

Peter Van Inwagen, Substitutional Quantification, and Ontological Commitment

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SUMMARY

Peter van Inwagen has long claimed that he doesn't understand substitutional quantification and that the notion is, in fact, meaningless. Van Inwagen identifies the source of his bewilderment as an inability to understand the proposition expressed by a simple sentence like " $(\sum x) (x \text{ is a dog})$," where " \sum " is the existential quantifier understood substitutionally. I should think that the proposition expressed by this sentence is the same as that expressed by " $(\exists x) (x \text{ is a dog})$." So what's the problem? The problem, I suggest, is that van Inwagen takes traditional existential quantification to be ontologically committing and substitutional quantification to be ontologically non-committing, which requires that the two quantifiers have different meanings—but no different meaning for the substitutional quantifier is forthcoming. What van Inwagen fails to appreciate is that substitutional quantification is directed at a criterion of ontological commitment, viz., W. V. O. Quine's, which is quite different from van Inwagen's criterion. Substitutional quantification successfully avoids the commitments Quine's criterion would engender but has the same commitments as existential quantification given van Inwagen's criterion. The question, then, is whether the existential quantifier is ontologically committing, as van Inwagen believes. The answer to that question will depend on whether the ordinary language "there is/are," which is codified by the existential quantifier, is ontologically committing. There are good reasons to doubt that it is.

PETER VAN INWAGEN, SUBSTITUTIONAL QUANTIFICATION, AND ONTOLOGICAL COMMITMENT

We take it for granted that if a notion is meaningful, then an intelligent and informed philosopher will be able to make sense of it. So when a gifted philosopher informs us that after due reflection, he "doesn't understand" a certain notion, that is taken as a pretty damning criticism, a polite way of saying that that notion is unintelligible. Nearly thirty years ago, Peter van Inwagen asserted that he doesn't understand substitutional quantification, and as recently as 2004 in an article written in defense of platonism about abstract objects, he has reiterated his stance, referencing that earlier essay. [1] No shrinking violet, van Inwagen does not leave it to others to draw the inference: Substitutional quantification "is meaningless." [2]

I.

Now the notion of substitutional quantification in distinction from objectual or referential quantification seems clear enough: rather than construe the variables bound by the quantifier as ranging over a

domain of objects, we take the variables as dummy letters which may be replaced by linguistic expressions in order to form sentences. A universally quantified statement is true just in case the substitution of any term for the variable in the open sentence following the quantifier yields a true sentence. An existentially quantified statement is true just in case the substitution of at least one term for the variable in the open sentence following the quantifier yields a true sentence.

So what is it that van Inwagen finds puzzling? Simply this: Letting “ \sum ” represent the existential (or particular) substitutional quantifier in contrast to the objectual quantifier “ \exists ” (van Inwagen thinks that we should speak of two different quantifiers rather than two interpretations of one quantifier), van Inwagen says that he cannot understand a sentence like

S. ($\sum x$) (x is a dog).

He says that he cannot understand it because he does not know what proposition (S) expresses.

Van Inwagen’s bewilderment makes it at once evident that his difficulty is not with the operation of substitutional quantification but rather with the meaning of the substitutional quantifier. He understands how to substitute a name like “Fido” for x so as to obtain the singular proposition expressed by the sentence “Fido is a dog.” He understands the meaning of that sentence. He understands that if it is true that Fido is a dog, then the proposition expressed by (S) is true. What he cannot understand is the meaning of (S), since he cannot understand what proposition it expresses.

Van Inwagen’s bewilderment strikes me as odd. [3] I should have thought that (S) means exactly what it means when the quantifier is understood objectually. The general proposition expressed by (S) can be variously expressed in ordinary English: “There is a dog,” “Something is a dog,” *etc.* There is no reason to think that the sentence’s meaning changes with the interpretation (or switching) of the quantifier. [4] In that sense it may, indeed, be misleading to speak of different *interpretations* of the quantifier, as though the substitutional quantifier had a different meaning than the objectual.

At most, objectually and substitutionally quantified sentences might be justifiably said to differ, not in their meaning, but in their truth conditions. Although some philosophers have identified the meaning and truth conditions of a sentence or taken synonymy to be at least a sufficient condition of identity of truth conditions of two sentences, the lesson of sentences involving indexical expressions teaches us otherwise. The sentence “I wish you were here” uttered by different persons at different places has the same linguistic meaning but involves different referents on different occasions of use and therefore different truth conditions. Thus, the statements expressing the truth conditions for “I wish you were here” on two different occasions may be non-synonymous even though the sentence has a single meaning. Thus, diversity of truth conditions does not translate into diversity of meaning of the target sentences. To give a different example, “Grass is green” is true if and only if grass is green or,

alternatively, if and only if God believes that grass is green, in which case the statements serving as the sentence's truth conditions diverge in meaning even though "Grass is green" has a univocal meaning. Hence, it is not the case that diverse truth conditions entail diverse meanings of the sentence of which they are the conditions.

The difference between objectual and substitutional quantification need not be thought to lie in the meaning of the quantifier but in the way conditions are specified for the quantified statement's truth. Only on the objectual interpretation must there be a (non-empty) domain of objects over which the bound variables range. The substitutional interpretation lays down truth conditions which are ontologically neutral with respect to what the sentence is about. The objectual interpretation therefore arguably often gives the wrong truth conditions of quantified sentences, at least of those susceptible to substitutional analysis: it is not the case that a sentence is true *only if* the domain of the quantifier includes an object which is the value of the bound variable. [5] As a result, a quantified sentence which is true when understood substitutionally may be false when construed objectually, not because of any lack of synonymy but because the objectual interpretation yields the wrong truth conditions. So, for example, a sentence like "There are gods in the Babylonian pantheon who have no counterparts in the Greek pantheon" has the same linguistic meaning under either interpretation but is plausibly true given a substitutional semantics though false given an objectual semantics. The objectual semantics in this case gives the wrong truth conditions.

So whether the quantifier is construed as objectual or as substitutional, there should be no difficulty so far forth in understanding the meaning of an existentially quantified sentence. For the sentence's meaning does not change with the quantifier, but at most there is a change of its truth conditions. If one understands "There is a dog," he should also understand (S).

II.

So, then, if "There is a dog" has the same meaning even when supplied different truth conditions by objectual and substitutional quantification, what's the problem supposed to be, in van Inwagen's thinking, with substitutional quantification? Why does he fail to understand it? The problem, I think, is that van Inwagen believes that in order to avoid the ontological commitments attending the use of the objectual quantifier, the substitutional quantifier must have a different meaning. Otherwise (S) has the same ontological commitments as " $(\exists x) (x \text{ is a dog})$," which van Inwagen takes to commit us to the existence of a dog.

That van Inwagen takes substitutional quantification to avoid the ontological commitments of objectual quantification is evident from his admission, with respect to his platonistic argument for the existence of properties based on the truth of general sentences quantifying over properties, that "My argument fails if

there is such a thing as substitutional quantification.” [7] If proponents of substitutional quantification thought that persons asserting sentences featuring the existential substitutional quantifier were ontologically committed, for example, to the objects designated by the singular terms substituted for the bound variables, then van Inwagen’s platonistic argument for properties would go through unfazed and he would presumably have no problem understanding such sentences. It is because he thinks the sentences featuring different quantifiers have different ontological commitments that he believes the substitutional quantifier must have a different meaning than the classical existential quantifier. So he asserts,

Substitutional quantification is meaningless unless it is a kind of shorthand for objectual quantification over linguistic items, taken together with some semantic predicates like ‘x is true’ or ‘something satisfies z’. But substitutional quantification, so understood, is of no use to the nominalist; for, so understood, every existential substitutional quantification implies the existence of linguistic items (words and sentences) and those are abstract objects. [8]

In his earlier piece van Inwagen observed that the proponents of substitutional quantification do not themselves understand substitutionally quantified sentences to be asserting the existence of linguistic items. Here in the context of his anti-nominalist argument for properties as abstract objects he modifies the objection by adding that if we do take the substitutional quantifier to range over a domain of linguistic items, then it implies the reality of abstract objects, presumably word and sentence types, so that platonism is vindicated after all. So the source of van Inwagen’s bewilderment is that he cannot see how (S) can fail, under any acceptable understanding, to be committed to the existence of a dog.

But it is no part of substitutional quantification that an assertion of (S) under normal conditions does not ontologically commit its user to the existence of a dog. Whether “there is/are” is being used to make an ontological commitment plausibly depends upon the conditions of use in a particular case. The source of van Inwagen’s difficulty in making sense of substitutional quantification, it seems to me, is that he taxes substitutional quantification with a task it was never intended to address, namely, avoiding all ontological commitments by means of “there is/are.”

In fact, substitutional quantification was only intended to avoid and, indeed, succeeds in avoiding the ontological commitments engendered by W. V. Quine’s original criterion of ontological commitment, which has over time morphed into a quite different criterion passing as Quine’s. [9] Ironically, on Quine’s original criterion of ontological commitment, (S), *even if the quantifier is understood objectually*, does not, as Quine recognized, commit us to the existence of a dog because no specific dog must exist in order for (S) to be true.

A criterion of ontological commitment with such slim results as Quine’s may not seem worthy of the

name. For that reason various philosophers have sought to formulate criteria of ontological commitment with more fulsome yields than those of Quine's original criterion. Perhaps most influential of these is Alonzo Church's proposed criterion. Church's formulation of the criterion involves the following schema:

The assertion of $(\exists x) (M)$ carries ontological commitment to entities x such that M ,

where " x " may be replaced by any variable, " x " may be replaced by the name of that variable, " M " may be replaced by any open sentence containing only that variable, and " M " may be replaced by any name of that sentence. Church's criterion associates ontological commitment with the existential quantifier rather than with bound variables. He wrote, ". . . philosophers who speak of 'existence,' 'reality,' and the like are to be understood as meaning the existential quantifier. . . ." [10] Today much of what passes as Quine's criterion of ontological commitment is actually Church's.

It is evident that van Inwagen, although ascribing to his metaontology a Quinean provenance, [11] in fact presupposes a criterion of ontological commitment more like Church's. For he simply takes his stand doggedly on the meaning of "there is/are" in English as carrying ontological commitment, if not susceptible to being paraphrased away. [12] In an ontological dispute, he advises,

The parties to such a dispute should examine, or be willing in principle to examine, the ontological implications of *everything they want to affirm*. And this examination should consist in various attempts to render the things they want to affirm into the quantifier-variable idiom (in sufficient depth that all the inferences they want to make from the things they want to affirm are logically valid). The 'ontological implications' of the things they affirm will be precisely the class of closed sentences starting with an existential-quantifier phrase (whose scope is the remainder of the sentence) that are logical consequences of the renderings into the quantifier-variable idiom of those things they want to affirm. Parties to the dispute who are unwilling to accept some ontological implication of a rendering of some thesis they have affirmed into the quantifier-variable idiom must find some other way of rendering that thesis into the quantifier-variable idiom (must find a paraphrase) that they are willing to accept and which does not have the unwanted implication. [13]

Van Inwagen is convinced that existentially quantified statements about abstract entities cannot be paraphrased away, and therefore in virtue of the meaning of "there is/are," which the existential quantifier codifies, we are ontologically committed to such entities.

Substitutional quantification was never intended to address Church's sort of criterion. Indeed, Church's criterion actually appears to assume substitutional quantification! For he speaks, not of domains of objects over which one's quantifier ranges, but of open sentences and of replacing " x " with variables. In this sense, van Inwagen's estimation of the incompatibility of substitutional quantification with his own

argument for properties is mistaken. For van Inwagen's argument does not depend on whether there is domain of objects over which the quantifier ranges but rather simply on the meaning of "there is/are." [14]

Because van Inwagen is looking to substitutional quantification to do a task it was never intended to fulfill, he is led to conclude that he cannot understand substitutional quantification and that it is, therefore, meaningless.

III.

Whether Church's criterion of ontological commitment can bear the weight van Inwagen reposes on it is going to depend on whether the ordinary language expression "there is/are" carries the alleged ontological commitments. I think it highly dubious that it does. Consider Thomas Hofweber's list of some of the things we ordinarily say there are:

- something that we have in common
- infinitely many primes
- something that we both believe
- the common illusion that one is smarter than one's average colleague
- a way you smile
- a lack of compassion in the world
- the way the world is
- several ways the world might have been
- a faster way to get to Berkeley from Stanford than going through San Jose
- the hope that this dissertation will shed some light on ontology
- the chance that it might not
- a reason why it might not [15]

All van Inwagen really offers for thinking that we are ontologically committed by the existential quantifier is the synonymy in ordinary language of "there is/are" and "there exist(s)." Synonymy is really beside the point, however, for it is indisputable that ordinary language is very loose in its use of both these expressions, so that neither expression is always ontologically committing in ordinary language. [16]

If, as seems plausible, we do not take the “there is/are” of ordinary language as *ipso facto* ontologically committing, then the fact that “In the end one can avoid quantifying over properties only by quantifying over other sorts of abstract object” [17] is just irrelevant. There is no need to paraphrase away any ontological commitments which the platonist would take to attend true sentences represented formally as existential quantifications.

IV.

In summary, I think that it is likely that the reason van Inwagen doesn’t understand substitutional quantification is because he takes it to subvert a criterion of ontological commitment that is quite different from the criterion which it is meant to address. He cannot understand how ontological commitment is to be avoided if the existential quantifier simply means “there is/are.” Since substitutional quantification is intended to avoid ontological commitments, he assumes that the substitutional quantifier must therefore have a different meaning than the ordinary language locution. Since no such meaning is forthcoming, he concludes that substitutional quantification is literally meaningless.

In truth, substitutional quantification is intended to subvert a criterion of ontological commitment that appeals to a domain of objects which is constitutive of one’s ontology. Eschewing such a domain, substitutional quantification adroitly avoids any ontological commitments thought to issue from such a criterion. But Church’s criterion, which van Inwagen seems to presuppose, does not depend on a domain of objects but locates ontological commitment in the meaning of the existential quantifier. Given such a criterion we could find ourselves ontologically committed to certain entities despite our use of substitutional quantification. With respect to this criterion the question shifts away from objectual vs. substitutional quantification to the ontological import conveyed by the ordinary language “there is/are.” The data of ordinary usage suggest that such locutions are not inherently ontologically committing but become so only in certain circumstances. [18]

Footnotes

[1]

Peter van Inwagen, “Why I Don’t Understand Substitutional Quantification,” *Philosophical Studies* 39 (1981): 281-5; Peter van Inwagen, “A Theory of Properties,” in *Oxford Studies in Metaphysics*, vol. 1, ed. Dean Zimmerman (Oxford: Clarendon Press, 2004), pp. 107-38.

[2]

Van Inwagen, “Theory of Properties,” p. 124; *cf.* his assertion: “neither I nor anyone else understands substitutional quantification” (Van Inwagen, “Why I Don’t Understand Substitutional Quantification,” p.

285).

[3]

In fairness to van Inwagen, it must be admitted that some of the early expositions of substitutional quantification (e.g., Ruth Barcan Marcus, "Modalities and Intensional Languages," *Synthese* 13 [1961]: 303-22; idem, "Interpreting Quantification," *Inquiry* 5 [1962]: 252-9) certainly did seem to attribute a different meaning to the substitutional quantifier. But as van Inwagen himself notes, advocates of substitutional quantification did not persist in this mistake. See J. Michael Dunn and Nuel D. Belnap, Jr., "The Substitution Interpretation of the Quantifiers," *Noûs* 2 (1968): 177-185.

[4]

--unless one treats "there is" in an ontologically inflationary way that is not faithful to ordinary language, which determines the meaning of the quantifier of formal logic. See §III. below. I say "interpretation (or switching)" in order to accommodate van Inwagen's view that when one moves from objectual to substitutional quantification, one is not changing interpretations but replacing one quantifier with another quantifier. In either case, for reasons explained in the text, I see no grounds for thinking that the change involved is a change of *meaning*. Indeed, "switching quantifiers" rather than "changing interpretations" is less apt to suggest that it is a change of meaning which is involved.

[5]

But see Jody Azzouni, *Deflating Existential Consequence: A Case for Nominalism* (Oxford: Oxford University Press, 2004), pp. 54-7. Azzouni contends that this line of reasoning contains the crucial and unnoticed presupposition that the metalanguage in which the semantics for the object language is couched is itself one whose quantifiers carry ontological commitment. Without that presupposition, metalinguistic talk of objects in a domain no more commits us to anything real than does the original object language assertion. He thinks that the lesson to be learned from substitutional quantification is that a semantics for quantificational discourse need not involve commitment to any objects at all. "If we insist on interpreting the *metalanguage* quantifiers as carrying ontic commitment, then of course, objects are involved by virtue of that interpretation. But there is nothing in objectual semantics *per se* that requires such an ontic interpretation" (Jody Azzouni, "Ontological Commitment in the Vernacular," *Noûs* 41 [2007]: 222). The debate on the level of the object language quantifiers thus replays itself on the metalevel, and the neutralist sees no reason to take the metalanguage quantifiers, any more than the object language quantifiers, as carrying ontological commitments.

[6]

This isn't to suggest that knowing a sentence's truth conditions suffices for understanding its meaning. The example, once more, of sentences containing indexical words shows that mere knowledge of a sentence's truth conditions will not suffice for understanding the meaning of the sentence, since sentences with different indexical terms may have the same truth conditions but quite different meanings. Some sort of linguistic knowledge will be necessary as well. Someone who is not an English speaker may not understand (S), but the fault in that case does not lie with substitutional quantification, which is the subject of this note.

[\[7\]](#)

Van Inwagen, "Theory of Properties," p. 123.

[\[8\]](#)

Ibid., p. 124.

[\[9\]](#)

Quine's Criterion of Ontological Commitment is widely misunderstood by contemporary philosophers. See W. V. O. Quine, "Replies," in *Words and Objections: Essays on the Work of W. V. Quine*, ed. Donald Davidson and Jaakko Hintikka (Dordrecht; D. Reidel, 1969), p. 315, in response to Jaakko Hintikka, "Behavioral Criteria of Radical Translation," in *Words and Objections*, p. 79; see further W. V. Quine, "Existence and Quantification," in *Ontological Relativity and Other Essays* (New York: Columbia University Press, 1969), pp. 94-6. Van Inwagen's argument for properties in "A Theory of Properties" would fail on Quine's Criterion, since his illustrative sentence "There are anatomical features that insects have and spiders also have," does not commit one to the existence of anatomical features, since there is no feature that must exist in order for that sentence to be true. Quine's distinction between the ontology of a theory and the ontological commitments of a theory prompts several searching questions on Chihara's part (Charles S. Chihara, *Ontology and the Vicious Circle Principle* [Ithaca, N.Y.: Cornell University Press, 1973], pp. 96-7).

[\[10\]](#)

Alonzo Church, "Ontological Commitment," *Journal of Philosophy* 55 (1958): 1014.

[\[11\]](#)

Peter van Inwagen, "Metaontology," in *Ontology, Identity, and Modality*, Cambridge Studies in Philosophy (Cambridge: Cambridge University Press, 2001), p. 28; Peter van Inwagen, "Being, Existence, and Ontological Commitment," in *Metametaphysics: New Essays on the Foundations of*

Ontology, ed. David Chalmers, David Manley, and Ryan Wasserman (Oxford: Clarendon, 2009), p. 506; Peter van Inwagen, "God and Other Uncreated Things," in *Metaphysics and God*, ed. Kevin Timpe (London: Routledge, 2009), p. 19.

[12]

He says, "The meaning of the quantifiers is given by the phrases of English. . . that they abbreviate. The existential quantifier therefore expresses the sense of 'there is' in ordinary English" (Peter van Inwagen, "Quantification and Fictional Discourse," in *Empty Names, Fiction, and the Puzzles of Non-Existence*, ed. Anthony Everett and Thomas Hofweber [Stanford: Center for the Study of Language and Information, 2000], p. 239; cf. idem, "Being, Existence, and Ontological Commitment," p. 492). The symbol " \exists " is mere shorthand for a phrase like "it is true of at least one thing that it is such that" and that the variables of quantification are nothing more than typographically distinct third person singular pronouns. ". . . there is no difference in meaning between 'It is true of at least one thing that it is such that it is an anatomical feature and insects have it and spiders also have it' and '\$x\$ is an anatomical feature and insects have \$x\$ and spiders also have \$x\$'" (Van Inwagen, "Theory of Properties," p. 115). He observes that it follows from this proposition that there are anatomical features--period.

[13]

Van Inwagen, "Being, Existence, and Ontological Commitment," p. 506.

[14]

See *ibid.*, p. 498, where he says that a domain of quantification is not an essential part of an understanding of quantification.

[15]

Thomas Hofweber, "Ontology and Objectivity" (Ph.D. dissertation, Stanford University, 1999), pp. 1-2. For a nice statement of this point along with a persuasive critique of what he calls the "quantification argument" see Gerald Vision, "Reference and the Ghost of Parmenides," in *Non-Existence and Predication*, ed. Rudolf Haller, Grazer Philosophische Studien 25-26 (Amsterdam: Rodopi, 1986), pp. 297-36. We say there are, *e.g.*, shades of grey, differences in height, angles from which something can be seen, principles, hostilities, prospects for success, primes between 2 and 12, hours before dawn, dangerous excesses, drawbacks to the plan, *etc.*

[16]

It is worth noting, in view of van Inwagen's insistence that "existence" is not only synonymous with

“being” but univocal as well (see, e.g., “Being, Existence, and Ontological Commitment,” pp. 482-92), that the non-committing character of “there is/are” and “there exists” in ordinary language is not due to a lack of univocity of meaning of such expressions, as though there were one meaning which is ontologically committing and another which is not. Rather, as Azzouni emphasizes, these expressions in the vernacular just do not force ontological commitments (Azzouni, “Ontological Commitment in the Vernacular,” pp. 204-226). On Azzouni’s view ontological commitment is person-relative and context-dependent; hence, “there are *no* words or phrases in the vernacular that—in virtue of their standard usage—convey ontic commitment” (Idem, “Ontology and the Word ‘Exist’: Uneasy Relations,” *Philosophia Mathematica* 18 [2010]: 81-2). Hence, van Inwagen’s arguments in his *Metaphysics*, 3d ed. (Boulder, Col.: Westview Press, 2009), chap. 13, about the intimate connection between existence statements and number statements (e.g., to say that *Fs* exist is to say that the number of *Fs* is not zero) are unavailing, since number statements in the vernacular are also ontologically non-committing, whether of the form, e.g., “He had one goal in mind” or “The number of obstacles to success remains three.” *N.B.* that if van Inwagen is right that to say that “Horses exist” is to say that “The number of horses is one or more,” and that this is ontologically committing, then we are committed not only to horses by such a statement but also to numbers, a bizarre consequence. I presume that he would paraphrase away such a commitment by saying that there is at least one horse; but then we are back again to using “there is.” Moreover, the intimate connection between existence statements and number statements may hold for statements involving count nouns, but it is hard to see its applicability to statements like “Water exists,” “John exists,” “Bad weather exists,” “Intemperance exists,” *etc.*

[\[17\]](#)

Van Inwagen’s summarizing conclusion in “Theory of Properties,” p. 121.

[\[18\]](#)

I am grateful to Peter van Inwagen for interaction on the issues raised in this paper and to anonymous referees for helpful comments.