

ARISTOTLE

Knowledge

Theoretical

(Of What Actually exists)

*Distinctive principles
found in things
investigated

*Intrinsically valuable

Practical

(Of What is to be Done)

*Distinctive Principles
found in agents capable
of deliberate action

*Valuable for achieving a good life

LOGIC- instrument (*organon*) for correctly carrying out the kind of thinking by which theoretical knowledge may be obtained. Investigates standards of correct reasoning and good evidence

Proposition: true-or-false statement (Affirmative or Negative; universal, particular or singular) in which something (the predicate) is said of something (the subject term). e. g, " All dogs are animals." , "Some plane figures are triangles."

Reasoning - consists of propositions . In an act of reasoning, one proposition is said to follow from the others

"Categories" - the part of works on Logic which investigates the basic types of predicates.

Basic types of predicates are those of:

- * Substance (man, horse)
- *Quantity (two inches long)
- *Quality (white, musical)
- *Relation (half, greater, father-of)
- * Place (in the courtroom)
- * Time (yesterday)
- *Position (prone)
- *State (clothed)
- *Action (to cut)
- *Afffection (to be cut)

Predicables - types of relations between subject and predicate

- *Genus - kind of thing (animal)
- *Species - group included within a genus ('man')
- *Difference - what sets a species apart from other species under a common genus ('capable of speech')
- *Definition - genus plus difference of a species ('animal capable of speech'). Represents essential nature of a subject.
- *Property - characteristic necessarily connected to a subject but not part of its definition ('capable of learning arithmetic')
- *Accident - characteristic not necessarily connected with a subject ('five feet tall')

Reasoning ("Prior Analytics")

- consists of (valid) arguments in which, certain things (premises) being laid down, another thing (the conclusion) necessarily comes about through them. Example:

All animals are mortal
All men are animals
Therefore, All men are mortal

Demonstration - valid argument whose premises are known to be true

Syllogism - argument having exactly two premises and one conclusion

Scientific demonstration - Demonstration with premises which are universal and necessary, where the middle term (e.g., "animals") establishes the connection between the other terms, thus giving the reason or real cause of the conclusion. The aim of theoretical science is to discover explanatory reasons why some subjects and predicates are really connected.

For Aristotle, many things may be known by means of demonstrative reasoning. But demonstration of conclusions cannot be the only way of knowing things or else the attempt to achieve knowledge (of universal, necessarily true propositions) would be an infinitely long process. But such a process can never actually be carried out. Nothing, then, could actually be demonstrated. But some things are actually known by means of demonstrations, for example in Geometry.

A theoretical science must, therefore, be based on **First Principles**, universal and necessarily true propositions which can serve as premises of demonstrations but which cannot (and need not) themselves be demonstrated. These first principles are not known by reasoning but by induction from experience of particular things.

First Principles of Theoretical Science

*Axioms - Principles common to all the sciences (e.g., elementary laws of logic such as the law of non-contradiction)

*Theses - Principles common to several sciences
(e.g., A whole is greater than any of its parts)

*Hypotheses - Principles specific to different sciences
(e.g., A straight line is the shortest distance between two points; living things are capable of self-motion , i.e., of causing changes in themselves)

For Plato, only acquaintance with Forms can provide knowledge of first principles because first principles must be unchanging, universal and necessary. Nothing in sensory experience has these characteristics. Sensible things are all changing, particular, and imperfect. So, for Plato, if we have knowledge of first principles, this can only be because we had an acquaintance with the Forms before our souls were joined to our bodies at conception.

Incarnation and birth, according to Plato, is a kind of falling away from a blessed condition. This causes pain, confusion and memory-loss. Gaining knowledge of first principles happens by a kind of recollection of pre-natal acquaintance with the forms.

Aristotle was very critical of Plato's theory of Forms. One of his criticisms was that it is not necessary to affirm the theory in order to explain how knowledge of First Principles is possible. Yet, Aristotle agreed with Plato's standards for the highest type of knowledge.

One of these standards is : knowledge is of that which is universal (common to many things), not of that which is particular or singular.

Knowledge of fire, for example, would not be of this individual fire or of a certain collection of individual fires. Knowledge of fire would be knowing what fire as such is. What one knows must be something universal rather than something singular.

Aristotle's reason for insisting on this standard is that he, like Plato, thought that the difference between knowledge and belief is that what one knows cannot be changeable. Claims about changeable things can be true at one time but false at another time. Beliefs are capable of being false, but if one actually knows something then that thing *cannot* be false. All singular things are changeable and are actually changing all the time. If one actually has knowledge there must be something which does not change and cannot change. So, only that which is not singular (universal) can be truly knowable.

Not only are all singular things changeable, they cannot be repeated. The same singular thing cannot exist in two or more places at once. What is unchangeable and is repeatable is what Aristotle calls universals.

When a universal is given a correct definition one has a statement which is eternally and necessarily true. These definitions are first principles that serve as the foundations of the theoretical sciences. For example, one of the first principles of Physics would be that fire is a hot and light material substance. This statement is not specifically about any particular fire or collection of individual fires (portions of feiry stuff). It says what fire *as such* is. It defines it in terms of the universal characteristics of heat, lightness, materiality and substance. Knowledge, then, is of unchanging characteristics and of unchanging relations of characteristics.

So far, this is much like Plato's theory of knowledge.

But Aristotle thought that there were very serious problems with Plato's contention that Universals must be as he conceived the Forms, as existing in a completely different dimension from that of changing sensible things, a dimension in which there is no change, no passage of time, no material substance.

As poetically appealing as Plato's domain of Forms might be, Aristotle was convinced that the theory was doomed, both because it is not necessary and because it is just illogical.

One reason he gave for his claim that it was illogical concerns the relation of forms to sensible things. How can *changing* things have any sort of relation to *timeless* things?

Plato says the relation of Forms to sensible things is Participation. Fido participates the form Canineness. Rex participates the very same form. Because they participate the same form, the two individuals are similar to one another. This participation cannot in any way change or affect the Form. But, then what, exactly, is participation? The Greek word for it literally means "having a share of". So, does Fido literally have one share of Canineness while Rex has another share of the same Form? But how could the same form still be available for Rex to have a share of after Fido has his share? Doesn't Rex participate Canineness -minus -X if Fido already has his share? And doesn't this suggest that forms, like cakes, can be diminished or even used up? This is just contrary to what Forms are supposed to be - unchangeable.

But suppose that participation is possible in the sense that a thing participates the whole of one form rather than having a share of it. Another absurd consequence will follow. Suppose two things are entirely separate and distinct from one another. Then, if each participates the whole of the same form, F, it seems that F must be separate and distinct from itself.

Participating cannot involve Forms acting on things somehow, because anything which is acting on something is *itself* changing in some way. Likewise, participation cannot involve things acting on forms because, if forms are *affected by* things, then forms are changing.

But, because of this criticism of Plato, Aristotle seems to have left himself with a dilemma. Without universals, knowledge is impossible. With Plato's version of universals, no relation between universals and singular things seems possible.

His solution to the problem is to argue that universals do not exist separate and distinct from changing sensible things but as characteristics of sensible things.

Universals are not super-substances existing in their own dimension but repeatable, recognizable, *characteristics* of singular things. They are of two main types: essential natures like Canineness or Triangularity and accidental characteristics like length, color, or running.

The main differences between the two types is that essential natures are characteristics that have no degrees and have no contraries whereas accidental characteristics have contraries and degrees.