QUINE AND DE DICTO MODAL SUBSTITUTION

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I

Quine's most recent attack against quantified modal logic has been towards substitution into *de dicto* modal contexts. He argues that it is unacceptable.(1) I will show that he is inconsistent. For, my purpose is to prove that Quine himself is committed to *de dicto* modal substitution.

What commits him is his reparsing thesis. This is the claim that singular terms can be treated grammatically as predicates. I will establish that the reparsing thesis implies that for every proper name there is another singular term which is substitutable for it in *de dicto* modal contexts.(2) This will prove that reparsing commits Quine to *de dicto* modal substitution. Thus his argument against quantified modal logic is inconsistent with his position on singular terms.(3)

I will use these two components of the reparsing thesis:(4)

(Q) $\ulcorner \alpha = \urcorner$ can be treated as a simple predicate.
(R) $\ulcorner F\alpha \urcorner$ is equivalent to $\ulcorner (\exists x)(\alpha = x.Fx) \urcorner$.

(Q)'s purpose is to allow us to translate the singular term plus "=" into a predicate. (R)'s is to enable us to arrive at a sentence in which the singular term is part of an identity sentence.

An important point here is that the sentence resulting from applying

(1) "Intensions Revisited", *Midwest Studies in Philosophy*, II, 1977, pp. 5-11.
The *de dicto* contexts I will be concerned with are those involving the modal concept of necessity.

(2) In his discussions of the reparsing thesis, Quine has given particular attention to proper names, e.g. "Socrates", "Betty", and "Anne". See *Word and Object* (Cambridge, Mass.: MIT Press, 1960), section 37; and *Philosophy of Logic* (Englewood Cliffs, New Jersey: Prentice-Hall, 1970), p. 25.

(3) For further discussion of the inconsistency of the reparsing thesis with quantified modal logic, see my "Reparsing and Essentialism", forthcoming.

(4) Op. Cit. See *Methods of Logic*, 3rd. ed. (New York: Holt, Rinehart, and Winston, 1972), p. 231 for Quine's interpretation of "simple" predicate.

(Q) and (R) is supposed to be a "paraphrase" of the original sentence.([5]) As I will show, the reason this is important is that it follows that the reparsing predicate must be the following type: It is impossible for the predicate to be true of an object and not true of just the singular term's denotation. This is part of the explanation of why reparsing implies *de dicto* modal substitution.

To see how I will show that reparsing implies this type of substitution, take any two singular terms, α and β. As Quine notes, β is substitutable for α in *de dicto* modal contexts just in case a sentence of the following form is true:([6])

$$\text{Nec } \ulcorner(\alpha = \beta)\urcorner.$$

I am concerned with a particular interpretation of "Nec $\ulcorner\alpha = \beta\urcorner$." I will use (R) to arrive at the interpretation given in (S):([7])

(S) It is impossible for both β to exist and $\ulcorner\alpha = \beta\urcorner$ be false.

In the next section I will show that (R) implies that (S) is *sufficient* for β to be substitutable for α in *de dicto* modal contexts. Then in section III, I will argue that for every proper name, α, (Q) implies that there is another singular term, β, for which (S) is true. Thus it will follow that (Q) and (R) together imply that for every proper name there is another singular term which is substitutable for it in *de dicto* modal contexts. This will establish that reparsing implies *de dicto* modal substitution.

II

To prove this, let's begin with any two singular terms whose denotations are contingent, say "John" and "the fastest runner".([8])

([5]) *Philosophy of Logic*, p. 25; *The Ways of Paradox*, revised edition (Cambridge: Harvard University Press, 1976), p. 305.

([6]) "Intensions Revisited", p. 7. For a discussion of substitution see *Word and Object*, sections 30 and 35.

([7]) (S) is a version of Kripke's interpretation of "weak" necessity. See his "Identity and Necessity" in *Identity and Individuation*, M. Munitz, ed., (New York: NYU Press, 1971), p. 137. For a discussion of the ambiguity of modal identity sentences, see my "Reparsing and Essentialism".

([8]) In my argument I will take the existence of the denotations of the singular terms I

Let (1) be an example of a *de dicto* modality in which "John" occurs:

(1) Nec "John is human".

Suppose we are interested in whether "the fastest runner" is substitutable for "John" in (1). It follows from two paragraphs back that it is just in case (2) is true:

(2) Nec "John = the fastest runner".

And if (2) is true, then (1) implies (3):

(3) Nec "The fastest runner is human".

Using sentences (1)-(3), in this section I want to prove that it follows from (R) that (S) is sufficient for *de dicto* modal substitution. In order to do this the question I want to consider is: According to (R) under what interpretation of (2) does it follow that if (2) is true then (1) implies (3)?

I will establish that it is this instance of (S):

(4) It is impossible for both the fastest runner to exist and "John = the fastest runner" to be false.

I will show that according to (R), (4) is sufficient to substitute "the fastest runner" for "John" in (1). That is, (R) implies that if (4) is true (1) implies (3). Furthermore this can be shown for any other instance of (S). Thus it will follow that (R) and (S) imply *de dicto* modal substitution.

In order to prove this, I will first determine how according to (R) we should interpret (1) and (3). It must be that interpretation under which it is possible for them to be true.

First of all note that (R) implies that (1) is equivalent to (5):

(5) Nec "$(\exists x)$(John = x.x is human)".

use to be contingent. With some semantics for modal logic it is assumed that for any singular term whose denotation exists, it exists in every possible world. With this type of semantics my argument would also establish that reparsing implies *de dicto* modal substitution. The reason is that all my argument requires of (S) is that it be sufficient for *de dicto* modal substitution. It does not require that it be necessary. Though (S) would not be necessary for *de dicto* modal substitution in the above type of semantics, it would be sufficient.

If John does not exist, then the sentence mentioned in (5), viz. "$(\exists x)$(John = x.x is human)", is false. Since John is contingent, it is possible for him not to exist. Therefore it is possible for "$(\exists x)$(John = x.x is human)" to be false. So in order that (5) might be true, it cannot read "It is impossible for '$(\exists x)$(John = x.x is human)' to be false".

We need a reading of (5), then, which is consistent with the fact that it is possible for John not to exist. It is (6):

(6) It is impossible for both John to exist and "$(\exists x)$(John = x.x is human)" to be false.

Thus (6) is the interpretation we should give to (5). (R) implies that (7) is equivalent to (6):

(7) It is impossible for both John to exist and "John is human" to be false.

Therefore since it also implies that (5) is equivalent to (1), it follows from (R) that (7) is the interpretation we should give to (1).

Similar reasoning shows that according to (R), (8) is how we should interpret (3):

(8) It is impossible for both the fastest runner to exist and "The fastest runner is human" to be false.

At the beginning of this section we noted that "the fastest runner" is substitutable for "John" in (1) only if (2) is sufficient for (1) to imply (3). I have established that according to (R), (7) is how we should interpret (1) and (8) is how we should interpret (3). Thus the question of according to (R) what interpretation of (2) is sufficient for "the fastest runner" to be substitutable for "John" comes to this: What interpretation of (2) is sufficient for (7) to imply (8)?

It must be one which implies that it is not possible for (7) to be true and (8) false. Hence in order to establish the correct interpretation, let's consider what this possibility would be like.

It would be one in which both John is human and the fastest runner exists, but the fastest runner is not human. For example it might be a horse. In which case even if (7) were true, (8) would be false. We want an interpretation of (2) which prevents this. It is prevented if it is impossible for both the fastest runner to exist and not be identical with

John. This is (4). This establishes that (4) is an interpretation of (2) which results in (7) implying (8).

Earlier I showed that it follows from (R) that (7) is the interpretation we should give to (1) and (8) is the interpretation we should give to (3). So according to (R), (1) implies (3) if (4) is the interpretation we give to (2). Therefore (R) and (4) together imply that "the fastest runner" is substitutable for "John" is the *de dicto* modal context in (1).

Using an argument similar to the above, it can be established that not only does (4) in conjunction with (R) imply *de dicto* modal substitution, so does any other instance of (S). It follows, then, that (R) and (S) imply *de dicto* modal substitution.

III

The reparsing thesis implies (R). Thus the question of whether it implies *de dicto* modal substitution comes to whether it implies (S). I will prove that it does. I will do this by showing that (Q) implies that for every proper name, α, there is another singular term, β, for which (S) is true. This will establish that (Q) and (R) and thus reparsing imply *de dicto* modal substitution.

Let's use the proper name "Anne". What I am claiming is that as with any other proper name, the reparsing thesis implies that there is another singular term, namely a description, which is substitutable for "Anne" in *de dicto* modal contexts.

To see this, consider the sentence "Anne exists":

(9) $(\exists x)(\text{Anne} = x)$.

Apply (Q) to it. Choose any simple predicate, say "L". Using "L" as the reparsing predicate, then, (10) is the result:

(10) $(\exists x)(Lx)$.

As we noted, according to (Q) it is supposed to be a paraphrase of (9). The important point here is that in order for "$(\exists x)(Lx)$" to be a paraphrase of "Anne exists", it must be impossible for both "L" to be true of an object and not true of just Anne.([9])

([9]) Quine correctly points out that in order for the resulting sentence to be a paraphrase of the original, the reparsing predicate must be true of just the singular

Now consider the definite description which uses "L":

()x)(Lx).

We have seen that according to (Q) it is impossible for both "L" to be true of an object and not true of just Anne. Therefore it follows that (Q) implies that it is impossible for both "()x)(Lx)" to denote an object and not denote just Anne. (Q), then, implies (11):

(11) It is impossible for both ()x)(Lx) to exist and "Anne = ()(Lx)" be false.

Notice (11)'s form. It is an instance of (S). Earlier I showed that (R) implies that any sentence of this form is sufficient for substitution into *de dicto* modal contexts. Therefore (R) implies that (11) is. Thus (R) implies that if (11) is true, then "()x)(Lx)" is substitutable for "Anne" in *de dicto* modal contexts. I have just established that (Q) implies that (11) is true. Therefore (Q) and (R) imply that ()x)(Lx)" is substitutable into *de dicto* modal contexts.

In summary, (Q) implies that we can reparse "Anne" as a simple predicate. Using the sentence "Anne exists", I showed that it follows from (Q) that this predicate must have the following feature: It is impossible for both the predicate to be true of an object and not true of just Anne, Consider the definite description consisting of this predicate. It follows that (Q) implies that it is impossible for both its denotation to exist and the identity sentence consisting of "Anne" and this definite description not be true. I established that according to (R) this is sufficient for *de dicto* modal substitution. It follows, then, that (Q) and (R) imply that the definite description is substitutable for "Anne" in *de dicto* modal contexts. Furthermore this can be established for any other proper name.

term's denotation. See *Philosophy of Logic*, p. 25; *Word and Object*, p. 179; and *The Ways of Paradox*, p. 305. However he fails to see that what is also necessary is that it be impossible for the predicate to be true of any object other than the singular term's denotation.

Our claim that this is necessary is not in conflict with Quine's view of what is a paraphrase (*Word and Object*, p. 159f., 182f., 250, and 258f.). What shows this is that our claim does not require that (9) imply (10). Hence it does not require that (9) be synonymous with (10).

IV

There is an additional aspect of the reparsing thesis which follows from the preceding discussion. It is that for any proper name and description obtained by applying (Q) to the name, (Q) implies that the description is a certain type of singular term. It is what Føllesdal calls a "genuine name" and Kripke calls a "rigid designator" of the proper name's denotation. This follows from the fact that (Q) implies (S). For if α is a proper name, then any description β which satisfies (S) is a rigid designator of α's denotation. Furthermore in *Referential Opacity and Modal Logic* Føllesdal discusses the reparsing thesis in conjunction with the particular type of description which satisfies (S). However he does not recognize that the former results in the latter.([10])

Leonard Linsky, on the other hand, does. In a discussion which includes Quine on *de dicto* modal substitution, Linsky uses "Socrates" to give a brief argument to the effect that the reparsing thesis results in a description which regidly designates Socrates.([11]) Unfortunately he fails to realize that this commits Quine to *de dicto* modal substitution.

V

This is what I have shown. (R) implies that if a statement of (S)'s form is true of two singular terms α and β, then this is sufficient for β to be substitutable for α in *de dicto* modal contexts. For any proper name α and description β obtained by applying (Q) to α, (Q) implies that a statement of (S)'s form is true. Therefore (Q) and (R) together imply that for any proper name there is a description which is substitutable for it in *de dicto* modal contexts. This proves that Quine's reparsing thesis implies *de dicto* modal substitution.

At the beginning we noted that Quine's most recent argument

([10]) See *Referential Opacity and Modal Logic* (Oslo: Universitetsforlaget, 1966), p. 96f.

([11]) See *Names and Descriptions* (Chicago: University of Chicago Press, 1977), pp. 48-54.

against quantified modal logic implies that *de dicto* modal substitution is not acceptable. I have shown that reparsing implies that it is. This establishes, then, that Quine's reparsing thesis implies that his own argument against quantified modal logic fails.([12])

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([12]) Not only does his reparsing thesis commit Quine to *de dicto* modal substitution, it also commits him to essentialism. This is established in my "Quine Against Essentialism and Quantified Modal Logic" (forthcoming) and "Reparsing and Essentialism".