Quality and Quantifiers

Jeffrey Sanford Russell

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Abstract

I discuss three “anti-object” metaphysical views: nihilism—there are no objects at all—generalism—reality is ultimately general rather than particular, and anti-quantificationalism—quantification over objects does not perspicuously represent the world. I briefly discuss an argument against nihilism, and then present an argument that generalists should also be anti-quantificationalists, and in any case that there is important unresolved metaphysical work for generalists to do. A goal along the way is to articulate a constraint on what a “metaphysically perspicuous” language might even be.

1 Nihilism

Philosophers defend some radical-sounding views. Some say there are no gods. Some say there are no numbers. Some say there are no unobservable things. Some say there are no things composed of parts. And some make an even more sweeping negative existential claim: there are no individual things at all—just a pattern of qualitative properties and relations. Let’s think about that last sort of view. (It isn’t a view I believe—perhaps it isn’t a view that anyone really believes—but even so it’s a view worth thinking about. Thinking about extreme philosophical views can be a good heuristic method for getting clear on the issues in debates over their tamer relatives.)

Why would anyone say this? A variety of reasons have been offered. A broadly Leibnizian argument is that if there were facts about particular individuals over and above their qualitative roles, there would be no sufficient reason for the world to be one way rather than an alternative, permuted way (e.g. Pooley ms). A broadly Russellian argument is that particular individuals (unlike qualitative properties) are not

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objects of our immediate acquaintance, and so they are epistemically suspect (e.g. Morganti 2008). A more a posteriori argument says that facts about particular individuals are dispensable from our best scientific explanations—they are “danglers”—and so Occam’s razor should cut them loose (Dasgupta 2009; see also Ladyman and Ross 2009). There are other arguments as well (see O’Leary-Hawthorne and Cortens 1995 for some historical precedents). (A curious sociological fact is that many contemporary defenders of this view are not banner-carriers for idealism, but motivated by issues in fundamental physics.) I’m not going to take up (or dismiss) any of those motivations here. But let’s pretend that for one reason or another we are convinced. The question I want to explore is what an adequate metaphysical theory in this spirit might be like.

(Another motivation some seem susceptible to is the idea that dispensing with individuals, and thus with “ontology” in a narrow sense, frees us from the burden of taking speculative metaphysics seriously. I am not in sympathy with this idea: the “anti-ontologists” I’ll be considering have about as much difficult metaphysics to do as anyone does—more, in certain respects.)

People who think there are no gods usually don’t take much interest in theistic religion. You might expect similarly that people who thought that there were no numbers would be uninterested in mathematics, and that people who thought that there were no unobservable things would be heedless about radiation poisoning, and that people who thought there were no individual people would be radically detached from particular human concerns. But that’s not what most advocates of these views are like. Instead, they generally try to offer some kind of reconstruction of our usual mathematical, scientific, or individualistic discourses: some kind of explanation of why talking the way we do is still useful, or true-as-we-ordinarily-understand-it, despite falling short of being “strictly and literally” or “metaphysically” true.

Likewise, someone who says that the world consists in a pattern of qualitative properties and relations, rather than anything to do with particular individuals, is still going to say something about what it is we are doing when we say things like “Obama is a president” or “There are more people in China than there are in the Western Hemisphere.” Even the revisionary metaphysician should grant that these claims have more going for them than saying “Obama is a fish”—even if each claim involves some kind of mistake, it isn’t the same kind of mistake in each case. Somehow we need to make sense of this difference. One particularly nice way of doing this is by giving systematic paraphrases of claims like these: some general way of translating statements that seem to be about particular individuals into statements in some preferred metaphysical idiom. Let’s say, as a simple stand-in, that somebody offers to paraphrase “There are electrons”—which looks like a statement commit-
ted to particular things, namely electrons—with “The property of electronhood is instantiated”—which looks (at least superficially) like a statement only committed to a qualitative property, namely electronhood.

When philosophers talk out of both sides of their mouth like this, it isn’t clear how seriously we should take their radical-sounding claims. There are different lessons you might draw from these paraphrases—but here’s a natural thing to say. Suppose for the sake of argument that the metaphysical story used to paraphrase our ordinary language is right. And suppose these paraphrases really do a good job of making sense of how we deploy ordinary statements that are superficially about individuals: generally speaking we only say “There are electrons” when in fact electronhood is instantiated, and so on—so the use conditions of ordinary sentences systematically match the circumstances in which their metaphysical paraphrases obtain. Given these assumptions, a plausible (though not inevitable) view is that the truth condition for the ordinary statement “There are electrons” is just that electronhood is instantiated. But if that’s right, and electronhood is instantiated, then when you say “There are electrons” you are saying something true—and if you deny that by saying “There are no electrons”, you would be saying something false. But the philosophical claim “There are no particular things” sounds like it would have the ordinary claim “There are no electrons” as a consequence. If it does, then it too is false. And if it doesn’t, then it is a misleading claim, since it doesn’t have the ordinary consequences it sounds like it would have. Whether it is false or misleading, it isn’t a good way of putting the original metaphysical idea.

This is a familiar sort of argument (see Alston 1958; Turner 2011), and there are different ways of reacting to it. But for present purposes let’s just back off from the initial radical-sounding claim, that there are no particular individuals. Instead, let’s try to find some alternative way of putting the core metaphysical idea—the idea that the world really consists just in its pattern of qualitative properties and relations—which can still be motivated by the kind of arguments that motivated the radical version.

I’ll consider two different ways of doing this. The first idea, in a slogan, is that all facts are general, rather than particular. The second idea, in a slogan, is that quantification over individual objects does not perspicuously represent the facts. These are less radical-sounding view than the one we started with—and they are both unfortunately clouded with a certain amount of obscurity—but they are still interesting views which are worthy of our consideration. In particular, I’ll be investigating the extent to which the two ideas are separable from one another. After we have worked through the metaphysics involved in these views, we can reexamine to what extent they still might vindicate the idea that there are no particular individuals. Let’s take
up each of these ideas in turn.

2 Generalism

The first idea is that reality is ultimately qualitative, rather than particular. I’ll call this view Generalism (though the view goes by several other labels, such as “qualitativism”, or “anti-individualism” or “structuralism”, or “metaphysical anti-haecceitism”).\(^1\) It takes some work to make this idea clear. The formulation I’ll investigate says that all determinate matters of fact are qualitative. To make sense of this, two notions need to be clarified—though I won’t give anything like an analysis of either of them.

First, “qualitative”: the idea is that a qualitative proposition does not say anything specifically about any particular individual. It might be evocative to get at this linguistically.\(^2\) Let’s pretend that we can say everything we want to say in the language of first-order predicate logic PL. (So we are ignoring, for instance, plural or higher-order resources, as well as the many complicated devices of natural language.) A general sentence of PL is a formula that does not contain any names or free variables. Roughly, you can think of a qualitative proposition as one which can be expressed using a general sentence. But while this syntactic approach might help you appreciate what I’m talking about, it isn’t really a good account of what it is to express something qualitative. A syntactically general sentence may fail to express something qualitative—for instance, if it uses a non-qualitative predicate, like “Singaporean” or “Socratizes”, which involve relations to particular individuals. And a syntactically singular expression, which contains names or free variables, may still succeed at expressing something qualitative—for instance, if it expresses just the same thing as some general sentence. Particular examples are controversial, but maybe “Cleopatra is such that some electron has mass” says no more than “Some electron has mass”. Or maybe, as some predicates are really singular, some names are really qualitative: for example, there might be a qualitative property of Deity, necessarily had uniquely by God, such that the syntactically singular statement

\(^1\)See for instance Adams (1979); Fine (2005); O’Leary-Hawthorne and Cover (1996); Ladyman and Ross (2009); Dasgupta (2009); Dasgupta (2014); Dasgupta (forthcoming); Turner (forthcoming); Kment (2012), pp. 578ff.; J. S. Russell (2013).

\(^2\)Adams (1979, 7): We might try to capture the idea by saying that a property is purely qualitative—a suchness—if and only if it could be expressed, in a language sufficiently rich, without the aid of such referential devices as proper names, proper adjectives and verbs (such as ‘Leibnizian’ and ‘pegasizes’), indexical expressions, and referential uses of definite descriptions.
“God loves” expresses the qualitative proposition that some Deity loves. Or the syntactically singular statement “$\emptyset = \emptyset$” might just express the qualitative proposition that some set has no members. Officially, then, rather than giving an account in other terms I’m just treating “it is qualitative whether …” as a primitive sentence operator—and hoping that you can get at basically what I mean. (Throughout this essay I intend quantification over propositions as a shorthand for generalization in sentence position.)

The slogan that the world is ultimately qualitative amounts to saying that non-qualitative statements don’t “correspond to reality”—in a sense which is also hard to explain in other terms (see Field 1994; Fine 2001; J. S. Russell 2013, sec. 5). For example, a standard thing people say about what special relativity teaches us is that it is “meaningless” to say that two separated events are absolutely simultaneous. This isn’t to say that such a claim is gibberish. Indeed, it may be intelligible and useful—perhaps as a placeholder in reasoning. The problem is rather that it doesn’t succeed in describing a way for the world to be. One might say “There is no such thing as absolute simultaneity”, in a somewhat elusive sense which isn’t supposed to trivially follow from property-nominalism, or be trivially excluded by a deflationary view of property-quantification. Being absolutely simultaneous is not a genuine way for things to be related to one another in our world. For another example: lots of philosophers and mathematicians have said that “it doesn’t make sense to ask” whether 2 is an element of 7. Of course the question can be posed using meaningful words put together grammatically. The point is rather that it is asking about a kind of structure that numbers simply don’t have. To express these claims, I’ll use a sentence operator “it is determinate whether …”. For instance, we can give voice to these views about space-time and numbers by saying that, for space-like separated $x$ and $y$, it is indeterminate whether $x$ and $y$ are simultaneous, and that it is indeterminate whether 2 is an element of 7.

Some say that the way in which “2 is an element of 7” is defective is just that it is false [see Magidor (2013), especially chapter 4; thanks to Ross Cameron for discussion of this point]. This is not a rival to the view under consideration, because I am not thinking of indeterminacy as an alternative to ordinary truth or falsity: saying “it is indeterminate whether $A$” takes no stand on whether $A$. Indeed, in what follows I am taking classical logic for granted (at least as a working assumption), and this assumption implies that, if it is indeterminate whether $A$, then either $A$ and it is indeterminate whether $A$, or else not-$A$ and it is indeterminate whether not-$A$; in either case, we can say there are propositions which are both indeterminate and true, and propositions which are both indeterminate and false. The idea is that, even if as it happens “2 is an element of 7” is false, and “2 is not an element of 7” true, (and then is “7 is disjoint from $\{2\}$” true because 7 and $\{2\}$ have no common
elements, or false because 7 is not a set)—we are neutral on these questions—this
is not because there is some “substantive” numerical set theory to be discovered.
The truth or falsity of these claims doesn’t come from the elementhood structure of
numbers. If it comes from anything, it is the absence of such structure.

Similarly to absolute simultaneity or numerical set theory, the generalist’s view is
that “it doesn’t make sense to ask” questions about particular individuals apart
from their qualitative features: though the questions may be intelligible, there isn’t
enough structure to reality for them to have determinate answers. I haven’t really
explained what this sort of indeterminacy is any more than I have explained what
qualitativeness is, but again I hope I have pointed to it clearly enough that we pretty
much know what we are talking about. I also hope we’ll get some additional clarity
on the notion as we try to apply it. Accordingly, I’ll take generalism to be the view
that all determinate matters of facts are qualitative:

**Generalism.** If it is determinate whether \( A \), then it is qualitative whether \( A \).

(This approach is in the same spirit as Alston’s reaction to the argument in the previ-
ous section: “The moral to be drawn here is that the only “ontological commitment”
to possibilities which there is any reason to consider undesirable is the tendency to
talk about possibilities in inappropriate ways (“category mistakes”)’ (1958, 16). Like
Alston, the generalist charges the individualistic worldview with involving defective
statements about things, rather than failed commitments to such things.)

Note that, for it to have its proper force, we should be able to quantify into the
instances of this generalization. For instance,

(1) For each \( a \), if it is determinate whether \( a \) has mass, then it is qualitative
whether \( a \) has mass.

For most things it is not qualitative whether they have mass (most things don’t have
qualitative essences, though there may be exceptional cases, like God or pure sets).
Generalism should be understood to imply that there are no determinate singular
mass facts about such things.

I should point out that I am not thinking of “determinate” as synonymous with “fun-
damental”, in the sense of not being grounded in anything further. So the thesis I am
calling Generalism is different from the thesis of **Ground Generalism**, which says
that all non-qualitative facts are derivatively grounded in qualitative facts (Dasgupta
forthcoming).\(^3\) Here is one way in which they are different: in the recent literature

\(^3\)I discuss the prospects for Ground Generalism in other work. Citation omitted for anonymous review.
on grounding and fundamentality it is usually taken that conjunctions are grounded in their conjuncts. In contrast, I take it that if it’s determinate whether \( A \) and it’s determinate whether \( B \), then it is also determinate whether \( A \text{-and-} B \). So conjunctions can be determinate, but not fundamental, in the sense of ungrounded. Similarly, I take it that even if Generalism is true, there may well be determinate generalizations: but it is often thought that generalizations are grounded in their instances, and thus not fundamental. (I’ll return to this point in the Section 4.) The generalist thesis that I am discussing is neutral on questions of grounding.

But I don’t think the differences between Generalism as I am thinking of it and Ground Generalism as (e.g.) Dasgupta thinks of it are especially important for present purposes. It is extremely plausible that (for example) conjunctions of qualitative propositions are themselves qualitative, and more generally propositions that are stateable in a first-order language with only qualitative primitives are also qualitative. (This idea was part of how we got a grip on “qualitative” in the first place.) If that’s right, then Ground Generalism can in fact play the same role as Generalism in the subsequent arguments in this essay with very little modification. Indeed, if you are the kind of philosopher who already has a grip on fundamentality, and you wish to understand the kind of determinacy I am talking about in terms of it, I don’t think you’ll go far wrong by thinking of “it’s determinate whether \( P \)” as equivalent to “\( P \) is logically definable in terms of fundamental facts.” In that case, if what is logically definable in terms of qualitative facts is qualitative, then Ground Generalism implies Generalism.

3 Quantifiers

The straightforward nihilist, who thinks that there really aren’t any individuals, clearly has serious work to do to come up with an adequate description of the world: our “off-the-shelf” theories of what the world is like are full of commitments to all sorts of particular things—electrons or people or sense-data or something or other. Nearly every claim that appears in such a theory would have to be rejected or reconstrued in some other terms. And people interested in this issue have offered interesting proposals, such as theories of how qualitative properties can be “bundled” or “placed” (see van Cleve 1985, O’Leary-Hawthorne and Cortens (1995), Hawthorne and Sider (2002); Paul 2002; Dasgupta 2009, sec. 3).

The generalist, though, has backed off of the radical claim that there aren’t any individuals, and says instead that there aren’t any genuine facts about any particular one of them. It isn’t nearly so obvious that “off-the-shelf” theories won’t be fit for the generalist’s purpose. First-order existential claims don’t straightforwardly
contradict generalism, the way they contradict nihilism. According to the generalist, a theory expressed using standard first-order quantification may well be true; so what need is there for exotic property-bundling or feature-placing theories?

O’Leary-Hawthorne and Cortens (1995) suggest that the problem with familiar quantificational theories might not be deficit of truth, but rather of some other philosophical virtue:

It is not important that the ontological nihilist assent to the claim ‘Strictly speaking, there are no objects.’ What is crucial instead is that the ontological nihilist insist that object talk and the concept of an object have no place in a perspicuous account of reality (p. 157).

This amounts to a second way of retreating from the sweeping negative existential: individual quantification does not perspicuously represent the world. The idea is not that individualistic talk fails to describe genuine facts, but rather that it inadequately reflects the structure of those facts. Our ordinary way of putting things may be true—and indeed determinately true—but even so it distorts the way the world really is. This would not be a problem with what is said, but with how it is said.

It will be helpful to explore how things go with a tractable artificial language, rather than our actual ordinary ways of talking: let’s again consider standard first-order predicate logic PL (without names, and understanding each predicate symbol as standing for some specific qualitative property or relation). The idea we are here considering is that this language has a certain defect:

**Anti-Quantificationalism.** PL is not perspicuous.

Perspicuity is a feature of language, rather than what that language says. I take it that the very same thing can be said either perspicuously or unperpicuously. An *Atlantic* article reads, “2015 was the best year in history for the average human being to be alive” (Kenny 2015; the example is a variant of O’Leary-Hawthorne and Cortens 1995, 155). This sentence may say the very same thing that another sentence says more perspicuously (and prosaically)—for example, maybe “In 2015, the total quality of life divided by the total population was greater than the total quality of life divided by the total population for any previous year.” [average] (Or perhaps this doesn’t go far enough: for instance, maybe it would be more perspicuous to dispense with reifying “the total quality of life” in favor of a description of, say, people’s patterns of preference-satisfaction.) In this way the notion of perspicuous representation contrasts with the notion of determinacy I discussed in the previous section: if sentences $A$ and $B$ say the same thing, then I take "It’s determinate whether $A$"
and \( \forall \) it’s determinate whether \( B \) to say the same thing as well. (Syntactically, “it’s determinate whether” is a sentence operator, while “perspicuous” is a predicate of linguistic expressions.)

Metaphysicians often engage in the project of recasting various claims in other allegedly more perspicuous terms. But it is a bit obscure what this project really amounts to. One proposal comes from the logical atomists: the world consists of facts with “genuine objective complexity” such that “there is a possibility of cutting up a fact into component parts” (B. Russell 2009, 24 and 19; cf. O’Leary-Hawthorne and Cortens 1995, 155). Moreover, “in a logically correct symbolism there will always be a certain fundamental identity of structure between a fact and the symbol for it” (p. 24). According to this proposal, a perspicuous (or as Russell puts it, “logically correct”) sentence is one whose syntactic structure matches the component-structure of the fact to which it corresponds. For example, Russell held that most sentences involving ordinary proper names are not perspicuous:

The word “Picadilly” will form part of many significant propositions, but the facts themselves corresponding to these propositions do not contain any single constituent, whether simple or complex, corresponding to the word “Picadilly”. That is to say, if you take language as your guide in your analysis of the fact expressed, you will be led astray in a statement of that sort. (2009, 17).

Anti-Quantificationalism could be understood analogously as saying that the facts corresponding by quantificational sentences do not have constituents corresponding to object quantifiers.

Sider (2011) defends another proposal: his account of “structure” does not depend on a literal ontology of structured facts, but rather an account of a “fundamental language.” According to Sider (developing a proposal from Lewis 1983) being an electron “carves nature at the joints”, whereas being a smile or being grue (while perhaps having determinate extensions) fail to carve nature at the joints. He also extends this to syntactic categories other than predicates, such as quantifiers and connectives, and proposes in particular that these distinctions be articulated using an all-purpose, syntactically polymorphic operator \( S \). With this operator, one can make pronouncements like \( S \exists \) and \( \neg S \) grue and even \( S S \) (2011, sec. 7.13). One way

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It’s worth noting that it isn’t obvious that Russell is any more committed than Sider to an “ontology of facts”, since according to Russell “you cannot properly name a fact”, or put one in the position of a logical subject” (see pp. 13-14). This is connected to Russell’s theory of types: in modern terminology, we’d say that facts are not eligible values of first-order variables (rather, commitment to facts involves quantification of type \( \forall \)). By the common Quinean standard, then, facts are not included in Russell’s “ontology” proper.
of understanding the question of whether a quantificational language is perspicuous is in Sider’s terms: “whether quantificational notions like ‘there exists’ carve at the joints. (sec. 1.3) (His answer is that they do, or at least something like them does:”ontological questions can be posed in perfectly joint-carving terms.” (sec. 9.2))

Russell-style atomism and Sider-style joint-carving are both ways of explicating criteria for a perspicuous language, but I don’t intend the notion to be tied to these more specific visions. I’m thinking of things a bit more abstractly and holistically. I’ll think of perspicuity as a feature not of individual syntactic constituents (as Sider does), nor as a feature of single sentences (as Russell does), but rather as a feature of entire language. (Though this does not preclude explaining defectiveness of the whole language in terms of defectiveness of particular expressions within it.) I also won’t be assuming something that seems to be built into both Russell and Sider’s visions, which is that for two languages to both be simultaneously perspicuous, they would have to be structurally isomorphic. Perhaps there are many radically different ways of perspicuously representing the world.

Rayo (2013) critically discusses a closely related view he calls “metaphysicalism”:

A metaphysicalist believes that in order for an atomic sentence to be true, there needs to be a certain kind of correspondence between the logical form of a sentence (i.e. its semantically operative lower-level syntactic structure) and the metaphysical structure of reality (i.e. the metaphysically privileged carving of reality into constituent parts). (p. 6)

Perspicuity aligns with Rayo’s notion of correspondence between form and metaphysical structure. But I should stress that Anti-Quantificationalism does not commit one to this brand of metaphysicalism: it is emphatically not part of the view that object-talk is all untrue. It fails to be completely successful at representing the world, but this failure is more like being obfuscating or long-winded than it is like being wrong.

Rayo’s “moderate metaphysicalism” is maybe a bit closer in spirit: “the constraint that there be a correspondence between logical form and metaphysical structure applies only to assertions made by philosophers in the ‘ontology room’.” (Rayo 2013, 11) But—like Russell and Sider, I think—I am not thinking of speaking perspicuously as a condition on speaking truly on any occasions, not even special philosophical ones.

Similarly, unlike metaphysicalism, Anti-Quantificationalism does not bar one from accepting certain “just is” sentences that Rayo is friendly to—such as “for the number of dinosaurs to be zero just is for there to be no dinosaurs” (p. 3, also p. 7). Even if “there are no dinosaurs” is more perspicuous than “the number of dinosaurs is zero”, this difference between the two expressions does not require that there be any difference in what they express.
4 Quantifier Generalism

I noted in the previous section that, since generalists do not (as such) hold that standard quantificational theories are untrue, they don’t have this reason to renounce those standard theories and pursue more exotic alternatives, like property-bundling or feature-placing metaphysics. But anti-quantificationalists do have a reason to take up this quest—not as a search for truth rather than error, but as a search for metaphysical clarity rather than obscurity.

In the remainder of this essay, I will present an argument that generalists should also be anti-quantificationalists—and so they do have a reason to take interest in the prospects of these metaphysical projects after all. That is, I will consider an argument against Quantifier Generalism, which combines Generalism with the thesis that first-order predicate logic PL is perspicuous. I think that, while Quantifier Generalism is not usually discussed explicitly in these terms, a tendency toward it is often expressed not by explicitly endorsing the perspicuity of first-order quantification, but rather by repudiating or ignoring the project of trying to come up with better ways of putting things (e.g., Pooley ms).

Dasgupta briefly discusses an argument against the view that the fundamental facts are quantificational. The trouble, he says, is that if sentences of predicate logic are not understood as ultimately involving singular matters of fact, then it isn’t clear what they mean. (He puts things in terms of grounding.)

For suppose she proposes that all individualistic facts are grounded in facts expressible in PL. The trouble is that it is not clear what this could mean. For it is arguably analytic of the existential quantifier that existentially quantified facts are grounded in their instances. Indeed, this understanding of the quantifier is arguably implicit in the standard Tarskian semantics for PL. So if we are now being told, say, that the fact that $(\exists x)Fx$ is fundamental, I need to be re-taught how to interpret PL. Which parts of $(\exists x)Fx$ are referential? Which are predicational? Or does it have some other structure altogether? … This does not refute the suggestion, but it does show that much more needs to be said before a view has even been stated. (Dasgupta 2011, 21)

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6 Turner (forthcoming) uses this label for a slightly different view in the same spirit, which is framed in terms of “fundamental facts” rather than perspicuous language.

7 Another position which might explain this behavior is quietism on whether quantification over objects is perspicuous. One might refuse to take a stand on this issue because one is skeptical of whether there is any determinate notion of perspicuity to be deployed in this way. In this case, repudiating the project of describing the world more perspicuously might be analogous to repudiating the project of determining which things are at absolute rest.
I find it a bit hard to see the force of this argument. To begin with, it seems dubious whether it is “analytic of the existential quantifier that existentially quantified facts are grounded in their instances.” Why couldn’t one accept such facts while rejecting this claim about ground (indeed, perhaps rejecting all claims about ground)? It doesn’t seem like one needs to implicitly know claims like this about grounding in order to fully understand what quantified sentences mean. For instance, a natural thought is that implicitly knowing the logical role of the existential quantifier is sufficient for understanding its meaning—the kinds of valid inferences that quantificational sentences figure in. But this logical role can be spelled out in general terms. Why must the generalist adorn this with any theory of ground? (Donaldson 2014, sec. 6.2 offers related criticisms.)

The argument I’ll present against Quantifier Generalism is in different terms than Dasgupta’s: it has nothing to do with analyticity or ground. But it is in a similar spirit: it also turns on the idea that there are singular commitments “implicit in the standard Tarskian semantics for PL”, when we try to construe this language as fully perspicuous.

The argument has two steps. The first step is to articulate a condition on the success of the project of perspicuous representation. I hope this will contribute toward explicating what “perspicuous” even means, by putting some substantive constraints on the notion (while still not requiring anything as fine-grained as Sider’s version of structure). The second step is to show that the standard first-order language PL, as it is usually understood, does not meet this success condition by the generalist’s lights. The argument is far from decisive (we are grogging through some pretty dark spaces, I’m afraid) but I think we learn something interesting from it.

5 Compositionality

The first idea is that if the world can be adequately characterized using certain sentences, then it should be possible to say what it takes for each sentence to be true, where each truth condition is a matter of determinate fact. This would be a way of explicitly spelling out how these claims “correspond to reality”, as opposed to doing some other less metaphysically loaded job. For instance, even claims about absolute simultaneity or absolute rest might be intelligible and useful as placeholders in reasoning. Doing something else, like outlining an expression’s inferential role, might suffice to account for its intelligibility, but that does not explain what it says in the sense of giving its truth-conditions.

Let me make clear that I am not setting an especially high bar here. For instance, if “Every electron has mass” is part of your metaphysical theory, then stating that
sentence’s truth condition does not require you to state it in other terms. The terms
of your metaphysical theory itself are fine. This is a fine thing to say:

(2) What it takes for “every electron has mass” to be true is for every electron to
have mass

This grammatical construction is a bit cumbersome, but I want to get at something
stronger than mere material equivalence. Let’s use “\(A \equiv B\)” to abbreviate “what
it takes for \(A\) is \(B\)” (with the appropriate infinitival transformation applied). This is
specifically a device for articulating truth conditions (and, eventually, other semantic
conditions, like reference conditions or satisfaction conditions). It isn’t really a
more basic way of illuminating what truth conditions are. Indeed, that’s hard to
do—for instance, truth conditions can’t be adequately stated using mere material
biconditionals, or necessary biconditionals. But I hope you already know what truth
conditions are. This is a device for stating them. (Compare Rayo 2007; 2008; 2013;
Williams 2012.)

Here is a principle about this locution: if \(B\) is what it takes for \(A\), then there is really
something which is what it takes for \(A\): \(A\) corresponds to a genuine way for the world
to be, namely \(B\). That is, I am understanding this to be a constraint on the kind of
truth-conditions we are interested in giving for our metaphysical theories:

**Determinacy.** If \(A \equiv B\), then it is determinate whether \(B\).

One of the features a metaphysical language should have is that each of its sentences
corresponds to a genuine determinate matter of fact—and the sentence itself is a
perfectly adequate way of stating what that factual condition is. In other words,
the first condition (not the last) on a metaphysically perspicuous language is that it
should have disquotational, determinate truth conditions. For each sentence \(\phi\) in
the language,

\[
(3) \Gamma \text{“}\phi\text{” is true } \equiv \phi^3
\]

should be true.\(^8\)

So far there is nothing stopping the quantifier generalist from meeting this condi-
tion. The truth conditions for a first-order language \(L\) could go like this:

\(^8\)Each instance of (3) is a sentence in an extension of the “metaphysical” language \(L\), enriched with
devices for specifying the semantics of \(L\): namely, quotational resources for describing the syntactic
structure of \(L\)-expressions, truth and satisfaction predicates, and the “what it takes” connective \(\equiv\).
“Every electron has mass” is true \(\iff\) every electron has mass

“Some electron has charge” is true \(\iff\) some electron has charge

“Every electron has mass and some electron has charge” is true \(\iff\) every electron has mass and some electron has charge

And so on—infinitely many such statements. So far, so good.

There is a second condition a metaphysically perspicuous language should meet. For all I have said so far, there may be no systematic relationship at all between (6) and any other conjunction—no systematic contribution of “and” to the truth conditions of the language. Rather than merely listing all of the conjunctions and stating their truth conditions separately, we would like to state a single general clause that covers all conjunctions in one fell swoop—like this one:

\[
\text{For any sentences } \phi \text{ and } \psi, \text{ if } (\phi \text{ is true } \iff A) \text{ and } (\psi \text{ is true } \iff B), \text{ then } \langle \phi \text{ and } \psi \rangle \text{ is true } \iff A \text{ and } B
\]

Using this compositional principle, together with the disquotational principles (4) and (5), we can derive (6) as a consequence—along with the truth conditions for infinitely many other conjunctions. This seems better than treating each conjunction’s truth conditions as a basic postulate itself. The further constraint I am proposing for a metaphysically perspicuous theory is that its truth theory should be derivable compositionally. There should be some small set of “structural” principles like (7), corresponding to each syntactic connective of the metaphysical language, which jointly imply disquotational truth conditions for the whole language. This provides a sense in which, not only does each sentence express a genuine fact about the world, but also the structure of these sentences gets something right.

This picture contrasts with Rayo’s account of the role of compositional truth theories.

A language involving object-talk—that is, a language including singular terms and quantifiers binding singular-term-positions—is attractive because it enables one to give a recursive specification of truth-conditions for a class of sentences rich in expressive power. But there is not much more to be said on its behalf. In setting forth a language, we want the ability to express a suitably rich range of truth-conditions. If we happen to carry out this aim by bringing in singular terms, it is because they supply a convenient way of specifying the right range of truth-conditions, not because they have some further virtue (2013, 16).
Rayo’s picture is that semantics for expressions below the level of the complete sentence—for instance, terms or open formulas—are a merely instrumental part of the system whose purpose is specifying truth-conditions for sentences. There is no distinctive virtue in expressing certain truth-conditions in a language with one syntactic structure rather than another. In contrast, the proposal here is that there is a further virtue to be claimed for the right sort of language: a perspicuous language doesn’t merely express appropriate truth-conditions, but rather it does so in such a way that its significant component parts also correspond to determinate features of reality. (I hope that this point will become clearer in the next section.)

6  (I Can’t Get No) Satisfaction

On to step two of the argument. The trouble with quantifier generalism is that quantificational sentences have constituents—variables and open formulas—which don’t “correspond to reality” by the generalist’s lights. The difficulty comes out when we look closely at the simple compositional truth theory for quantified sentences: it appeals to interpretations of open formulas that involve singular facts. So quantificational sentences, so interpreted, are not perspicuous by the generalist’s lights. I’ll try to make this more precise now.

Tarski provided what is nowadays the standard compositional theory of quantificational sentences (1944). The main idea is to take a detour through satisfaction conditions for open formulas. For example, to work out the truth condition for the sentence “Every electron has mass”, we first work out the satisfaction condition for the open formula “x is an electron and x has mass”. This is some condition $A$ such that

\[(8) \text{ For each } a: a \text{ satisfies } "x \text{ is an electron and } x \text{ has mass}" \equiv A(a).\]

Then we determine the truth condition in terms of this satisfaction condition, whatever it is:

\[(9) \text{ “Every electron has mass” is true } \equiv \text{ for each } a, A(a).\]

To fill this out into a compositional theory of what it takes for PL sentences to be true, we need a compositional theory of satisfaction conditions—of what it takes in general for things to satisfy any given open formula. Here’s how this would normally go. (For simplicity I’ll focus on formulas of just one variable.)

\[(10) \text{ For each } a (a \text{ satisfies } "x \text{ has mass}" \equiv a \text{ has mass})\]
If for each \(a\) (\(a\) satisfies \(\phi \equiv A(a)\)) and for each \(a\) (\(a\) satisfies \(\phi \equiv B(a)\)), then for each \(a\) (\(a\) satisfies \(\phi \iff \phi \equiv A(a)\) and \(B(a)\))

(12) If for each \(a\) (\(a\) satisfies \(\phi \equiv A(a)\)), then for each \(a\) (\(a\) satisfies \(\phi \iff \phi \equiv \text{for some } b, A(b)\))

And so on for the rest of the familiar clauses. Finally for sentences, with no free variables, we say

(13) If for each \(a\) (\(a\) satisfies \(\phi \equiv A(a)\)), then \(\phi\) is true \(\iff\) for any \(a\), \(A(a)\).

(Don’t confuse this kind of disquotational truth theory with a different thing we also learned from Tarski: a model theory for PL. A PL-model \(M\) is a certain set—the domain of \(M\)—together with certain pairings of predicates with subsets of the domain—their extensions in \(M\). And we can interpret PL with respect to a model using similar clauses to the truth theory I’m describing. The interpretation rules deliver conclusions like:

(14) “Electrons have mass” is true-in-\(M\) iff some element of the \(M\)-domain is in the \(M\)-extension of “electron” and also in the \(M\)-extension of “mass”.

But we are not concerned here with domains, or what it takes to be true in some model—we are concerned with what it takes for quantificational sentences to be true simpliciter. Mere model theory may be completely irrelevant to this.)

This Tarskian truth theory is very nice. But generalists cannot accept it.

The problem for the generalist is not that this truth theory quantifies over individuals. The generalist is allowed to do that: having backed off from the claim that there aren’t any individuals, the generalist holds that general sentences of PL express genuine facts—and those sentences quantify over individuals. There is no obvious reason why the truth conditions for these sentences should not also quantify over individuals. That is just what the quantifier generalist should expect.

The trouble is rather that the truth theory quantifies into semantic conditions, in the account of satisfaction. This effectively commits the theory to singular facts—which the generalist rejects. For each particular thing \(a\), the semantic theory says what it takes for \(a\) to satisfy \(\phi\). For instance, it includes “atomic” clauses like (10): for each thing, what it takes for that thing to satisfy “\(x\) has mass” is for it to have mass. But according to the generalist, for some things \(a\) there is nothing which it is for \(a\) to have mass. If it is not a qualitative matter whether \(a\) has mass, then
by generalist lights this is not a determinate matter of fact. The generalist holds
that in such cases “a has mass” is “meaningless” in the sense that it corresponds
to no genuine way for the world to be. (There may be exceptional things whose
massiveness is a qualitative matter—things that have qualitative natures, like God
or pure sets. But surely not everything is like this—as the possibility of qualitative
indiscernibles illustrates.) This means that the satisfaction clause involves something
similarly “meaningless”. But that means it fails to be the sort of condition that we
sought, since it violates Determinacy: if $A \equiv B$, then it is determinate whether $B$.
Putting all this together, we can see that the following principles are inconsistent:

\begin{enumerate}
  \item For each $a$, $a$ satisfies “$x$ has mass” = $a$ has mass.
  \item For each $a$, if $a$ satisfies “$x$ has mass” = $a$ has mass, then it is determinate
        whether $a$ has mass.
  \item For each $a$, if it is determinate whether $a$ has mass, then it is qualitative
        whether $a$ has mass.
  \item For some $a$, it is not qualitative whether $a$ has mass.
\end{enumerate}

Here (15) is part of the Tarskian truth theory, (16) is an instance of Determinacy, and
(17) is an instance of Generalism. So the Tarskian truth theory is not acceptable to
the generalist: its characterization of the truth conditions for determinate sentences
relies on indeterminate satisfaction conditions for open formulas.

It’s important here to distinguish claims like these:

\begin{enumerate}
  \item For some $a$, it is determinate whether $a$ has mass.
  \item It is determinate whether for some $a$, $a$ has mass.
\end{enumerate}

There is nothing problematic for the generalist about (20), which says there is a cer-
tain general fact. But (19) says there are is a singular fact, which the generalist cannot
accept. The trouble is that the Tarskian semantics doesn’t just involve general claims
about what it is for a formula $\phi$ to be satisfied by something or other—it involves
claims about which particular things satisfy $\phi$. This is crucial to the account’s com-
positionality. For instance, which things satisfy $\gamma \phi$ and $\phi \gamma$ is determined by which
things satisfy $\phi$ and which things satisfy $\phi$. But whether anything satisfies $\gamma \phi$ and $\phi \gamma$
is not determined by whether anything satisfies $\phi$ and whether anything satisfies $\phi$.
So if the semantic clauses are correct, there must be facts about which things satisfy
open formulas—and these include non-qualitative facts.
In short, the quantifier generalist needs a compositional account of what general PL sentences say about the world; and the standard Tarskian account is unavailable, because it appeals to singular facts.

7 Alternative Semantics Briefly Considered

As I warned, the argument against Quantifier Generalism is not decisive. The Tarskian account (as I have construed it) is, I think, the most straightforward way of specifying the truth conditions for a quantificational language. But it is not the only way. One option for the generalist is to give a different compositional account of the truth-conditions for a first-order language, which does not rely on providing singular satisfaction conditions.

Cian Dorr suggested one alternative approach to me, which I’ll call the Predicate Proposal. Spelling it out involves modifying the framework at several points. I’ll sketch this proposal briefly, since I think it’s helpful to see an example of another way things might go, but I won’t pursue it in detail here.

Step 1. Enrich our semantic language with predicate abstraction. For a formula \( \phi \), the expression \( \lambda x \phi \) has the syntactic type of a predicate, which can be applied to a term to produce another formula.

Step 2. Allow the “what it takes” connective \( \equiv \) to join predicates, rather than just sentences. We can understand \( F \equiv G \) as saying “what it takes to \( F \) is to \( G \)”. To make sense of the Determinacy constraint, we’ll also need to extend our notion of “determinate fact of the matter” to predicates, rather than just sentences. As certain sentences fail to correspond to determinate ways for reality to be, so also we may think that certain predicates (like “absolutely simultaneous”) fail to correspond to determinate ways for things to be. (Is this notion of determinate ways for things to be generalistically acceptable? I think so, but I’m not sure. This is one issue that would need to be explored further to understand the prospects for the Predicate Proposal.) Given this determinacy predicate-operator, it is also plausible to take Generalism to also involve a further commitment regarding qualitative properties and not just qualitative propositions: if being \( F \) is determinate, then being \( F \) is qualitative.

Step 3. Rewrite the problematic atomic satisfaction condition using these new predicate-targeting resources: what it takes to satisfy “\( x \) has mass” is to have mass.

\[
(21) \quad \lambda a (a \text{ satisfies “}\, x \text{ has mass”}) := \lambda a (a \text{ has mass})
\]

In this version, we don’t quantify into truth or satisfaction conditions: instead, the variable-binding is done separately on each side of the “what it takes” connective.
So applying the Determinacy constraint to (21) doesn’t require it to be determinate whether any particular thing has mass: rather, it only requires that having mass be a determinate way for something to be. Since having mass is a qualitative way to be, this version doesn’t conflict with Generalism.

One issue with this proposal is that it uses expressive resources that are not part of the original metaphysical language—predicate abstraction isn’t available in bog-standard first-order logic. It’s not clear how bad this is—after all, Tarski’s Theorem ensures that we must use some proper enrichment of the metaphysical language in order to specify its truth conditions—we at least have to add a truth predicate. But there is something distinctively troubling in this version, because in (21) the additional expressive resources are deployed within the right-hand side of the “what it takes” clause. This makes the view that bog-standard PL is a perfectly adequate way of representing the world’s structure look a bit dim, since we are unable to say what this language represents about the world’s structure without employing a different, more expressive language.

Perhaps a better approach would be to abandon the claim that bog-standard PL is perspicuous: instead, a language which also includes predicate abstraction is a better candidate. This is a subtle difference, but I think this sort of subtlety may turn out to matter quite a bit when it comes to choosing a fully perspicuous language. That means that, by the letter, this is an Anti-Quantificationalist view: standard PL is not perspicuous, though something close to it may be. Following the Predicate Proposal this direction involves not just modifying the original Tarskian semantics, but also our theory of syntax. But while this approach is Anti-Quantificationalist by the letter, it is clearly still in the spirit of Quantifier Generalism, and worth pursuing further. (The generalist who takes this route will also need to modify the Tarskian semantic proposal to provide an account of the semantic conditions for lambda-expressions, which does not again fall prey to the problem of binding into those conditions.)

There are, then, two ways forward for the generalist. One is to work out an adequate syntax and semantics for a language with individual quantifiers, which does not require illegitimate binding into semantic clauses. The other is to abandon individual quantifiers and find some alternative metaphysical language in which to theorize. Either way, there is work to do.

Both options are open and interesting. Indeed, I suspect that the two approaches

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9 Thanks to an anonymous referee for emphasizing this point.

10 Turner (2011, sec. 3.2) argues that languages that add lambda-abstraction “are just as ontologically guilty as first-order ones”. Whether we regiment existential claims in the form \(\exists x \phi\) or \(\exists (\lambda x \phi)\), they are equally unacceptable to the nihilist. This is plausibly so, but there still may be a difference regarding which expression is part of a perspicuous language acceptable to the generalist.
may converge: the best modified version of a language with quantifiers, and the
best version of an alternative language without them, may turn out to be straight-
forwardly isomorphic to one another. If things turn out that way, the question of
whether the language on which the two approaches converge is really quantifica-
tional may simply be vague. But, as often happens in successful inquiry, the vague
question will in that case have led to an important precise discovery: how to per-
spicuously describe reality.

References


8–17.


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