Paradox of Material Implication in Classical Logic

Vishal Tomar (vishalt@iitk.ac.in)
Department of Mechanical Engineering
IIT Kanpur

ABSTRACT

The Paradoxes of Material Implication concern entailments which are valid according to Classical Propositional Logic but which contradict universal linguistic intuitions. These contradictions constitute one of the best-known objections to the classical truth-functional account of indicative conditionals. In this paper I give an Inquisitive Semantic account of the Paradoxes of Material Implication. We focus on the sixteen paradoxical inferences that can be found in the literature. We formalize, motivate and discuss two inquisitive systems: Basic Inquisitive Semantics and Radical Inquisitive Semantics. Further, we compare the Basic Inquisitive Semantic and the Radical Inquisitive Semantic account of the Paradoxes of Material Implication with the accounts given by Lewis’ Strict Conditional Logic S2, Stalnaker’s Conditional Logic C2, Update Semantics and Relevance Logic B. We also discuss the extent to which the inquisitive account of implication reflects the philosophical underpinnings of different non-classical accounts.

We demonstrate that Radical Inquisitive Semantics is the only system that allows us to account for all of the Paradoxes of Material Implication. We conclude that the account given by Inquisitive Semantics is better than the classical account and has certain advantages over other systems. Finally, we also suggest and discuss several possibilities for further research.

KEYWORDS: Classical Logic, Material Implication, paradox, Philosophical Logic