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On What Grounds What

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> *Substance is the subject of our inquiry; for the principles and the causes we are seeking are those of substances. For if the universe is of the nature of a whole, substance is its first part; …*
>
> —Aristotle (1984: 1688; *Meta.*1069a18–20)

On the now dominant Quinean view, metaphysics is about what there is. Metaphysics so conceived is concerned with such questions as whether properties exist, whether meanings exist, and whether numbers exist. I will argue for the revival of a more traditional Aristotelian view, on which metaphysics is about what grounds what. Metaphysics so revived does not bother asking whether properties, meanings, and numbers exist. Of course they do! The question is whether or not they are *fundamental*.

In §1 I will distinguish three conceptions of metaphysical structure. In §2 I will defend the Aristotelian view, coupled with a permissive line on existence. In §3 I will further develop a neo-Aristotelian framework, built around primitive grounding relations.

1 Three Conceptions of Metaphysical Structure

Contemporary textbooks usually introduce metaphysics through the Quine-Carnap debate, with Quine awarded the victory. The main resistance comes from neo-Carnapians who challenge Quine's laurels. But why start with the Quine-Carnap debate? Why think that the best understanding of metaphysics is to be found in a debate between a positivist teacher and his post-positivist student, both of whom share explicitly anti-metaphysical sympathies?

Among the many assumptions Quine and Carnap share is that metaphysical questions are *existence questions*, such as whether numbers exist. They only disagree on the further issue of whether such questions are meaningful (at

least as the metaphysician might pose them). But why think that metaphysical questions are existence questions of this sort?

Return to Aristotle's *Metaphysics*. There are virtually no existence questions posed. The whole discussion is about *substances* (fundamental units of being). At one point Aristotle does pause to ask if numbers exist, and his answer is a brief and dismissive *yes*: "it is true also to say, without qualification, that the objects of mathematics exist, and with the character ascribed to them by mathematicians" (1984: 1704; *Meta.*1077b32–3). For Aristotle, the serious question about numbers is whether they are transcendent substances, or grounded in concreta. The question is not *whether* numbers exist, but *how*.

1.1 The Quinean View: On What There Is

According to Quine, metaphysics addresses the question of "What is there?" (1963a: 1) He notes that the question has a trivial answer ('everything'), but adds "there remains room for disagreement over cases" (1963a: 1). Among the cases he mentions are properties, meanings, and numbers. Thus Quine sees metaphysics as addressing the question of what exists, by addressing questions such as whether properties, meanings, and numbers exist. This should be familiar.

To be more precise about the Quinean view, it will prove useful to begin by distinguishing between the *task* and *method* of metaphysics. Thus:

Quinean task: The task of metaphysics is to say what exists.

What exists forms the domain of quantification. The domain is a set (or class, or plurality)—it has no internal structure. In other words, the Quinean task is to *list the beings*.

The Quinean task of saying what exists is to be achieved by the following method:

Quinean method: The method of metaphysics is to extract existence commitments from our best theory.

In slightly more detail, the Quinean method is to begin with our best theory and canonical logic, translate the former into the latter, and see what the bound variables must range over for the result to be true (see §2.3 for further details). That is, the method is to solve for the domain of quantification required for the truth of an apt regimentation of our best theory. The elements of the domain are the posits of the best theory, and insofar as we accept the theory, these are the entities we get committed to (1963a: 12–3). That is the ontology. The rest is ideology.

The Quinean view deserves praise for providing an integrated conception of the discipline. Part of what makes the Quinean task worth assigning is that

there seems to be a viable method for accomplishing it, and part of what makes the Quinean method worth pursuing is that there seems to be a valuable task it accomplishes.

The Quinean view deserves further praise for promising progress. Indeed, Quine himself felt compelled to move from eliminativism about numbers to realism (1960a, 1966b), on grounds that quantification over numbers seems indispensable to formally regimented physics. Thus the Quinean view promises what Yablo calls "Ontology the progressive research program (not to be confused with ontology the swapping of hunches about what exists)" (1998: 229).

The Quinean view deserves even more praise for its historical role in helping revive metaphysics from its positivistic stupor. Quine was primarily arguing against Carnap, who rejected metaphysical existence claims as *meaningless*.[1] Carnap's views develop the anti-metaphysical positivism of his day, as expressed by Schlick: "The empiricist does not say to the metaphysician 'what you say is false,' but, 'what you say asserts nothing at all!' He does not contradict him, but says 'I don't understand you' " (1959: 107). To consider Quine the victor of the Quine-Carnap debate is to consider this extreme anti-metaphysical position defeated.

Yet victory for the Quinean view should not be considered victory for traditional metaphysics. For the Quinean view is *revisionary by design*. Thus when Carnap criticizes Quine for "giving meaning to a word which belongs to traditional metaphysics and should therefore be meaningless" (Quine 1966a: 203), Quine rejoins: "meaningless words are precisely the words which I feel freest to specify meanings for" (1966a: 203). Indeed, though the textbooks cast Quine and Carnap as opponents, Quine is better understood as an anti-metaphysical ally of his mentor (c.f. Price 1997). *The Quine-Carnap debate is an internecine debate between anti-metaphysical pragmatists* (concerning the analytic-synthetic distinction, with implication for whether the locus of pragmatic evaluation is molecular or holistic). As Quine himself says:

> Carnap maintains that ontological questions, ... are questions not of fact but of choosing a convenient conceptual scheme or framework for science; and with this I agree only if the same be conceded for every scientific hypothesis. (1966a: 211)[2]

[1] Slightly more precisely, Carnap holds that existence claims are either framework-external and thus meaningless, or framework-internal and thus either analytic or empirical. At best he would acknowledge that there is a *pragmatic* question of which frameworks to accept: "[T]he decisive question is not the alleged ontological question of the existence of abstract entities but rather the question of whether the use of abstract linguistic forms ... is expedient and fruitful ..." (1956: 221).

[2] Quine's own conclusions about metaphysics are then utterly deflationary. For Quine also held the thesis of *ontological relativity* (1969: 54–5; see §2.3 for further discussion), which led him to

The Quinean view of the task and method of metaphysics remains dominant. Indeed, the contemporary landscape in meta-metaphysics may be described as featuring a central Quinean majority, amid a scattering of Carnapian dissidents. Few other positions are even on the map.[3]

1.2 The Aristotelian View: On What Grounds What

There are views of metaphysics other than Quine's or Carnap's. The traditional view—what Carnap would dismiss and Quine revise—is of course rooted in Aristotle. For Aristotle, metaphysics is about what grounds what. Thus Aristotle leads into the *Metaphysics* with: "we must inquire of what kind are the causes and the principles, the knowledge of which is wisdom" (1984: 1553; *Meta.*982a4–5). He concludes:

> [I]t is the work of one science to examine being *qua* being, and the attributes which belong to it *qua* being, and the same science will examine not only substances but also their attributes, both those above named and what is prior and posterior, genus and species, whole and part, and the others of this sort. (1984: 1587; *Meta.*1005a14–17)

Aristotle then characterizes metaphysical inquiry as centered on substance: "Substance is the subject of our inquiry; for the principles and the causes we

conclude: "What is empirically significant in an ontology is just its contribution of neutral nodes to the structure of the theory" (1992: 33; from a section entitled "*Ontology Defused*"). So for Quine, not only is the only task of metaphysics to provide *a list*, but the only salient feature of the list is *its cardinality*. For as long as two lists have the same cardinality, there will be a reductive one-one mapping between them (1969: 57). Thus, for Quine, there is no real difference between positing chairs or dragons or numbers. In this vein, Quine considers whether the Lowenheim-Skolem theorem should lead him to approve of an ontology of *just the positive integers*. He has no complaint whatsoever against such Pythagoreanism, save that:

> [W]e could not have arrived at our science in the first place under that interpretation, since the numbers do not correspond one by one to the reifications that were our stepping stones. Practically, heuristically, we must presumably pursue science in the old way … (1992: 33)

Thus, for Quine, the only metaphysical question is *how many entities are there*. By Lowenheim-Skolem the cardinality of the positive integers is provably sufficient. So metaphysics is already done. To every great question of metaphysics, a permissible final answer: what exists is {1, 2, 3, … }.

Such a view invites the reply: if that was the answer, what was supposed to be the question? In Douglas Adams's *The Hitchhiker's Guide to the Galaxy*, the computer *Deep Thought* (second only to *Earth* as the greatest computer ever) is designed to answer the great question of Life, the Universe and Everything. *Deep Thought* spits, churns, and gurgles for 7.5 million years, before finally answering: "42." The story continues: "Forty-two!" yelled Loonquawl. "Is that all you've got to show for seven and a half million years' work?" "I checked it very thoroughly," said the computer, "and that quite definitely is the answer. I think the problem, to be quite honest with you, is that you've never actually known what the question is" (p. 182).

[3] Here the exceptions prove the rule, in that those few who challenge Quine usually then champion Carnap. For instance, Price 1997, Azzouni 1998, Yablo 1998, Hofweber 2005, and Chalmers *this volume* all oppose the Quinean regime (albeit in different ways), under a Carnapian banner.

are seeking are those of substances. For if the universe is of the nature of a whole, substance is its first part; …'' (1984: 1688; *Meta.*1069a18–20).

Aristotle's notion of substance, developed in the *Categories*, is multifaceted. But perhaps the core notion is that of a *basic, ultimate, fundamental unit of being*. This emerges in the passage that Wedin refers to as ''the grand finale of the *Categories*'' (2000: 81), namely: ''So if the primary substances did not exist it would be impossible for any of the other things to exist'' (1984: 5; *Cat.*2b6–7; c.f. 1984: 1609; *Meta.*1019a2–4). As Gill aptly summarizes:

> In the *Categories* the main criterion [for selecting the primary substances] is ontological priority. An entity is ontologically primary if other things depend for its existence on it, while it does not depend in a comparable way on them. The primary substances of the *Categories*, such as particular men and horses, are subjects that ground the existence of other things; some of the nonprimary things, such as qualities and quantities, exist because they modify the primary substances, and others, such as substantial species and genera, exist because they classify the primary entities … Therefore the existence of other things depends upon the existence of these basic entities; … (1989: 3)

Thus, on Aristotle's view, metaphysics is the discipline that studies substances and their modes and kinds, by studying the fundamental entities and what depends on them.[4]

Putting this together, the neo-Aristotelian will conceive of the task of metaphysics as:

> *Aristotelian task*: The task of metaphysics is to say what grounds what.

That is, the neo-Aristotelian will begin from a *hierarchical view of reality* ordered by *priority in nature*. The primary entities form the sparse structure of being, while the grounding relations generate an abundant superstructure of posterior entities. The primary is (as it were) all God would need to create. The posterior is grounded in, dependent on, and derivative from it. The task of metaphysics is to limn this structure.

What of the method? A very general answer may be given as:

> *Aristotelian method*: The method of metaphysics is to deploy diagnostics for what is fundamental, together with diagnostics for grounding.

Different versions of the neo-Aristotelian view may deploy different diagnostics for what is fundamental as well as for grounding. I will offer specific diagnostics

[4] There are of course great controversies concerning Aristotle's *Metaphysics*, such as whether he continues to treat individuals as substances (as per the *Categories*) or has shifted to substantial forms, and whether he conceives of substantial forms as universals or as particulars (tropes). But the claims made in the main text should be fairly uncontroversial (cf. Loux 1991: 2).

in §3.3. But for present purposes this general conception of the Aristotelian method will suffice.

For present purposes I am interested in how the Quinean and Aristotelian views differ. While Quine is interested in existence questions (such as whether there are numbers), Aristotle seems to take a permissive disinterest in such questions. Thus consider how he launches the *Categories*, with a catalogue of types of entity: ''Of things said without any combination, each signifies either substance or quantity or qualification or a relative or where or when or being-in-a-position or having or doing or being-affected'' (1984: 4; *Cat.*1b25–7). He simply assumes that all such types of entity exist, without need for further discussion (c.f. Frede 1987).

Indeed, in one of the few places in the *Metaphysics* where Aristotle even considers an existence question—concerning numbers—he answers with an immediate affirmative:

> Thus since it is true to say without qualification that not only things which are separable but also things which are inseparable exist—for instance, that moving things exist—it is true also to say, without qualification, that the objects of mathematics exist, and with the character ascribed to them by mathematicians. (1984: 1704; *Meta.*1077b31–3)

As Corkum explains, ''the philosophical question is not *whether* such things exist but *how* they do'' (2008: 76). Aristotle elsewhere considers existence questions with respect to time, place, the void, and the infinite (*inter alia*). But throughout he is primarily concerned with *how* something exists. Thus he comes to say of the infinite:

> The infinite, then, exists in no other way, but in this way it does exist, potentially and by reduction. It exists in fulfillment in the sense in which we say ''it is day'' or ''it is the games''; and potentially as matter exists, not independently as what is finite does. (1984: 352; *Phys.*206b13–16)

As Owen summarizes Aristotle's approach, using the example of time, ''The philosophical query 'Does time exist?' is answered by saying 'Time is such and such' and showing the answer innocent of logical absurdities'' (1986b: 275).

What emerges is that the neo-Aristotelian and Quinean views will differ on at least two points. First, while the Quinean will show great concern with questions such as whether numbers exist, the neo-Aristotelian will answer such questions with a dismissive *yes, of course*. Second, while the neo-Aristotelian will show great concern with questions such as whether numbers are fundamental or derivative, the Quinean will have no concern with this further question. (Or the Quinean concern will be expressed in terms she mistakenly thinks are analyzable via supervenience; or in terms she admittedly considers dark; or in terms that belie an implicitly Aristotelian hierarchical view: §2.2.)

Existence questions do play a role for my sort of neo-Aristotelian. What exists are the grounds, grounding relations, and the grounded entities. Hence, existence claims constrain the grounds and groundings, to be basis enough for the grounded. So for instance, given that numbers exist, they must either be counted as substances (grounds), or else explanation is required for how they are grounded in the real substances.

But the existence questions are doubly transformed. First, they no longer represent the end of metaphysical inquiry. For one must still determine whether an existent is a ground, grounding relation, or a grounded entity (and if so, how). Second, there is no longer anything directly at stake. For there is no longer any harm in positing an abundant roster of existents, *provided it is grounded on a sparse basis*. (This is why the neo-Aristotelian can be so permissive about what exists. She need only be stingy when it comes to what is fundamental: §2.1.)

While the Quine-Carnap debate remains the official starting point of contemporary discussions, vestiges of the Aristotelian view linger. For example, Armstrong makes crucial use of the notion of "the ontological free lunch":

> [W]hatever supervenes or, as we can also say, is entailed or necessitated, ... is not something ontologically additional to the subvenient, or necessitating, entity or entities. What supervenes is no addition to being. (1997: 12)

But what could this mean? In Quinean terms, whatever supervenes is an addition to being in the only available sense—it is an additional entry on the list of beings. But in Aristotelian terms, there is a straightforward way to understand Armstrong: *whatever is dependent is not fundamental*, and thus *no addition to the sparse basis*. Thus, Armstrong's notion of an ontological free lunch seems best understood against an Aristotelian background.

To take another example, Lewis invokes a naturalness ordering on properties: "Some few properties are *perfectly* natural. Others, even though they may be somewhat disjunctive or extrinsic, are at least somewhat natural in a derivative way." (1986: 61). In Aristotelian terms, Lewis is suggesting a hierarchical grounding structure, albeit one restricted to properties.[5]

Perhaps the best example of a neo-Aristotelian view is to be found in Fine's *constructional ontology*, which has "a tripartite structure; there are domains for the elements, for the givens, and for the constructors" (1991: 266). The

[5] Though Lewis elsewhere (1999b: 65) does speak of naturalness for objects, and Sider 2001 (xxi–xxiv) has argued for an extension of Lewisian naturalness beyond properties. To reach the sort of neo-Aristotelian position I am recommending one must (i) extend the priority-in-nature ordering to all entities, and (ii) be permissive about the abundant realm of derivative entities.

elements are the existents, the givens are the grounds, and the constructors are the grounding relations. Fine also speaks of "a primitive metaphysical concept of reality" (2001: 1), where what count as really the case is "settled by considerations of ground" (2001: 1). To revive the Aristotelian view is thus to further unearth what is already resurfacing (to varying degrees) in Armstrong, Lewis, Fine, and all those who would revive traditional metaphysics.

There is a tension in contemporary metaphysics. On the one hand the Quinean view of the discipline remains dominant (§1.1). On the other hand there has been a revival of interest in questions of what is fundamental, and a revival of interest in traditional metaphysics. The tension is that the post-positivist Quinean view is (by design) unsuited for the traditional questions. The revival of traditional metaphysics demands a revival of the traditional Aristotelian view, which involves concepts one will not find in Quine or Carnap.

1.3 Metaphysical Structures: Flat, Sorted, and Ordered

What emerges is that Quine and Aristotle offer different views of metaphysical structure. That is, the Quinean and Aristotelian tasks involve structurally distinct conceptions of the target of metaphysical inquiry. For the Quinean, the target is *flat*. The task is to solve for $E =$ the set (or class, or plurality) of entities. There is no structure to E. For any alleged entity, the flat conception offers two classificatory options: either the entity is in E, or not.

For the neo-Aristotelian, the target is *ordered*. The task is to solve for the pair $<F, G>$ of fundamental entities and grounding relations, which generate the hierarchy of being. For any alleged entity, the ordered conception offers not two but four major classificatory options: either the entity is in F, in G, in neither but generated from F through G, or else in the rubbish bin of the non-existent. (If the entity is in the third class, then there will be further sub-options as to how the entity is grounded.)[6]

Maybe also worth mentioning is a third view of metaphysical structure (perhaps inspired by Aristotle's *Categories*), on which the target is *sorted*. The task is to solve for the number of categories n, and solve for the sets $E_1 - E_n$ of entities in each category. For any alleged entity, the sorted conception offers $n + 1$ classificatory options for n many categories: either the entity is in E_1 or E_2 or … or E_n, or else binned as non-existent.

[6] My sort of neo-Aristotelian will also be *permissive* about existence, in that she will not toss many candidate entities into the rubbish bin. Or at least, with respect to such entities as properties, meanings, and numbers, these will all go into either the first or third classes (fundamental or derivative entities). Such permissivism, though, is strictly additional to the postulation of an ordered target.

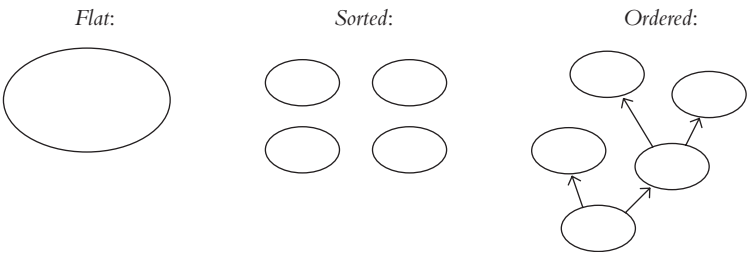
Putting all of this together, and moving the sorted view second:

Flat structure: The target of metaphysical inquiry is an unstructed list of existents E.

Sorted structure: The target of metaphysical inquiry is (i) the number of categories n, and (ii) lists $E_1 - E_n$ of entities in each category.

Ordered structure: The target of metaphysical inquiry is an ordered hierarchy generated from (i) a list of the substances F, plus (ii) a list of the grounding relations G.

In lieu of three thousand further words:



Here are three structurally distinct conceptions of metaphysics. Never mind the historical views of Quine or Aristotle. Just ask: *which is the best conception of the target of metaphysical inquiry*?

Flat structure is strictly weaker than sorted structure, which in turn is strictly weaker than ordered structure. First, a flat ontology does not subsume a sorted or an ordered ontology. Given a list of entities, there is no guarantee that one can sort or order them. E determines neither $E_1 - E_n$ nor $<F, G>$. Next, a sorted ontology subsumes a flat ontology ($\cup(E_1 - E_n)$ determines E) but does not subsume an ordered ontology. E_j does not determine what is basic among entities of that sort, nor does anything determine priority between entities of sorts E_j and E_k. Finally, an ordered ontology subsumes a flat ontology ($x \in E$ iff x is in the closure of F under the Gs), and might well subsume a sorted ontology, if the categories are determined by the different grounding relations (if not one should also consider a sorted-and-ordered ontology).

I will not be paying further attention to the prospects for the sorted (or sorted-and-ordered) conception, because I think the categories are indeed determined by the grounding relations. That is, categories just are *ways things depend on substances*. This view is plausibly attributed to Aristotle, for whom categorical distinctions arise from the many senses of "being." These many senses are in turn held to derive from a single *focal sense*, that of "being" as attributed to a substance:

[T]here are many senses in which a thing is said to be, but all refer to one starting-point; some things are said to be because they are substances, others because they are affections

of substance, others because they are a process towards substance, or destructions or privations or qualities of substance, or productive or generative of substance, or of things which are relative to substance, or negations of some of these things or of substance itself. (1984: 1584; *Meta.*1003b5–10)

Thus the categories themselves, the different ways of being, are best understood as different ways of depending on the primary beings. As Cohen explains:

Substances are unique in being independent things; the items in other categories all depend somehow on substances. That is, qualities are the qualities of substances; quantities are the amounts and sizes that substances come in; relations are the way substances stand to one another. These various non-substances all owe their existence to substances … (2003: 3)

Thus, a sorting presupposes a prior dependence ordering over the entities. *Categories are places in the dependence ordering.* Substance, for instance, serves as both root node and focal category.

I have not said what substances or grounding relations there are (though see §3.3 for some speculations), and so have not offered any schedule of categories. All I have suggested is that the sorting must derive from the ordering. If so then the sorted ontology (and the sorted-and-ordered ontology) can be ignored in favor of the ordered ontology it must derive from. To conclude this section: the question of *the task of metaphysics* is the question of *the target of metaphysical enquiry*, and, this question may be made more precise as the question of *whether the appropriate target of metaphysical inquiry is flat or ordered.*

2 Three Arguments for Ordered Structure Plus Permissivism

So is the appropriate target of metaphysical inquiry flat or ordered? I will argue that an ordered conception—packaged with a permissive stance on existence—proves best. I will begin by arguing that the Quinean existence questions are trivial (§2.1), while the Aristotelian fundamentality questions are interesting (§2.2). This will vindicate the neo-Aristotelian conception of the task of metaphysics. I will then turn to matters of method, and argue that the Quinean method is inextricably interwoven with questions of grounding (§2.3). Grounding questions will emerge as both deep and unavoidable.

2.1 Permissivism: The Triviality of Existence Questions

Contemporary metaphysics, under the Quinean regime, has focused on existence questions such as whether properties, meanings, and numbers exist, as

well as whether possible worlds exists, whether and when mereological composites exist, etc. I will glance at the debates over (i) whether numbers exist, (ii) whether properties exist, (iii) whether mereological composites exist, and (iv) whether fictional characters exist, and will use these examples to suggest that the contemporary existence debates are *trivial*, in that *the entities in question obviously do exist*. (What is not trivial is whether they are fundamental.)

Start with the debate over numbers. Here, without further ado, is a proof of the existence of numbers:

1. There are prime numbers.
2. Therefore there are numbers.

1 is a mathematical truism. It commands *Moorean certainty*, as being more credible than any philosopher's argument to the contrary. Any metaphysician who would deny it has *ipso facto* produced a *reductio* for her premises. And 2 follows immediately, by a standard adjective-drop inference.[7] Thus numbers exist. End of story. (Perhaps there are no completely knock-down arguments in metaphysics, but this one seems to me to be as forceful as they come: c.f. Fine 2001: 2.)

I anticipate three replies. First, one might reply by paraphrasing 1. For instance, one might hold that it is only *according to the fiction of numbers* that there are prime numbers. I reply that this does not touch the argument. 1 does not make any claims about fictions (nor is there any covert fictive operator lurking in the syntax). So presumably this is a way of saying that 1 is false, and only some suitable paraphrase is true. But 1 is obviously true, as stated. Whatever philosophical concerns might motivate this paraphrasing fictionalist have met their *reductio*.[8]

Second, one might reply that the sense of "are" has shifted from 1 to 2, perhaps (as Carnap would have it) from some sort of number-framework-internal meaning, to some sort of distinct framework-external meaning. I answer that there is no shift in meaning. There is no linguistic evidence of any

[7] This is the same inference pattern as seen in "there are red roses, therefore there are roses." Strictly speaking, adjective-drop inferences are valid only for intersective adjectives. There is a special class of non-intersective adjectives like "fake" for which they fail ("this is a fake diamond, therefore this is a diamond" is a poor inference). But "prime" is evidently intersective, as is "composite" and "even" and "rational" and other adjectives that could be used in its place in the argument.

[8] Here I follow Lewis: "I'm moved to laughter at the thought of how *presumptuous* it would be to reject mathematics for philosophical reasons" (1991: 59). The sort of concerns one finds typically involve substantive causal and/or epistemic theses, aimed to show that entities like numbers would have to be causally inert or epistemically inaccessible. These concerns are interesting. Indeed they might help us learn about the nature of causality, or the limits of knowledge, or the need for concrete grounds for numbers. The point is just that mathematical truisms such as 1 deserve far greater credence than any causal and/or epistemic philosophical dictums they may conflict with.

ambiguity in our idioms of existential quantification.[9] Indeed, if there were such meaning shifts then no adjective-drop inference would be valid. One could not automatically infer "there are roses" from "there are red roses" for fear of meaning shift. But one can. Likewise one can automatically infer "there are numbers" from "there are prime numbers."

Third, one might reply that all quantification is ontologically neutral, and thus accept 2 while denying that numbers exist (Azzouni 2007). To my mind (and here I follow Quine), 2 just says that numbers exist. There is no gap. Indeed, the neutralist seems committed to the following unfathomable conjunction: "Numbers do not exist, and there are numbers."

Obviously the committed rejecter of numbers can continue the debate on all these fronts. I lack the space for further discussion. I am *not* suggesting that impermissivism is completely indefensible. What I *am* trying to suggest is that permissivism is very plausible, and (as I will argue below) quite unobjectionable.

Turn to the debate over properties. Here is a proof of the existence of properties:

3. There are properties that you and I share.
4. Therefore there are properties.

3 is an everyday truism. And 4, like 2, follows from its preceding premise. Thus properties exist.

Just as with the question of numbers, one might reply by offering a paraphrase of 3. But likewise the paraphrase is irrelevant. 3 itself remains (obviously) true, as stated.[10] Similarly one might reply by claiming a meaning shift with respect to the quantification in 3 and 4. But likewise there is no meaning shift. There is just plain old existential quantification all the way through, and it is existentially committal.

Shift to the debate over mereology. Here is an anti-nihilist proof of the existence of mereological composites (things with proper parts):

5. My body has proper parts (e.g., my hands).
6. Therefore there are things with proper parts.

5 is a biological banality, and 6 follows. Thus mereological nihilism is false.[11]

[9] Indeed, there is plenty of evidence against ambiguity. For instance, (i) other languages do not use distinct terms for these allegedly distinct existence claims, and (ii) our language has systematically related expressions ("there are numbers" "numbers exist," etc.) for the same claims.

[10] Quine himself denounces claims like 3 as "popular and misleading" (1963a: 10). A strange conjunction! Somehow Quine has managed to insult a claim for being intuitive.

[11] This is merely an argument for the existence of *some* mereologically composite entities. It is not an argument for *universal composition* or any further thesis about exactly when composition occurs. I am

As to the debate over fictional characters, here is a proof of the existence of a particular fictional character:

7. Arthur Conan Doyle created Sherlock Holmes.
8. Therefore Sherlock Holmes exists.

7 is a literary fact, and 8 follows, given that to create something is to make it exist.[12]

So I would suggest that the contemporary existence debates are trivial. While I obviously cannot speak to every contemporary existence debate here, perhaps it will suffice to speak to one other debate that may stand in as a best case for a metaphysical existence question, namely the question of whether God exists. I think even this is a trivial *yes* (and I am an atheist). *The atheistic view is that God is a fictional character.* The atheist need not be committed to the claim that there are no fictional characters! (To put this point another way, if the theism debate *were* about the existence of God, then the following would count as a *defense* of theism: (i) God is a fictional character, and (ii) fictional characters exist, hence (iii) God exists. But obviously that is no defense of theism! Hence the theism debate is *not* about existence.[13])

So I recommend a broad permissivism about existence. Note that I have not attempted to state the limits of permissivism. I certainly do not mean to suggest that every candidate entity should count as an existent (the neo-Aristotelian does retain a rubbish bin for the non-existent: §1.3). For instance, if a candidate entity is described in such a way as to entail grounding information (e.g., "a Platonic number," understood as a transcendent substance), or so as to engender contradictions (e.g., "a non-self-identical creature"), one need not remain permissive. My point is only that one should be permissive about those very entities Quineans typically consider most controversial.

Note also that the permissivism suggested is *not* Meinongian. I draw no distinctions between what exists, what subsists, and what there is (as per

happy to accept universal composition, on the grounds that (i) there are heaps (and piles and stacks and other individuals with no integral unity), and (ii) arbitrary composites are no less unified than heaps—indeed any arbitrary composite can be considered to be a heap. That said, I do consider this argument for universal composition to be less obvious than the anti-nihilist argument of the main text. Not every contemporary existence question is *equally* obvious!

[12] Thus, consider the following passage, cited by van Inwagen: "To hear some people talk, you would think that all of Dickens's working-class characters were comic grotesques; although such characters certainly exist, there are fewer of them than is commonly supposed" (2000: 245).

[13] In this light, consider Feuerbach's classic statement of atheism, that "Man … creates God in his own image, …" (1989: 118). Likewise, consider how Nietzsche puts the question: "Is man merely a mistake of God's? Or God merely a mistake of man's?" (1987: 467) Theists have also traditionally framed the issue in terms of dependence on the human mind. Thus, Anselm argues that God "cannot exist in the mind alone," since God "can be thought to exist in reality also, which is greater" (1965: 117).

Meinong 1960). I am not introducing new quantifiers (as per the Routley view discussed in Lewis 1999c). Rather, I am invoking *the one and only sense of existence*, and merely holding that very much exists.

Note finally that this permissivism is *not* "lightweight" (in the sense of Chalmers *this volume*), at least in the sense in which the lightweight realist treats existence claims as *analytic*, grounded in allegedly analytic ampliative conditionals such as "if there are particles arranged tablewise, then there is a table." I take no such deflationist stance on existence, offer no analytic claims, and say nothing of particles. Rather, I take entities like tables to be full-blown "heavyweight" entries on the roster of entities, and merely add that their existence is *obvious*.

I anticipate three objections. First, one might object that there are perfectly good proposals, such as that of Field 1980, that allow us to eliminate such "spooky creatures" as numbers. I answer that one should distinguish such proposals from any Quinean gloss that might accompany them. If Field's construction works, for instance, I say it shows how numbers do exist in a world of concrete substances, as grounded in certain features of such substances (e.g., betweenness and congruence relations between substantival spacetime points). This is a better interpretation of the Field construction than Field's own Quinean eliminativist interpretation, because it reconciles Field's view with the obvious fact that there are prime numbers.[14]

Second, one might object that there are countervailing intuitions of unreality. Indeed, with fictional characters like Santa Claus, it is often natural to say that Santa is not real (e.g., this is a natural way to correct the child who believes in a flesh and blood Santa). But "real" is used flexibly in ordinary English to mark a multitude of distinctions. For instance, it can be used to mark the existent/non-existent distinction, the objective/subjective distinction, and the basic/derivative distinction, *inter alia*.[15] Further, even intuitions directly targeted to non-existence can be explained away via *quantifier domain restriction*. When the nominalist denies that numbers exist, and when the atheist denies that God exists, what both are denying is that the entities in question are among the *mind-independent*

[14] Field himself swallows the claim that "there are prime numbers" is false. But if one reinterprets Field's construction as vindicating the Aristotelian picture that abstracta like numbers have concrete grounds, then (i) "there are prime numbers" can be recognized as true, and (ii) Platonism is still avoided. The question for those who would want to retain the eliminativist construal of such constructions is *why*? This takes us forward to the question of whether there are any *other* problems with permissivism.

[15] "Real" can also be used to mark distinctions such as that between paradigm and deviant cases. For instance, someone can fail to count as "a real man," not for failing to exist, or merely appearing male, but only for failing to satisfy some cultural norm of masculinity.

entities.[16] When the mereological nihilist denies that fusions exist, what she is denying is that such entities *ultimately* exist—she is denying that such entities are fundamental.[17]

Third, one might object that permissivism violates some crucial methodological, epistemological, or metaphysical dictum. For instance, permissivism might be said to fall afoul of Occam's Razor in multiplying entities; or violate empiricist scruples in admitting things beyond what our senses reveal; or conflict with nominalistic demands by countenancing spooky abstracta. I answer that there need be no conflict with any reasonable dictum. Occam's Razor should only be understood to concern substances: *do not multiply basic entities without necessity*. There is no problem with the multiplication of derivative entities—they are an "ontological free lunch" (§1.2). Indeed a better methodology would be the "bang for the buck" principle. What one ought to have is the strongest theory (generating the most derivative entities) on the simplest basis (from the fewest substances). Empiricist scruples and nominalistic demands may be met if the entities in question are grounded. For instance, if numbers are indeed grounded in the concrete realm, then (i) they may be known via their concrete grounds, and (ii) they would be brought down to earth.

So do not be alarmed. Permissivism only concerns the shallow question of what exists. One can and should still be restrictive about the deep question of what is *fundamental*, and one still owes an account of *how* these very many things exist in virtue of what little is fundamental. (For instance, on my preferred view [§3.3] there is only one fundamental entity—*the whole concrete cosmos*—from which all else exists by *abstraction*.)

I conclude that contemporary metaphysics, insofar as it has been inspired by the Quinean task, has confused itself with trivialities. Hofweber 2005 speaks of "a puzzle about ontology," namely how it could be that (i) metaphysics seems to ask deep and difficult questions, when (ii) the existence questions seem shallow and trivial. *This is only a puzzle on the Quinean assumption that metaphysics is asking existence questions*. The deep questions about

[16] Azzouni 1998, for instance, in the course of defending the claim that numbers are not real, explicitly equates being real with being mind-independent. But if an entity is mind-dependent, and minds exist, doesn't the entity exist thereby? For instance, if a rock is mind-dependent as per Berkeley (for the rock to be is for it to be perceived), and it is in fact perceived, then does it not thereby have being? I conjecture that Azzouni's intuitions of "non-existence" are the product of (i) his intuition that numbers are mind-dependent entities, and (ii) his implicit restriction of the domain to the mind-independent.

[17] Thus, Dorr, defending mereological nihilism, says: "What we debate in the ontology room is the question what there is *strictly speaking*—what there *really, ultimately* is—what there is *in the most fundamental sense*" (2005: 24). I conjecture that the italics are driving Dorr's intuitions.

numbers, properties, and parts (*inter alia*) are not *whether* there are such things, but *how*.

2.2 Ordering: The Importance of Dependence Structure

The philosopher raised on the Quine-Carnap debate who turns to the central metaphysical questions will leave confused. She will find debates such as: (i) metaphysical realism versus idealism, (ii) realism about numbers versus constructivism, (iii) realism about universals versus nominalism, (iv) substratum versus bundle theories of objects, (v) dualistic versus materialistic theories of mind, (vi) substantival versus relational theories of space, and (vii) monistic versus pluralistic theories of the cosmos. She will find little disagreement about what exists, but profound dispute over what is fundamental.

Starting with (i), the debate over metaphysical realism, both the realist and idealist accept the existence of rocks.[18] There is no dispute about what exists. Rather, the dispute is over *mind-dependence*: are entities like rocks grounded in ideas, or independent of them? The debate between the realist and constructivist about numbers in (ii) likewise concerns mind-dependence. The questions is whether numbers are independent of the mind, or based on our concepts.[19]

Turning to (iii), the debate over universals, both the realist and nominalist accept the existence of general properties. The dispute is over whether properties are fundamental, or whether they are derivative. For the predicate nominalist who treats properties as 'shadows cast by predicates,' the issue is once again not one of existence but one of mind-dependence.

Moving to the debate over substrata as per (iv), both the substratum and bundle theorists accept the existence of objects and properties. The dispute is over *priority*. For the substratum theorist, objects are prior, and properties are dependent modes. Thus, Descartes says:

> We should notice something very well known by the natural light: nothingness possesses no attributes or qualities. It follows that, whenever we find some attributes or qualities, there is necessarily some thing or substance to be found for them to belong to; … (1985: 196; c.f. Armstrong 1997: 99)

[18] As Berkeley introduces his idealism: "a certain color, taste, smell, figure and consistence, having been observed to go together, are accounted one distinct thing, signified by the name 'apple.' Other collections of ideas constitute a stone, a tree, a book, and the like sensible things; …" (1974: 151) This is why kicking a rock is no refutation—the idealist believes in rocks. For she believes in ideas, and holds rocks to be ideal.

[19] Thus, Kant claims that number is "the unity of the synthesis of the manifold of a homogeneous intuition in general" (1965: 184). Kant is not denying the existence of number, but merely explaining how number might be grounded in our concepts (specifically, in the pure concepts of the understanding).

For the bundle theorist, properties (be they universals or tropes) are prior, being what Campbell calls "the independent, primitive elements which in combination constitute the variegated and somewhat intelligible world in which we find ourselves" (1997: 127). Objects are then bundled out of compresent property complexes.

Likewise, debate (v) over the mind is not a dispute over whether mind or matter exists, but rather over whether mind is based in matter. The debate (vi) over substantival space is not a dispute over whether there is space, but rather over whether space is grounded in its occupants. And, finally, debate (vii) over monism is not a dispute over whether wholes or parts exist, but rather over which is prior. The core monistic thesis is that the whole is prior to its parts (Schaffer *forthcoming–a*).

I thus submit that a meta-metaphysics that would make sense of these central questions must make sense of claims of grounding. These central metaphysical questions are not questions about *whether* entities exist, but only about *how* they do.

I anticipate three replies. First, one might reply that there are *other* central metaphysical questions which are existence questions.[20] I answer that the neo-Aristotelian need not contest this, since she has room for both grounding and existence questions. Recall that the Aristotelian view subsumes the Quinean view (§1.3). There is no problem making room for existence questions on the Aristotelian view—rather, the problem is finding any room for grounding questions on the Quinean view.

That said, I also doubt that there are many important metaphysical existence questions. Or at least I would maintain that the usual candidates (e.g., the question of whether numbers exist) fail, and would ask the provider of this first reply for better examples.

The second reply I anticipate is that grounding questions can be analyzed into existence questions, via supervenience claims. For instance, take the debate over the mind. The Quinean might maintain that she can understand this as a dispute over whether mental states *supervene* on physical states, where supervenience is analyzed in terms of patterns of existences (albeit across possible worlds). Supervenience is invoked to fake ordering structure within a flat ontology. Many contemporary Quineans do in fact claim to be interested in limning the ultimate structure of reality.

[20] One might even reserve "ontology" for these metaphysical questions. Such is a revisionary usage—historically the term "ontology" comes from Aristotle's definition of first philosophy as the study of being *qua* being, and is properly used for an account of the nature of *being*, not for a list of beings (c.f. Taylor 1961: 42–3). But never mind that.

But when pressed on what they mean by this, they retreat to supervenience.[21]

My answer to this second reply is that the supervenience analyses of grounding all fail (c.f. McLaughlin and Bennett 2005: §3.5). There are two evident and systematic problems with using supervenience to simulate grounding. The first is that supervenience has the wrong formal features: supervenience is reflexive, and non-asymmetric, while grounding is irreflexive and asymmetric. The second problem is that supervenience is an intensional relational while grounding is hyperintensional. For instance, there are substantive grounding questions for necessary entities (like numbers), but supervenience claims go vacuous for necessary entities.[22]

Supervenience is mere modal correlation. As Kim suggests, it is the supervenience correlation that should be explained via grounding:

> Supervenience itself is not an explanatory relation. It is not a "deep" metaphysical relation; rather, it is a "surface" relation that reports a pattern of property covariation, suggesting the presence of an interesting dependency relation that might explain it. (1993: 167)

There is an interesting question about the modal consequences of grounding. This opens up the prospect of using supervenience for *something*—the right sort of supervenience failure can show grounding failure. Modal correlation is at best a symptom.

There have been other attempts to analyze grounding, including those centered around existential dependence counterfactuals (the simplest version: x depends on y iff: if y did not exist then x would not exist, but if x did not exist then y might still exist).[23] But such counterfactuals are problematically contextually variable, and the analysis goes vacuous on necessary entities. Obviously, I cannot address all further analyses here, but suffice it to say that I know of none that succeed.

Grounding should rather be taken as *primitive*, as per the neo-Aristotelian approach (c.f. Fine 2001: 1). Grounding is an unanalyzable but needed notion—it is *the primitive structuring conception of metaphysics*. It is the notion the physicalist needs to explicate such plausible claims as "the fundamental properties and facts are physical and everything else obtains *in virtue of* them"

[21] In this vein, Lewis advertises supervenience as "a stripped-down form of reductionism, unencumbered by dubious denials of existence, claims of ontological priority, or claims of translatability" (1999a: 29).

[22] For instance, it seems very plausible—especially given the iterative conception of sets (Boolos 1971)—that {Ø} is founded upon Ø (and not *vice versa*), but in this case the supervenience relations run in both directions (Fine 1994).

[23] See Lowe 2005 for a sophisticated survey of accounts in this vein.

(Loewer 2001: 39). It is the notion the truthmaker theorist needs to explicate such plausible claims as: ''Must there not be something about the world that makes it to be the case, that serves as an ontological ground, for this truth?'' (Armstrong 1997: 115; c.f. Schaffer *forthcoming–b*). (Of course one might ask for further clarification of a proposed primitive, including paradigm cases and inferential patterns: §3.2.)

The third reply I anticipate is that grounding questions can be rephrased as existence questions, by packing grounding information into the description of a candidate entity. For instance, take the debate over whether numbers are abstract substances (Plato), grounded in concrete instances (Aristotle), or grounded in the mind (Kant). Now define a ''transcendent number'' as a number that is an abstract substance, define an ''immanent number'' as a number that is independent of the mind but grounded in the concrete realm, and define a ''conceptual number'' as a number that is grounded in the mind. Then the classical debate about numbers can be rephrased in terms of whether there exist transcendent numbers (Plato), immanent numbers (Aristotle), or only conceptual numbers (Kant). Likewise the debate between the metaphysical realist and idealist can be rephrased in terms of whether there exist mind-independent rocks.

My answer to this third reply is that, first, the existence questions this reply invokes are not the ones the Quinean considers. There is still no question of whether such things as properties, meanings, and numbers exist. There is only a question of whether such beasts as ''substantial universals,'' ''fundamental meanings,'' and ''transcendent numbers'' exist.

Second, metaphysics is still not about existence questions *per se*. The most this third reply can show is that metaphysics can be framed as concerning *existence questions of a specific sort*, namely *those that pack grounding information into the description of the entity in question*. To answer such questions one still needs to determine what grounds what.

Really virtually any question can be rephrased as an existence question. Suppose I wonder whether the whole cosmos is a single integrated substance, or a mere aggregate of particles. Then my question can be rephrased as the question of whether there is an entity such that it is the cosmos and it is fundamental. Likewise suppose I wonder whether this rose is red. Then my question can be rephrased as the question of whether there is an entity such that it is this rose and it is red. With sufficient perversity, every branch of human inquiry can be characterized as inquiry into what exists. Just don't be misled. What is characteristic of the most central metaphysical questions, however perversely they may be phrased, is that they concern grounding.

2.3 Substantial Presuppositions: The Quinean Method Presupposes Aristotelian Structure

Having argued that the Quinean task is philosophically trivial (§2.1) and misses the most central metaphysical questions (§2.2), it remains to reconsider the Quinean method. It will prove useful to divide this method into five stages. First one must identify the best theory and canonical logic:

Quinean method, stage 1: Identify the best theory (physics, for Quine).

Quinean method, stage 2: Identify the canonical logic (first-order logic, for Quine).

Then one must translate the theory into the logic, determine what domain is needed for the result to be true, and read the entity commitments off this domain:

Quinean method, stage 3: Translate the best theory into the canonical logic (some paraphrasing allowed, for Quine).

Quinean method, stage 4: Determine the domain of quantification required to render this translation true (all equinumerous domains are equally good, for Quine).

Quinean method, stage 5: Read the entity commitments off the elements of the required domain (with radically eliminativist consequences, for Quine).

I will be arguing that the Quinean method requires presuppositions about ordering structure *at every single stage*. (This is not to claim that the grounding questions must be answered *before* the existence questions, but only that the questions are inseparable—recall that ordered structure addresses both together: §1.3.)

Starting with the first stage, I ask: *what makes a theory best*? One's conception of what is fundamental impacts this question. To illustrate, suppose one is choosing from among the following three candidates: (i) Bohmian mechanics, (ii) the many-minds interpretation of quantum mechanics,[24] and (iii) Bohmian mechanics plus geology. Presumably one will want to eliminate (iii) at the start, and then select between (i) and (ii). But note that both (i) and (ii) are incomplete, in the sense that they won't say a word about geology, simply because they haven't got the terms. Note also that (i) and (ii) are empirically equivalent (Albert 1992: 176).

I suggest that a good reason for eliminating (iii) would be that *geology is not fundamental*. Geological features are grounded in physical features. I further suggest that one good way to select between (i) and (ii) would be to consider whether *mind is fundamental*. If one has reason to be a materialist about minds

[24] The many-minds interpretation associates each observer with continuum-many indeterministically evolving minds (Albert and Loewer 1988).

(§2.1), then one has reason to prefer Bohmian mechanics to the many-minds view. Or if one has reason to be a dualist, then one has reason to prefer the many-minds view to Bohmian mechanics. So it seems that the question of what makes a theory best is interwoven with the question of what is basic, in the following way:

Aristotelian presuppositions at stage 1: The best theory is a theory of the fundamental.

It may be worth noting that Quine himself took physics to provide the best theory, for reasons that seem to concern what is basic. Thus Quine speaks of physics as investigating "the essential nature of the world" (1981: 93), defends behaviorism by speaking of "limning the true and ultimate structure of reality" (1960a: 221), and defends physicalism by invoking the dependence of all else on the physical:

> Why, Goodman asks, this special deference to physical theory? This is a good question, and part of its merit is that it admits of a good answer. The answer is not that everything worth saying can be translated into the technical vocabulary of physics; not even that all good science can be translated into that vocabulary. The answer is rather this: nothing happens in the world, not the flutter of an eyelid, not the flicker of a thought, without some redistribution of microphysical states. (1981: 98)

Aristotelian metaphysics is thus built into the Quinean method from the first stage. Part of what makes a theory best (even by Quine's own lights) is that it is a theory of what is fundamental (the "ultimate structure of reality").

Turning to the second stage of the Quinean method, I ask: *what makes a logic canonical*? One's conception of what is fundamental impacts this question. To illustrate, suppose one is choosing from among the following three candidates: (i) first-order classical logic, (ii) first-order intuitionist logic, and (iii) first-order dialetheist logic. This can affect what one quantifies over. For instance, first-order dialetheist logic allows for the existence of contradictory states of affairs.

Consider the dispute over intuitionism. Perhaps the key motivation for intuitionism is the Kantian view of numbers as mind-dependent. In this vein Dummett considers "the celebrated thesis that mathematical statements do not relate to an objective mathematical reality existing independently of us" (1978: 227–8). He continues:

> [W]e have first to resolve the metaphysical question whether mathematical objects—natural numbers, for example—are, as on the constructivist view, creations of the human mind, or, as on the platonist view, independently existing abstract objects. (1978: 229)[25]

[25] *Point of clarification*: Dummett is ultimately skeptical of the appeal to metaphysics here, since: "the puzzle is to know on what basis we could possibly resolve the metaphysical question" (1978: 229).

Or consider the debate over dialetheism. One motivation for dialetheism is the view that there are impossible worlds.[26] And one of the issues that then arises is whether worlds are basic entities (as per Lewis 1986), or some sort of set-theoretic constructions. In this vein, Nolan argues that the set-theoretic account can reconcile impossibilia with classical logic:

> Possible worlds for Lewis, notoriously, are just large objects much like our own cosmos—so the worlds where there are blue swans are just cosmoi with blue swans (among other things) in them. Extending this approach to impossible objects produces literal impossibilities … Abstract impossibilia … would not pose the same risk of incoherence as impossibilia which literally had the features associated with them … Someone who took possible worlds to be sets of propositions, or sets of sentence-like representations, is probably already committed to sets of sentences which are not maximal … or consistent … (1997: 541–2)

Thus questions about the substantiality of entities such as numbers and worlds (e.g., whether numbers are basic or mind-dependent creations, whether worlds are basic or set-theoretic constructions) are intertwined with the foundations of logic:

> *Aristotelian presuppositions at stage 2*: The canonical logic turns (in part) on what is fundamental.

And so fundamentality questions remain unavoidable, even when deciding on a logic.[27]

Moving to the third stage of the Quinean method, I ask: *which are the apt translations*? One's conception of the substances impacts this question. To illustrate, suppose our best theory says that the Big Bang exists. Plausibly an apt translation should involve existential quantification over the Big Bang. But consider the following three rivals: (i) the functorese translation, which packs all seeming reference to individuals into adverbial modifications of the copula (''it is Big Bang-ish there-ly''); (ii) the fictionalist translation, which prefixes an ''according to the fiction'' operator (''according to the fiction of

Dummett's own suggestion is to appeal to the theory of meaning (somehow questions in this realm are supposed to be more tractable). The point in the main text is simply to illustrate how metaphysical questions about grounding can bear on the debate over the canonical logic.

[26] Thus consider Priest's story of Sylvan's Box, which ''was absolutely empty, but also had something in it'' (1997: 575). Among the conclusions Priest draws is: ''There are, in some undeniable sense, logically impossible situations or worlds. The story describes (or at least, partially describes) one such'' (1997: 580).

[27] There are many other places where metaphysics and logic intertwine, such as (i) issues of the existence of relations and sets arising with respect to *second-order logic*, and (ii) the issue of whether it is possible for there to be nothing as with *free logic*. The discussion in the main text is only meant to be illustrative.

cosmology, the Big Bang exists''); and (iii) the inverted translation, which runs any Quinean paraphrases in the unintended direction.

The functorese translation replaces individual variables with predicate functors. Functorese may be developed with individual terms only for places (Strawson 1959: 217–21), so that ''the Big Bang exists'' would be translated as ''there exists a place that is Big-Bang-ish.'' Or functorese may deploy only a single individual term for the world (Prior 1969): ''there exists a world that is Big-Bang-ish here-ish.'' Or functorese may even go without individual terms altogether (Hawthorne and Cortens 1995), producing: ''it is Big-Bang-ish here-ish,'' where the ''it'' is a semantically empty syntactic reflex (expletive ''it'').[28] Quine himself develops functorese in his 1960b and 1963b, noting that his ''criterion of ontological commitment is of course inapplicable to discourse constructed by means of [functors]'' (1963b: 104). His conclusion on this matter was a further ''defusal'' of metaphysics:

> To entertain the notion of an ontology at all ... for the speakers of [functorese] would be an unwarranted projection on our part of a parochial category appropriate only to our linguistic circle. Thus I do recognize that the question of ontological commitment is parochial, though within a much broader parish than that of the speakers and writers of symbolic logic. (1992: 28)

The fictionalist translation prefixes fictive operators. Thus ''the Big Bang exists'' might be translated as ''According to the fiction of cosmology, the Big Bang exists.'' The prefixed operator blocks any direct ontological commitment. So Yablo maintains: ''Someone whose sentences are commited to so-and-sos need not share in the commitment if the sentences are advanced in a fictional or make-believe spirit'' (2001: 74).[29] Yablo thus concludes:

> The more controversial of these [philosophical existence claims] are equipoised between literal and metaphorical in a way that Quine's method is powerless to address. It is not out of any dislike for the method—on the contrary, it is because I revere it as ontology's last, best hope—that I conclude that the existence-questions of most

[28] See Burgess and Rosen (1997: 185–8) for a concise summary of the formal techniques involved. Borges (in ''Tlön, Uqbar, Orbis Tertius'', 73) offers the following lovely fiction of what such a language would be like:

> There are no nouns in Tlön's conjectural *Ursprache*, from which the ''present'' languages and dialects are derived: there are impersonal verbs, modified by monosyallbic suffixes (or prefixes) with adverbial value. For example: there is no word corresponding to the word ''moon,'' but there is a verb which in English would be ''to moon'' or ''to moonate.'' ''The moon rose above the river'' is *hlör u fang axaxaxas mlö*, or literally: ''upward behind the on-streaming it moon[at]ed.''

[29] *Point of clarification*: Yablo 2001 distinguishes several fictionalisms, of which a prefixed fictive operator is one (''meta-fictionalism''). Yablo's own preferred version is ''figuralism,'' which does without the fictive operator, in favor of direct but metaphorical assertion of the content (assertion with a wink, as it were).

interest to philosophers are moot. If they had answers, [the Quinean method] would turn them up; it doesn't, so they don't. (1998: 259–60)

So unless constraints are placed on translations involving predicate functors and fictive operators, there is *no constraint whatsoever* on which references will survive translation.

Inverted translations pose a different threat, that of reversing paraphrases. To illustrate with an example from Alston, suppose the following are equivalent: (i) "There is a possibility that James will come," and (ii) "The statement that James will come is not certainly false." Paraphrasing (i) into (ii) might seem to remove commitment to possibilities, but as Alston notes:

[I]t is puzzling to me that anyone should claim that these translations 'show that we need not assert the existence of' possibilities, ... For if the translation of [(i)] into [(ii)], for example, is adequate, then they are normally used to make the same assertion ... Hence the point of the translation cannot be put in terms of some assertion or commitment from which it saves us. (1998: 47)

Some basis for the *direction* of analysis is needed. If paraphrase is licensed by a symmetric notion like synonymy, or even by some non-asymmetric relation, then there will be at least some opportunities for inversions.

I suggest that a good way to constrain the application of predicate functors and fictive operators, and to impose direction on paraphrasing, is via the asymmetry of grounding. One should translate groundwards:

Aristotelian presuppositions at stage 3: The apt translations are into talk of the fundamental.

Thus consider functorese, and suppose for the sake of argument that what is fundamental are point particles, and a few physical magnitudes. Then there will be symmetry between the particle-positing translation of the best theory that assigns the physical magnitudes to the point particles, and the functorese translation that locates being-particle-like-in-such-and-such-ways at various places. The fundamental structure of the world breaks the linguistic symmetry, and blocks the functorese translation. Thus the question of what counts as an apt translation is interwoven with the question of what counts as fundamental.[30]

[30] This idea harkens back to the logical atomists's notion of analysis as "picturing the structure of reality." Thus, Wisdom says that the point of analysis is "clearer insight into the ultimate structure of F; *i.e.* clearer insight into the Structure of the situation which 'F' finally locates" (1933: 195), and Urmson explains the direction of analysis as being "towards a structure ... more nearly similar to the structure of the fact," adding that this metaphysical picture is needed as a "rationale of the practice of analysis" (1956: 24–5).

Continuing on to the fourth stage of the Quinean method, I ask: *which are the required domains*? The required domain is the domain of the fundamental. Formally speaking, all equinumerous domains can render the same formulae true. Indeed, by the Löwenheim-Skolem theorum, any formulae that have a true interpretation in a nonempty universe have a true interpretation in the universe of positive integers. Some constraints on proper domains are needed.

Recall Quine's own conclusion that ontology is doubly relative, both to a manual of translation and a background theory (§1.1). The manual of translation tells us whether, for instance, "gavagai" is to be rendered "as 'rabbit' or as 'undetached rabbit part' or as 'rabbit stage'" (1969: 30; see also 1960a: §12). The background theory tells us whether one of these options, say "rabbit," is to be interpreted as designating Peter Cottontail, the whole cosmos minus Peter, or Peter's singleton, since: "Reinterpreting the rest of our terms for bodies in the corresponding fashion, we come out with an ontology interchangeable with our familiar one" (1992: 33). The different background theories are isomorphic and thus contribute the same "neutral nodes to the structure of the theory."

I am suggesting that substantiality considerations play a role in determining the right domain. *Some domains are metaphysically privileged*. Here I am following Lewis, who suggests:

> Among all the things and classes that there are, most are miscellaneous, gerrymandered, ill-demarcated. Only an elite minority are carved at the joints, … Only these elite things and classes are eligible to serve as referents. The world—any world—has the makings of many interpretations that satisfy many theories; but most of these interpretations are disqualified because they employ ineligible referents. (1999b: 65)

So for instance, if (*per impossibile*) singletons were perfectly natural, then the referent of "gavagai" would gravitate to Peter's singleton. The Lewisian notion of naturalness is already a notion of an ordering (§1.2). Lewis himself vacillates on whether the ordering extends (i) only over the properties, (ii) over both objects and properties (as the above passage suggests), or (iii) more widely still. But there is no reason whatsoever to restrict priority relations in any way. By extending priority generally, one gets a better account of reference magnetism that covers all sorts of reference, and one can formulate interesting theses about priority between various entities (e.g., the nominalist proposal that objects are prior to properties).[31]

[31] Here I am following Sider 2001 (xxi–xxiv) in extending the Lewisian idea of *eligibility* for reference.

Thus, the Quinean method needs guidance in choosing a domain, on pain of the twofold relativity Quine embraced. I suggest turning to the priority ordering for such guidance, as follows:

Aristotelian presuppositions at stage 4: The right domain is the domain of the fundamental.

Substantial metaphysics is thus entangled with issues of domain choice.

As to the fifth and final stage of the Quinean method, I ask: *where are the tables and chairs*? The Quinean method is eliminativist by design. After all, if one regiments physics into first-order classical logic (with no functorialist or fictionalist tricks), all one will have to quantify over will be whatever particles or fields or whatnot the physics invokes. One will certainly not have any people and horses, tables and chairs, or apples and pebbles. When Moore intones "Here is one hand ... and here is another" (1959: 146), such a Quinean must demur. This is madness. There may be a method to such madness, but madness it remains.

The thing to say about people, tables, pebbles, and their ilk is that these are *derivative*. Suppose for the sake of argument that what is basic is the spatiotemporal manifold and a handful of fundamental fields that fill it. Nevertheless, the way the fields fill spacetime grounds the existence of various pieces of furniture, *inter alia*. Were all the previous objections somehow surmounted, the best the Quinean method could claim to produce would be *the basic entities*. Grounding would still be required to preserve the method from the madness of eliminativism.

What I am suggesting is that the commitments of the regimented translation of the best theory are to *the fundamental entities*. The existence commitments are not just to these ultimate grounds, but also to grounding relations and what is grounded:

Aristotelian presuppositions at stage 5: The ontic commitments are to the fundamental grounds *plus* grounding relations and what is grounded.

Putting this together, I have suggested that the Quinean method will only deliver decent results if one brings to it Aristotelian presuppositions concerning what is fundamental. If one supposes that being forms a hierarchy with foundations, then one will be in a better position to determine the best theory, the canonical logic, the apt translations, the required domains, and the existence commitments of what results.

I am *not* suggesting that the Aristotelian account is enough to save the Quinean method, but only that it helps. The question of what is the canonical logic, for instance, remains underdetermined even by the invocation of ordering

structure. *Nor* I am suggesting that the Aristotelian questions of grounding are prior to the Quinean existence questions. I am merely suggesting that they are interwoven. What I *am* trying to suggest is that traditional metaphysics is so tightly interwoven into the fabric of philosophy that it cannot be torn out without the whole tapestry unraveling. Substantial metaphysics is unavoidable. One might at least try to do it well.

3 Towards a neo-Aristotelian Framework

I have argued for a revival of a neo-Aristotelian meta-metaphysics, targeting a structured hierarchy rather than a flat list. So far the focus has been on distinguishing the Quinean and neo-Aristotelian views (§1), and arguing for the latter (§2). I will conclude by further developing the neo-Aristotelian framework, in three interrelated ways. I will begin by using grounding as a primitive to analyze a family of useful structural concepts (§3.1). I will then turn to clarifying this primitive via intuitive exemplars and formal constraints (§3.2). Finally I will illustrate one particular neo-Aristotelian approach (§3.3).

3.1 The Grounding Family

Part of what makes grounding a useful notion is that it can be used to define a cluster of useful metaphysical notions. In this respect grounding is like proper parthood, which can be used to define a cluster of useful mereological notions.

To begin, the key notions of *a fundamental entity* (a prior, primary, independent, ground entity) and *derivative entity* (a posterior, secondary, dependent, grounded entity) can both be defined in terms of *grounding* (ontological dependence, priority in nature), as follows:

Fundamental: x is fundamental $=_{df}$ nothing grounds x.

Further:

Derivative: x is derivative $=_{df}$ something grounds x.[32]

[32] *Complication*: what about the grounding relations themselves? Surely they exist, so are they fundamental or derivative? I am undecided. If fundamental then they are conflated with substances. But if derivative there is a worrisome regress, because then the grounding relations themselves would need grounding. A third option would be to redefine fundamentality to leave room for a third option, such as via:

*Fundamentality**: x is fundamental* $=_{df}$ nothing grounds x, and x grounds something.

Now the grounding relations can be understood via the following material equivalence:

*Grounding**: x is a grounding* relation iff (i) nothing grounds x, and (ii) x grounds nothing.

On this picture, grounding stands outside the priority ordering altogether, imposing structure upon it.

Given these definitions, the categories of *being fundamental* and *being derivative* come out *exhaustive and exclusive*. So one gets the following material equivalence:

Existent: x is an existent iff x is fundamental or x is derivative.

Note that this is not intended as a definition of "existence"—I take that term to be too fundamental to be definable, and in any case have already appealed to it by using existential quantifiers to define the previous notions. This is merely an informative equivalence.

The notion of grounding may be put to further use to capture a crucial mereological distinction (missing from classical mereology) between *an integrated whole* which exhibits a genuine unity, and *a mere aggregate* which is a random assemblage of parts. Thus, Aristotle speaks of "that which is compounded out of something so that the whole is one—not like a heap, however, but like a syllable, …" (1984: 1644; *Meta.*1041b11–2). This intuitive distinction may be defined via:

Integrated whole: x is an integrated whole $=_{df}$ x grounds each of its proper parts.

Mere aggregate: x is a mere aggregate $=_{df}$ each of x's proper parts ground x.

Obviously mixed cases are possible as well. What it is for two entities to be *interdependent* may now be defined:

Interdependence: x and y are interdependent $=_{df}$ there is an integrated whole of which x and y are both proper parts.

This has the correct result that *if* the universe is an integrated whole, then all its proper parts would turn out interdependent.

I leave off further exploration of the grounding family at this point. But I would note that at least one other alternative primitive would equally serve my definitional purposes, that of *improper grounding*. Improper grounding may be defined via grounding as:

Improper grounding: x improperly grounds $y =_{df}$ x grounds y, or $x = y$.

But the definition may equally be run in the other direction, since:

Grounding: x grounds y iff x improperly grounds y, and $x \neq y$.

In this sense the grounding family is even further akin to the mereological family (which may be defined starting from proper parthood or improper parthood, *inter alia*). Further parallels will emerge below.

3.2 Grounding Itself

So far I have attempted to show that a family of notions may be constructed around the relation of grounding. To the extent these notions were antecedently comprehensible, the notion of grounding may be comprehended by its definitive role. But I think that there is more to be said about the notion of grounding itself. Grounding is a natural and intuitive notion, for which there exist clear examples, and clear formal constraints.

To show how natural and intuitive the notion of grounding is, it may be most useful to work historically. Plato brings the notion of natural priority to prominence in the *Euthyphro* dilemma, asking: "Is what is holy holy because the gods approve it, or do they approve it because it is holy?" (1961: 178; 10a). Many of us teach this dilemma to our first year students. They get it. Priority then resurfaces in the metaphor of the cave in *Republic*, where the form of the good is compared to the sun, and declared ultimately prior: "the objects of knowledge not only receive from the presence of the good their being known, but their very existence and essence is derived to them from it, …" (1961: 744; 509b). Aristotle then codifies the notion of priority in nature, characterizes substances as ultimately prior, and conceives of metaphysics as the study of such substances. These notions reverberate through the history of metaphysics (e.g., Descartes 1985: 210; Spinoza 1960: 179).

For some clear examples of grounding, consider the relations between: (i) the entity and its singleton, (ii) the Swiss cheese and its holes, (iii) natural features and moral features, (iv) sparse properties and abundant properties, and (v) truthmakers and truths. Thus with respect to set theory it is natural to think that Ø is basic, and that the other pure sets are founded on it (Fine 1994). For holes, a plausible position is that the material host is prior, with the holes formed from it (Casati and Varzi 1994). And for truth, the intuition that truth is grounded in being comes to us from Aristotle himself:

> [I]f there is a man, the statement whereby we say that there is a man is true, and reciprocally—since if the statement whereby we say that there is a man is true, there is a man. And whereas the true statement is in no way the cause of the actual thing's existence, the actual thing does seem in some way the cause of the statement's being true: it is because the actual thing exists or does not exist that the statement is called true or false. (1984: 22; *Cat.*14a14–22)

As to the logical features of grounding, it is best modeled as a two-place predicate, which I will write as "\". Thus "$x \backslash y$" means that x grounds y. As with the identity sign, terms for entities of arbitrary ontological category

may flank the grounding sign.[33] This notion of grounding is that of *partial* and *relative* grounding. It is partial in that $x\backslash y$ is compatible with $z\backslash y$ (where $x \neq z$)—entities may have a plurality of grounds, "$x\backslash y$" just means that x is one among y's grounds.[34] It is relative in that $x\backslash y$ is compatible with $y\backslash z$—entities may be grounded in entities that have still deeper grounds.

Grounding is then irreflexive, asymmetric, and transitive. It thus induces a partial ordering over the entities (*the great chain of being*), with foundations (the substances, the foundation post for the great chain of being).[35] Formally this may be modeled by a directed acyclic graph, for which every path has a starting point.

In its formal structure, grounding is similar to causation and proper parthood, in that both are irreflexive, asymmetric, and transitive (thus inducing partial orderings). It differs from both in requiring minimal elements. Grounding is, however, exactly like the classical mereological relation of *having as a proper part*, which is irreflexive, asymmetric, and transitive, and whose ordering provably is well-founded (in fact it provably has a unique foundation, *the whole universe*).

So I say that grounding passes every test for being a metaphysical primitive worth positing. It is unanalyzable. It is useful. And it is clear what we mean. (Of course the notion of grounding may be *unfamiliar* to some metaphysicians raised only on Quine and Carnap. The best advice I can give is *work with the notion*, and see if you then come to grasp it.)

I digress to consider a possible objection, according to which there are many distinct notions of grounding, united only in name. Whereas Aristotle claimed that there were many notions of priority, singling out priority in nature as foremost among them (c.f. Owen 1986a: 186), this objector goes further, holding that priority in nature is *itself* "said in many ways." By way of reply, I see no more reason to consider this a case of mere homonymy, than to consider various

[33] If grounding were notated as a relation "G*xy*" it would be restricted to individuals, and if it were notated as an operator G<A, B> it would be restricted to propositions. Yet we might want to speak of the dependence of individuals or propositions on entities in other categories, and of various cross-categorical dependencies (e.g., that of modes on the substances they modify).

[34] A notion of total grounding requires plural terms. We might notate this with "\\," and write "$x\backslash\backslash Ys$" to mean that x is totally grounded in the Ys, where y is among the Ys iff $x\backslash y$. I have started with singular grounding as basic and used it to define plural grounding but this could be reversed. I would have no objection to taking "\\" as primitive and defining "\" therefrom, as follows: x\y iff for some Xs, x is one of the Xs, and $Xs\backslash\backslash y$.

[35] The intuition that being requires a ground is defended by Aristotle (1984: 1570; *Meta.*994a1–19), and endorsed by Leibniz (1989: 85), *inter alia*. It is the analogue of the set-theoretic axiom of *Foundedness*, and resurfaces in Fine's principle of *Foundation*: "Necessarily, any element of the ontology can be constructed from the basic elements of the ontology by means of constructors in the ontology" (1991: 267).

cases of identity as merely homonymous. In both cases, there is a common term, and the same formal structure. This is some evidence of real unity. At the very least, I would think it incumbent on the objector to provide further reason for thinking that the general term 'grounding' denotes no unified notion.

Perhaps the 'mere homonymy' objection will be more pressing for some implementations of the Aristotelian view than others, depending on how diverse a roster of grounding relations they adduce. For what it is worth, on my preferred view (§3.3) all the grounding relations are relations of *abstraction*. The concrete whole is always prior in nature to its abstracted aspects. Perhaps this evinces a still deeper unity to the notion of grounding.

3.3 Illustration: A neo-Aristotelian Metaphysic

I conclude with an illustration of a neo-Aristotelian metaphysic. This is intended to further explicate the general neo-Aristotelian framework, to be suggestive of the tremendous diversity of specific views compatible with such a framework, and perhaps even to hold independent interest.[36]

Recall (§1.2) that the Aristotelian method involves diagnostics for what is fundamental as well as for the grounding relations. Here are three diagnostics I would provide for the fundamental substances:

Minimal Completeness: The substances are minimally complete.

A set S of entities at w is *complete* for w iff S serves to characterize w, by providing a supervenience base for w. S is *minimally* complete for w iff (i) S is complete for w, and (ii) no proper subset of S is complete for w.

Metaphysical Generality: The substances have a form that fits all metaphysical possibilities.

The form of a collection is its most general features, and a form fits all metaphysical possibilities iff these features exist at all metaphysically possible worlds. The ways the substances could be just are the ways the world could be.

Empirical Specifiability: the substances have a content informed by fundamental physics.

The content of an inventory is its most specific features, and the content is empirically specifiable iff these features fit those found in fundamental physics.

Here are two diagnostics for the grounding relations:

Permissiveness: The grounding relations generate very many entities.

[36] This discussion is connected to my discussion of priority monism in Schaffer *forthcoming–a*.

In other words, the grounding relations should provide a lot of bang for very little substantial buck. This is intended to mesh with the permissivism about existence espoused in §2.2.

Abstraction: The grounding relations are relations of abstraction.

The derivative entities, in order to be an "ontological free lunch" and count as no further addition, ought to be already latent within the substances. In other words, the grounding relations should just be ways of separating out aspects that are implicitly present from the start.[37]

Here is the sort of picture of substances that these diagnostics converge upon:

Priority Monism: There is exactly one substance, the whole concrete cosmos.

Insofar as there can be no difference in the world without a difference somewhere in the cosmos, priority monism delivers a complete roster of substances.[38] This roster is trivially minimal, since the only proper subset of {the cosmos} is Ø, which obviously is not complete. Moreover, this roster is clearly metaphysically general—the ways the cosmos could be just are the ways the world could be.[39] And this roster is empirically specifiable since advanced physics is field theoretic physics, and field theory has a natural monistic interpretation in terms of a spacetime bearing properties.[40]

These diagnostics also converge on:

Thick Particularism: Substances are thick particulars (concrete things).

[37] Scaltsas imputes a similar view to Aristotle: "for Aristotle a substance is complex, not because it is a conglomeration of distinct abstract components like matter, form, or properties; a substance is complex because such items can be separated out by abstraction, which is a kind of division of the unified substance" (1994: 109)

[38] To see the bite of completeness, note that a pluralistic roster comprising point particles in spatiotemporal relations would fail completeness if the whole had *emergent* features, as are arguably present in entangled quantum systems (Schaffer *forthcoming–a*: §2.2).

[39] In contrast, a pluralistic roster of mereological simples fails generality, since the world could be *gunky*. That would be a way the world that could be that is not a way that any roster of simples could be (Schaffer *forthcoming–a*: §2.4).

[40] For instance, general relativistic models are <M, g, T> triples, where M is a four-dimensional continuously differentiable point manifold, g is a metric-field tensor, and t is a stress-energy tensor (with both g and t defined at every point of M). The obvious ontology here is that of a spacetime manifold bearing fields. Thus Norton notes: "a spacetime is a manifold of events with certain fields defined on the manifold. The literal reading is that this manifold is an independently existing structure that bears properties" (2004). Quantum field theory invites a similar monistic reading. As d'Espagnat explains: "Within [quantum field theory] particles are admittedly given the status of mere properties, … But they are properties of something. This something is nothing other than space or space-time, …" (1983: 84) See Schaffer (*manuscript*) for some further defense of the spacetime-bearing-fields view of what is fundamental.

That is, substances have both a *that*-aspect—the thin particular, the substratum—and a *what*-aspect—the thickening features, the modes (c.f. Armstrong 1997: 123–6). Plugging in priority monism, the *that*-aspect of the cosmos is spacetime, and the *what*-aspect of it is its fields.

So among the derivative categories are those of substratum and mode:

Substratum and Mode as Derivative: substratum and mode are abstractions from thick particulars.

Another derivative category will be the *partialia*, abstracted via:

Universal Decomposition: The cosmos may be arbitrarily decomposed into parts.

From priority monism plus universal decomposition, the entirety of the actual concrete mereological hierarchy of thick particulars is generated (whether or not the world is gunky). Wholes are complete and concrete unities, and *partialia* their incomplete aspects, arising from a process of "one-sided abstraction" (Bradley 1978: 124).

With the *partialia* thus grounded, it remains to ground *abstracta* (such as *numbers* and *possibilia*) in the actual concrete realm. Here matters are too complicated to discuss further within the scope of this paper. But perhaps I have said enough to illustrate how at least one of the many possible neo-Aristotelian programs might look.

To conclude: metaphysics as I understand it is about what grounds what. It is about the structure of the world. It is about what is fundamental, and what derives from it.[41]

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