Conditional Questions: Isaacs and Rawlins (2008)

Stefan Kaufmann, Northwestern University
Questions and Inquisitive Semantics

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1 Introduction

What are conditional questions (CQs), and what's interesting about them?

(1) If Alfonso comes to the party, will Joanna leave?

- Grammatically, CQs are conditional sentences with interrogative consequents.

  Ordinary conditionals (with declarative consequents) are about a relationship between the *truth* (conditions) of antecedent and consequent.

  But questions don't have truth conditions.

> ➥ How can we characterize the meaning of a CQ?
>
> How does the meaning of the antecedent interact with that of the consequent?

- **First guess:** CQs express *conditional speech acts* – speech acts that not "in force" unless the antecedent is true.
- – But intuitively, (1) is an information-seeking question regardless of whether the antecedent is true or false.
  – Besides, answers like *'yes'* and *'no'* are felicitous following (1), also regardless of the truth or falsehood of the antecedent.
  – Moreover, conditionals like (2) are also perfectly good answers.

  (2) (No,) if Alfonso comes, Joanna won't leave.

➥ This suggests that CQs are not conditional speech acts. Although one might try to pursue this option further, we will not do so here.

- But then, what *are* CQs?

2 Three semantic proposals

The following three proposals are "semantic" (unlike the previous one) in that they seek to explicate the meaning of CQs in terms of their *denotations* (rather than at the speech act level).

- The three have a lot in common:
  - The set of worlds (in the common ground) at which the antecedent is true is partitioned by the interrogative consequent as usual.
  - I.e., in the same way in which the consequent on its own, without an antecedent, would operate on a context set consisting entirely of antecedent-worlds.
- They differ in what they say about the worlds in the context set at which the antecedent is false.

Consider the following example.

(3) If A, B?

What are the partitions denoted by (3) under each of the three accounts? (For simplicity, let the letters A, B stand for the propositions denoted by A, B.)

1. **Overlapping alternatives:** $\left\{\overline{A} \cup AB, \overline{A} \cup A\overline{B}\right\}$
   - CQs are questions whose answers are conditionals. The set of semantically "correct" answers to (1) would be (4), assuming that the conditionals are interpreted as the material conditional:

     (4) {*'If A comes, J leaves'*, *'If A comes, J doesn't leave'* }
   - This is (one way to interpret) the general approach of Velissaratou (2000), discussed in some detail by Isaacs and Rawlins. It's also the approach of Inquisitive Semantics (Groenendijk, 1999; Groenendijk and Roelofsen, 2009), as we will see later.
2. **Tripartition (n + 1 alternatives):**) $\left\{\overline{A}, AB, A\overline{B}\right\}$
   - The interrogative consequent operates on the set of antecedent-worlds in the context set as usual; the non-antecedent worlds are added as an additional answer.
   - The set of answers to (1) is as in (5):

     (5) {*'A doesn't come'*, *'A comes and J leaves'*, *'A comes and J doesn't leave'* }
   - '$n + 1$' because the denial of the antecedent adds one answer to the set of answers that the consequent has on its own. In polar (*'yes/no'*) questions, this means 2 + 1 = 3.
   - This is the "tripartition" account briefly alluded to in Groenendijk and Stokhof (1997) and elaborated by Hulstijn (1997).

3. **Restricted alternatives:** $\{AB, A\overline{B}\}$

   - The interrogative consequent operates on the set of antecedent-worlds, as in the previous version. The operator is *restricted* by the antecedent. The non-antecedent worlds are ignored; in particular, the denial of the antecedent is *not* a (semantic) answer to the question.
   - The semantically "correct" answers to (1) are in (6):

     (6) {*'J leaves', 'J doesn't leave'* }

   - The way Isaacs and Rawlins set up the overall update mechanism (using a stack structure cf. Kaufmann (2000)), the answers in (6) are ultimately processed as conditionals (*'If Alfonso comes, then . . . '*); see below.
   - However, the denial of the antecedent is a felicitous *pragmatic* response to the question: Although it does not technically answer the question, it "dispels the issue" and allows the interlocutors to move on.
   - This is the approach taken by Isaacs and Rawlins.

➠ All three have the same effect on the set of antecedent-worlds: splitting it into AB and $A\overline{B}$.

They differ with respect to the non-antecedent ($\overline{A}$) worlds.

Q: What kinds of arguments might decide which is right?

3 Predictions and facts

Arguments in this area have to rely on notoriously shaky intuitions about subtle pragmatic differences between "resolving" and "dispelling" an issue, etc. There is not much in the way of clear-cut judgments here.

3.1 Denial of the antecedent

If $\overline{A}$ is a cell in the denotation of the CQ, it should intuitively "feel like" an answer – i.e., *resolve* the question.

It's not easy to get beyond rather vague intuitions on the question of what the relevant difference is.

- Clear cases of issue-resolving answers:

  (7) A: Will Joanna leave?
  B: (Yes,) she will leave.

  (8) A: Which of these books did you read?
  B: The blue one.

- (Fairly) clear cases of issue-dispelling answers:

  (9) A: Has John arrived yet?
  B: John is not coming.

  (10) A: Does Sue regret her mistake?
  B: She doesn't think it was a mistake.

  (11) A: Is the king of France bald?
  B: France has no king.

  (12) A: Which of these books did you read?
  B: None of them.

➠ All of these involve a *presupposition* triggered in the question and denied in the response.

The problem of whether the denial of a presupposition should count as an answer has been around from the very beginning – recall Hamblin's (1958) "residual" answer.

- So the problem becomes: Does the denial of the antecedent *resolve* or *dispel* the issue?

  (13) A: If Alfonso comes to the party, will Joanna leave?
  B: Alfonso is not coming to the party.

Velissaratou (Velissaratou, 2000, cited after Isaacs and Rawlins):

> If one allows $\overline{p}$ to be an answer to $p \rightarrow ?q$, we have the strange aspect that a proposition which cancels the reason the question was posed in the first place, is an answer.

Most people share this intuition. That's an argument against letting the denial of the antecedent count as an answer.

3.2 Affirmation of the antecedent

- If (14A) denotes a tripartition, then (14B) should count as a partial answer.
- But (14b) is infelicitous.

(14) A: If Alfonso coming to the party, will Joanna leave?
B: ✗Alfonso is coming to the party.

3.3 Partial and total answers

- Conditional sentences like (15B') are *complete* answers to the question, just like (15B).
- But the cells of a tripartition are proper subsets of the denotation of (15B), so the conditional should only be *partial* answers.
- Moreover, the conjunction (15B"), which does denote one of the cells of the tripartition, is infelicitous.
- Finally, the simple *'yes'* in (15B) should not be an answer at all because *'yes'* and *'no'* normally work for bipartitions.

(15) A: If Alfonso comes to the party, will Joanna leave?
B: ✓Yes.
B': ✓(Yes,) if Alfonso comes, Joanna will leave.
B": ✗(Yes,) Alfonso will come and Joanna will leave.

4 The formal model: Contexts and stacks

[We'll use the board for most of this part.]

Context: A context is modeled as an equivalence relation on a set of possible worlds.

➠ Given a set W of possible worlds, a given discourse situation is characterized by two things:

1. the set of worlds consistent with the mutual joint beliefs of the interlocutors – the domain of the equivalence relation
2. the "issues" raised in the context

Assertive update with a sentence φ: Eliminates worlds at which φ is false from the domain of the equivalence relation. ((4), p. 273)

These updates eliminate "reflexive links" $\langle w, w \rangle$ from worlds to themselves. And since equivalence relations are reflexive, this means that those worlds do not show up in any "links" in the relation anymore.

➠ New information is added. Open issues may be (partially or completely) resolved in the process.

Inquisitive update with an issue φ: Does not eliminate worlds from the domain of the equivalence relation. Only eliminates links between worlds, "refining" the partition. ((5), p. 273)

These updates never eliminate reflexive links, only links across equivalence classes.

➠ No new information is added; rather, new issues are raised and/or open issues are refined.

See the example in (6)-(10).

Macrocontext s: A list of contexts $c, c', \ldots$ that is operated on as a *stack*.[1] ((43), p. 291)

- Written in head/tail notation: $\langle c, \langle c' \rangle \rangle$ for a stack consisting stack $\langle c' \rangle$ plus context c on top.
- s_0 refers to the top element of s.
- *'Push'* and *'pop'* operations defined as expected ((44/45), p. 292)

$\vdash (c, c', c'')$**:** Learning in context c that c' supports c'': Basically, eliminating those links from c that "subsist" (have descendants) in c' but not in c''.[2] ((46), p. 293)

Assertive update on macro context with φ: Utilizes the $\vdash$ operation: All throughout the stack, elements are updated with the information that the top element supports φ.

Inquisitive update on macro context with $?\varphi$: Two possibilities. Have issues persist only as long as they are not popped (48) or have them percolate down (50).

The latter is more similar to assertive update, but it may also result in issues having a non-partitioning effect on contexts further down in the stack (if those include worlds not present in the top element, which end up in a cell in the partition).

Interpreting if-clauses: Update the top element of the stack with the antecedent, then push the result on top of the stack.

Interpreting then-clauses: Update the macro-context with the consequent as you would with a matrix clause.

See the example in (56)-(60).

Q: But why use these macro-contexts, anyway?

A: Modal subordination:

(16) a. A thief might come in.
b. He would take the silver.
[If a thief comes in, he will take the silver.]

(17) a. If John bought a book, he'll be home reading it by now.
b. It'll be a murder mystery.
c. #It's a murder mystery.

Basic idea: Modals and *'if'*-clauses, when applied to a context, create a *temporary context* which persists and can be accessed in subsequent discourse.

[1] See `http://en.wikipedia.org/wiki/Stack_(data_structure)` for information on the notion of a stack.

[2] See Groenendijk et al. (1996) for the relevant notion of persistence.

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