Two Modal Theses in the Second Half of Metaphysics Theta.4

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1. The Current Interpretation and its Drawbacks

The text that I want to focus on is 1047b14-b30, in which Aristotle lays out two modal principles along with brief arguments for them.

T1 At the same time it is clear that if, when A is possible, B also must be possible. For if B need not be possible, there is nothing to prevent its not being possible. Now let A be supposed possible. Then, when A is possible, nothing impossible would follow if A were supposed to be; and then B must of course be. But we supposed B to be impossible. Let it be impossible, then. If, then, B is impossible, A also must be. But A was supposed possible; therefore B also is possible. If then A is possible, B also will be possible, if they were so related that if A is, B must be. If, then, A and B being thus related, B is not possible on this condition, A and B will not be related as was supposed.

T2 And if when A is possible, B must be possible, then if A is, B must also be. For to say that B must be possible, if A is possible, means that if A is both at the time when and in the way in which it was supposed capable of being, B also must then and in that way be.

The passage is continuous, but for convenience I divide it into two, referring to the first part, 1047b14-b26 ("ἀμα δὲ δὴ λοι ... ὡς ἐτεθή") as T1, and to the second part, 1047b26-b30 ("καὶ ἐλ τοῦ ... ἐναγκασμέν") as T2.

The current critical verdicts on T1 and T2 are as follows: T1 first expresses a true principle of modality, but then argues for that principle fallaciously; T2 expresses a false principle of modality. This verdict is agreed upon by all, despite a few small differences of formalization; for although there are two competing interpretations for each principle (see below), they both agree on the soundness of the first and the absurdity of the second. The principles so interpreted are:

\[ \Box (A \supset B) \supset (\Diamond A \supset B) \]  (P1: Hintikka\(^1\) & Frede\(^2\))


\(^2\) In a seminar at Princeton University, Fall of 1987, which marked my first contact with Aristotle. I was supposed to write an essay for the seminar and despite (or perhaps because of) the brilliance of Prof. Frede’s presentation, I never did; this paper is intended as a partial fulfillment of that obligation.


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or \((\Box \Box \Box B) \supset (\Diamond A \Box B)\)  
(P1b: Owen & “Notes . . .”)

P2: \(\Box (\Diamond A \Box B) \supset (A \Box B)\)  
(P2a: Frede)

or \((\Diamond A \Box B) \supset (A \Box B)\)  
(P2b: Owen & “Notes . . .”)

In discussing P1a, Hintikka credits Aristotle with great insight for having formulated a principle that is equivalent to the K-axiom (i.e. \(\Box (A \Box B) \supset (\Box A \Box B)\)). And indeed, given that the K-axiom is the sine qua non of metaphysical modality, i.e., the principle without which box and diamond cannot really represent metaphysical necessity and possibility (instead of, e.g., deontic modality), it is in some sense perfectly forgiveable that Aristotle’s argument in support of it in T1 should be circular. There is no more basic principle to which he could appeal, which would still be a principle of metaphysical modality.

P2, on the other hand, just looks silly. As Owen and Notes say, “the trouble is that it is plainly false”; it seems to overlook conflicting possibilities. To adopt their example, we might imagine that if it is possible for Labour to win a certain district, then it is possible for the Tories to win it; but surely that does not mean that if Labour wins then the Tories win. Nor does the addition of the box to the antecedent produce any obvious improvement.

Can modern modal techniques come to Aristotle’s rescue? The revolution in possible-worlds model semantics has made us all familiar with the fact that there are lots of modal systems available to us, generated by lots of different axiom-sets. Instead of saying that this principle is false (or rather, invalid), perhaps we should see what accessibility-relationships it is character-

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5 *Notes on ETA and THETA*, Myles Burnyeat, ed. (Oxford Subfaculty of Philosophy, 1984). Although G. E. L. Owen (in his own comments on p. 103) and the corporate authors of the Notes (p. 109) take this to be a good modal principle, it in fact shares most of the vices of the principle they condemn (P2b) – it too is partially functional (no world sees more than one world) and indeed vacuous (no world sees more than itself), and so precludes incompatible possibilities. I take it that this is a mere mistake, possibly of transcription, and that Owen et al. understood P1b to mean what P1a says.

4 They are equivalent in any of the modal logics that Chellas calls “classical systems”; see Brian F. Chellas, *Modal Logic*, Cambridge, 1980. “K” is Chellas’ name for what Hintikka calls (C.M&N”).

5 In this article I have not included any discussion of the argument in T1. I do think that it is very interesting, and supports some of my later comments about Aristotle’s modal idioms. But I do not think that any interpretation can render it non-circular and valid – although this may not be as much of a problem as one might think. For it may not be so much an argument, as an attempt to sketch out some interrelations between different notions, in which endeavour circularity is not necessarily a vice.