

Aristotle on Heuristic Enquiry and Demonstration of *What It Is*

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In the *Posterior Analytics*, Aristotle develops a theory of demonstration as a way of gaining causal knowledge of things or events under the general plan of constructing both an ideal structure for demonstrative science and a unified and comprehensive theory of heuristic enquiry. His theory of demonstration emerged in the Academy in which Plato's division theory was the official method of knowledge and of enquiry at that time. His intellectual controversies with his fine rival theorists in the school made Aristotle create a subtle and attractive theory of demonstration, on the basis of which Aristotle set a solid and high standard of such issues, generally speaking, as knowledge, causality, necessity, science, signification, essence, definition, enquiry and discovery for the following generations to present date to be pursued and tackled.

There is, however, a tension between these two enterprises as to the roles in which the same demonstration is supposed to be involved. While this method of demonstration may be suitable for geometry and fitted well to present an axiomatic deductive science, it may not be flexible enough to cope with the various empirical sciences such that it would not be useful for as the tool of scientific enquiry due to its logical and mathematical constraints. Any enquiry theory which ignores the realm of empirical sciences would be wholly unacceptable. While the theory of demonstrative science is rigorously built, its conditions and constraints may not be met by various scientific activities.

If Aristotle's theory of demonstration is to play a genuine role in actual philosophical and scientific enquiry, it must be embedded into actual programs of enquiry as they are conducted in the real world. Aristotle must show, in effect, that this method of demonstration is useful in enquiry and not only in exposition as a systematic way of presenting a body of knowledge already acquired.

Hence Aristotle's dilemma: if one maintains strict conditions for demonstration, the scope of enquiry is threatened. If one pursues a comprehensive theory of enquiry, the demand for demonstration may constitute an excessive burden in view of its uniformity and generality. Aristotle's overarching theory of enquiry and demonstration must be both comprehensive and unified, yet capable of generating scientific knowledge in the widest range of areas possible. I shall call this dilemma

‘the comprehensiveness strictness dilemma (CSD)’. The most pressing question is whether Aristotle can simultaneously meet both objectives. If he is successful, his two projects will enhance one another in both scope and function. He pursues this ambitious plan, I argue, by advancing what I shall call a ‘heuristic demonstrative enquiry theory (HDE)’.