(Abstract)

SOME THEORIES OF ENTAILMENT: A CRITICAL EXAMINATION

The concept of entailment occupies a central position among the concepts of logic. The term 'entailment' was coined by G.E. Moore in order to denote the relation, which is the converse of the relation of deducibility. The relation of entailment is one of the necessary conditions for the validity of a deductive inference, thereby making the concept of entailment very important for logic.

There are differences among logicians regarding the nature of entailment. Different logicians define the notion differently. In *Principia Mathematica*, Russell defines entailment in terms of material implication. However, such a definition of entailment leads to paradoxes, known as the paradoxes of material implication.

In order to overcome these paradoxes, Russell introduces the notion of formal implication, with the help of which he defines entailment. But this theory too is not free from paradoxes, and so is unacceptable.

Lewis, in order to overcome these paradoxes, introduces the notion of strict implication and identifies entailment with it. However, Lewis's amendment had consequences scarcely less paradoxical than those of material implication.

A group of logicians, known as the Relevance logicians, notably Anderson and Belnap, think that a satisfactory account of the nature of entailment must take into consideration not only the elements of necessity but also some other stricter condition − the condition of relevance. However, relevance as a condition for analysis of entailment has been severely criticized and is found to have many short comings.

Neil Tennant, a contemporary logician, offers intuitionistic relevant logic by overcoming some of the defects of Anderson and Benlap's theory of entailment. Nevertheless, even his theory has a drawback in the sense that it does not make room for a fundamental principle, namely, the principle of unrestricted transitivity as such. He only accepts restricted transitivity.

The meaning of entailment, it seems to us, is that whenever a proposition p is said to entail q, it is impossible that p is true and q is false. And to say this is to say that 'p→q' is a tautology. And this is the classical account which has stood the test of time and is good enough. So, out of all the accounts the classical account, though not without flaws, seems to be tolerably satisfactory. An attempt has also been made to offer a new definition of entailment to overcome the shortcomings of the classical account.