Definition through Demonstration: The Two Types of Syllogisms in Posterior Analytics II.8

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1. Introduction

One of the kinds of definition mentioned in Posterior Analytics II.10 is said to be “like a demonstration of what something is, [but] differing from a demonstration in the arrangement [ῥηθέοει] of terms (94a1-2). It is this sort of definition that is the primary concern of APo II.8. That chapter’s conclusion is that, “while there can be no demonstration or syllogistic deduction” of this definition, “it is nevertheless through syllogism and through demonstration that it becomes manifest [δηλοῦν]” (93b16-18). I will argue that the best way to understand this definition-manifesting demonstration is to see it as involving a chain of two different types of syllogisms, the first being part of the scientific demonstration proper, the second a necessary addition though itself not properly scientific. Although no such notion is made explicit in the Posterior Analytics, I hope to show that this distinction between two types of syllogisms not only may clarify certain passages in APo II.8, but also is an important presupposition of Aristotle’s conception of scientific inquiry. It thus is consistent with the view that the Posterior Analytics is concerned with the nature of scientific inquiry as well as the structure of scientific demonstration.

The first type of syllogism would perform the primary explanatory work of the demonstration. Near the beginning of II.8, Aristotle claims that “it is the same to know what something is and to know the explanation [τὸ ἀφινόντα] for whether it is” (93a4). One important reason for this is that, although a given X can be picked out by many different properties, its definition ought to be unique; and this uniqueness can be found in the

1 This is a reiteration of the point made at APo II.2 90a5-7 and a31-2. Regarding ἀφινόντα: if, following Burnyeat 1981, pp. 97-115, we translate ἐπιστήμη as “understanding” (see Section (2) below), we should then translate ὀφείλει/ἀφινόντα as “explanation”: one more properly understands an “explanation” than a “cause,” the former being more properly an object of intellect than the latter; see also Barnes 1994, p. 190.

2 This is an important endoxical finding about definition in the Topics; see e.g. Top VI.4 141a31-2 and 141b34-6.

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single explanation that both accounts for its existence as X and underlies all its properties. Thus Aristotle’s claim amounts to saying that genuine definitions do more than merely identify or pick out – they explain. Now in the demonstration manifesting a definition, I am suggesting that one type of syllogism, the “explanatory” syllogism, would provide the explanation by which we understand the nature of the definiendum and can deduce its properties. But the definiendum must first be properly picked out before it can be explained. A second type of syllogism would serve to identify the phenomenon by which the definiendum is first recognized by showing that the presence of this phenomenon entails the presence of the definiendum. It is clear that both the explanatory and identification tasks must be performed if the explanation is to explain, the definition to define. Dividing the chain of syllogisms into two types is a way of expressing this division of labor and highlighting both tasks separately. The complete chain of syllogisms would be the record of the results of both tasks.

But it would be more than simply a record of results. It is clear from the Prior Analytics that Aristotle is intent on showing how the construction of scientific syllogisms on the basis of scientific data is meant to be a tool of scientific investigation. Such then would be the case with both the explanatory and identification syllogisms. And once constructed, they could be used in evaluating a proposed explanation, and even proposed identifying properties – and hence a proposed definition. In the course of an investigation, both the identification and explanatory syllogisms would, in effect, be provisional and exploratory: various candidates for both explanation and identifying properties would be essayed until the correct ones are found and the investigation is complete. Thus demonstration would be used as a tool for seeking the correct scientific, i.e. explanatory, definition. I will maintain that the discussion of II.8 is as much concerned with discovering scientific definitions as presenting them. Barnes has pointedly argued that Aristotle’s “theory of demonstrative science was never meant to guide or formalize scientific research: it is concerned exclusively with the teaching of

3 This may be the meaning of the obscure clause at APo II.8 93a5, δητα Ἐπεὶ τα το ὄφειν, “because there is a certain thing [?] that is the explanation,” which Aristotle gives as the reason for his claim (in the preceding line) that knowing what something is is the same as knowing the explanation for its existence. See also the account at DA I.1 402b16–403a2 of the relation between definition and essential properties.

4 On the explanatory nature of Aristotelian definition, see Sorabji 1969, pp. 130-3.

5 See e.g. the scheme for deriving scientific propositions based on shared attributes in APr I.23-30; I will be discussing below the “inductive syllogism” in APr II.23.

6 Ackrill (1981, pp. 359, 363) notes that in APo II.8-10, Aristotle often speaks of “seeking” (ζητομεν) and “finding” (εὑρετομεν, λαμβαινειν) definitions and explanations. Ackrill lists the occurrences: 93a17, a26, a27, a31, a35, b4-5, b15, b32, b33.