Research Paper Philosophy

Laws of Thought

Aloke Bhunia | Researcher, Vidyasagar University (West Bengal), Philosophy and the Life-World

KEYWORDS

Some early thinkers after having defined logic as "the science of the laws of thought" went on to assert that there are exactly three basic laws of thought laws so fundamental that obedience to them is both necessary and sufficient condition for correct thinking. These three laws have traditionally been called:

1) *The Law of Identity*:
"A is A" or "Anything is itself".

If a statement is true, then it is true. It asserts that every statement of the form pp is true, that is it is a tautology.

2) *The Law of Excluded Middle*:
Anything is either A or not A.

Any statement is either true or false – asserts that every statement of the form p V p is true, it is a tautology.

3) *The Law of Contradiction*:
Nothing can both be A and not A.

No statement can be both true and false – asserts that every statements of the form pp is false.

It is one of the pivotal assumptions of traditional western that there are certain fundamental principles which govern human thinking. They are considered as fundamental in the sense that without these laws reasoning cannot take place.

In western tradition, the concept of laws of thought can be traced back to Aristotle (384-322 BCE), the eminent Greek thinker, who is considered to be the pioneer of western logic. Before him, the geometricians and the arithmeticians used *proofs* in their respective domains. Aristotle was the first to extend the study of formal proof in the domains beyond the realms of geometrical and mathematical thinking. He was also the first to investigate the patterns embedded in human reasoning and the way in which reasoning is processed.

As part of his project, Aristotle was trying to describe the basic laws by which human thought (and reasoning) can occur. As examples of foundational laws, he identified the following three laws:

Law of Identity

Law of Non-Contradiction

Law of Excluded Middle

These are now explained below:

Law of Identity
By law of identity, we means "that everything is the same with itself and different from another" e.g., B is B and not B. It says that if any statement is true, then it is regarded only as true. It also means that every statement of the form pp must be true, so the statement is a tautology. Aristotle also talks about the laws of identity.

It has been also said that each thing like of universal or a particular is composed of its own unique set of features. Things, which have the same essence refers to the same thing, whereas things that have different essence refers to the different thing. Those who violate the law of identity are engaged in the informal logical fallacy, we mean equivocation.

Law of Non-Contradiction
This law of non-contradiction comes under the domain of logic. It says that "one cannot say of something that it is and that it is not in the same respect and at the same time". This definition is given by Aristotle. It also says that no statement can be both true and false. So, it has been said that every statement of the form p·~p must be false, then that statement is regarded as self-contradictory.

It has been said that the law of non-contradiction or the principle of non-contradiction means the same thing. It also states that contradictory statements cannot both be true in the same sense at the same time. By the law of non-contradiction, we mean an expression of the mutually excusing aspect.

Law of Excluded Middle
The law of excluded middle comes under the domain of logic. It also means the principle of excluded middle. It says that either the proposition should be regarded as tree or its negation should be regarded as true. It is also known as the law or principle of the excluded third. It says that a statement is either tree or false. It has been said that there is no middle ground between being true and being false. This law excludes a middle ground between truth and falsity. It has been also state that every statement of form pv~p must be true then that every such statement is regarded as tautology.

The law of identity has been attacked on the ground that things change, and are always changing. Thus for example statements that were true of the United States when it consisted of the 13 original states are no longer true of the United States today with 50 states. But this does not undermined the principle of identity. The sentence "There are only 13 states in the United States" is incomplete, an elliptical formulation of the statement is as true today as it was in 1790. When we confine our attention to complete non-elliptical formulations of propositions, we see that their truth of falsity does not change over time. The law of identity is true, and it does not interfere with our recognition of continuing change.

The law of non-contradiction has been attacked by on the ground that the world is replete with the inevitable conflict of contradictory forces. The reply is that there are conflicting forces in the real world is true, of course – but to call these conflicting forces "contradictory" is and ambiguous use of that term. Labor unions and private owners of industrial plants

may indeed find themselves in conflict – but neither the owner nor the union is the "negation" or the "contradictory" of the other. The principle of contradiction understood in the straightforward sense in which it is intended by logicians is unobjectionable and perfectly true.

The saw of excluded middle has been the objected on the ground that it leads to a "two valued orientation" that is, everything in the world must be either "white" or "black". This objection also arises from the misunderstanding. Of course the statement "This is black" cannot be jointly true with "This is white" – where "this" refers to exactly the same thing. But although these two statements cannot both be true, they can both be false "This" may be neither black nor white; the two statements are contraries not contradictory. The contradictory of the statement "This is White" is the statement "it is not the case that this is white" and one of them must be true and other false. The principle of excluded middle is inescapable.

Aristotle identified these laws as the *necessary conditions* for human thought: without them, thought cannot occur. He also held them as *laws of thought,* i.e., as fundamental principles for human rational thinking.

But, Boole added a few more laws to the list of three traditional laws of thought identified by Aristotle. For example, he mentioned the Law of Commutativity for Conjunction and the Index Law.

Law of Commutativity for Conjunction
Boole expressed this law as

(e·a) (a·e)

If two statements are joined by 'and', the order in which the statements are placed is immaterial. The truth or falsity of the conjunction remains unaffected.

Example
Being a metallic object and a water carrier is equivalent to being a water carrier and a metallic object.

The Index Law
Boole expressed this law as

(c·c) c

Asserting a statement is equivalent to its assertion in conjunction with itself.

Example
Being a metallic object and a metallic object is being a metallic object.

Boole believed that the truth of laws of thought does not require the validation from extensive observation; their truth is immediately obvious as a matter of necessity. He claimed that on this point the laws of thought differ from the laws of nature, such as the Law of Gravitation, which are essentially based on empirical observations. Being either causal hypotheses or the end-result of inductive generalization.

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