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THE LOGIC OF EITHER-OR

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1. *The Paradoxes*. If there is any reason for calling the logical principles

1 $p \therefore$ if q then p, 2 necessary $p \therefore$ if q then p

paradoxes of the conditional, there is equal reason for calling the logical principles

3 $p \therefore$ either p or q, 4 necessary $p \therefore$ either p or q

paradoxes of the disjunctive.[1] For, just as there are many propositions expressed by sentences of the form 'if p then q' which can be true only if there is an appropriate connection between antecedent and consequent—a connection which is not guaranteed merely by the truth or even the necessary truth of the consequent—, so too there are many propositions expressed by sentences of the form 'either p or q' which can be true only if there is an appropriate connection between the two disjuncts—a connection which is also not guaranteed merely by the truth or even the necessary truth of one of the disjuncts.

In the case of disjunctive propositions the needed connection is of such a nature that it holds only when, in respect to the context in question, the alternatives are exhaustive.[2] In fact, it is typically the case that a sentence of the form 'either p or q' is used to set forth, whether exclusively or non-exclusively, an exhaustive set of alternatives. And such a statement of alternatives does not follow from the fact that one of the alternatives is realized or even that it is necessarily realized.

Suppose that White attempts to list the alternatives exhaustively when he says that Black, who is considered only as a faculty member of a university, is either an assistant or a full professor. Even though Black is, let us say, an assistant professor, the truth of White's statement does not follow. For, since there are further alternatives, his statement is certainly false. Suppose now that one of the alternatives is a necessary proposition. Here, e.g., White attempts to list the alternatives exhaustively by saying of a given integer, say $+2$, that it is either positive or negative. Since 0 is an integer and since $+2$ is being considered only as a representative of the in-

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