

ON A PASSAGE OF ARISTOTLE

IVO THOMAS

Prior Analytics B 22, 68a16-21, exhibits some points of interest and one difficulty, long known but never seriously faced. We give in I. a translation, in II. some logical and historical comments, and in III. a formalized version.

I. "When (1) A belongs to the whole of B and (2) C, and (3) is predicated of nothing else, and (4) B belongs to all C, (5) A and B must convert; for since (6) A is said only of B and C, and (7) B is predicated both of itself and (8) of C, it is clear that (9) B will be said of everything of which A is said, (10) excepting ($\pi\lambda\eta\nu$) of A itself."

II. (1)-(4) are the data, in modern style: (1) Aba , (2) Aca , (3) $(x)(Axa \supset (x = b \vee x = c))$, (4) Acb . (2) is syllogistically implied by (1) and (4), and is in any case not used in the subsequent deduction.

The formalization of (3) by means of the universal quantifier and identity might be said to go beyond what the text warrants. But Aristotle is dealing only intuitively with the totality of the unique subjects of A, and it seems clear that if his intuitions are to be formalized, this is the way to do it.

(5) is the probandum. The usage of the *Analytics* shows that it means that given Aba , as we are in (1), then we have also Aab .

(6) resumes (3).

(7) asserts Abb . Since this is taken for granted, and is not among the data (1)-(4), one seems justified in supposing that it is drawn from the underlying logic, being an instance of the syllogistic law of identity, $(x)Axx$. This passage is, I believe, the only evidence that Aristotle accepted this law. A further instantiation of it, Aaa , is implied by (10) whether the text is allowed to stand or emended along the lines suggested below, and is essential to the argument.

(8) resumes (4).

(9) is an intermediate conclusion: $(x)(Axa \supset Axb)$.

(10) is the crux. The probandum, Aab is clearly obtainable by way of (9) and Aaa . One expects (10) to read "and so of A itself". Percipient translators and commentators have frequently let this expectation rule