

Aristotle and George Boole

Philosophy



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Aristotle and George Boole contributed to the progression in mathematics and logic with their findings. Plato's most influential student, Aristotle, job was to be a puzzle solver mostly for metaphysical phenomena and some of his works are more solid and structured prior analytics. He learned from Plato and later taught his understanding of logic, reasoning, and debate at his peripatetic school. He wanted to systematize each set of knowledge into certain rules and marking and ordering things. By doing this, he was able to create abstract timeless labels. It is from this that he was able to create laws of thought known as logical absolutes.

The mechanistic movement in the late years of the Renaissance made Aristotle create a distinct line between the physical sciences and mathematics. Aristotle considered the knowledge of geometry and arithmetic calculations to be the most important of the mathematical sciences. Aristotle considers that most mathematical theorems to have the idea of A and C with a middle value B, which lies between A and C that helps intertwine and create a connection between the three. He was able to formulate this from his success of the logical theory.

The first fundamental principle of predication is identity.

This means that an object will act accordingly to the actions of that object. For example, a ball will have the characteristics of a ball. It will not be able to swim like a fish. The second fundamental principle of prediction is the law of non-contradiction. Meaning that it is impossible for an object to be a certain way and not be that certain way at the same time. The third principle is the law of excluded middle, which means an object needs to either be or not be.

It can't partially be. The first person known to suggest these ideas was the pre-Socratic philosopher Parmenides of Elea who said, "Never will this prevail, that what is not is". Aristotle applied this idea to the natural world around him. He observed that an object, tree couldn't also be a flower. It couldn't be a tree and not a tree simultaneously as well.

Aristotle's geometric propositions are that angles at the base of an isosceles triangle are equal, angles about a point are two right angles, if two straight-lines are parallel and a straight-line intersects them, the interior angle is equal to the exterior angle, if a straight-line intersects two straight-lines and makes interior or exterior angles equal to two right angles on the same side with each, then the lines are parallel, but it is possibly the weaker theorem that each angle formed by the intersecting line is right, rather than their sum equals two right angles.

More of Aristotle's propositions include, the locus of points formed by taking lines in a given ratio (not 1 to 1 ratio) from two given points constitute a circle. The shape of a square is unaltered when a gnomon is added, but a rectangle's shape is altered, where a gnomon has the shape of a carpenter's square; about a unit you add three units to get a 2 by 2 square, and about two units you add four units to get a 3 by 2 square, and Two spheres rotating in different directions, with one carrying the other, produce a non-uniform motion.

George Boole converted logic to mathematics. He is best known for "The Mathematical Analysis of Logic", being an essay towards a calculus of deductive reasoning in 1847 and "The Laws of Thought" in 1854. Regular

number algebra has the basic operations of addition, subtraction, multiplication, and division while Boolean algebra works on Boolean variables, true and false. The Boolean operations include and, or, and not.

Boole was able to show how the symbols of quantity can be separated from those of operation. With Boole began the algebra of logic (Boolean algebra) in 1847. Boole's original general symbolic method of logical inference, as explained in his, "Laws of Thought", draws solutions that are logically contained in the properties. He tried to create a general method in probabilities, which would make it possible to determine the consequent probability of another even that logically connected with the present events of a probability. Boole's abstruse reasoning has led to applications like the telephone switch and electronic computers use binary digits and logical elements that rely on Boolean logic for their design and operation.

Both Aristotle and George Boole contributed to mathematics and its power to better understand the world around us through analytical, geometrical, psychological, and logical way. Their discoveries and ideas helped the world to better understand the systematic actions of the universe.