Epistemic and pragmatic approaches to deduction in Aristotle

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1. Variety of approaches to deduction in Aristotle

Aristotle has a variety of approaches to deduction (συλλογισμός). His approach to deduction in the *Prior Analytics* constitutes a (formal) logical theory in that it proves certain things about a formal system (Lear 1980). This system, the syllogistic, is formal without being formalistic (Lukasiewicz 1957, 17; Morison 2012; Malink 2015, 269). His theory of syllogistic consequence does not require regimentation of the expressions admissible in a deduction, but does require that the expressions used have the same meaning. Let's call this presupposition of the syllogistic the Semantic-Ontological Stability Principle (SOSP).

The theory of syllogistic consequence in the *Prior Analytics* can be viewed as a metalogical theory. It is a theory in which features of deductive argument are theorized and proved. But this does not exhaust Aristotle's study of deduction. He also treats deduction in specific contexts of use. This approach is best characterized in terms of a theory of argumentation.

A. juxtaposes two forms and contexts of argumentation in particular: demonstration (ἀπόδειξις), and dialectical συλλογισμός. Dialectical and demonstrative argumentation are theorized in terms of a contrast between contexts and their norms of premiss-acceptance. [T1 i] Deduction in a demonstrative context is conceived as being from premisses which are true, pertinent and informative. [T1 i–ii, T2 iii] Deduction in dialectical contexts operates upon the basis of *topoi* and "acceptable things" (τὰ ἔνδοξα). [T1: iii; T2: ii]

The main purpose of this paper is to understand how we should conceive the differences between these two contexts of deduction and Aristotle's approaches to them. My main thesis is that Aristotle's approach in the *Topics* to deduction in dialectical argumentation (*nota bene*: argumentation, not "reasoning", *pace* Bolton 1994) is pragmatic. The approach to dialectical deduction is pragmatic in the sense that it investigates acceptable uses of language and inference. On this approach, dialectic is not conceived by A. as having an epistemic basis (*pace* Bolton 1989). [T2: iii]

One salient difference between norms of language use observed in these difference contexts of deduction can be characterized this way: Whereas deduction in demonstrative contexts presupposes SOSP, deduction in a dialectical contexts presupposes only SSP, a "Semantic Stability Principle".

2. Dialectical vs. demonstrative contexts

The original context of the theory of dialectical argumentation are practices of argumentation in question-and-answer format. The domain of discourse for such procedures is conceived by Aristotle as universal, i.e. not domain-specific. The purpose of such procedures was role-dependent: for the questioner, to refute an opponent upon the basis of verbal commitments elicited through questioning; for the answerer, to avoid being so refuted.

(Note a difference to the pragma-dialectical model, in which the purpose of argumentation is to resolve disagreement. That does not seem to be the purpose of the dialectical procedures which inform the theory of the *Topics*.)

The norm of premiss-acceptance in dialectical contexts is expressed by the determination of dialectical deduction as deduction from ἔνδοξα. [T3 ii] This notion may apply not only to certain explicit and recognized statements (e.g. *doxai*), but also to the conventional use of language [T4], and to patterns of inference. [T5]

The manipulation of ambiguous terms was a stock sophistical strategy to garner acceptance in argumentation. This practice in dialectical contexts forces the theorist of dialectic to find a tool to track *lexical entailments*. [T6] This "tool" is for Aristotle the study of ambiguity. It is a major component of A.'s theory of dialectical argumentation. [T7]

In An. Post. A, Aristotle studies deductions which satisfy stricter requirements, demonstrations. These stricter requirements include (but also exceed) SOSP. Acceptability and ambiguity are not a concern. [T7] This reflects a difference in the governing presuppositions in contexts of dialectic and demonstration. In dialectical contexts one may make appeal to SOSP or SSP. But eristic argumentation is also possible, which does not adhere to SSP. [T1: iii]

The norms for accepting a proposition as a demonstrative principle include the truth of the proposition, but also go beyond that. These norms are informed by a picture of science as an ordered domain of discourse with domain-specific principles. The domains, ontologically, are discrete "kinds" (γένη). The kinds which A. has in mind in An. Post. A are paradigmatically mathematical.

3. Background of the two approaches: Plato, Resp. VI–VII

The picture of demonstration which we find in An. Post. A is very much influence by Plato's conception of mathematical procedures in Resp. VI-VII. The picture of dialectic in the *Topics* is strikingly different from Plato's account of dialectic there.

The distinction between dialectic and the method of hypothesis which we find in Resp. VI–VII suggests a distinction of method: a mathematical method "downward", and a dialectical method "upwards". [T10, T11]

As remarked by several interpreters (e.g. Solmsen 1929: 182–183), the characterization of dialectic as epistemically first-rate and hypothesis-argumentation as epistemically second-best is not taken up by Aristotle. Both dialectic and demonstration are theorized as "downward", i.e. deductive, procedures. The

purpose of dialectical procedures, on Aristotle's conception, is precisely not epistemic; for dialectic is no longer tethered to a specific ontological domain.

What, then, is the proper object of the theory of dialectical argumentation, and how are we to understand its context?

4. The pragmatic approach to deduction in dialectical contexts

The pragmatic approach to deduction in dialectical contexts proceeds by means of τόποι. A τόπος indexes an argument context and consists (usually) of several parts: an instruction, an example, and a rule. The rules of the τόποι are not sentences or premisses [as is clear from T2] (*pace* Slomkowski 1997; see Solmsen 1929). A rule in a τόπος states a warrant which makes the deduction conclusive. Warrants cannot be part of the premiss-set of the deductions which they consideration (*contra* Slomkowski 1997: 58ff.).

Some τόποι feature rules which are grounded in real relations [T12]. Others feature rules which seem to be procedural [T13]. Ohters again have rules which are defeasible [T14]. The common feature of the rules of these τόποι is that they are assertible in the context of dialectical argumentation and may be used for deduction.

5. Conclusion

What are sometimes characterized as various "disciplines" of argument in Aristotle (in particular: dialectic and analytics) may be read in a non-developmental way as fields of application of a core concept, συλλογισμός, to various contexts of its use. Reasonably and understandably, the settings of these contexts inform Aristotle's approach to deduction in each of them. It is therefore important to understand Aristotle's theory as related to the settings of each context. The pragmatic aspects of Aristotle's approach to deduction in the theory of dialectical argumentation reveals Aristotle's sensitivity to these settings, and an interest in argumentation wherein the truth of the assertions used as premisses is not pertinent. Therein lies the logical character of the *Topics*.

6. Bibliography

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