Notre Dame Journal of Formal Logic
Volume XIII, Number 3, July 1972
NDJFAM

ON FORMALIZING ARISTOTLE'S THEORY OF MODAL SYLLOGISMS

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In his *Aristotle's Modal Syllogisms* (Amsterdam, 1963), Storrs McCall writes (p. 50):

> The expression *LAaa* . . . is *not* a theorem. If it were, the direct consequences would follow, among them the possibility of detaching the consequent *C Aab LAab* of the following substituted form of Barbara *LXL*:
>
> *C LAbb C Aab LAab,*
>
> and hence being able to prove equivalence of *Aab* and *LAab*—the collapse of all modal distinctions whatsoever.

Surely the tension between *LAaa* and *C LAbb C Aab LAab* cannot be so easily resolved. Aristotle nowhere explicitly rejects *LAaa* nor does he explicitly accept the above substituted form of Barbara *LXL*. One might well argue that although an adequate formalization of Aristotle's theory will omit *LAaa* since Aristotle is silent on this point, any formalization which (like McCall's) has "dire consequences" when *LAaa* is added is *a fortiori* defective. Note that in his *Aristotle's Syllogistic*, 2nd edition (Oxford, 1957), Łukasiewicz too rejects *LAaa*. Łukasiewicz attempts to motivate rejection of *LAaa* by appealing to a "general view according to which no apodeictic proposition is true" (p. 190). Surely this view cannot be attributed to Aristotle and hence it has no bearing on the proper interpretation of Aristotle's theory.

Still, there is the tension between *LAaa* and *C LAbb C Aab LAab* that needs resolving. This last formula is an instance of Barbara *LXL* *assuming* McCall's rule of substitution. But, while Aristotle is committed to Barbara *LXL*, there seems to be no textual basis for attributing McCall's rule of substitution to him. Indeed, as Łukasiewicz writes (p. 9): "There is no passage in the *Prior Analytics* where two different variables are identified. Even where the same term is substituted for two variables [An. pr. ii. 15, 64^a23], these two variables are not identified." So, McCall's rule can safely be omitted in favor of the weaker rule:

If α is a theorem and if β is an alphabetic variant of α, then β is a theorem.

Received August 4, 1970