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Quine on Paraphrase and Regimentation

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1. Introduction

The "ontological problem," as posed by Quine, is the problem of answering the question: "What is there?" (Quine 1948, 21). An apparently more tractable question is: "What objects am I committed to?" One might set out to answer the second question by simply writing a list: Horses? Yes. Buildings? Yes. Ghosts? No. This method, besides being cumbersome, isn't especially reliable. Just as your behavior can reveal that you suffer from unacknowledged apiphobia, your assent to sentences that entail the existence of unlisted F's can reveal your commitment to F's. Quine holds that the ontological commitments of a theory are those objects that must be among the values of its bound variables if the theory is to be true, and he holds that a person's ontological commitments are those of the regimented theory that he or she accepts.

The paper proceeds as follows. Section 2 discusses issues related to regimentation and synonymy. Section 3 takes up the Quinean story about how one should regiment. Section 4 examines some potential conflicts between the Quinean indeterminacy theses and regimentation. Section 5 presents some questions for the Quinean picture of regimentation. Finally, section 6 contains our concluding remarks.

Three caveats before we proceed. First, regimentation is partly motivated by the desire to uncover ontological commitment. We will proceed as though the dyadic predicate "is committed to" is clear and unproblematic, and we will focus only on the commitments of theories (we will treat agent commitments as derivative). However, it is worth noting that there is a great deal of controversy

over how to understand ontological commitment. Parsons (1970) argues that there are several distinct Quinean notions of ontological commitment. Cartwright (1954), Scheffler and Chomsky (1958), and Jubien (1972) argue that the object position of "is committed to" must be construed non-extensionally, which is antithetical to Quine's extensionalist program.[1]

Second, we follow Parsons in recognizing a distinction between a theory's ontological commitments and its ontology. The former concerns what sorts of things a theory says there are, the latter concerns the actual objects comprising the range of the theory's variables (if there are any such objects)(cf. Parsons 1970, 66). We will be dealing with regimentation, which primarily concerns the ontological commitments of a theory rather than its ontology. These issues, however, largely fall beyond the scope of this paper.

Third, Quine's corpus is vast and was produced over the course of many years. Our goal isn't to examine the many and subtle changes in his views, or to present their development. We aim to offer a discussion of Quine's notion of regimentation and its interaction with some other aspects of his view. As such we will freely pick and choose excerpts from Quine's oeuvre.

2. Regimentation and Synonymy

Few would balk at a sufficiently watered-down version of the Quinean claims about regimentation. Many philosophers are attracted to the idea that belief in the truth of a sentence that quantifies over Fs is a sufficient condition for ontological commitment to Fs.[2] Furthermore, twentieth-century analytic philosophers have generally agreed that we need the resources of formal languages to render clear aspects of meaning and reference that are obscured in natural language.

One way to pursue this idea is as follows: Take a sentence that you hold true. Using whatever methods of semantic analysis you think best, translate it into a sentence of some formal, logically transparent language, and then read off its commitments. One succeeds at regimenting the sentence only if the resulting sentence is synonymous with the original. Such a criterion is not especially foreign or strange. It seems eminently natural to argue as follows:

> You believe that sentence S is true. Using our best semantic methods we determined that S translates as S'. S' clearly commits one to Fs. Therefore, you are committed to F's in virtue of believing S *because* S and S' are synonymous.

After all, if S and S' are not synonymous, it is hard to see why the commitments of S' should, as a rule, reveal to us the commitments of S (commitments of S'

be damned!). For ease of exposition, we will call approaches to regimentation that require synonymy (variants of) the "natural approach."

Natural language makes it difficult to carry out the natural approach. Natural language is notorious for obscuring features often taken to be crucial for determining meaning. Its logical structure is hard to divine. It's rife with ambiguity. Its meaningful parts are often not easily separable into distinct morphemes, and often such parts receive no articulation. In short, its semantics is difficult to determine. For example, it's tempting to think that the best semantic analysis of a sentence requires assigning a referent to any name occurring in the sentence. But this has the consequence that assent to (or denial of) (1) commits us to the existence of Pegasus:

(1)   Pegasus is a horse.

In fact, we seem similarly committed by (2).

(2)   Pegasus is not.

(2) is particularly troubling since it is apparently true and uttering it seems to be a straightforward way to disavow commitment to the existence of Pegasus.[3] Quine explains:

> The common man's ontology is vague and untidy in two ways. It takes in many purported objects that are vaguely or inadequately defined. But also, what is more significant, it is vague in its scope; we cannot even tell in general which of these vague things to ascribe to a man's ontology at all, which things to count him as assuming. Should we regard grammar as decisive? Does every noun demand some array of *denotata*? Surely not; the nominalizing of verbs is often a mere stylistic variation. But where can we draw the line? (Quine 1981, 9)

Empty names aren't the only source of our grief. Presumably, one can assent to (3) without thereby taking on a commitment to buckets:

(3)   Joe kicked the bucket.

And we may reckon (4) true without thinking that there are whereabouts:

(4)   John's whereabouts are unknown.

There are still other examples where natural language makes things difficult. Here are a few:

(5)   Every man loves a woman.
(6)   John found a bat.
(7)   John is very short.

(5) is syntactically ambiguous. (6) is ambiguous between a baseball and chi-ropteran reading. And (7) is vague and context sensitive.

These are not obviously insurmountable problems for the natural approach – we just have to be more sophisticated about how we handle the semantics of sentences and idioms in carrying out our translations, and we need to take stands regarding the sorts of objects that our ontology will contain.

The natural approach, however, is at direct odds with Quine's. Quine does indeed propose that we regiment in order to assess our commitments, but his method is not one of compositional semantics or replacement of linguistic constructions with synonymous counterparts. On Quine's view, it isn't the case that paraphrase reveals what an unparaphrased sentence "really" means. As Quine puts it:

> We do not claim synonymy. We do not claim to make clear and explicit what the users of the unclear expression had in mind all along. We do not expose hidden meanings, as the words 'analysis' and 'explication' would suggest; we supply lacks. We fix on the particular functions of the unclear expression that make it worth troubling about, and then devise a substitute, clear and couched in terms of our liking. (Quine 1960, 258)[4]

Quine has several reasons for rejecting synonymy as a desideratum of proper paraphrase. First, Quine has consistently maintained that traditional notions of synonymy are too unclear to underwrite any philosophically substantive thesis. Second, given similarities between paraphrastic enterprises and transla-tion, his indeterminacy theses seem to guarantee that, in many cases, several nonequivalent sentences can adequately regiment a problematic sentence. Quine's account of regimentation, then, must proceed absent any role for synonymy.

3. Regimentation à la Quine

3.1 The Language of Regimentation

So how should one regiment? Quine's answer is that we start by choosing a specialized language (or, more accurately, a specialized extension of the lan-guage that one understands) that will serve to express the regimented theory. With our purpose-selected language at hand, we aim to replace the problematic

sentences with counterparts capable of doing the work we would have had our unparaphrased sentences do. As Quine puts it:

> So we see that paraphrasing into logical symbols is after all not unlike what we all do every day in paraphrasing sentences to avoid ambiguity. The main difference apart from quantity of change is that the motive in the one case is communication while in the other it is application of logical theory . . . [The relation of a paraphrased sentence S to an unparaphrased counterpart S'] is just that the particular business that the speaker was on that occasion trying to get on with, with help of *S* among other things, can be managed well enough to suit him by using *S'* instead of *S*. We can even let him modify his purposes under the shift, if he pleases. Hence the importance of taking as the paradigmatic situation that in which the original speaker does his own paraphrasing, as laymen do in their routine dodging of ambiguities. (Quine 1960, 159–160)

For the purposes of determining ontological commitment, the semantic functions of the parts of this language should be transparent. Quine's preferred language is famously that of first-order logic.

We can discern three reasons for this preference. First, the language of first-order logic is extensional:

> Extensionality is much of the glory of predicate logic, and it is much of the glory of any science that can be grammatically embedded in predicate logic. I find extensionality necessary, indeed, though not sufficient, for my full understanding of a theory. In particular it is an affront to common sense to see a true sentence go false when a singular term in it is supplanted by another that names the same thing. What is true of a thing is true of it, surely under any name. (Quine 1995, 90)

Second, there are complete systems of proof for both validity and inconsistency for first-order logic:

> These reflections [on higher-order quantification] encourage the idea that our classical logic of quantification is arbitrarily restrictive. However, I shall now explain what I think to be a still weightier counter-consideration. The classical logic of quantification has a complete proof procedure for validity and a complete proof procedure for inconsistency . . . classical, unsupplemented quantification theory is on this score maximal: it is as far out as you can go and still have complete coverage of validity and inconsistency by the Skolem proof procedure . . . Classical quantification theory enjoys an extraordinary combination of depth and simplicity, beauty and utility. It is bright within and bold in its boundaries. (Quine 1969a, 111–113. Brackets added.)

Quine leaves no doubt that by his lights the completeness properties of first-order logic are great virtues.

There are extensional languages possessing greater expressive power than that of first-order logic. And there are logics that (Quine notwithstanding, perhaps) allow us to adequately model inferences that first-order logic does not, while admitting of complete procedures of proof. But, such languages, by Quine's lights, pay the price of importing much more in the way of ontological commitments.[5] This is Quine's third reason for favoring first-order logic: its built-in ontology is modest.

3.2 Some Examples

The second step is to put the chosen language to work and begin to regiment. We can illustrate the process by reconsidering in turn (1), (2), (3), and (4). Impressed by Russell's theory of descriptions, Quine advises the paraphrase of sentences such as (1) and (2) into counterparts involving, in place of "Pegasus," descriptions such as "the pegasizer" or, alternatively, adopting a predicative version of the name such as "pegasizes." As Quine puts it:

> Now what of 'Pegasus'? This being a word rather than a descriptive phrase, Russell's argument does not immediately apply to it. However, it can easily be made to apply. We have only to rephrase 'Pegasus' as a description, in any way that seems adequately to single out our idea; say, 'the winged horse that was captured by Bellerophon'. Substituting such a phrase for 'Pegasus', we can then proceed to analyze the statement 'Pegasus is', or 'Pegasus is not', precisely on the analogy of Russell's analysis of 'The author of *Waverley* is' and 'The author of *Waverley* is not'.
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> In order thus to subsume a one-word name or alleged name such as 'Pegasus' under Russell's theory of description, we must, of course, be able first to translate the word into a description. But this is no real restriction. If the notion of Pegasus had been so obscure or so basic a one that no pat translation into a descriptive phrase had offered itself along familiar lines, we could still have availed ourselves of the following artificial and trivial-seeming device: we could have appealed to the *ex hypothesi* unanalyzable, irreducible attribute of *being* Pegasus, adopting, for its expression, the verb 'is-Pegasus', or 'pegasizes'. The noun 'Pegasus' itself could then be treated as derivative, and identified after all with a description: 'the thing that is-Pegasus', 'the thing that pegasizes' . . . If in terms of pegasizing we can interpret the noun 'Pegasus' as a description subject to Russell's theory of descriptions, then we have disposed of the old notion that Pegasus cannot be said not to be without presupposing that in some sense Pegasus is. (Quine 1948, 27)[6]

Note Quine's usage of the phrase "made to apply." Quine is offering replacements for (1) and (2), not a semantic analysis of the word "Pegasus."

We have, thus, a success by Quine's lights: we can use our preferred language, stipulated to clarity, to do what we wanted to do with (1) and (2). We end up with:

(8) $(\exists x)[\text{Pegasizes}(x) \ \& \ (\forall y)(\text{Pegasizes}(y) \rightarrow x = y) \ \& \ \text{Horse}(x)]$

Or

(9) $\sim(\exists x)[\text{WingedHorse}(x) \ \& \ \text{CapturedByBellerophon}(x)] \ \& \ (\forall y)$
$[\text{Pegasizes}(y) \rightarrow (\text{WingedHorse}(y) \ \& \ \text{CapturedByBellerophon}(y))]$

(8) is false and (9) is presumably true but entails no commitment to a referent for "Pegasus." We are thus out of the jam we found ourselves in with (1) and (2). (3) and (4) can be loosely paraphrased as follows:

(10) Joe died.

and

(11) We don't know where Joe is.

No commitment to buckets; no commitment to whereabouts. Quine achieves his goals by means of paraphrase into a regimented extension of the original lexicon.

It is an interesting feature of Quine's conception of paraphrase into a regimented language that one can choose whatever constraints one likes in constructing paraphrases. Certainly *his* preferred collection of constraints involves syntactic and semantic constraints – no quantification into predicate position; metaphysical constraints – no intensional entities; epistemic constraints – only predicates that hold of entities with suitable individuation conditions; and methodological constraints – such as simplicity of theory. These, however, can be adopted or dismissed depending on one's predilections.

Another interesting feature is that, on the Quinean view, one doesn't merely clarify commitments that are antecedently implicit in a body of unregimented sentences – one often creates commitments by regimenting a theory. Quine tells us the set of natural language sentences that a person endorses does not carry a determinate ontology:

> A fenced ontology is just not implicit in ordinary language. The idea of a boundary between being and nonbeing is a philosophical idea, an idea of technical science in a broad sense . . . Ontological concern is not a correction of lay thought and practice; it is foreign to the lay culture, though an outgrowth of it.

We can draw explicit ontological lines when desired. We can regiment our notation, admitting only general and singular terms, singular and plural predication, truth functions, and the machinery of relative clauses; or, equivalently and more artificially, instead of plural predication and relative clauses we can admit quantification. Then it is that we can say that the objects assumed are the values of the variables, or of the pronouns. Various turns of phrase in ordinary language that seemed to invoke novel sorts of objects may disappear under such a regimentation. At other points new ontic commitments emerge. There is room for choice, and one chooses with a view to simplicity in one's overall system of the world. (Quine 1981, 9–10)

Quine is not denying that natural language constructions can be made to serve clear and unambiguous roles in a theory. Rather, the point is that one does not have a theory until one declares the kind of role that a term is to play and proceeds to regiment a body of sentences. We can say that, for the Quinean, all theories carry ontological commitments, but it is not the case that all sets of apparently assertoric sentences constitute theories.

3.3 Goals and Methodology

From a Quinean point of view, regimentation may aid theory improvement in a number of ways. By "theory improvement" we mean the process of constructing a body of theory that better realizes one's favored theoretical virtues.[7]

With regard to ontological commitment, we can divide the goals of Quinean regimentation into two broad kinds. The first is the goal of determining ontological commitment, the second is that of eliminating unwanted commitments.

Corresponding to each of these goals is a method, each describable in three steps:

Method 1
1. Identify a collection of sentences that you accept and that serves some important purposes.
2. Produce a new collection of sentences couched in your preferred notation (for Quine, first order logic with identity) such that this new collection allows you to get on with the aforementioned important purposes.
3. See what objects the newly minted regimented body of theory requires in order to be true.

Method 2
4. See what objects your theory requires in order to be true.
5. Identify a part of your theory that serves some important purposes, but that also appears to carry unfortunate commitments.

6. Produce (if possible) a new collection of sentences couched in your preferred notation (for Quine, first order logic with identity) such that this new collection allows you to get on with the aforementioned important purposes without the unfortunate commitments.

A few comments on the methods are in order.

First, the methods are heavily idealized. Given human limitations, regimentation cannot be accomplished all at once but is instead an ongoing activity. We can imagine cycling through these methods time and again in continual pursuit of theory improvement. Notice also, the final step of method 1 is the same as the first step of method 2, and the final step of method 2 provides material for the first step of method 1. Hence, rather than think of the methods as distinct, one might just as well take them to be stages of a single process. The reason for presenting two methods rather than one is to highlight that the process of Quinean regimentation naturally pauses at different points depending on the goals that are foremost in the mind of the regimenter.

Second, the selection of a new collection of sentences in step 2 is to be constrained by consideration of the virtue(s) mentioned above.

Third, the process of regimentation can be influenced at any time by the regimenter's experiences. It is not to be thought of as an activity removed from the constant need to fit one's experiences to one's theory and vice versa. It is part and parcel with doing science and producing theories that are to be regimented.

Fourth, the methods don't distinguish well between simply jettisoning a theory in favor of a new one and paradigmatic cases of regimentation, which involve producing a translation manual correlating the sentences of the two. The interesting cases for our purposes (and Quine's) are of the latter sort. The following considerations concern the latter, more restricted notion of regimentation.

Fifth, and perhaps most importantly, there remain a couple of themes in Quine's overall approach to regimentation that we want to discuss: these are the systematic usages of grammatical analysis and explication.[8] Grammatical analysis is the project of categorizing the vocabulary of a language and providing an analysis of the structure of its expressions. Without providing a grammatical analysis, it is hard to tell how one might go about paraphrasing away the apparent reference to Pegasus or diagnose the troubling aspects of propositional attitude reports and modal statements.[9] With a grammatical analysis, we can start to see how to systematically make changes to the language by identifying problematic constructions rather than just problematic individual sentences (such as (3) and (4)).

Explication is the systematic replacement of one construction for another, *salva* same important work. Quine writes:

> . . . explication is elimination. We have, to begin with, an expression or form of expression that is somehow troublesome. It behaves partly like a term but not enough so, or it is vague in ways that bother us, or it puts kinks in a theory or encourages one or another confusion. But also it serves certain purposes that are not to be abandoned. Then we find a way of accomplishing those same purposes through other channels, using other and less troublesome forms of expression. The old perplexities are resolved. (Quine 1960, 260)[10]

Quine's own example of involving ordered pairs is instructive (Quine 1960, 257).

The notion of ordered pair plays important roles throughout set theory, philosophy, and science. But Wiener showed that, despite the theoretical utility of this notion, there is no call to posit two distinct kinds of things: sets and ordered pairs (Wiener 1914).[11] For, our notion of ordered pair can be suitably defined, or explicated, in terms of unordered pairs. Quine considers this a paradigmatic case of explication in the service of regimentation.

3.4 Holism

Word and Object contains many examples of systematic regimentation of one syntactic structure into another (e.g., relative clauses, propositional attitude constructions, etc.). This seems to suggest the appropriateness of sentence-by-sentence regimentation. Quine, however, is a semantic holist – the theory as a whole is the primary unit of meaning.[12] For Quine, the implications are pretty clear: one can't regiment a single sentence and expect to leave the other sentences of the theory semantically unaltered. Quine is aware of this issue:

> Russell's concept of definition in use was . . . an advance over the impossible term-by-term empiricism of Locke and Hume. The statement, rather than the term, came with Russell to be recognized as the unit accountable to an empiricist critique. But what I am now urging is that even in taking the statement as unit we have drawn our grid too finely. The unit of empirical significance is the whole of science. (Quine 1951, 39)

Regimentation involves replacing theories with theories, not merely particular sentences with other sentences, even if this is difficult to achieve in practice. Only in the context of a theory can regimented sentences serve the purposes of regimentation.

Holism, then, prompts the question: how is it that we could regiment an entire theory at once? Explication as elimination provides an example of how this can be done. Such eliminations may reverberate throughout an entire theory and yet yield predictable outcomes. Still, in many cases, regimentation of a collection of sentences will be less well behaved. In such cases, presumably, one must simply regiment and see what happens.

4. Indeterminacy of Reference and of Translation

We turn now to Quine's indeterminacy theses and to their interaction with his views about regimentation.[13] The indeterminacy of reference thesis, also called the "inscrutability of reference", is that the extensions of the singular terms and predicates of a language are determinate only relative to a chosen manual of translation. The indeterminacy of translation thesis is that given two languages, it is possible to construct incompatible yet equally correct "manuals" for translating the sentences of one into sentences of the other and that the meanings of a language's sentences are determinate only relative to a chosen translation manual. A manual, for Quine, is a "recursive . . . definition of a translation relation together with a claim that it correlates sentences compatibly with the behavior of all concerned" (Quine 1992, 48).

We are characterizing both the indeterminacy of translation and the indeterminacy of reference in terms of translation manuals. That the indeterminacy of translation may be characterized in such a fashion is straightforwardly appreciable, that the indeterminacy of reference is to be characterized in this fashion, perhaps less so. Quine writes:

> Kindly readers have sought a technical distinction between my phrases 'inscrutability of reference' and 'ontological relativity' that was never clear in my own mind. But I can now say what ontological relativity is relative to . . . it is relative to a manual of translation. To say that 'gavagai' denotes rabbits is to opt for a manual of translation in which 'gavagai' is translated as 'rabbit', instead of opting for any of the alternative manuals. (Quine 1992, 51)

In his "Reply to Roth," Quine tells us that "ontological relativity" and "indeterminacy of reference" (there called "inscrutability of reference") name the same doctrine (Quine 1998a, 459).[14]

As Quine tells us, the indeterminacy of translation thesis has it that using any one of these incompatible manuals would yield perfectly adequate translations while alternating between any two might not "without issuing in incoherent sequences" (Quine 1992, 48).[15] Regimentation involves translation, so we

should ask how Quine can consistently maintain the indeterminacy theses and the claim that regimented theory determines ontological commitments. It is the task of this section to reconstruct a Quinean answer to this question. Note, however, that the indeterminacy theses are largely independent of the Quinean project of regimentation – one could well endorse either while rejecting the other.

4.1 Indeterminacy of Reference

If the indeterminacy of reference thesis is true, one might worry that it is fruitless to regiment as the process won't yield determinate ontological commitments. On one understanding of the thesis, this worry is ill-founded. Consider Quine's proxy-function argument for the indeterminacy of reference:

> A proxy function is any explicit one-to-one transformation, f, defined over the objects in our purported universe. By 'explicit' I mean that for any object x specified in an acceptable notation, we can specify fx. Suppose now we shift our ontology by reinterpreting each of our predicates as true rather of the correlates fx of the objects x that it had been true of. Thus, where 'Px' originally meant that x was a P, we interpret 'Px' as meaning that x is f of a P. Correspondingly for two-place predicates and higher . . . We leave all the sentences as they were, letter for letter, merely reinterpreting. The observation sentences remain associated with the same sensory stimulations as before and the logical interconnections remain intact. Yet the objects of the theory have been supplanted as drastically as you please. (Quine 1992, 32. Note omitted)

For Quine, the only constraints on the correctness of an interpretation, beyond those imparted by the theoretical virtues, are that it leave intact the sensory stimulations associated with a theory's observation sentences as well as the logical connections between sentences. These constraints are fairly weak, as the argument demonstrates. Quine concludes that reference is indeterminate. This, conclusion, however, still permits regimentation to yield determinate ontological commitments, since the argument proceeds from the supposition that we have a "purported universe" at hand to begin with. It is within this universe alone that the proxy function operates. To illustrate, say our theory contains two sentences: "There are pigs" and "There are cows." The proxy-function argument's conclusion entails that it is indeterminate whether "pigs" picks out pigs or cows. Either way, however, the theory is determinately committed to pigs and cows.[16]

4.2 Ontological Relativity: Indeterminacy under Another Name

But there is an apparently distinct worry related to the proxy-function argument: an analogous argument shows that distinct domains can interpret the sentences of a theory while satisfying the aforementioned constraints. Since this argument allows indeterminacy as to which domain properly interprets the theory, ontological commitment may be correspondingly indeterminate. Quine accepts this point. Indeed he argues for it. That is, Quine argues that "what is empirically significant in an ontology is just its contribution of neutral nodes to the structure of the theory" (Quine 1992, 33). The idea is that there are multiple domains that can, given Quinean constraints, correctly interpret our best theory, and, hence, that there is no fact of the matter as to which is *the* domain of the theory. Hence, there is no fact of the matter as to the theory's ontology.

Given the aforementioned constraints, if each member of a pair of distinct domains is capable of serving equally well to interpret the sentences of a theory, then each domain (coupled with the right interpretation function) is sure to satisfy all the same observation sentences while leaving their assent and dissent conditions unchanged. Further, the truth conditions of the remaining interpreted sentences of the theory, relative to the observation sentences, must remain unchanged, else the different domains would lead to differences in the predictions or theorems of the theory. Hence, from within the theory, so to speak, the two domains are indistinguishable. On this basis, Quine argues that:

> two ontologies, if explicitly correlated one to one are empirically on a par; there is no empirical ground for choosing the one rather than the other. What is empirically significant in an ontology is just its contribution of neutral nodes to the structure of the theory . . . As wholes they are empirically indistinguishable. Bodies still continue, under each interpretation to be distinct from their cosmic complements and from their singletons; they are distinguished in a relativistic way, by their roles relative to one another and to the rest of the ontology. Hence my watchword *ontological relativity*. (Quine 1992, 34. Emphasis in original)

As suggested in the quotation above, a theory can characterize the kinds of objects it is committed to and the kinds it disavows only in its own terms.

Thus, the apparent problem: How can regimenting one's global theory display ontological commitments given that a global theory is indifferent to any one of a number of distinct domains? What saddles you, as one who accepts such a theory, with commitments to the members of one domain rather than another if all you have to go on are existentially quantified statements with no determinate values for their bound variables?

Quine's answer is that when an interpreter of a theory has no further "background theory" to appeal to, then the import of the non-logical terms of a theory's vocabulary can be nothing beyond what is to be discerned by considering the role of those terms in the theory and its usages. As Quine argues, "What makes ontological questions meaningless when taken absolutely is not universality but circularity. A question of the form 'What is an *F*?' can be answered only by recourse to a further term: 'An *F* is a *G*.' The answer makes only relative sense: sense relative to the uncritical acceptance of '*G*'" (Quine 1969b, 53). But, of course, if it is our global theory that we are interrogating, there is no further recourse to additional terms to be had. As Quine urges upon us in the final pages of *Word and Object*, there is no position of "cosmic exile" – no position from outside our global theory – from which to assess it (Quine 1960, 275).

From the "point of view" of the theory, it's not true that there is more than one domain – the theory after all is global and, hence, can't recognize multiple domains. As Harman puts it (albeit in response to a slightly different argument):

> The mistake . . . lies in its assumption that the interpretation of quantification can be given apart from the details of the theory. The argument assumes that expressions used to state a theory have meaning independently of the details of the theory, an assumption that Quine would not accept . . . In order to discover what is, according to a given theory, we must discover what the theory counts as values of variables of the theory; and one can discover that only by examining existential claims entailed by the theory, e.g., by examining sentences of the theory. (Harman 1967, 346–347)

In other words, the argument that we used to cause trouble for regimentation and determining ontological commitments assumed a separation of theory and interpretation, which Quine rejects.[17]

4.3 Indeterminacy of Translation

Whereas the indeterminacy of reference concerns a purported indeterminacy regarding the extensions of the singular terms and predicates of a language, the indeterminacy of translation concerns a purported indeterminacy at the level of sentence meanings. In "On the Reasons for Indeterminacy of Translation," Quine distinguishes two kinds of arguments for the purported indeterminacy. Following Quine, we may call these the argument from below and the argument from above (Quine 1970b, 183; cf. Creath, 2006). The argument from below takes the indeterminacy of reference as given and proceeds to suggest that if reference is indeterminate at the level of words, it is highly

plausible that nearly any set of sentences made up of words whose reference is indeterminate will exhibit indeterminacy of translation.[18] The argument from above begins with the claim that a translation manual for a language L is a theory of meaning for L and that, given the truism that theories are underdetermined by data, the translation manual will be underdetermined by the data. The trick for Quine is to find the right premise to derive indeterminacy of translation from the underdetermination of the translation manual.

One can find in Quine's work appeals to a variety of such premises. One is an appeal to a behaviorist conception of meaning determination: only behavior can fix the meaning of sentences by providing them with stimulus meaning. Stimulus meaning is too coarse-grained to uniquely determine a correct translation manual. An alternative premise that focuses on the publicity of meaning can be found in the opening pages of "Ontological Relativity." Whatever sentence meanings might be, they must be publicly accessible and learnable on the basis of publicly available evidence. The latter need not be understood as in conflict with the claim that the true story about how each of us achieves linguistic fluency involves internal cognitive processes (Quine 1969b).[19]

Should we worry that the indeterminacy of translation thesis is at odds with the idea of displaying ontological commitments via regimentation? Here is a reason to worry: regimented sentences are just as amenable to various nonequivalent translations as their unregimented counterparts. Therefore, the indeterminacy of translation thesis is as applicable to regimented theory as it is to unregimented theory. This claim is significant in two ways. First, if Quine's argument for underdetermination is successful, then regimentation won't be able to put us in a better epistemic position vis-à-vis ontological commitment. Second, if Quine's move from underdetermination to indeterminacy is successful, then the regimented language won't have any determinate ontological commitments in the first place. How then, on Quine's view, is regimentation supposed to help us determine our ontological commitments?

Quine's considered answer is that we *acquiesce in the home language*. One's home language is the language one understands prior to any appeal to translation. To acquiesce in the home language is to interpret the home language relative to itself. Quine writes:

> And does the relativity or indeterminacy extend to the home language? In "Ontological Relativity" I said it did, for the home language can be translated into itself by permutations that depart materially from the mere identity transformation, as proxy functions bear out. But if we choose as our manual of translation the identity transformation, thus taking the home language at face value, the relativity is resolved. Reference is then explicated in disquotational paradigms analogous to Tarski's truth paradigm (§ 33); thus 'rabbit' denotes rabbits, whatever they are, and 'Boston' designates Boston. (Quine 1992, 52)

Why should this satisfy us as an answer to our problem? One might worry that if the Quinean attacks on meaning associated with the indeterminacy theses are cogent, then it is a mystery what having an understanding of any language could amount to.

The Quinean can say the following. Quine's critiques of the traditional notions of meaning, synonymy, and the like have implications for the possibility of determinately understanding a language on the basis of translation. However, one's home language is not understood *via* any project of translation. There is an interesting set of questions regarding what understanding the home language amounts to on the Quinean picture, but that is not what is at issue. So while the results of acquiescing in the home language may be trivial, yielding instance after instance of the schema: " '*S*' means *S*," it is nonetheless the case that what results is a translation manual understood by the translator. Armed with the home language, an interpretation of the regimented language can be given.

Acquiescing in the home language, however, fails to alleviate the main problem with indeterminacy. As van Fraassen points out, if the semantics of the home language were known and determinate, then acquiescing in it would enable its users to "know what they are talking about" (van Fraassen, 1990, 853). But this doesn't seem to help if the meanings of a language's sentences are determinate only relative to a translation manual and there are multiple, inequivalent, and equally good translation manuals (van Fraassen 1990, 853). One may acquiesce in the home language, but it seems that such acquiescence amounts to merely settling for one manual amongst many, and simply ignoring the relativity. It is, thus, at best an open question what acquiescing in the home language actually achieves.

5. Questions About Regimentation

5.1 Alston's Worry

Alston's classic, "Ontological Commitment," contains the following suggestive passage:

> A man who was afraid of policemen would be reassured if he were convinced that there are no policemen. But he would not be reassured if he were convinced that one could express all one's beliefs in a language which took not policemen, but rather policemanship, as values of variables (that one could avoid locutions like 'There is a policeman around the corner' in favor of 'Policemanship is exemplified around the corner'). (Alston 1958, 13)

Alston's point is that regimentation is inert in the process of avoiding ontological commitment. He asks us to consider sentence pairs such as the following:

(12)   There is a possibility that James will come.
(13)   The statement that James will come is not certainly false.

If (12) is adequately paraphrased as (13), then they must be coordinated somehow: in Alston's terms, they must "normally be used to make the same assertion" (Alston 1958, 10). But then either (13) commits one to possibilities, albeit covertly, or (12) does not, despite appearances. Either way, the paraphrase does not alter one's commitments.

The dilemma can be formulated more generally: If you think some unregimented sentence is true but carries unfortunate ontological commitments, how could regimenting relieve you of these commitments? If you think the original sentence false, then the goal of regimentation can't be avoiding ontological commitments, since sentences that you judge false don't saddle you with commitments.[20]

The Quinean, naturally, will see things differently. For the Quinean, either (12) is part of your regimented theory, or is a target of further regimentation. If it is part of your regimented theory, then you are committed to possibilities and (13)'s commitments are irrelevant. If (12) is not part of your regimented theory, then there are two options. First, you might accept that (12) is false because you translate it into a regimented sentence that commits you to possibilities and you don't believe there are possibilities. Second, you might translate (12) into (13), but then since (13) is the locus of commitment, endorsement of (12) saddles you with no commitment to possibilities.

This answer ignores the question of coordination between (12) and (13) in Alston's dilemma. What coordinates (12) and (13) if not that using them "makes the same assertion" and how can they make the same assertion if they differ in commitment? As discussed in Section 3.1, Quine's answer is that the relevant coordination isn't sameness of assertion or meaning but preservation of purpose. If the speaker can use (13) to do what she did with (12), then she has appropriately coordinated (12) and (13).

Alston may well complain that this answer leaves much to be desired. We may utter either "Zappa and Sophie have rabies" or "Zappa and Sophie are vicious" if we want you to leave our dogs alone, but we wouldn't translate the one into the other and deem it a success. So, what are the purposes relevant to assessing the virtues of a particular translation?

The Quinean answer is that the purpose at hand is improvement of theory. Very crudely, S' is a good regimentation of S so long as the replacement of S with S' makes for a better theory. Assessment of theory quality is relative to

one's favored theoretical virtues, and this, rather than sameness of assertion, drives the Quinean project of regimentation.

5.2 Why Regiment?

Regimentation is partly a matter of displaying ontological commitment, but also partly a matter of selecting the commitments you are willing to take on. As we've seen, there will be no end to the ways in which you might choose to regiment given the constraints on theory and theoretical virtues that you accept. So what should govern a choice of one ontology over another? Quine notes that if the answer were merely parsimony, we could reduce the ontology of our best theory to one containing only numbers:

> Once we have appropriately regimented our system of the world or part of it, we can so reinterpret it as to get by with only the slender ontology of the whole numbers; such is the strengthened Löwenheim–Skolem theorem. But we could not have arrived at our science in the first place under that interpretation, since the numbers do not correspond one by one to the reifications that were our stepping stones. Practically, heuristically, we must presumably pursue science in the old way or within the reach, at least, of proxy functions. (Quine 1992, 33)

Few of us are tempted to think that numbers are all that exists. But if we choose our preferred interpretation based on what we already think there is, why regiment at all? We could have just appealed to our favored domain and been done with it. How can regimentation serve to teach us anything new?

Quine is likely to reject the distinction presupposed in the questions: there is no real difference in kind between characterizing a domain and choosing a theory. The two are part of a single process of theory endorsement and interpretation. But this doesn't yet dispel the worry that regimentation as a creative process is merely an attempt to pick a theory that offers us the ontological commitments we antecedently preferred. We still might simply say "here is the ontology I prefer" and regard regimentation as a purely notational, rather than philosophical endeavor.

An illustration that may help assuage this worry, interestingly enough, comes out of Quine's own intellectual history. A young Quine endeavored, with Goodman, to provide a theory that was thoroughly nominalistic in its commitments:

> We do not believe in abstract entities. No one supposes that abstract entities – classes, relations, properties, etc. – exist in space-time; but we mean more than this. We renounce them altogether. We shall not forego all use of predicates and

other words that are often taken to name abstract objects. We may still write '*x* is a dog', or '*x* is between *y* and *z*'; for here 'is a dog' and 'is between . . . and' can be construed as syncategorematic: significant in context but naming nothing. But we cannot use variables that call for abstract objects as values. (Goodman and Quine 1947, 105)

We find an older Quine accepting an ontology of physical bodies and sets. Sets, being abstract objects, are not part of young Quine's *preferred* ontology. Quine didn't become more sympathetic to ontological slums. But he did take a hard look at his picture of science and come to the conclusion that quantification over numbers (explicated as sets) is an unavoidable result of any adequate regimentation of our best theories. Regimentation, Quine judged, bore epistemic fruit: it showed the inadequacy of his formerly preferred nominalistic ontology. Quine writes:

I think the positivists were mistaken . . . Existence statements . . . do admit of evidence, in the sense that we can have reasons, and essentially scientific reasons, for including numbers or classes or the like in the range of the values of our variables. Numbers and classes are favoured by the power and facility they contribute to theoretical physics and other systematic discourse about nature. (Quine 1969a, 97–98)

Whether or not one can ultimately paraphrase away quantification over numbers in a successful theory is a matter of dispute (cf., e.g, Field, 1980).[21] We need not detain ourselves with this question. What is important is that one can discover that regimenting according to one's favored constraints can conflict with preserving one's preferred ontology. Regimentation has a purpose. It can provide motivation and, on the Quinean view, justification for adopting commitments that one might have otherwise avoided.

6. Conclusion

We have considered the role of regimentation in Quine's thought given his rejection of any substantive role for synonymy. We have considered Quine's reasons for taking first-order logic as the canonical language for regimentation, and we have considered whether the practice of Quinean regimentation promises to make a theory's ontological commitments clear and to provide reasons for endorsing new theories. We've argued on Quine's behalf that his notion of regimentation is no mere project of notational tinkering but a philosophically substantive part of the Quinean approach to ontology and ontological commitment.

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The philosophical merits of Quinean regimentation are a matter of controversy.[22] Nonetheless, it is uncontroversial that Quine's ideas about ontological commitment and regimentation have been enormously influential. It has arguably become philosophical orthodoxy that all existence claims entailed by a theory correspond to an ontological commitment. This contrasts sharply with a class of views held by some philosophical opponents of Quine's, such as Carnap and many of the logical empiricists. Carnap writes:

> I wish to emphasize here that this talk about the admission of this or that kind of entity as values of variables in L_T is only a way of speaking intended to make the use of L_T, and especially the use of quantified variables in L_T, more easily understandable. Therefore the explanations just given should not be understood as implying that those who accept and use a language are thereby committed to certain 'ontological doctrines' in the traditional metaphysical sense. The usual ontological questions about the '*reality*' . . . of numbers, classes, space-time points, bodies, minds, etc., are pseudo-questions without cognitive content. (Carnap 1956, 44–45)

That the view Carnap articulates above is at odds with the Quinean practice of regimentation and its attendant picture of ontological commitment is clear, and, at least for a time now, the Quinean view has largely supplanted the Carnapian view.

Moreover, the influence of Quine's ideas about ontological commitment and regimentation on contemporary metaphysics is apparent. While discussing the supposed non-existence of composed entities such as chairs and tables, van Inwagen tells us:

> We owe to Quine the general methodological insight that a philosopher who denies the existence of objects of a certain sort had better be prepared to give an account of multiply quantified sentences, some of whose existential quantifiers bind variables that apparently range over objects of that sort. (van Inwagen 1995, 108)

Van Inwagen goes on to show that there is reason for thinking that we can adequately paraphrase sentences such as "Some chairs are heavier than some tables" into counterparts involving no quantification over tables or chairs.

The Quinean strategy of regimentation continues to influence, overtly and covertly, much of contemporary philosophy. Indeed, it would be difficult to understand many of the methods and motivations at work in current analytic philosophy without an appreciation of Quine's views about regimentation. For Quine, regimentation formed part of a philosophical package that includes a naturalistic epistemology, a theory of meaning, an approach to ontology, and a

novel philosophy of logic. Many of the views comprising this package are highly controversial. Nonetheless, the starring role of regimentation sits very well with the view, sometimes regarded as characteristic of analytic philosophy, that formal methods help us clarify, explain, and forge logical and inferential relations otherwise obscured by the languages we use to theorize about the world.[23]

Notes

1   Cartwright, Scheffler and Chomsky, and Jubien argue that the predicate "is committed to" is satisfied by theories (or agents) and classes (rather than individuals) in part by considering cases in which the apparent object of commitment is nonexistent (e.g., a theory that has as a theorem "$\exists x \, (x = \text{Pegasus})$." They argue for intensional treatments of commitment partly on the basis of substitutability arguments.

2   Some do balk at the idea that existential commitment is borne by existentially quantified sentences. For example, see Antonelli (forthcoming), Azzouni (1998), Hofweber (2005), Price (1997), and Yablo and Gallois (1998).

3   See Ostertag's contribution to this volume for a discussion of the case of "Pegasus" and names in general.

4   For discussion of Quine's notion of explication see Gustaffson, this volume.

    In the above quote, Quine is adducing considerations regarding explication rather than regimentation, where the former relates expressions and the latter sentences (or sets of sentences). In particular, Quine is here discussing the reduction of ordered pairs to sets. For our purposes, the distinction doesn't matter since an explication is only relevant to determining ontological commitment when it is incorporated into a regimentation of the former language (See Section 3.3 below.). Note too that Quine's talk about synonymy is meant to contrast his approach to these matters with that of Carnap. We are reminded, however, that Carnap does not *require* that the product of a good explication be synonymous with the expression it is meant to replace.

5   Quine claims that second-order logic, for example, brings with it a commitment to sets; it is "set theory in sheep's clothing" as he memorably puts it (Quine 1970a, 68). This claim, however, is controversial; see Boolos (1984) for defense of the claim that monadic second-order logic carries with it no such commitment. Also see Burgess (this volume).

6   Casual discussions of "On What There Is" sometimes ignore Quine's advice that we utilize predicative replacements of the form "*N*-izes" for a name *N* only in cases involving a particularly obscure object or one taken as primitive. For the case of "Pegasus," as Quine points out, there are more satisfying descriptions available. Our (8) and (9) illustrate both kinds of replacement. Our (10) and (11) ignore Quine's paraphrastic strategy for names.

7   By Quine's rough count, there are six such virtues. These are conservatism, modesty, simplicity, generality, refutability (Quine and Ullian 1978, 66), and

precision (Quine and Ullian 1978, 98). The virtue of simplicity as Occamite parsimony is particularly germane to ontological commitment. Simpler theories have fewer commitments. But, of course, how you count entities matters: conceptual reductions in the name of parsimony yield fewer commitments only if one is tallying up a theory's commitments to fundamental entities, that is, only if one is counting entities of kinds not reducible to another.

Discussion of the virtue of simplicity – or better to say: the *virtues* that go under the label "simplicity" – has arisen often in Quine's discussions of theories and of regimentation (Quine 1948, 23; 1960, 158, 162; 1966, 221; 1981, 10; Quine & Ullian 1978, 69). Other virtues that have gone under the name of "simplicity" include those with alternate labels such as "theoretical elegance" and "ease of use," where ease of use might be characterized in terms of prediction or theorem derivation. Because the logical relations among collections of regimented sentences are often more perspicuous than those among their unregimented counterparts, on the Quinean view, regimentation should facilitate the simplification of theory in this last sense as well.

8 We will present grammatical analysis and explication as distinct tasks, but it isn't clear that Quine would treat them as independent projects.

9 See, for example, Quine (1953; 1956) for discussions of propositional attitude reports and modality.

10 See Gibson 1982 (chapter 3, p. 3.5.1.2) for further discussion of regimentation and explication as elimination. See also Gustafsson, this volume.

11 Wiener's definition sets $\langle x,y \rangle = \{\{\{x\}, \varnothing\}, \{\{y\}\}\}$.

12 Fodor and Lepore give the following rough characterization of holism: ". . . only whole languages or whole theories or whole belief systems *really* have meanings, so that the meaning of smaller units – words, sentences, hypotheses, predictions, discourses, dialogues, texts, thoughts, and the like – are merely derivative" (Fodor and Lepore 1992, *x*).

13 See Soames' contribution to this volume for a discussion of Quine's indeterminacy theses.

14 For indication that Quine regards the phrases "indeterminacy of reference" and "inscrutability of reference" as naming the same thesis see *Pursuit of Truth* (Quine 1992, 50).

Note too, it is a matter of controversy whether one must accept behaviorism, as well as what kind of behaviorism one must accept, in order for the indeterminacy arguments to bear interestingly on one's theory of meaning. For various views on the matter see Føllesdal (1990), Friedman (1975), Pagin (2000), Quine (1987), Searle (1987), and Soames (2003, 246).

15 Hylton points out that in Quine's later works he writes of the indeterminacy of translation thesis as a "conjecture," which, unlike the indeterminacy of reference, does not admit of "factual illustration" (Quine 1998b, 728; 1992, 50). See Hylton's *Quine* for discussion of this point (Hylton 2007, 59, 197).

16 As Quine notes, more drastic changes to the ontology of a theory may result if one permits functions that are not explicit or one-to-one to serve as proxy func-

tions (cf. Quine 1992, 32. See also Quine 1969b). It is a testament to the force of the proxy-function argument that its conclusion is equally well established even if one requires that only functions that are one-to-one and explicit be admissible.

17 Some of Quine's arguments for ontological relativity have affinities to Putnam's model-theoretic arguments. For remarks by Putnam to this effect, see (1998, 33). For an early version of his model-theoretic argument, see Putnam (1977). See also Lewis (1983) for some relevant considerations that address both Putnam and Quine's arguments. See Section 5.2 for some further thoughts.

18 The restriction to "nearly any set of sentences" concerns the fact that theories containing only observational sentences and generalizations thereof will admit of reasonably determinate translation, according to Quine.

19 For an argument to the effect that arguments for the indeterminacy of translation thesis need not rely on any denial of a mentalistic ontology, see Føllesdal's, "Indeterminacy and Mental States" (Føllesdal 1990). See too Quine's reply (Quine 1990).

20 The case of sentences containing empty names (such as "Pegasus") is complicated – the apparent existential commitments they carry are *prima facie* insensitive to their truth or falsity. Quine's solution to this is canvassed above in Section 3.2. Alston doesn't consider these cases.

21 See Burgess's contribution to this volume for a discussion of some issues regarding Quine's arguments for accepting set theory. See Kelly's contribution for a discussion of Quinean epistemology.

22 For various critical takes on issues to do with the projects of regimentation and ontology carried out in a broadly Quinean spirit, see for example Antonelli (forthcoming), Azzouni (1998), Hofweber (2005), Price (1997), Schaffer (2009), and Yablo and Gallois (1998).

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