts. This theory was replaced by a theory that posits things of a relatively small list of chemical sorts. Things of these chemical sorts are, in turn, supposed to be reduced to things of an even smaller number of sorts, such as protons, electrons, and neutrons (or even the flavors of quarks). For instance, scientists in the past may have taken there to be a primitive distinction between living and non-living things, or one that appealed to *sui generis* vital forces. However, the distinction between living and non-living things is now explained in terms of the chemical processes occurring in them. This development required positing more specific individuals and processes than had been previously recognized. But these specific posits paid their way because they allowed the theory to posit things of fewer sorts.

(R-3). A final reason to favor qualitative over quantitative parsimony derives from the difficulty of comparing theories with only infinite models. The specific worry is that any first-order theory with only infinite models has a countable model. Thus, any two theories that posit an infinitude of things will be equally quantitatively parsimonious. It is this concern that leads Nolan (1997) to reject the view that quantitative parsimony *simpliciter* is a theoretical virtue. Rather, he endorses the more complicated "thesis that we should minimize the number of entities of each kind that we postulate" (1997: 341). Thus, a theory that postulates infinitely many sets and seven material objects is less parsimonious than a theory that postulates infinitely many sets and five material objects. But two theories that posit different kinds will be strictly incomparable with regard to quantitative

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    things of sorts that have already been acknowledged. In our view, these inferences are more precarious because asserting the existence of things of new sorts in one's theory affects its ontological economy more severely than a new entity of the same sort. Of course, we concede that less economical theories are sometimes more justified than more economical theories.

26. For example, proponents of a simplified version of the Christian doctrine of the trinity might hold that God ("the father") *and* the holy spirit are *strictly identical* to the human being Jesus. If this position were adopted, then anyone who posits Jesus would thereby also posit God and the holy spirit.

parsimony. As we argued above, Nolan's view has the consequence that qualitative parsimony takes precedence as a theoretical virtue over quantitative parsimony.

VI.

Until now, we've suppressed a complication in our discussion of ontological commitment: we've undercounted the commitments of the theories of both the realist and the ostrich. We will argue that this undercount exposes a general puzzle about ontologically committing to things of a sort. Solving this puzzle, we'll argue, requires privileging ontological commitments to things of certain sorts (namely, those that are explanatorily basic) in the assessment of overall ontological parsimony.

We have spoken of theories as ontologically committing to things of a sort: to *spheres*, *green things*, *universals*, *particulars*, *instantiators*, and *instantiated things*. Moreover, we've argued as if these are the only ontological commitments that matter in the assessment of the comparative ontological parsimony of realism and ostrich nominalism. However, the realist and nominalist theories have ontological commitments to things of more sorts than those listed in (1)–(6) and (1*)–(4*). In addition to saying that there are blue things, the nominalist theory says that there are *blue spheres*, *green cubes*, and so on. It therefore has an ontological commitment to *blue spheres*, an ontological commitment to *green cubes*, and so on. But, it also has even more complex ontological commitments: it entails the existence of *green things such that there is a sphere*: $\exists x$ (Green(x) $\wedge$ $\exists y$ Sphere(y)). Thus, it has an ontological commitment to *green things such that there is a sphere*.

The realist theory has its own additional commitments. It is committed to the existence of *things that instantiate green such that there are things that instantiate sphericality*: $\exists x$ (IS(x, green) $\wedge$ $\exists y$ IS(y, sphere)); it therefore has an ontological commitment to things of this sort. Moreover, since it entails '$\exists x$ IS(x, green)', the theory is ontologically committed to *things that instantiate green*.

Simple combinatorial reasoning suggests that even very simple theories have ontological commitments to things of infinitely many

distinct sorts, for such theories will entail infinitely many existential sentences. Any two existential sentences '$\exists x\ \Phi x$' and '$\exists x\ \Psi x$' generate ontological commitments to Φs and to Ψs, respectively. These commitments are distinct, because one can have an ontological commitment to Φs without thereby having an ontological commitment to Ψs. Indeed, 'Φ' and 'Ψ' will not even be necessarily equivalent. For brevity's sake, we confine a fuller elaboration of this argument to a footnote.[27]

This suggests that there is a general problem with assessing a theory's overall ontological parsimony by counting its commitments to *things of a given sort*: most theories entail the existence of things of infinitely many sorts. They thereby incur infinitely many ontological commitments. The natural solution to this problem is to privilege some sorts over others in the assessment of overall ontological parsimony. We will first consider and reject a proposal for privileging some sorts over others in terms of the number of instances of the sort. We will then offer our own proposal in Section VII.

Some philosophers might suppose that an ontological commitment to Φs weighs more heavily in the assessment of ontological parsimony than an ontological commitment to Ψs, if there are more Φs than Ψs. On this view, the greater the generality of a sort, the more it counts in the assessment of ontological parsimony. This suggestion might be reinforced using the distinction between general categories and

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27. To see our point, imagine that a theory asserts that there are n-1 cones in the box. Consider the following sequence of claims that follow from this theory: (C1) There is an x such that $x=x$ and there are fewer than n cones in the box; (C2) There is an x such that $x=x$ and there are fewer than n+1 cones in the box; (C3) There is an x such that $x=x$ and there are fewer than n+2 cones in the box; etc. These claims give rise to the following ontological commitments, respectively: (OC1) Self-identical things such that there fewer than n cones in the box; (OC2) Self-identical things such that there fewer than n+1 cones in the box; (OC3) Self-identical things such that there fewer than n+2 cones in the box; etc. A theory can consistently commit to things such that there are fewer than m+1 cones in the box without thereby committing to things such that there are fewer than m cones in the box. Thus, these commitments are distinct, as follows from the fact that the sentences generating them are not even necessarily equivalent. A similar argument holds if the theory says that there are infinitely many cones in the box.

subclasses that Quine (1951b) attributes to Carnap.[28] According to this view, ontological commitments to things falling under general categories weigh more heavily than ontological commitments to things falling under subclasses of those general categories. An ostrich arguing along these lines might suggest that since the realist theory posits things of two very general categories, *i. e.*, universals and particulars, it is less parsimonious than the ostrich's own theory, which posits things of only one very general sort, *i. e.*, particulars.[29]

Privileging general categories in the assessment of parsimony strikes us as artificial. It isn't clear why the ostrich counts particulars and universals as the realist's most general categories when the realist has a more general category, namely, *things*. There are more things than there are particulars and universals — indeed, all particulars and all universals are things — so the realist has only one most general sort of entity. That is, the realist may retort that she has an ontological commitment to things of only one general category, *things* or *self-identical things*. Universals and particulars are only subclasses of this general category. Of course, the ostrich could also claim that

28. Quine proposes that the distinction should be abandoned: "Whether the statement that there are physical objects and the statement that there are black swans should be put on the same side of the dichotomy, or on opposite sides, comes to depend on the rather trivial consideration of whether we use one style of variables or two for physical objects and classes" (1951b: 208).

29. This may be what Melia (2005) means when he concedes that "sensible" (read: ostrich) nominalism is less ontologically parsimonious than other forms of nominalism (and realism if our argument is correct), but suggests that ostrich nominalism is nonetheless more "metaphysically parsimonious" than realism: "For although the sensible nominalist has dispensed with these metaphysical entities (such as universals), the individuals that the sensible nominalist postulates are themselves many and varied. Insofar as he thinks that some things have mass, other things have charge, other things have spin, and there is no unifying or constitutive account of these truths in terms of something more fundamental, he has postulated many different kinds of individuals. Yes, the sensible nominalist avoids a complicated metaphysics but, because of the richness and variety of his individuals, his overall ontology may still be unparsimonious" (71–2). We are unclear about the distinction Melia is drawing between metaphysical and ontological parsimony. He appears to describe a theory that minimizes the number of the most general sorts of things (*e. g.*, individuals vs. universals) as metaphysically parsimonious.

things constitute her most general category. But this just means that any assessment of the difference in ontological economy between the realist's theory and the ostrich's would require some further way of screening which sorts matter to such an assessment. This reveals that generality of a sort is an inadequate tool in the assessment of ontological economy.

VII.

We have thus far assumed that one theory is more ontologically parsimonious than another insofar as the former ontologically commits to things of fewer sorts than the latter does. Yet we've argued that almost every reasonable theory is ontologically committed to things of an infinite number of distinct sorts. Again, this suggests that some sorts need to be privileged over others in the assessment of ontological parsimony. So now the question is: How is this privileging to be effected?

Our answer appeals to a distinction between explanatorily basic and non-basic sorts. We believe that there is a natural sense in which something's being a blue square can be *explained* by its being blue and square. More generally, in an extensional language,[30] the use of atomic, monadic predicates that are not subject to paraphrase commit a theory to things of explanatorily basic sorts. More explicitly,

> **Monadic Predicates**
> A theory incurs an ontological commitment to things of an explanatorily basic sort for each atomic monadic predicate, *P*, such that the theory entails '$\exists x\, Px$'.

30. The issues become more complicated for an intensional language, such as one employing modal vocabulary. The fact that something is square may explain the fact that it is a square or a circle. However, it cannot explain the fact that the thing is necessarily a square or possibly not a square. Attempts to reduce the number of explanatorily basic modal categories include Carnap (1947), Lewis (1986), Sider (2001), etc., who attempt to explain claims about what is necessary and what is possible in terms of claims about possible worlds; as well as Fine (1994), who attempts to derive what is necessary for an object from facts about its essence.

This principle seems natural to us since we think that the fact that a molecular predicate in an extensional language applies to an object is explained by the distribution of atomic predicates that apply to it. Similarly, that the sort picked out by a molecular predicate applies to an object is explained by the distribution of atomic sorts that the object falls under. We will argue that explanatorily basic sorts matter more in the assessment of ontological parsimony than explanatorily non-basic sorts.

By distinguishing explanatorily basic from non-basic sorts, we don't mean to appeal to any special metaphysical conception of explanation. We believe that reducing the number of explanatorily basic categories (in the ordinary sense of 'explanation') is a goal of good scientific theorizing. A theory that appeals to the categories *massed particle*, *electrically charged particle*, and *magnetized particle* has more explanatorily basic sorts than one that appeals only to the sorts *massed particle* and *electromagnetically charged particle*. The former is thus less parsimonious than the latter, even if the latter requires more claims about the distribution of mass and charge (and thus more explanatorily non-basic sorts) in order to account for the observed phenomena. The explanatorily non-basic sorts, on the other hand, seem to count little by comparison. Once they have agreed to the existence of massed particles, scientists don't fret about saying that there are *things that are either massed particles or electromagnetically charged particles*. This commitment to *things that are either massed particles or electromagnetically charged particles* does not cost a theory its parsimony, or at least does not cost much.

In saying that ontological parsimony primarily concerns minimizing the number of ontological commitments to things of explanatorily basic sorts, we are simply generalizing this goal of scientific theorizing to our most comprehensive theory of the world. Recently, some philosophers[31] have proposed that ontological parsimony requires minimizing the number of ontological commitments to things of explanatorily basic sorts in a more metaphysical sense of 'explanation'.

31. See discussions in Fine (2001; 2009), Cameron (2008; 2010), Schaffer (2008; 2009), and Sider (2009).

This more metaphysical notion of explanation is often called *grounding* or *dependence*. As we've said, our argument requires only the ordinary notion of explanation. Nonetheless, it's likely that a proponent of this more metaphysical conception of explanation will agree with what we've said, since she will likely agree that an object's falling under the sort *green sphere* is explained by (is grounded in or depends on) the distribution of the basic sorts under which it falls.

To illustrate our point, consider the ostrich's theory of the box world. Her theory has six atomic predicates, which give rise to six distinct ontological commitments (*i. e.*, commitments to *blue things*, *spheres*, *green things*, *cubes*, *orange things*, and *cones*). Her theory entails the sentence 'There is an *x* such that *x* is blue or *x* is green' and is thereby committed to *things such that they are blue or green*. Thus, the ostrich's theory is ontologically committed to things of at least seven sorts of things. Compare her theory to that of an imagined opponent, who, for whatever reason, feels the need to invoke an additional *atomic* predicate applying to, say, things that are blue or green. The ostrich's opponent might say that her theory is just as parsimonious as the ostrich's since it has just as many ontological commitments: they both have infinitely many.

We disagree with the ostrich's opponent. In the ostrich's theory, the category *being blue or green* is not explanatorily basic. In particular, something's being blue or green is explained by the fact that it is blue, or it is green. The ostrich's opponent introduces an additional predicate — and thus an additional category. Supposing she's not willing to paraphrase sentences containing this predicate into sentences containing predicates already in the ostrich's theory, the predicate — and the category it represents — counts as explanatorily basic.[32]

We want to determine whether realism is more ontologically parsimonious than ostrich nominalism. We've argued that a theory that

32. Analogously, a theorist who says there are objects that are green before time *t* or blue after *t* doesn't introduce any explanatorily basic categories. By way of contrast, a theorist who applies a new basic predicate, say 'grue', to these objects *and refuses to paraphrase* statements containing 'grue' into statements containing 'blue' and 'green' thereby introduces a new, explanatorily basic sort to her theory. (Our example is taken from Goodman 1983).

invokes fewer explanatorily basic sorts is, *ceteris paribus*, more ontologically parsimonious than a theory that invokes more. However, we're not yet in a position to count the explanatorily basic sorts invoked by the realist's theory. The realist's theory makes use of an atomic dyadic predicate, and we've not yet considered how to determine the explanatorily basic sorts generated by the use of such a predicate.

We hold that an atomic dyadic predicate generates a commitment to things of two explanatorily basic sorts corresponding to the two positions accessible to quantification in the predicate. That is:

> **Dyadic Predicate**
> A theory that, for some atomic dyadic predicate 'Q', entails '$\exists x \exists y \ Q(x, y)$' incurs an explanatorily basic ontological commitment to things that Q other things. Moreover, a theory that entails '$\exists x \exists y \ Q(y, x)$' incurs an explanatorily basic ontological commitment to things that are Q-ed by other things.

If a theory employs an atomic dyadic predicate, say 'loves', which it asserts to hold between various objects, then the theory incurs ontological commitments to things of two explanatorily basic categories: *lovers* and *beloved*.

One might say that this procedure undercounts the explanatorily basic ontological commitments generated by the use of an atomic dyadic predicate. The theory introduced above that contains the predicate 'loves' commits not only to lovers and beloved, but also to lovers of specific individuals and those beloved by specific individuals (*e.g.*, there are *lovers of John*, and *those beloved by Sally*, etc.). We agree that the use of 'loves' and other dyadic predicates may generate ontological commitments to things of these additional sorts. However, we hold that commitments to things of these sorts weigh less in the assessment of ontological parsimony. We argued above that commitments to specific individuals should count less in the assessment of ontological commitment than commitments to general sorts. In other words, a

theory's qualitative commitments matter more than its commitments to specific individuals. Taking each existential generalization over a relational predicate '$\exists x \ Q(x, a)$' as generating an explanatorily basic ontological commitment means that each specific individual posited by a theory counts more than the general commitments. The reason is that each name deployed in the theory will presumably be the subject and object in multiple relational predications. The qualitative commitments of a theory that says that Sally loves John are to *lovers* and to *beloved*. If the theory's commitment to *lovers of John* carries the same weight as these two commitments, then we will again be conceding that quantitative parsimony weighs the same as qualitative. For this reason, we think that a theory's commitments generated using relational predicates (to *lovers of John* and to *those beloved by Sally*) simply weigh less in the assessment of overall parsimony than do the commitment to *lovers* and *beloved.*

VIII.

We can now compare the number of explanatorily basic ontological commitments had by the realist theory to the number of those had by the ostrich nominalist theory. Once again, the realist's theory contains exactly four existential sentences generating commitments to things of explanatorily basic sorts: two involving atomic monadic predicates, '$\exists x \ \text{Universal}(x)$' and '$\exists x \ \text{Particular}(x)$', and two involving an atomic dyadic predicate, '$\exists x \exists y \ \text{IS}(x,y)$' and '$\exists y \exists x \ \text{IS}(x,y)$'. The realist, therefore, has things of four explanatorily basic sorts in her ontology.

By way of contrast, the ostrich treats each atomic predicate used in the ordinary description as explanatorily basic. Each sentence formed by applying an existential quantifier to one of these predicates generates an ontological commitment to an explanatorily basic sort. As Melia (2005) says (expanding on Devitt 1980: 97),

> Now [...] 'a is charged', 'a is square', and 'a has mass' may all report metaphysically primitive truths — there may be no interesting constitutive account that can be given of

such truths. Another way of putting this is that, for the sensible nominalist [read: ostrich], there just are charged things, square things, and massive things, and there is nothing more to be said about the matter[…]. [71]

For this reason, we take the ostrich's theory of the box world to have things of six explanatorily basic sorts in its ontology: (1) *blue things*, (2) *cubes*, (3) *spheres*, (4) *orange things*, (5) *green things*, and (6) *cones*. Thus, by our count, the ostrich has a less ontologically parsimonious theory than the realist.

The ostrich might retreat at this point. She too might propose to explain or reduce the basic sorts (1)–(6) in terms of basic sorts in some underlying physical theory. She might attempt to explain the colors of objects in terms of their reflectance properties, and ultimately in terms of their mass, charge, spin, the various flavors of quarks, etc. As Melia (2005) says,

> [The] apparent ontological diversity [of the ostrich's theory] may one day be explicable in terms of a simpler ontology […]. But whether such a reduction can be effected depends upon serious theoretical and empirical work — if such work cannot be done, the sensible nominalist accepts the extra ontological commitment. [72]

We have no objection to such attempted reductions. The ostrich's explanatorily basic sorts correspond to explanatorily non-basic sorts in the realist's theory. But unless the ideal physical theory has four explanatorily basic sorts or fewer in its ontology, the ontology of the ostrich's theory will still be less parsimonious than that of the realist's theory.

IX.

Realism reduces a lavish ontology to a sparse one that includes only particulars, universals, instantiating things, and instantiated things as its explanatorily basic sorts. The realist's theory, therefore, offers a more unifying explanation of our experience than the ostrich nominalist's does. This is not to say that realism triumphs over all its competitors. Other forms of nominalism, including class nominalism, resemblance nominalism, and trope theory, offer realism a run for its money. Our purpose is not to adjudicate among these views. It is merely to point out that ostrich nominalism does not have this advantage: it is not a unifying explanation of our experience. Among the proposed unifying explanations, Quine advises us to select the simplest reasonable one "into which the disordered fragments of raw experience can be fitted and arranged" (1953b: 16). However, the ostrich's proposal, insofar as we understand it, amounts to rejecting this project of offering a unified explanation of the disparate sorts invoked in ordinary and scientific theorizing, and thereby resting content with an overpopulated ontological slum.[33]

Bibliography

Armstrong, D.M. (1978). *Universals and Scientific Realism, Volume 1: Nominalism and Realism*, Cambridge: Cambridge University Press.

Armstrong, D.M. (1980). "Against 'Ostrich' Nominalism: A Reply to Michael Devitt", *Pacific Philosophical Quarterly* 61: 440–49. Citations are from the version reprinted in Mellor and Oliver (1997).

Armstrong, D.M. (1989). *Universals: An Opinionated Introduction*, Boulder: Westview Press.

Armstrong, D.M. (1997). *A World of States of Affairs*, Cambridge: Cambridge University Press.

Armstrong, D.M. (2004). *Truth and Truthmakers*, Cambridge: Cambridge University Press.

Beebee, Helen, and Julian Dodd, eds. (2005). *Truthmakers: The Contemporary Debate*, Oxford: Oxford University Press.

Bennett, Karen (2009). "Composition, Colocation, and Metaontology", pp. 38–76 in Chalmers, Manley, and Wasserman (2009).

Bergmann, Gustav (1952). "Two Types of Linguistic Philosophy", *Review of Metaphysics* 5/3: 417–38.

Brogard, Berit (2008). "Inscrutability and ontological commitment", *Philosophical Studies* 141: 21–42.

Burgess, John, and Gideon Rosen (1999). *A Subject with No Object: Strategies for Nominalistic Interpretation of Mathematics*, New York: Oxford University Press.

Cameron, Ross P. (2008). "Truthmakers and Ontological Commitment: or How to Deal with Complex Objects and Mathematical Ontology without Getting into Trouble", *Philosophical Studies* 140: 1–18.

Cameron, Ross P. (2010). "How to Have a Radically Minimal Ontology", *Philosophical Studies* 151/2: 249–64.

Carlson, Gregory, and Jeff Pelletier (1995). *The Generic Book*, Chicago: The University of Chicago Press.

Carnap, Rudolf (1947). *Meaning and Necessity*, Chicago: University of Chicago Press.

Cartwright, Richard (1954). Ontology and the Theory of Meaning, Philosophy of Science 21/4: 316–25.

Chalmers, David J., David Manley, and Ryan Wasserman, eds. (2009). *Metametaphysics: New Essays on the Foundations of Ontology*, Oxford: Oxford University Press.

Chihara, Charles (1968). "Our Ontological Commitment to Universals", *Noûs* 2/1: 25–46.

Church, Alonzo (1958). "Ontological Commitment", *Journal of Philosophy* 56/23: 1008–14.

Devitt, Michael (1980). "'Ostrich Nominalism' or 'Mirage Realism'?" *Pacific Philosophical Quarterly* 61: 433–9. Citations are from the version reprinted in Mellor and Oliver (1997).

Devitt, Michael (2010). Postscript to '"Ostrich Nominalism" or "Mirage Realism"?', pp. 20–30 in Devitt, Michael, *Putting Metaphysics First*, Oxford: Oxford University Press.

Fara, Delia Graff (forthcoming). "Socratizing", *American Philosophical Quarterly*, a special issue devoted to W.V. Quine, edited by Dagfinn Føllesdal.

Fine, Kit (1994). "Essence and Modality", *Philosophical Perspectives* 8: 1–16.

Fine, Kit (2001). "The Question of Realism", *Philosophers' Imprint* 1: 1–30.

Fine, Kit (2009). "The Question of Ontology", pp. 157–77 in Chalmers, Manley, and Wasserman (2009).

Goodman, Nelson (1983). *Fact, Fiction, and Forecast* (Fourth Edition), Cambridge, MA: Harvard University Press.

Heil, John (2003). *From and Ontological Point of View*, Oxford: Oxford University Press.

Lewis, David (1973). *Counterfactuals*, Oxford: Blackwell.

Lewis, David (1986). *On the Plurality of Worlds*, Oxford: Blackwell.

Lewis, David (1992). "Armstrong on Combinatorial Possibility", *Australasian Journal of Philosophy* 70: 211–24.

Lewis, David (2003). "Things qua Truthmakers", pp. 25–38 in Lillehammer and Rodriguez-Pereyra (2003).

Lewis, David, and Gideon Rosen (2003). "Postscript to 'Things qua Truthmakers': Negative Existentials", pp. 39–42 in Lillehammer and Rodriguez-Pereyra (2003).

Lillehammer, Hallvard, and Gonzalo Rodriguez-Pereyra, eds. (2003). *Real Metaphysics: Essays in Honour of D.H. Mellor*, London: Routledge.

MacBride, Fraser (1999). "Could Armstrong Have Been a Universal?", *Mind* 108/431: 471–501.

MacBride, Fraser (2005a). "Lewis's Animadversions on the Truthmaker Principle", pp. 117–140 in *Beebee and Dodd* (2005).

MacBride, Fraser (2005b). "The Particular-Universal Distinction: A Dogma of Metaphysics?", *Mind* 114/455: 565–614.

Melia, Joseph (2005). "Truthmaking without Truthmakers", pp. 67–84 in Beebee and Dodd (2005).

Mellor, D.H., and Alex Oliver, eds. (1997). *Properties*, Oxford: Oxford University Press.

Nolan, Daniel (1997). "Quantitative Parsimony", *British Journal for the Philosophy of Science* 48/3: 329–43.

Oliver, Alex (1996). "The Metaphysics of Properties", *Mind* 105/417: 1–80.

Parsons, Josh (1999). "There is no 'Truthmaker' Argument against Nominalism", *Australasian Journal of Philosophy* 77/3: 325–34.

Quine, W.V.O. (1939). "Designation and Existence", *Journal of Philosophy* 36/26: 701–9.

Quine, W.V.O. (1951a). "Ontology and Ideology", *Philosophical Studies* 2/1: 11–5.

Quine, W.V.O. (1951b). "On Carnap's views on ontology", *Philosophical Studies* 2/5: 65–72. Citations are from the version reprinted in Quine (1976).

Quine, W.V.O. (1953a). *From a Logical Point of View,* Cambridge: Harvard University Press.

Quine, W.V.O. (1953b). "On What There Is", pp. 1–19 in Quine (1953a).

Quine, W.V.O. (1953c). "Logic and the Reification of Universals", pp. 102–29 in Quine (1953a).

Quine, W.V.O. (1960). *Word and Object*, Cambridge: MIT Press.

Quine, W.V.O. (1969a). "Existence and Quantification", pp. 91–113 in *Ontological Relativity and other essays*, New York: Columbia University Press.

Quine, W.V.O. (1969b). "Reply to Hintikka", pp. 312–5 in D. Davidson and J. Hintikka, eds., *Words and Objections: Essays on the Work of W.V.O. Quine*, Dordrecht, Netherlands: D. Reidel Publishing Company.

Quine, W.V.O. (1976). *The Ways of Paradox*, Cambridge: Harvard University Press.

Richard, Mark (1998). "Commitment", *Philosophical Perspectives* 12: 255–81.

Russell, Bertrand (1912). *The Problems of Philosophy*, Indianapolis: Hackett.

Russell, Bertrand (1918). "The Relation of Sense-data to Physics", pp. 139–70 in *Mysticism and Logic*, Saint Lambert, Montreal: Penguin Books.

Schaffer, Jonathan (2008). "Truthmaker commitments", *Philosophical Studies* 141: 7–19.

Schaffer, Jonathan (2009). "On What Grounds What", pp. 347–83 in Chalmers, Manley, and Wasserman (2009).

Schiffer, Stephen (1996). "Language-Created Language-Independent Entities", *Philosophical Topics* 24/1: 149–67.

Sellars, Wilfrid (1962). "Naming and Saying", *Philosophy of Science* 29/1: 7–26.

Sider, Theodore (2001). Review of Charles Chihara's *The Worlds of Possibility*, *Philosophical Review* 110: 88/91.

Sider, Theodore (2009). "Ontological Realism", pp. 384–423 in Chalmers, Manley, and Wasserman (2009).

Stevenson, Leslie (1976). "On What Sorts of Thing There Are", *Mind*, New Series 85/340: 503–21.

Van Cleve, James (1994). "Predication Without Universals? A Fling with Ostrich Nominalism", *Philosophy and Phenomenological Research* 54/3: 577–90.