If … then and Adverbs of Quantification

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In many cases when *then* follows an if-clause it seems to make no contribution to the entire sentence, as evidenced by the equivalence between (1) and (2),

(1)   If Mary comes to the party, John will come too

(2)   If Mary comes to the party, then John will come too

However, at least two pieces of evidence suggest that *then*s following if-clauses *do* make some contribution to the entire sentence. Notice the contrast between (3) and (4),

(3)   If it is humid, the TV will work

(4)   If it is humid, then the TV will work

The contrast here seems to be that (3) is open to a reading (call it the *concessive reading*) in which humidity has no effect on the TV, while (4) can only be read as implying that humidity causes the TV to function (see Davis 1983 and von Fintel 1994). The second piece of evidence is that *then* seems anomalous in many if-clause constructions:

(5)   If Mary bakes a cake, (??then) she always throws a party

(6)   Even if John succeeds, (??then) he is unsatisfied

(7)   Only if Mary bakes a cake, (*then) is John satisfied

Dancygier & Sweetser 2005 offer an analysis in the framework of a mental spaces semantics that unifies these facts. They argue that *then* is univocally a deictic reference for a particular mental space, and when following an if-clause it refers to the mental space evoked by that if-clause. Thus, the content of the then-clause is

claimed to sequentially follow the content of the if-clause uniquely in the mental space evoked by the if-clause. This generates the only-if implicature (from *if P then Q* it follows that *if ~P then ~Q*) which blocks the concessive reading (predicting the distinction between (3) and (4)). Since generic conditionals (those involving adverbial quantifiers like (5)) and concessive constructions (those involving *even* like (6)) evoke multiple mental spaces (see Dancygier & Sweetser 2005: 151-160), there is no unique referent for *then* in those cases and thus *then* is predicted to be anomalous in such conditionals.

1

While I find much to recommend this elegant and explanatory theory, I worry that it is too coarse-grained to deal with more nuanced data concerning adverbial quantifiers. After reviewing some data, I will argue that the Dancygier and Sweetser (hereafter, DS) theory cannot account for it. First, consider the following slightly modified version of (5):

(8)   If Mary throws a party, then she always bakes a cake

Unlike it's DS counterpart (5), (8) is perfectly acceptable. Now consider the distribution here,

(9)   If Mary throws a party, then she $\left\{ \begin{array}{c} \text{usually} \\ \text{?often} \\ \text{sometimes} \\ \text{??rarely} \\ \text{??never} \end{array} \right\}$ bakes a cake

(10)   If Mary throws a party, she $\left\{ \begin{array}{c} \text{usually} \\ \text{often} \\ \text{sometimes} \\ \text{rarely} \\ \text{never} \end{array} \right\}$ bakes a cake

While the positive adverbial quantifiers "always," "usually" and "sometimes" are acceptable with *then*, "often" sounds strange, and the negative adverbials "rarely" and "never" are anomalous, though each is completely acceptable in the corre-

sponding conditional without *then*. Notice, though, that the acceptable sentences in (9) are not acceptable only because they allow an epistemic reading, which is illustrated by the following sentence in which all of the adverbials are acceptable:

(11)   If Mary was born in the 80s, then she $\left\{ \begin{array}{c} \text{usually} \\ \text{often} \\ \text{sometimes} \\ \text{rarely} \\ \text{never} \end{array} \right\}$ bakes cakes

This epistemic conditional must be contrasted with the generic predictive conditional of (9). (11) says roughly that Mary's being born in the 80s is sufficient evidence to conclude that she AdvQ bakes cakes, while (9) says that Q party-throwing situations are cake-baking situations for Mary[1]. So we can express that every/most/some party-throwing situations are cake-baking situations but not that few/no party-throwing situations are cake-baking situations, when these thoughts are expressed in the form,

(12)   If A, then AdvQ C

Adverbial quantifiers force generic interpretations of if-clauses they co-occur with, but a specific reading of the main clause is forced when it contains *then* and one of *often, rarely* or *never*. Thus the anomaly of (9) involves a specific/generic clash between the if-clause and the main clause.

While the DS theory accurately predicts that each of (11) will be acceptable (because in the epistemic conditional only one, temporally extended, mental space is evoked, and the consequent is claimed to hold throughout that mental space—thus allowing for the unique reference of deictic *then*), it cannot account for the variation in (9). Each of (9) is generic (multiple mental spaces are evoked), as forced by the adverbial quantifiers in the main clauses, yet some are acceptable and others not. Given that they are generic and that there is no unique reference

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[1]Notice that in the epistemic conditional, the adverbial quantifier does not take the if-clause as a restriction on its domain. Therefore, the epistemic conditional is only compatible with what Geurts 2005 calls the C (covert) reading. This is clearly seen by the anomaly of preposing the adverbial quantifier,

(i)   ??Usually if Mary was born in the 80s, then she bakes cakes

for a deictic *then*, the DS theory predicts that each should be anomalous.

2

The first thing we should notice is that "then" is not always deictic on a single mental space or situation, as seen by the following generic sentences,

(13)   a. John gets home at 5pm, then cooks dinner at 6pm
        b. Birds fly south for winter, then back north for summer

What the examples in (13) show is that "then" does not always require a unique referent space (or situation) with which to relate the content of the main clause back to. Example (a) describes John's usual daily behavior, and (b) describes (some) birds' typical annual behavior. However, in both of these examples, temporal ordering is strictly imposed, the *then*-clause must temporally follow the main clause:

(14)   ??John cooks dinner at 6pm, then gets home at 5pm

However, temporal ordering is not the only function "then" serves. As we saw, "then" also suggests an only-if reading. As with (3) and (4), the only-if implicature also seems to capture the (admittedly hazy) distinction between the equally acceptable,

(15)   a. If Mary throws a party, usually she bakes a cake
        b. If Mary throws a party, then she usually bakes a cake

The (b) sentence signals that salient situations where Mary doesn't throw a party are not usually cake-baking situations, whereas (a) only claims that most party-throwings involve cake-bakings. This suggests that the anomaly with "often," "rarely," and "never" might have to do with the only-if implicature. In (16), the (a) sentence is the statement and the (b) sentence is the only-if implicature,

(16)   a. If Mary throws a party, then she rarely bakes a cake
        b. $\Rightarrow$ If Mary doesn't throw a party, then $\sim$(she rarely bakes a cake)

Negated adverbials are complicated, and (like their determiner cousins) they admit of (broadly) two readings (I'm going to gloss how much of this is *semantic* and how much of it is *pragmatic*—forgive me for omitting these details):

(17)   Mary doesn't rarely bake cakes…
        a. she usually/always does   (upward entailing)
        b. she never does   (downward entailing)

What I suggest is that, if we understand the negation in (16)'s only-if implicature in the (a) sense, it reads,

(18)   If Mary doesn't throw a party, then she usually/always bakes a cake

which contradicts expected knowledge about normal human behavior. We don't normally think of people as usually or always baking cakes in normal situations and then infrequently baking them when throwing parties. Usually parties are special events, and cake-baking is an unusual enough activity to be warranted on those occasions. Yet (16) and its only-if implication reverse this expectation: it says of Mary that she rarely bakes cakes when throwing parties but implicates that when not throwing parties she usually or always bakes cakes. Of course, we know that not everyone thinks that parties are special enough events to warrant cake-bakings, and thus we find nothing odd about the corresponding "rarely"-sentence sans "then". But that sentence doesn't implicate the further, and doubly unexpected, claim that the very person who rarely bakes cakes for parties, usually/always bakes cakes when not throwing a party.

Now consider one of the "good" cases, like (8):

(8)   If Mary throws a party, then she always bakes a cake

Here, the only-if implicature is that if Mary doesn't throw a party, she doesn't always bake a cake. But this claim does not contradict expected knowledge about normal human behavior, in fact it is exactly in line with a normal range of human behavior (i.e., always bake cakes for special occasions and not always bake cakes when in a non-special situation).

So that's the theory: "rarely" (and "never") don't work in (9) because of the infelicity of the only-if implicature. We can test this theory by finding an action that frequently occurs in normal situations but infrequently occurs in some extraordinary circumstance—the theory predicts that "rarely" will be acceptable with "then" in a sentence where the if-clause picks out that extraordinary circumstance. Suppose that John is almost always on time for school because he routinely wakes up early enough to get to school on time. Now consider,

(19)   If John sleeps in, then he rarely gets to school on time

I submit that this sentence is totally acceptable! Consider its only-if implicature, that if John doesn't sleep in, ∼(he rarely gets to school on time), of which the most salient reading (helped by the context) is that if John doesn't sleep in, then he usually/always gets to school on time. Because this implicature is congruent with the background information of the context, the entire sentence is acceptable. Notice that in this example the reverse effect seems to happen:

(20)   If John sleeps in, then he $\left\{ \begin{array}{c} \text{??always} \\ \text{??usually} \\ \text{?sometimes} \\ \text{rarely} \\ \text{never} \end{array} \right\}$ gets to school on time

I submit that the explanation of the behavior of "if … then" and adverbial quantifiers is due entirely to the felicity of the only-if implicature that "then" generates. The explanation helps account for the felicity/infelicity patterns among "then" and various adverbial quantifiers that the theory of Dancygier & Sweetser 2005 had difficult accommodating, although it is ultimately very much in line with the spirit of their analysis. Finally, this explanation is also quite neat in that it fits nicely with Davis and von Fintel's analysis of "then" as generating the only-if implicature, and thus does not require positing any additional semantic/pragmatic mechanisms to explain the distribution of data.

The astute reader may have noticed that I have not extended my theory to account for "often". The reason is that I don't know how to explain "often," which seems weird in (9) but not clearly negative like "rarely" and "never". I think what might be going on is that the cases where "often" is weird might be ones in which we are reading the negation (in our interpretation of the only-if implicature) as upward entailing (i.e., John doesn't often eat pizza, he always does). This would generate the infelicitous reading of the only-if implicature and result in the infelicity of "only" in (9). I haven't really thought more about why this might be happening.

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