A NOTE ON THE TRUTH-TABLE FOR 'IF p THEN q'

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The argument presented here purports to be a defense of material implication. The authors do not think that the argument is correct because, among other things, material implication does not seem to be in general equivalent to other types of ordinary-language implications. Yet if the following argument is sound, the truth conditions of 'If p then q' are identical to those of '$p \supset q$'.

Most logicians agree on a sufficiency condition for the falsity of 'If p then q'; namely, 'If p then q' is false when p is true and q is false.[1] In order to compose the truth-table for 'If p then q', besides the uncontroversial operations for conjunction and negation, only four more assumptions are needed. First, a statement of the form 'If p then q, and if not-p then q' is interchangeable with 'q whether or not p'. These are equally plausible ways of asserting q and denying that the truth or falsity of p is relevant to the truth of q. Second, 'q whether or not p' asserts 'q', as does 'If p then q, and if not-p then q'. For instance, "Smith resigns whether or not he loses his rook" is an alternative way of saying "If Smith loses his rook then he resigns, and if Smith does not lose his rook then he resigns" or, more simply, just "Smith resigns". Our third additional assumption is that 'If p then q, but not if not-p then q' is not self-contradictory. For example, a statement of this form is sometimes used by a person who points out that p implies q but not-p does not imply q. Fourth, 'If not-p then q, but not if p then q' is not self-contradictory either. That is, this statement might be adopted when one asserts that not-p implies q but p does not imply q. With these assumptions, the question marks on a truth-table for 'If p then q' wither away.[2]

1. A. J. Dale, "A defense of material implication," *Analysis*, vol. 34 (1974), p. 91.

2. Truth-tables for 'If p then q' according to the sufficiency condition are given in Thomas S. Vernon and Lowell A. Nissen, *Reflective Thinking: The Fundamentals of Logic*, Wadsworth, Belmont, California (1968), p. 77.