If: Some Uses*

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Summary. It is shown 1. that subjects are sensitive to appropriateness conditions governing the use of IF sentences, 2. that different sorts of IF sentences elicit quite different distributions of paraphrases, and 3. that subjects often accept the obverse of a conditional as following from it and IF NOT propositions as following from their mates phrased in UNLESS (and conversely), and that these effects too are conditioned by conceptual properties of the propositions related in the conditional. Insofar as the paraphrase of a sentence or the inferences drawn from it may be revealing of the way in which it is understood and used, such results suggest that IF sentences may be rather differently employed as a function of conceptual properties of the elementary propositions related in the conditional. Such findings read a clear lesson: it is not reasonable to suppose that the conditional has some unique cognitive representation, and the meaning and generalizability of any results obtained by relating arbitrarily chosen propositions of a particular conceptual kind in a conditional must be called into question.

There is an early Stoic maxim that “the very crows on the roof caw about the meaning of conditionals.” This paper will caw some more. From one point of view the paper may be considered as companion to one on various uses of OR (Fillenbaum, in press). Just as there it was argued that OR has no unique sense but rather a family of different uses, so here it will be argued that a similar point may be made about the conditional IF. From a related point of view the paper may be taken as a sort of extended footnote supporting one of the major theses in Wason and Johnson-Laird’s recent book (Psychology of Reasoning, 1972) which argues that the conditional “is not a creature of constant hue, but chameleon like, takes on the color of its surroundings: its meaning is determined to some extent by the very propositions it connects” (their italics and stress, p. 92). Considering performance on a variety of reasoning tasks they assemble much evidence that “the meaning of component propositions may decisively influence the interpretation of everyday conditionals” (p. 93), and that content is crucial, suggesting “that any general theory of human reasoning must include an important semantic component” (p. 245). The present paper is directed to the same issue and seeks to make the same general point. It constitutes an extension of their work, in part methodologically in the use of rather different procedures for obtaining data, see e.g., the use of a paraphrase task seeking to discover differences in the understanding of various sorts of conditional sentences, in part substantively in the consideration of some uses of the conditional not treated by Wason and Johnson-Laird, see in

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particular the purposive-causal use of IF in inducements (conditional promises and threats) where a speaker seeks to control the behavior of the addressee by signalling his intentions with regards to the actions of the latter, indicating the consequences of such actions.

While linguists may take it for granted that the conditional IF can be quite variously employed, psychologists have often written as though the formula $I p, q$ always has some single analysis, regardless of the properties of the $p$ and $q$ connected in that formula, and much of the controversy about the interpretation of IF has been as to whether it could be better represented by material equivalence or a biconditional than by material implication; whether one needed to assume some sort of a "defective" truth table such that the negation of the antecedent made the whole conditional assertion irrelevant, etc. Wason and Johnson-Laird have been quite atypical in suggesting that, depending on properties of the propositions connected, it may have any of these characteristics, or perhaps even others. Further, with regard to the uses of IF in ordinary language it should be pointed out that it cannot connect any propositions whatsoever, but rather that there is some very ill understood constraint of common topic on what may be connected, that somehow or other principles governing the "cohesion of discourse," to use a term from Wason and Johnson-Laird, must be respected if the resulting complex sentence is to be acceptable (for a similar comment with regard to AND and OR, see Lakoff, 1971, Fillenbaum, in press).

Perhaps the most characteristic usage of the conditional by experimental psychologists is precisely one in which the propositions involved are general and abstract, and the connection between them a completely arbitrary one. In the limit, this strategy is illustrated in Taplin and Staudenmayer (1973) where the problems were actually phrased using letters of the alphabet to represent the $p$ and $q$ propositions, so that a problem might read "If there is a Z then there is an H." But this sort of procedure may be found even in the work of Wason on hypothesis testing, where a problem might be posed as "If a card has a D on one side, then it has a 5 on the other side." Obviously in this use of the conditional as a sort of contingent universal the contingency between the two propositions is completely arbitrary and ad hoc to the experimental situation. Merely making the task concrete and posing the rule as "If a letter is sealed, then it has a 5d stamp on it" led to enormous differences in performance. The main point to be stressed here, however, is that such a concrete or realistic phrasing only captures one of the uses of IF, and that there are various other important uses involving temporal and temporal-causal connections between propositions, and indeed that such uses, as e.g., "If he passes a store he will buy a newspaper," "If you do that I'll scream," may be very common uses. If switching from an abstract to a concrete or realistic embodiment of a rule in a contingent universal use of IF makes for large differences in performance, there is surely ample warrant for caution in generalizing any results to conditionals of yet quite different sorts involving temporal and temporal-causal connections between their constituent propositions.

If IF may be differently understood when occurring with different sorts of contents, prima facie it would seem reasonable that different kinds of inferences might be made in different cases, and, further, considering the kinds of contents involved and the speech situations in which particular utterances are made, one