***Only* and Monotonicity in Conditionals**

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This paper proposes an account of the interpretation of *only* in the antecedents of indicative conditionals. Previous work on *only* in conditionals has largely been concerned with anankastic conditionals (e.g. von Fintel & Iatridou, 2007) and conditionals of the form *only if A, B* (e.g. Atlas, 1996). In contrast, we are concerned with sentences like (1a) and (2a).

The main datum we seek to explain is the difference between these conditionals in the inferences they support in typical contexts: From (1a) one can infer (1b), whereas (2a) does support the parallel inference to (2b).

(1) a. If Chris only does his homework, he will pass the class.
 b. $\leadsto$ If Chris does his homework, he will pass the class.

(2) a. If Chris only does his homework, he will fail the class.
 b. $\not\leadsto$ If Chris does his homework, he will fail the class.

More generally, we are concerned with the inference from a conditional of the form *if only p, q* to its counterpart *if p, q*: when and why it is warranted, its theoretical status and the wider implications of these data for the role of pragmatic factors in semantics.

We distinguish between a *scalar* and an *exclusive* reading of *only*. On the scalar reading ('Chris does his homework and nothing more'), $only\langle F(ocus), B(ackground), A(lternatives)\rangle$ asserts that $F'B$ is false for all $F' \in A$ higher on the scale. On the exclusive reading ('Chris does his homework and nothing else'), it asserts $F'B$ is false for all $F' \in A$. The latter is a special case of the former, arising when no scale is available (Beaver, 2005). We assume that on both readings, $only\langle F, B, A\rangle$ entails FB. Among the arguments that FB is not a presupposition or an implicature is the fact that (i) it does not project out of the conditional, and (ii) (1a) does not give Chris license to do nothing.

We adopt a Kratzer-style possible-worlds semantics under which the antecedent restricts the modal base of the statement that the consequent is a *human necessity*. That the modal force is not simple necessity is shown by the fact that although all *only* p-worlds are p-worlds, (1b) does not entail (1a). For our account, assuming human necessity has the consequence that the relation between (1,2a) and (1,2b) is not one of "weakening of the antecedent" – rather, the relevant antecedent-worlds in each pair are distinct.

Against this background, we argue, first, that the contrast between (1) and (2) does not point to an ambiguity of *only*, which receives a scalar interpretation in both. A uniform analysis is preferable because (i) postulating an ambiguity would merely beg the question of how and why distinct readings are chosen in (1) and (2); and (ii) the difference can be explained independently, in terms of the interplay between the semantics of the sentence on the one hand, and world knowledge and the interlocutors' goals, on the other.

Regarding world knowledge, the contrast between (1) and (2) is part of a general pattern involving pairs *If L, q* and *If H, q*, where L,H are low and high values on a scale:

(3) a. If Chris is a short man, he will be drafted.
 b. $\leadsto$ If Chris is a man, he will be drafted.

(4) a. If Chris is a short man, he will be exempt.
 b. $\not\leadsto$ If Chris is a man, he will be exempt.

The patterns in both (1,2) and (3,4) arise from the interaction with background world knowledge. That the availability of the inference indeed depends on the content of the conditional rather than its logical form is further shown by the fact that the pattern is reversed with an antecedent belonging to a scale of activities which cumulatively lead to failing rather than passing the class:

(5) a. If Chris only skips the exam, he will pass the class.
b. $\not\rightsquigarrow$ If Chris skips the exam, he will pass the class.

(6) a. If Chris only skips the exam, he will fail the class.
b. $\rightsquigarrow$ If Chris skips the exam, he will fail the class.

We formalize the role of world knowledge in terms of the relationship between the scale of alternative antecedents and the consequent: The inference from (a) to (b) goes through only if the truth value of the consequent increases monotonically in the position of the antecedent on the scale (1,3,6) and fails otherwise (2,4,5). We call these relations *scalar monotone in/decreasing*, respectively. More formally, let the model fix $\preceq_g$, the pre-order induced by the ordering source g as defined by Kratzer, (1981). A consequent q is scalar monotone increasing with respect to a partially ordered set $\langle \Phi, \leq \rangle$ of alternative antecedents iff the following holds: For all $\varphi, \varphi' \in \Phi$ such that $\varphi \leq \varphi'$ and all worlds $w \in \varphi, w' \in \varphi'$ such that $w' \preceq_g w$, if $v \in q$ for all $v \preceq_g w$, then $v' \in q$ for all $v' \preceq_g w'$. This scalar monotonicity is distinct from the familiar notion of monotonicity based on relative logical strength. As mentioned above, the latter cannot account for our data since (1,3b) do not entail (1,3a).

The second factor affecting the availability of the inference concerns the interplay between scalar monotonicity and the interlocutors' goals. The failure of the inference from (2a) to (2b), as well as from (5a) to (5b) tends to get strengthened to the conclusion that the (b)-conditional is false. Assuming competence on the part of the speaker, this follows from two assumptions: (i) listeners strive to make choices which lead to desirable outcomes and avoid negative ones, both with minimal effort; and (ii) speakers try to impart information that will help listeners in doing so. For given a scale $\langle \Phi, \leq \rangle$ of alternative antecedents and a consequent q, let $A = \{p \in \Phi | \textit{If } p,\ q \text{ is true}\}$. Then cooperative speakers will choose '*If* $\min(A),\ q$' if q is scalar monotone increasing in A, as in (1) and (6), and '*If* $\max(A),\ q$' if q is scalar monotone decreasing in A, as in (2) and (5) (choosing at random if $\min(A)/\max(A)$ is not unique). Together with the fact that q is desirable in (1) and (5), the listener expects the speaker to choose an antecedent that is *minimal* on its respective scale among those alternatives for which the conditional is true – for knowing the least costly way to guarantee the truth of the consequent is useful both in securing and in preventing the latter. Antecedents higher on the scale than the minimal ensure the truth of the conditional, too. Likewise, since q is undesirable in (2) and (6), the listener expects the speaker to choose an antecedent that is *maximal* on its scale among those alternatives that ensure the truth of the conditional – the listener's interests are the same way as before, but since the consequent is decreasing in A, knowing the most costly way to ensure its truth is more useful to him. Antecedents higher than the maximal one do not ensure the truth of the conditional. The preceding argument rests on the assumption that *only* is scalar, such that for each of the two scales, *only* $p \leq p$. In sum, the interplay between semantic and pragmatic factors makes the interpretation of *only* in conditional antecedents an intriguing case study. We conclude with general remarks about similar pragmatic factors at work in areas such as mention-some vs. mention-all answers.