

## A Brief (Very Brief) Overview of Aristotle

I agree with those who believe that Aristotle's philosophy is influenced by his twenty years studying with Plato in the Academy. In particular, both of Aristotle's two main philosophical projects, first, the clarification of the nature, scope and results of logical reasoning, or, more simply, dialectic, and second, setting out a coherent science of the universe, including especially life on earth, can both be seen as resulting from being a student of Plato's in the Academy. More particularly, the latter project was the result of Aristotle trying to justify rejecting the Parmenidean strictures against the possibility of change, motion and plurality.

### Plato and Aristotle Connections

1. The unity of the sciences. Like Plato, Aristotle believed that all human knowledge was a unity. Science, in order to be science, had to be systematically done. Whatever facts one gathers must be placed into a single, systematic whole, otherwise it couldn't be regarded as knowledge.
2. Logic. Plato's pioneering work as a logician (classification and dialectic were key components of the curriculum of Plato's Academy) and his influence on Aristotle helped to make Aristotle the founder of logic as we know it (or knew it for 2000 years or so).
3. Plato had a deep and abiding interest in questions of ontology. Plato's ontology centers on the Forms. Although Aristotle rejected the view that the forms have an independent existence, he too devoted much of his work to basic ontological questions.
4. Plato regarded knowledge, scientific knowledge in particular, as a search for the causes or explanations of phenomena. Aristotle inherited this concern and saw scientific activity as consisting of the search for explanation, rather than that of merely compiling facts and observations.
5. Finally, Plato and Aristotle were concerned with epistemology: Can we know anything at all? How do we know? What is knowledge?

### Aristotle on DIALECTIC

Dialectic, as noted above, was a key concept for Plato. After all, he regards it as the "coping stone" study for his philosopher-rulers in the Republic. However, Plato does not go into much detail regarding the nature of dialectic. We know that it is the means for reasoning about the Forms, i.e., "intelligible objects" and that it seems to be tied to principles of classification. We can also say that dialectic is Plato's way of extending Socratic elenchus. Both dialectic and elenchus serve to critically examine our thoughts and ideas concerning single concepts (the more abstract the better, it seems), that is, both techniques concern themselves with trying to provide adequate answers to "What is X?" questions.

For Aristotle, it was clear that the activities of elenchus and dialectic were intimately connected to the notion of definition and so his logical works begin with an attempt to clarify the concept of definition.

### **Synonymy and Homonymy**

For Aristotle, things are synonymous, not words: Two or more things are synonymous (with respect to a certain term) when a term can be applied to them in the same sense, or using the same definition. So, for example, men and chickens and fish, etc., are all synonymous since 'animal' can be applied to them all using the same definition.

In contrast, many things are homonymous, e.g., a school board and a board used in building a deck are homonymous, i.e., the same name, 'board' is applied to both things but they cannot both be covered by single definition of 'board'. According to Aristotle, there are key philosophical terms which are applied to different things and in different ways but which resist being given a definition that can cover all their senses or uses. Speaking somewhat loosely, we can say that some key philosophical terms are, for Aristotle, "homonymous terms". Notoriously, Aristotle thinks the verb "to be", to be such a term. Thus he tries to clarify the different senses of this important verb.

### **Being/"To be"/Existence**

For Aristotle, it is clear that the reason for the homonymy/ambiguity of the verb "to be" is due to the fact that things are/exist in different ways. The most important way for something to be or exist is that of

substance (ousia, in the Greek, which is also translated as BEING, for all of you Parmenides fans; it can also be translated as ESSENCE). Aristotle distinguished between primary substances, by which he simply meant any individual entity, e.g., Tabby the cat, Fido the dog, Socrates the man, and any other individual item in the universe (most of which we don't bother to name but we could if we wished to) and secondary substances, which are basically classes of primary substances. Aristotle called classes of substances genus or species, depending on the level of abstraction of each class. So, e.g., the secondary substance, human being, is a species of another secondary substance, animal, which is a genus of the class of humans. Most importantly, Aristotle held that only facts about secondary substances are "scientifically knowable". He believed that you couldn't know anything of import about particular dogs, trees, humans, etc., but he did think we could know general facts about dogs, trees, humans, in general. (More on substance below).

### **Aristotle on the the structure of the sciences**

We study science, according to Aristotle, for one reason, knowledge. But what we wish to know takes 3 basic forms, viz., to know for its own sake, to know for the sake of conduct and to know how to make useful or beautiful objects. Aristotle divided the sciences accordingly into the theoretical, the practical and the productive. The theoretical sciences included mathematics, physics and metaphysics (or theology), the practical sciences included politics and ethics and the productive sciences included art and rhetoric, among others. Logic is sometimes included among the theoretical sciences although Aristotle seems to have regarded it as a preparatory subject for studying any of the sciences at all. As one commentator puts it, Aristotle believed that logic teaches us to determine what sorts of propositions we should demand proof of, and what sorts of proof we should demand for particular propositions.

Aristotle's logical writings, collectively labeled Organon (a Greek term meaning tool or instrument) consist of:

1. Categories; a study of the basic terms of language, especially those needed to give proper definitions. Definitions involve classification and so Aristotle classified things into categories or what he called, *summa genera*, Substance, Quantity, Quality, Relation, Place Date, Action, Passivity, etc. These categories were supposed to be able to tell us what kind of entity something ultimately is.

2. De Interpretatione; a study of the proposition, (i.e., a statement that says something true and false) itself;

3. Prior Analytics; contains Aristotle's theory of the syllogism which can be justifiably counted as the first attempt to give a general account of the process of making inferences; Aristotle believed that the syllogism was the common pattern of all reasoning;

4. Posterior Analytics; Aristotle's discussion of scientific reasoning, i.e., reasoning which is not aimed merely at consistency (or formally correct reasoning) but also at truth;

5. Topics and Sophistic Elenchi, where Aristotle discusses syllogistically correct reasoning which fails to meet the requirements of scientific truth.

### **Aristotelian Buzz Words**

**SUBSTANCE:** Predicates that answer the question: "What is X?" fall into the category of (secondary) substance and the things which belong to the category are (primary) substances. All the other predicates and categories designate nonsubstances. Colors, shapes, sizes, places, etc. are not substances; they exist but they do so only as colors or shapes of some substance or other. For red to exist is for some red thing to exist. As Aristotle puts it, the red of a red thing is not separable, i.e., it exists only as a modification of some other thing. Very clearly a

position that has no need of Platonic Forms, i.e., forms as separate existences). Q: What things are substances, i.e., what sorts of things have this primary status, what things are the primary existents? A gives a commonsense answer. Substances include most perceptible, middle-sized material objects, i.e., animals and plants, natural bodies, artifacts, etc.

Contrary to Plato, things are prior to their properties in the sense that round things are prior to roundness since the existence of roundness is simply a matter of there being round things.

**CHANGE:** There are 4 types of change, change of substance (generation and destruction of one substance into another), of quality (alteration), of quantity (growth and diminution) and place (motion). Every change involves 3 things, viz., a state from which the change proceeds, the state to which the change proceeds and the object which persists through the change.

A problematic case is change of substance. Recall that for A, substances are middle-sized objects. Thus a particular statue is a substance. So, we can ask how a statue can be said to persist through its generation and its destruction? Here A suggests that substances consist of two aspects or parts, called form and matter. These are logical parts, not physical parts. When someone makes a statue the persisting object is the matter/material of the statue (clay or stone, presumably) and it goes from one form to another (i.e., the statue).

**CAUSATION:** For Aristotle, in order to be said to know some thing one must be able to know the cause of it. For knowing some thing consists of giving an explanation for why that thing is as it is and in order to give such an explanation, one must know the cause of the thing. Ultimately, as one traces the string of causes of some thing, one comes to be acquainted with the essences of things and one cannot know without arriving at the nature of the essences of things.

It is traditional to see Aristotle as having a doctrine of 4 kinds of causes, viz., material, formal, efficient and final. It's not clear that 'cause' is the best term to translate Aristotle's term (*aitia*); another candidate for the translation would be 'explanation' or reason. The 4 causes can be seen as 4 ways of answering a "Why question". E.g., Why is the statue malleable? Because it's made of bronze (material cause answer). Why is Bob a bachelor? Because he's unmarried (formal cause answer). Why did Chicago burn down? Because Mrs. O'Leary's cow kicked over a lantern (efficient cause answer). Why are there houses? In order to preserve our health and belongings (final cause answer).

The 4 causes can also be seen as connected with 4 different questions we can ask about a thing, e.g., What is it made of? (material cause); what kind of thing is it? (formal cause); what or who made it or otherwise brought it about? (efficient cause) and finally, what is it for? (final cause).

## **ACTUAL/POTENTIAL AND FORM/MATTER**

Key elements of Aristotle's concept of change and causation are actual (or actuality) and potential (potentiality) and relatedly, form and matter. Everything in the universe can be characterized as a combination of form and matter. The differences between kinds of objects in the world are due to differences in either form or matter. Roughly speaking, matter is the raw material of things while form is its structure. Socrates is a particular combination of matter which has the form of man. An oak tree is a perhaps related combination of matter to that to be found in Socrates but the form is radically different. The key to understanding the form of a thing is to understand its *telos*, the goal or end toward which a thing strives. For each form there seems to be a particular force whose purpose is to lead particular things to reach their appropriate ends or *telos*. The force is called its *entelechy*. Modern science has rejected the picture of *entelechy* and *telos*, the idea that each thing has a particular end that it is striving to reach. Such notions are no longer thought to be particularly explanatory.

According to Aristotle, "change is the actuality of the potential *qua* such", or the actualization of what is potential. An acorn is a potential

oak tree and it becomes an oak tree by changing from being an acorn to being a tree, a process of actualizing its potentiality. All change of substance is the process of exercising a capacity for change, i.e., making actual what is potential.

Aristotle realized that not every thing had the potential to become anything whatsoever. Clearly, an acorn is not potentially a dog. Ditto for other pieces of matter: Their potentiality, and thus what they can actually become, is limited by the actual characteristics they possess at any particular point. Such actual characteristics were tied to the matter of the item in question. For Aristotle, all substances were a combination of a particular form on something material/matter. Aristotle did believe, however, in "prime matter", a special sort of matter that had the potential to become anything whatsoever. But prime matter was not to be found any longer in a raw state in the sublunary world.