MORE ON RIGIDITY AND SCOPE

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In "Rigidity and Scope" (*Logique et Analyse*, September 1980, pp. 327-30), M. J. More attempts to defend the thesis that primacy of şcope does not confer rigidity i.e. the thesis that in *de re* statements of the form 'a is necessarily the F' the designator in place of 'a' may take wide scope with respect to the modal operator and yet function non-rigidly. As More points out, the issue is of considerable importance – for if primacy of scope did confer rigidity then proper names could be both rigid designators and disguised definite descriptions.

More's defence of his thesis rests crucially upon the alleged contingency of certain *de re* truths. However, it is my contention in this paper that

(i) More's arguments establish neither the contingency nor the truth of such statements; and
(ii) Even if there were compelling arguments for the existence of such contingent *de re* truths, this would entail the thesis that primacy of scope does not confer rigidity only at the cost of rendering the modal operator embedded in such statements totally impotent.

I

More's basic argument for his thesis takes the form of a *Modus Tollens* inference. Consider the following *de re* statement:

(α) The number of planets is necessarily the positive square root of 81

If primacy of scope did confer rigidity then (α) would be necessarily true. But, argues More, (α) is a contingent truth and therefore primacy of scope does not confer rigidity.

It is worth noting that although the first premise of More's *Modus Tollens* holds for (α), it does not hold generally – there is no logical connection between rigidity and necessity. For there are many necessary truths which contain no rigid designators (e.g. "Nothing is both round and square at the same time"). And more importantly, there are numerous true statements (including identity statements) containing only rigid designators which are nonetheless contingent (e.g. "Tully = Cicero", "Socrates is a person"). The latter statements are contingent since there are possible worlds (precisely those in which Tully and Socrates, respectively, do not exist) in which they are not true and necessary truths are only those which are true in *all* possible worlds.(1) (What is true, though, is that all statements containing only rigid designators which designate objects that exist in all possible worlds (e.g. numbers) will be, if true, necessarily true.)

However, the major part of More's paper consists of a defence of the second premise of his *Modus Tollens* – the contingency of (α). He gives four arguments for (α)'s contingency, none of which, I claim, is compelling. I will examine each argument in turn.

(1) "First, a conjunction of (α) and the possible truth

(β) There are 7 planets

entails

(γ) 7 is necessarily the positive square root of 81

which is false. Thus the conjunction of (α) and (β) is false. And, if, as is possible (β) were true, (α) would be false. So there are possible circumstances in which (α) is false." (p. 328)

Now (γ) is not just false but necessarily false and (β) is contingently false. This is quite consistent with the possible falsity of (α). However, it is equally consistent with the necessary falsity of (α). Consequently, this argument does not establish the contingency of (α) since it will go through if (α) is necessarily false.

(2) "Second, (α) entails

(δ) There are 9 planets

(1) There is a weaker definition of necessary truth according to which a necessary truth is one which is either true in all possible worlds or true in some worlds but false in none. According to this definition, the above statements about Tully and Socrates (given certain essentialist principles) would count as necessary truths.

> ... But (δ) is contingent; no necessary truth can entail a contingent one, and so (α) is not necessary."

Indeed a necessary truth cannot entail a contingent one, but a necessary falsehood can (e.g. P and ~P entails P, where P is a contingent truth). This second argument in no way therefore entails the contingency of (α).

(3) "Third, (β) does not entail (α), since if they were conjointly true, then (γ) would be true, which is absurd.
Therefore, (β) does not entail (α), and since a necessary truth is entailed by any proposition, (α) is not necessary."

I think we can agree with More that (β) does not entail (α). But all this shows is that (α) is not a necessary truth and this is far from establishing the contingency of (α).

(4) "Fourth, (γ) is impossible; thus if the conjunction of (α) and (β) entails (γ), as I contend it does, a conjunction of (α) and (β) is impossible. A conjunction of a necessary truth and a possible truth is itself possible; (β) is possible; therefore (α) is not necessary."

But again this final argument does not establish that (α) is not necessary – it merely establishes that (α) is not a necessary truth. The impossibility of conjoining (α) and (β) counts just as much for the necessary falsity of (α) as for its contingency.

Of course, More may not be much perturbed by these counter-arguments. For he assumes to begin with that (α) is true then argues that it is not a necessary truth and concludes that it is a contingent truth. But my point is simply that one could very well share Quine's view of (α)-type statements (namely that they are false)(2) and More's actual arguments are quite consistent with the assumption that (α) is necessarily false (and, indeed, with the assumption that (α) is contingently false). More then has not proved his case. At best, his four arguments show that (α) is not a necessary truth, but this is far from establishing either its contingency or its truth.

(2) See W. V. O. Quine, "Reference and Modality" in *Reference and Modality* ed. L. Linsky (Oxford University Press), 1976, p. 20.

II

I now want to argue that even if persuasive arguments can be given for both the contingency and the truth of (α), then far from supporting the thesis that primacy of scope does not confer rigidity, it renders that thesis totally empty. Let us therefore assume that (α) is indeed a contingent *de re* truth. Consider now the contingently true non-modal counterpart of (α):

(ε) The number of planets is the positive square root of 81.

Now if by hypothesis (α) and (ε) have the same modal value (i.e. both are contingent) and the same truth value (i.e. both are true), then what is the effect of the modal operator embedded within (α)? It would seem that the only available explanation can be that the operator effects a non-identity between the set of possible worlds in which (α) is true and the set of possible worlds in which (ε) is true. However, it can easily be shown that the modal operator induces no such divergence in truth-conditions – (α) is true in any world if and only if (ε) is true.

Firstly, then, does (α) entail (ε)? Could there be a possible world or counterfactual situation in which (α) was true and (ε) false? Well, (ε) would be false if there were 10 planets. But if there were 10 planets then (α) would entail the necessary falsehood that 10 is necessarily the positive square root of 81. So (α) would be false. Given that this argument can be generalised for any counterfactual situation concerning the number of planets it follows that it is impossible for (α) to be true and (ε) false. (Such an entailment is surely uncontroversial – if 'a is necessarily the F' did not entail 'a is the F' then the notion of *de re* necessity would become totally mysterious.)

Secondly, that (ε) entails (α) can be seen clearly from the following argument:

(ε) The number of planets is the positive square root of 81
(ζ) The positive square root of 81 is necessarily the positive square root of 81
Therefore
(α) The number of planets is necessarily the positive square root of 81.

Since the argument is valid (by virtue of the referential transparency of *de re* modal contexts) with true premises and (ζ) expresses a necessary truth, it follows that it is impossible for (ε) to be true and (α) false. (3)

What the identity of truth-conditions of (α) and (ε) reveals is that the contingency of (α) ensures that primacy of scope does not confer rigidity at the cost of effectively eliminating all the relevant scope ambiguities from (α) – the logical equivalence of (α) and (ε) renders the modal operator embedded within (α) devoid of logical force and therefore scopeless.

It is evident then that the victory for the contingency theorist is utterly Pyrrhic. For the thesis that primacy of scope does not confer rigidity is achieved only by rendering (α) and (ε) logically equivalent. But such an equivalence immediately prompts the question: What is supposed to be (modally) *de re* about contingent *de re* truths such as (α)? And unless the *de re* "must" can be shown to play some effective role in (α) (a role which differentiates (α) from statements such as (ε) in which no such modal operator figures) then the answer, I suggest, is quite simply: nothing. (4)

My conclusions in this paper are therefore twofold:

(a) More's arguments fail to establish the contingency of (α); and
(b) To base the thesis that primacy of scope does not confer rigidity upon the alleged contingency of (α)-type statements is radically ill-motivated and threatens the coherence of the very position which More is trying to defend.

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(3) Note that More cannot object to this substitution move since his arguments for the contingency of (α) rely upon the legitimacy of precisely such a substitution.

(4) Exactly the same question can be posed to those (e.g. A. F. Smullyan in "Modality and Description", in Linsky (ed.), *op. cit.*, pp. 35-44) who argue for the contingency of certain *de re* truths as a way out of Quine's "paradox of modal logic" (i.e. as a way of establishing that (*de re*) modal contexts are referentially transparent and thus providing a rationale for the project of quantified modal logic).