

QUANTIFICATION AND ONTOLOGICAL COMMITMENT

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1 Introduction

Ontology is the discipline that investigates certain highly general questions about the nature and structure of reality. Although any attempt to make this precise will inevitably be controversial, one central such question is:

Ontological Question What does reality contain?

Here is a two-step method for addressing this question. First, select some view(s) that one holds; e.g. the view that Tibbles is a cat. Second, figure out what the truth of the view(s) requires reality to contain; e.g. the truth of the view that Tibbles is a cat plausibly requires reality to contain the particular cat Tibbles.² One now has a partial answer to the Ontological Question: reality contains the particular cat Tibbles. A fuller, less partial answer is obtained by applying the method to more of one's views.

Although this isn't the only ontological method one might employ, it is both natural and popular. The method uses one's views about other matters to inform one's ontological views. One might thereby hope to avoid the worst excesses of unconstrained ontological speculation: "ontology the progressive research program (not to be confused with ontology the swapping of hunches about what exists)." (Yablo 1998: 229)

Application of this method requires answers to two further questions, which animate my discussion below. First:

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² Truth appears here only to enable generality, so we can discuss views in general, not just particular examples. Under the intended notion of truth: for the view that p to be true is for it to be that p . Other notions of truth are irrelevant to our two-step ontological method. For example, consider a correspondence notion of truth on which: for the view that p to be *correspondence-true* is for reality to contain a fact that p . Employing correspondence-truth in our two-step ontological method would enable a quick yet tendentious argument that reality contains facts. Correspondence-truth is therefore not employed in our two-step ontological method.

Metaontological Question What is it for reality to contain something?³

Alternatively put: what is the Ontological Question about? To state the second question, let *the ontological commitments of a view* be what that view's truth requires reality to contain. Then the second question is:

Commitment Question What are the ontological commitments of a view?

Contemporary discussion of this second question was largely initiated by W.V. Quine (1948). I discuss Quine's answer in the next section.

The Commitment Question is central not just to our two-step ontological method, but to any ontological method whatsoever. To see why, consider an arbitrary answer to the Ontological Question; e.g. reality contains cats. Now consider two rival (partial) answers to the Commitment Question. According to one, the view that reality contains cats is ontologically committed to individuals that are cats. According to the other, the view that reality contains cats is ontologically committed only to pluralities of mereological atoms in a certain complex configuration (van Inwagen 1990). These different answers to the Commitment Question convert our initial answer to the Ontological Question into two different answers. Every ontological method thus requires an answer to the Commitment Question.

I have discussed the ontological commitments of views, using "view" neutrally for the bearers of ontological commitment. Let's be clearer about what those bearers are.

Candidate bearers of ontological commitment most prominently include: interpreted sentences, theories (understood as sets of interpreted sentences), utterances, statements, assertions, propositions, truth-conditions, beliefs, and speakers or theorists (i.e. people). It is often convenient to focus on sentences and theories, aiming to capture the ontological commitments of non-sentences via appropriately chosen sentences; e.g. the ontological commitments of a belief may be captured via sentences that express the belief; or the ontological commitments of people may be captured via sentences expressing their beliefs.

Although it is often convenient to focus on sentences, the primary bearers of ontological commitment are not sentences themselves but the propositions or truth-conditions those sentences express. (I henceforth use 'proposition' for both propositions and truth-

³ The Metaontological Question concerns an identification in the sense of (Dorr 2016).

conditions.) For if the truth of a sentence requires reality to contain something, then it does so because of what the sentence says about reality; and what it says about reality is a proposition, which might also be expressed by a different sentence, or asserted, believed, denied, and so on. Our primary topic is thus the ontological commitments of propositions, irrespective of the parochial linguistic guise under which they are expressed. I do, however, discuss the commitments of both propositions and sentences below, bearing in mind that our primary topic concerns propositions.

Let's connect this with properties. One central, traditional component of the theoretical role for properties is to be what predicates express, denote, ascribe, or otherwise correspond to: properties are the ontological correlates of predicates. The existence of properties understood as occupants of this role follows from a positive answer to:

Predicate Question Are predicates a distinctive source of ontological commitment?

Note, however, that a negative answer does not preclude the existence of properties because they might occupy some other component of the property-role instead. The rest of this chapter discusses four answers to the Metaontological Question alongside corresponding answers to the Commitment Question, and examines their consequences for the existence of properties via the Predicate Question.

An influential Quinean paradigm provides our first answer to the Metaontological Question: what reality contains is what there is. It would be hard to overstate the influence of this paradigm throughout metaphysics over the last seventy years. Insofar as there is orthodoxy about metaontology and ontological commitment, the Quinean paradigm is it. We will see that this paradigm naturally but not inevitably yields a negative answer to the Predicate Question.

Our remaining three answers to the Metaontological Question correspond to the most prominent departures from the Quinean paradigm. Our first answer employs a primitive, non-quantificational notion of existence and says: what reality contains is what exists. The Predicate Question then continues to receive a negative answer. Our second answer employs a notion of fundamentality and says: what reality contains is what's fundamental. This leaves the Predicate Question wide open. Our final answer employs many irreducibly different forms of (higher-order) quantification and says: although what reality contains is what there is, "what there is" is ambiguous, with corresponding ambiguity in "reality" too. The Predicate Question receives a positive answer on many disambiguations.

2 A Quinean paradigm

Quine's account of ontological commitment is driven by his answer to the Metaontological Question (Quine 1948: 1):

Quinean Metaontology What reality contains is what there is.

Quine understands “there is” here as the unrestricted existential quantifier “ $\exists x$ ” of first-order logic, i.e. the quantificational logic taught in typical introductory logic courses. His discussion of ontological commitment focusses on the commitments of interpreted sentences of first-order logic, not propositions. Let's follow Quine's focus initially.

Given Quinean Metaontology, the ontological commitments of a sentence will be what the sentence's truth requires there to be. Quine identifies what the sentence's truth requires there to be with what the domain of quantification needs to contain for the sentence to be true. Hence:

Quinean Sentential Commitment The ontological commitments of a first-order sentence are what the domain of quantification needs to contain for the sentence to be true.

This can be precisified in several ways (Rayo 2007; Bricker 2016). A theory of domains and truth is also required; any textbook version of post-Tarskian model-theoretic semantics would capture Quine's intention. Further details aren't necessary here.

Quinean Sentential Commitment concerns the commitments of interpreted sentences of a specific kind of formal language. The commitments of sentences of other languages, including natural languages, are obtained by regimenting them into the appropriate kind of formal language.

To see how Quinean Sentential Commitment works, consider a first-order sentence “ Ct ” where “ C ” regiments “is a cat”, “ t ” regiments “Tibbles”, and so the whole sentence regiments “Tibbles is a cat”. For “ Ct ” to be true, the domain of quantification needs to contain the denotation of “ t ”, which is Tibbles. So “ Ct ” is ontologically committed to Tibbles. The denotation of “ t ” also needs to satisfy the predicate “ C ” and must therefore be a cat. So “ Ct ” is also ontologically committed to there being at least one cat. By contrast, standard model-theoretic semantics does not require the domain to contain entities like the

fact that Tibbles is a cat, or the state of Tibbles's being a cat, or the proposition that Tibbles is a cat. So "*Ct*" is not ontologically committed to such entities.

The Predicate Question arguably receives a negative answer under the Quinean paradigm: predicates are not a distinctive source of ontological commitment. For "*Ct*" to be true, standard model-theoretic semantics does not require the predicate "*C*" to denote an entity in the domain. It requires only that the denotation of "*t*" satisfy "*C*", which does not require a further denotation for "*C*" itself in the domain.⁴ Quinean Sentential Commitment thus entails that predicates are not a distinctive source of ontological commitment.⁵ This is a central point of Quine's (1948).

It does not follow that predicates make no contribution to ontological commitment. According to Quinean Sentential Commitment, "*Ct*" is committed to there being at least one cat. "*Ct*" has this commitment partly because of what the predicate "*C*" means: only cats satisfy it. If "*C*" had meant something different, "*Ct*" would have had different commitments; e.g. if only dogs had satisfied "*C*", then "*Ct*" would have been committed to there being at least one dog.

One might seek a positive answer to the Predicate Question by introducing a nominalising device, which converts predicates like "*C*" or "is a cat" into property-names like "*c*" or "*being a cat*". Since names require denotations in the domain, this would yield a property in the domain corresponding to each predicate. There is a real danger of inconsistency here via Russell's paradox. Moreover, the Predicate Question still receives a negative answer. For commitment to properties arises not from predicates themselves but from their nominalisations. Removing the nominalising device removes the commitment to properties while the predicates remain.

Let's turn from sentences to propositions. This will yield a more complex perspective on the Predicate Question.

⁴ Objection: standard model-theory assigns denotations to predicates; although those denotations needn't belong to the domain, they should count as commitments generated by predicates. Response: this conflates the commitments of sentences with the commitments of a semantic theory about those sentences. See (Rayo 2007: 431).

⁵ This argument primarily concerns predicates of first-order formal languages. It is plausible but not trivial that English predicates are well regimented by formal predicates. If not, English predicates may yet be a distinctive source of ontological commitment. Space prevents further discussion of good regimentation here.

Recall that the commitments of natural language are obtained by regimenting into a first-order language. Extending this idea to propositions gives the following answer to the Commitment Question:

Quinean Propositional Commitment If some first-order sentence expressing a proposition p has an ontological commitment, then p has that commitment too; p has no other commitments

A variant view says that the ontological commitments of p are the commitments common to all first-order sentences expressing p . Since every proposition is expressible by a simple sentence letter, this threatens triviality: no proposition would have any ontological commitments. I therefore focus on Quinean Propositional Commitment, although parallel points apply to the variant view too.⁶

Quinean Propositional Commitment entangles ontological commitment with more general metaphysical questions about propositional identity; see (Rayo 2007) for related discussion, and (Rayo 2013: ch. 1; Dorr 2016) for the operative notion of propositional identity. For example, consider the first-order sentence:

(1) Ct

Here, “ C ” regiments “is a cat” and “ t ” regiments “Tibbles”. So (1) expresses the proposition:

(1p) *that Tibbles is a cat*

Consider also the first-order sentence:

(2) Itc

⁶ Another variant focuses on some (or all) privileged first-order sentence(s) expressing the proposition. Privileged how? Two options stand out. Firstly, privileged by fully capturing the proposition’s intrinsic or logical structure. But it is controversial whether propositions have intrinsic structure, and whether either kind of structure could be captured by a single sentence. Secondly, privileged by capturing the proposition’s metaphysically fundamental structure. This is a version of Fundamental Ontology which I discuss in §4.

Here, “*F*” regiment “instantiates”, “*t*” regiment “Tibbles”, and “*c*” regiment the property-name “*being a cat*”. So (2) expresses the proposition:

(2p) *that Tibbles instantiates being a cat*

What are the ontological commitments of (1p)? Given Quinean Propositional Commitment, it depends whether (1) and (2) express the same proposition, i.e. whether (1p) is identical to (2p).

By Quinean Sentential Commitment, (2) is committed to the property *being a cat*. Since (2) expresses (2p), it follows from Quinean Propositional Commitment that (2p) is committed to that property too. So (1p) is also committed to that property, *if* (1) expresses the same proposition as (2), i.e. if (1p) is identical to (2p). This identity follows from the popular view that necessarily equivalent propositions are identical (under natural assumptions about the existence of properties and modal behaviour of instantiation). Assuming this also holds for other typical predications, we now have a positive answer to the Predicate Question.

By contrast, Quinean Propositional Commitment does not entail that (1p) is committed to *being a cat*, if (1) and (2) express different propositions, i.e. if (1p) is distinct from (2p). This distinctness follows from the popular view that propositions have a unique intrinsic structure analogous to the structure of sentences expressing them. This blocks the preceding argument for a positive answer to the Predicate Question.

We’ve seen how Quinean Propositional Commitment entangles ontological commitment with propositional identity, and thereby with metaphysics more generally: it is not a metaphysically neutral arbiter of ontological commitment. We’ve also seen how this entanglement affects how Quineans should answer the Predicate Question. One might try to avoid entanglement by focusing on sentences instead of propositions. Yet entanglement will remain, for two reasons. Firstly, Quinean Sentential Commitment requires a background semantic theory of domains and truth. This entangles the commitments of sentences now with semantics as well as the metaphysics of domains and truth. Following Quine, I assumed that predicates need not have denotations in the domain of quantification. But that could be contested, making predicates a distinctive source of ontological commitment. Secondly, recall that propositions are the primary bearers of ontological commitment and sentences have commitments because of what propositions they express. Sentences expressing the same proposition should plausibly therefore have the same commitments. This entangles the

commitments of sentences too with propositional identity, contrary to Quinean Sentential Commitment.

3 Existence

Under the Quinean paradigm, quantification cannot go beyond what reality contains. Our first departure from the paradigm rejects that assumption. A primitive notion of existence is employed to consistently say that some things exist, whereas some other things don't. Putative non-existents include unicorns, ancient gods, Sherlock Holmes, hobbits, round squares, and largest prime numbers. This primitive notion of existence is used to answer the Metaontological Question thus:

Existential Metaontology What reality contains is what exists.

Notable developments of this Meinongian view include (Parsons 1980; Priest 2005; Zalta 1988) amongst others.

This answer to the Metaontological Question delivers the following answer to the Commitment Question:

Existential Propositional Commitment The ontological commitments of a proposition are whatever the proposition's truth requires to exist.

What exactly does a proposition's truth require to exist? Does the truth of *that Tibbles is a cat* require Tibbles to exist, or might she instead be non-existent? One way to make progress is to follow Quine's focus on sentences of a first-order language. We depart from Quine by enriching the language with a primitive existence predicate and a second existential quantifier: the familiar "∃" for a *committal quantifier* restricted to existents and "Σ" for a *neutral quantifier* free from restriction. The following modification of Quinean Sentential Commitment is then natural:

Existential Sentential Commitment The ontological commitments of a first-order sentence are whatever must satisfy the existence predicate for the sentence to be true; which is exactly what the domain of the committal quantifier needs to contain for the sentence to be true.

Like Quinean Sentential Commitment, this could be made precise in various ways and requires a background theory of domains, satisfaction, and truth. The Quinean paradigm's complex relationship between propositional and sentential commitment carries over too, alongside the entanglement of ontological commitment with metaphysics and semantics more generally.

The Quinean case for a negative answer to the Predicate Question carries over to Existential Sentential Commitment (as do the complexities surrounding that answer highlighted at the end of the last section). In fact, the case is stronger since even names can fail to generate ontological commitment. The truth of "*C*t**" requires that "*t*" have a denotation, i.e. Tibbles, in the domain of quantification; but Tibbles may belong only to the domain of neutral quantification not the domain of committal quantification, and she need not satisfy the existence predicate.⁷

Nominalism is the view that reality contains no properties. The present setting permits two forms of nominalism. The weaker form is *committal nominalism*: there (committally) are no properties, properties do not exist, and yet there (neutrally) are properties. The stronger form is *neutral nominalism*: there (neutrally and committally) are no properties. It is an interesting open question whether mere committal nominalism could accommodate the motivations of traditional nominalists while nonetheless providing (non-existent) properties doing much of the theoretical work that properties normally do.

I close with a problem for the present setting: it departs merely terminologically from the Quinean paradigm (cf. Lewis 1990). First, the Quinean quantifier " \exists " was not intended as a restricted quantifier. It therefore corresponds to the neutral quantifier not the restricted committal quantifier. Second, whatever distinction is marked by the primitive existence predicate, the Quinean can accept it. Quineans won't call that distinction "existence" but can accept it as a genuine distinction. Both paradigms may therefore distinguish two questions:

What (neutrally, unrestrictedly) is there?

What exists, i.e. what (committally, restrictedly) is there?

⁷ I'm assuming a positive free logic on which non-existents can satisfy atomic predicates. One might instead adopt a negative free logic on which only existents satisfy atomic predicates. This further entangles ontological commitment with more general metaphysics and semantics.

The paradigms differ only over which question is “really” the Ontological Question. Yet that’s a merely terminological difference. Both paradigms can incorporate the coherence of both questions and the same relationships between them.

4 Fundamentality

Our second departure from the Quinean paradigm begins with a hierarchical conception of reality on which some aspects of reality *generate* others, e.g. Tibbles and her movements are generated by the activities of the particles from which she is composed; your consciousness is generated by your neural configuration; facts about societies are generated by interactions between members of the society. The *fundamental* is whatever comprises the base of this hierarchy, and so generates all else. The operative notion of generation can be articulated in various ways, notably via ground (Schaffer 2009; Rosen 2010; Fine 2012), truthmaking (Armstrong 2009), naturalness (Lewis 1983), and structure (Sider 2011). Differences between these articulations won’t matter here; (Jones forthcoming) discusses one important such difference.

This hierarchical conception of reality is naturally paired with a conception of ontology as centrally concerned with the fundamental. This suggests the following answer to the Metaontological Question:

Fundamental Metaontology What reality contains is what’s fundamental.

Again, there is a danger of merely terminological departure from the Quinean paradigm. The Quinean paradigm can incorporate the ideology of fundamentality and generation (although Quine himself would reject them). Two questions can thus be distinguished within both paradigms:

What is there?

What’s fundamental?

It’s merely terminological which we call the Ontological Question. However, the ideology of fundamentality and generation brings theoretical commitment which the original Quinean paradigm lacks. Since the fundamental generates all else, each hypothesis about what’s fundamental brings a commitment to say how the generation goes: how, at least in outline,

are various specific phenomena generated from the hypothesised fundamentalia? This commitment constitutes a non-terminological departure from the Quinean paradigm.

Alongside Fundamental Ontology, we have a corresponding answer to the Commitment Question:

Fundamental Commitment The ontological commitments of a proposition are whatever fundamentalia are needed to generate its truth.

How to address this question? One option follows the strategy of the previous section. First, switch focus from propositions to sentences of a language containing vocabulary for fundamentality and generation. Second, investigate what the predicate “is fundamental” needs to apply to for the sentences to be true.

On this approach, only sentences explicitly mentioning fundamentality possess ontological commitment. But since the non-fundamental is all generated from the fundamental, even sentences not mentioning fundamentality should be committed to the fundamentalia needed to generate their truth. Moreover, those fundamentalia may be very different from anything mentioned explicitly in the sentence. A different approach is therefore needed.

The only obvious candidate is the usual method of metaphysical theorising. We formulate hypotheses about what’s fundamental and how it generates other phenomena. Then we investigate how those hypotheses cohere with our other views and compare against alternatives. The upshot is that Fundamental Commitment further entangles ontological commitment with metaphysics more generally: investigation of ontological commitment becomes a thoroughgoingly metaphysical investigation.

One natural concern is that this slides away from ontology the progressive research programme, towards ontology the swapping of hunches about what’s fundamental. Optimistically, the concern is alleviated by detailed and rigorous formulation and evaluation of hypotheses about how the fundamental generates all else. Pessimistically, we may as well investigate how many angels can dance on the head of a pin.

The Predicate Question is wide open under this paradigm. There is no consensus whether the best theoretical package includes ontological correlates of (at least some) predicates amongst the fundamentalia. Ontological commitment itself cannot provide independent guidance because ontological commitment has been subsumed under metaphysical theory-choice more generally.

That said, Fundamental Commitment makes positive answers to the Predicate Question dangerous because they readily induce Bradleyan regress. Suppose that ordinary predication propositions $R(a_1, \dots, a_n)$ are ontologically committed to properties. By Fundamental Commitment, properties are needed to generate the truth of those propositions. The precise method of generation is presumably that a_1, \dots, a_n instantiate the property of *being R*, i.e.:

Regression $R(a_1, \dots, a_n)$ is generated by $a_1 \dots a_n$ instantiating the relation *being R*, i.e. by $I_n(\textit{being R}, a_1, \dots, a_n)$.⁸

Now consider an arbitrary true predication proposition $F(a)$ and reason thus:

- (1) $F(a)$
- (2) $F(a)$ is generated by $I_1(\textit{being F}, a)$
- (3) $I_1(\textit{being F}, a)$ is generated by $I_2(\textit{being I}_1, \textit{being F}, a)$
- (4) $I_2(\textit{being I}_1, \textit{being F}, a)$ is generated by $I_3(\textit{being I}_2, \textit{being I}_1, \textit{being F}, a)$
- ⋮

This yields an infinite “descending” chain of generation:

$F(a)$ is generated by $I_1(\textit{being F}, a)$, which is generated by $I_2(\textit{being I}_1, \textit{being F}, a)$, which is generated by...

Later stages follow from their immediate predecessors by application of Regression. Fundamental Commitment and a positive answer to the Predicate Question jointly entail Regression, and thereby deliver infinite regress.

How should we respond to this regress? I can only indicate the most prominent options here. Firstly, adopt a negative answer to the Predicate Question. Secondly, restrict a positive answer to only certain privileged predications, excluding instantiation-propositions. Thirdly, simply accept infinite “descending” chains of generation. Fourthly, identify later stages with their predecessors and accept cyclical generation. For more on Bradleyan regresses see (Perovic 2017) and **Chs. XX, YY, this volume**.

⁸ We can omit truth here for the reason given in note 2.

5 Higher-Order

Our final departure from the Quinean paradigm rejects Quine's dogma that genuine (non-substitutional) quantification is always first-order quantification. In first-order languages, quantification is expressed by taking a sentence, replacing names with variables, and binding those variables with quantifiers; e.g. " $\neg Fa$ " yields only " $\exists x \neg Fx$ ". This is *first-order quantification*. In higher-order languages, other kinds of expressions can also be replaced by variables and bound by quantifiers; e.g. " $\neg Fa$ " yields " $\exists X \neg Xa$ ", " $\exists p \neg p$ ", " $\exists Y(Y(Fa))$ ", " $\exists Y \exists p(Yp)$ ", and " $\exists Y \exists X \exists x(Y(Xx))$ ". This is *higher-order quantification*.

Quine held that higher-order quantification must be understood in terms of first-order quantification; e.g. " $\exists X(Xa)$ " means something like " a is a member of some set" or " a instantiates some property". As is now widely recognised, there is little argumentative support for this dogma. We can instead permit variables of each syntactic category and quantifiers that bind them. This departure from the Quinean paradigm admits many primitive and irreducibly different forms of higher-order quantification.

There are strong metaphysical reasons to embrace this apparatus. For an example, consider Kripke's (1980: 99) thesis that metaphysical necessity is necessity in the highest degree: the necessity of higher degree than every other necessity. This thesis quantifies over necessities. Since necessity is usually expressed by a monadic sentential operator, Kripke's thesis is most naturally expressed using higher-order quantification into the position of such operators. For more on the metaphysical motivations and applications of higher-order quantification, see (Prior 1971; Williamson 2013; Jones 2018; Trueman 2021; Fritz & Jones forthcoming).

Let's assume for simplicity that higher-order quantifiers are linearly ordered: first-order, second-order, third-order, We then have an infinite series of answers to the Metaontological Question:

First-Order Metaontology What reality contains is what there (first-order) is.

Second-Order Metaontology What reality contains is what there (second-order) is.

⋮

Although one could in principle privilege just one of these as correctly answering the Metaontological Question, there is no need to do so. One may instead regard them as equally

good, non-competing ways of sharpening what “the” Ontological Question is about. That question is better conceived as an infinite series of Ontological Questions:

First-Order Ontology What (first-order) is there?

Second-Order Ontology What (second-order) is there?

⋮

This generalises and fragments ontology. Generalises, because ontology no longer concerns only the origin of this series, what there first-order is. Fragments, because there is no longer a single Ontological Question or a single notion of reality; there is instead an infinite series of primitive and irreducible notions of reality and corresponding Ontological Questions. Note however that the fragments are tightly interlinked, since higher-order entities apply via predication to lower-order entities; e.g. as in the view that $\exists X \exists y (Xy)$, or that $\exists Y \exists p (Yp)$.

Turning to ontological commitment, we have a series of notions matching our answers to the Metaontological Question:

First-Order Propositional Commitment The first-order ontological commitments of a proposition are what there first-order needs to be for the proposition to be true.

Second-Order Propositional Commitment The second-order ontological commitments of a proposition are what there second-order needs to be for the proposition to be true.

⋮

Likewise for sentential commitment:

First-Order Sentential Commitment The first-order ontological commitments of a sentence are what the first-order domain needs to contain for the sentence to be true.

Second-Order Propositional Commitment The second-order ontological commitments of a sentence are what the second-order domain needs to contain for the sentence to be true.

⋮

As in the Quinean paradigm, each of these can be made precise in several ways and a background theory of domains and truth is required. The Quinean paradigm's complex relationship between propositional and sentential commitment, and the entanglement between ontological commitment and metaphysics more generally (especially propositional identity) also carries over to this paradigm.

Let's turn to the Predicate Question. This also becomes an infinite series of questions, concerning whether predicates are a distinctive source of first-order commitment, or second-order commitment, and so on. The first-order case plays out as under the Quinean paradigm. The second-order case goes differently. According to standard semantic theories for second-order languages, the truth of a predication " Fa " requires " F " to denote an entity in the second-order domain, although this entity need not be in any other domain. The corresponding Predicate Question therefore receives a positive answer: predicates are a distinctive source of second-order ontological commitment, although not of any other order of commitment.

The point generalises. The predicates of first-order languages are only the first order of predicate. Their distinctive feature is that they take names in their argument positions. The distinctive feature of *second-order predicates* is that they take first-order predicates in their argument positions. More generally, the distinctive feature of n -order predicates is that they take $(n-1)$ -order predicates in their argument positions (counting names as 0-order predicates). And n -order quantification is quantification into the syntactic position of $(n-1)$ -order predicates.

Let " F " be an n -order predicate and " a " be an $(n-1)$ -order predicate. According to standard semantic theories for n -order quantification, the truth of " Fa " requires " F " to denote an entity in the domain of $(n+1)$ -order quantification, although this entity need not be in any other domain. The answers to the many different Predicate Questions can therefore be summed up as follows:

Higher-Order Commitment n -order predicates are a distinctive source of $(n+1)$ -order ontological commitment, but not of any other order of ontological commitment.

Many disambiguations of the Predicate Question thereby receive a positive answer while many other disambiguations receive a negative answer. Higher-Order Commitment systematically predicts which disambiguations receive which answers. The higher-order generalisation of the Quinean paradigm is thus congenial to realism about properties.

Let me close with an objection to this argument for Higher-Order Commitment, drawing on (Skiba 2021). I'll focus on second-order quantification as representative of higher-order quantification more generally.

I said that standard semantic theories for second-order quantification have the following feature: for " Fa " to be true, " F " must have a denotation in the domain of second-order quantification (where " F " is a first-order predicate). This ensures that inferences of the following form preserve truth:

(B) Fa ; therefore $\exists X(Xa)$

(B) is a second-order counterpart of the following form of inference employing first-order quantification:

(A) Fa ; therefore $\exists x(Fx)$

Standard semantic theories for first-order quantification require that names denote entities in the domain of first-order quantification. This ensures that inferences of form (A) preserve truth.

Now, there are systems of free first-order logic in which (A) does not always preserve truth. The view that (A) always preserves truth is a substantive logico-semantic-metaphysical hypothesis, a hypothesis that might be false. Likewise, there are systems of free second-order logic in which (B) does not always preserve truth. The view that (B) always preserves truth is a substantive logico-semantic-metaphysical hypothesis. And that hypothesis too might be false. If the first hypothesis is false, names are not always a distinctive source of first-order ontological commitment. And if the second hypothesis is false, predicates are not always a distinctive source of second-order ontological commitment. The premise of (A)/(B) may then be true without the first-/second-order domain containing an ontological correlate of name " a "/predicate " F ". One might conclude that the higher-order paradigm does not guarantee any positive answer to the Predicate Question; only certain specific versions of the paradigm have that guarantee.

The parallel between names and predicates is instructive here. Free logic shows how names might not always generate ontological commitment. It does not follow that names never generate commitment. Although some names might lack denotation, it is not plausible that they all do. Denotationless names are the defective case, which do not connect with

reality as properly functioning names do. Higher-order metaphysicians will naturally take this same view about predicates: although some might lack second-order denotation, they are the defective case which do not connect with reality as properly functioning names do. Predicates are then typically but not universally a distinctive source of higher-order ontological commitment, just as are names for first-order ontological commitment.⁹

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