

Conditionals Seminar

March 7, 2007

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What is the probability of a Stalnaker conditional? It is its *image probability* rather than its *conditional probability*.

Think of a probability function as a distribution of probabilities over possible worlds. The probabilities sum to 1 (i.e. each world receives its own probability, and the probability of all worlds sum to 1). The probability of a *sentence* is the sum of the probability of worlds in which that sentence is true.

Imaging probability:

For any probability function P, and for any sentence A, there is a probability function P' such that:

$P'(w) = \{ \text{the sum of the probabilities of the worlds according to P for which } w \text{ is the closest A world or } 0 \text{ if there is no world for which } w \text{ is the closest A world.} \}$

$P'(w') = \sum_w P(w) \times \{ 1 \text{ if } w' \text{ is the closest A world to } w \}$
0 otherwise.

So intuitively, any world w that is an A-world and has worlds for which it is the closest A-world inherits all the probability of those worlds. Any world that is not an A-world gets probability 0.

Lewis proves that the probability of a Stalnaker conditional with a possible antecedent is the probability of the consequent after imaging on the conditional.

Imaging probability and conditional probability come apart (Lewis example).

Stalnaker rejects the equation and goes with imaging probability. Is this a problem for him?

Arguments for NTV views:

The Argument from the Equation: The assertibility conditions of conditionals go with conditional probability. Views that posit a wide gap between the truth-conditions of indicative conditionals and their assertibility conditions (Grice, Jackson) do not provide a satisfactory account of why indicative conditionals have the assertibility conditions they do. But the Lewis triviality results show that there is no meaning for the conditional that can give utterances of sentences containing it truth-conditions that reflect their assertibility conditions.

The Lewis triviality result involves embedded conditionals. If conditionals don't express propositions, then they don't embed inside other conditionals. Furthermore, one can respond to the sort of arguments that Barry gave, because if conditionals don't express propositions, then it's irrelevant that there are more probabilities than conditional propositions. If conditionals only have assertibility conditions, but do not express propositions, then one can maintain that the conditional probability is a guide to assertibility, without postulating a wide gap between truth-conditions and assertibility conditions.

The Argument from Stand-offs: The assertibility conditions of indicative conditionals are highly context-variable. If indicative conditional sentences did express truth-conditions, then the truth-conditions they would have would vary wildly from context to context. So therefore they don't have truth-conditions.

- (1) If Pete called, he won.
- (2) If Pete called, he lost.

No noise from counterfactuals; Bennett's Sly-Pete:

- (3) If Topgate is open, all the water is flowing east.
- (4) If Topgate is open, all the water is flowing west.

Conditional non-contradiction: $\sim((A \rightarrow C) \ \& \ (A \rightarrow \sim C))$

So (1) and (2) can't both be true, and (3) and (4) can't both be true.

Context-dependence to the rescue? Stalnaker's theory of indicative conditionals.

Bennett, sections 36:

The only way to combine real subjectivity with real truth is to suppose that when someone asserts $A \rightarrow C$, the proposition he asserts has a truth-value in the normal way, but that what proposition it is depends not only upon A and C and the normal meaning of ' \rightarrow ' but also on some unstated fact about himself.

Analogously, if I hold up a painting and say 'May Smith painted this', I express a proposition, which one depends not only on the sentence I utter but also on what I am holding up while uttering it. If I say to you 'You have been helpful to me', the proposition I express depends not only on the sentence I utter but on who I am, who you are, and when I speak.

So we have to consider the idea that what someone means by a sentence of the form $A \rightarrow C$ depends in part upon his overall epistemic state, that is, upon how probabilities are distributed across the propositions on which he has opinions. This opens the door to the possibility that when Winifred asserts $\text{Called} \rightarrow \text{Won}$ while Lora asserts $\text{Called} \rightarrow \text{Lost}$, each woman says something true, just as they might if one said 'May Smith painted this' and the other, holding up a McCahon, said 'May Smith didn't paint this'.

This amounts to the proposal that ‘->’ is not a binary but a ternary operator, involving A, C, and the overall belief state of the speaker. So Winifred’s conditional applies a triadic relation to the triple {Called, Won, Winifred’s belief system}, while Lora’s applies the same relation to the triple {Called, Lost, Lora’s belief system}. These do not conflict.

Two versions of this line of thought arise from two ways of referring to one’s own belief system. One is (1) through an identifying description such as ‘my belief system,’ the other is (2) through some device – a proper name, perhaps—that does not describe the belief system in question as one’s own...

Bennett, section 37:

If ‘->’ is to be ternary, therefore, the belief system in question must be referred to other than through the description ‘my belief system’, which pretty clearly implies that it must be referred to without use of any description. On this view, what Winifred asserts is not what Lora denies, but neither woman talks about herself. It is though Winifred said that $R_3(\text{Called, Won, Henry})$, and Lora said $R_3(\text{Called, Won, James})$, with their names for their belief states not being replaceable by definite descriptions, and in particular not being replaceable by ‘my belief state’. This still makes indicative conditionals subjective, in that what is said by any instance of ‘A->C’ depends in par upon who says it, but it also gives what is said on each occasion a solid old-fashioned truth-value.

The price is too high. I have learned about the difficulties from Gibbard and Stalnaker. They present them in the context of a theory according to which ‘A->C’ says that C obtains at a certain A-world. In this context subjectivity comes in through the proposal that what A-world a speaker of ‘A->C’ selects depends in part on her belief system; so Winifred and Lora refer to different A-worlds in their seemingly but not really conflicting conditionals. In one version of this approach, each means ‘the A-world that relates thus and so to my belief system’; but that is the self-description account, which we have seen to be false. In the other version – our present topic—each means something more like ‘the A-world that relates thus and so to Henry’, where ‘Henry’ picks out a belief system, or a part of one, without describing it. The fatal flaws in this attempt at subjectivity, however, can be brought out well enough without mentioning worlds.

The account of the subjectivity of indicative conditionals that we are now considering has bizarre consequences for communication. I ask both Winifred and Lora ‘If Pete called, did he win?’ Winifred says ‘Yes’ and Lora says ‘No’, and both are right. Now four results emerge, in a crescendo of strangeness. They are not answering a single question. There is no single conditional question that I could have put to both. There is not even a coherent conditional question that I could put to either; for there is no privileged belief system for someone who has no probability for ‘A->C’ and is merely asking about it. And even if there were, I could have no way of putting to either of them the very question that she would answer. This is all too much to swallow, say Gibbard and Stalnaker, and who could disagree?

The speaker-relative view might seem to be strengthened—to gain innocence by association—from the existence of indexicals. But the latter, as Alan Hajek has pointed out to me, count against rather than for the view. When someone speaks using ‘I’, ‘here’, ‘now’, or ‘this’, we are not left floundering to know what he or she is talking about. All we need is to know who is talking, or to whom, or where, or when, or indicating what. No such apparatus comes to our aid in understanding indicative conditionals on the view of them we are now considering.

The comparison with indexicals fails in another way. When someone uses ‘I’ to express a proposition, Stalnaker points out, we can re-express it in other ways; when Miles tells me ‘I am hungry’, I can report that Miles is hungry’ and similarly with ‘you’, ‘here’, and the rest. But if someone asserting ‘A->C’ expresses a proposition that is determined by her beliefs but is not about them, there can be no speaker-neutral way to express it.

Phew! That’s a lot of criticisms of the context-relative approach to stand-offs! Fortunately, they are almost all wrong.

- (a) Bennett takes the context-relative view to be one according to which ‘->’ expresses a ternary relation. Compare this with demonstratives, such as “this” and “that”. What object someone names by a use of “this” is determined by that person’s mental states. But surely it would be ridiculous to take the proposition expressed by “this is a table” to be a proposition that is about the mental state that determines the value of “this”! Similarly, the advocate of context-dependency for conditionals does not think that ‘->’ is a ternary relation. Rather, she thinks that facts about a speaker’s epistemic states determine which binary relation she expresses when she utters an indicative conditional. In short, the whole material about ternary relations to belief-states is confused.
- (b) Sentences containing comparative adjectives such as “tall” or “rich” are context-sensitive; they express different propositions relative to different contexts of use. What proposition is expressed by “Barry Loewer is tall” depends upon the comparison class that the speaker has in mind. Similarly, quantified noun phrases, such as “every woman” are context-sensitive; sentences containing them express different propositions relative to different contexts of use. But one might think that it is very hard for me to express the very same proposition you did by uttering the same sentence containing a comparative adjective or a quantified noun phrase. Surely we would have slightly different comparison class properties or domains in mind. But this doesn’t show that utterances of “Barry Loewer is tall” or “Everyone is a philosopher or a linguist” fail to express propositions.

Here is another objection, due to Stalnaker (p.c.). The point of an assertion is to convey something informative. But in order to grasp the proposition someone expresses by a sentence containing an indicative conditional, *I already need to know that that indicative conditional is true*. For example, in order to grasp what someone says by an utterance of “If Top-gate is open, then all the water is flowing East”, I need to know what their belief state (or knowledge state) is. But once I know their knowledge state, I already know the

truth-value of the indicative conditional. Since indicative conditionals have this odd feature, that shows that their *point* is not to express new information.

I'm a bit puzzled by this. Presumably, Stalnaker doesn't deny that indicative conditionals have assertibility conditions. So he isn't denying that someone can legitimately assert an indicative conditional. But if the point of an assertion is to convey something informative, and there are no informative contents to be conveyed, how can Stalnaker say that indicative conditionals can be associated with assertibility conditions at all? In short, assertion is an act that, according to Stalnaker, has as its point the conveying of new information. So if his point shows that indicative conditionals can't assert contents, why doesn't it also show they can't have assertibility conditions either?

On the offensive

One can parallel the argument from stand-offs with epistemic modals:

- (1) It's not the case that the water might flow west.
- (2) The water might flow west.

Sentence (1) could be truly asserted by someone looking at the closed Westgate. Sentence (2) could be truly asserted by someone looking at the closed Eastgate (they don't say 'must', since they don't know whether topgate is open).

These two sentences form a 'stand-off' of the very same sort as Bennett's Topgate example. So either the argument doesn't show that indicative conditionals don't express propositions, or it shows that sentences containing epistemic modals don't express propositions.

Similarly, one can give Stalnaker's argument about epistemic modals; in order to grasp what is said by them, one must already know that they are true. So Stalnaker's consideration also classifies indicative conditionals with epistemic modals.

(None of this is surprising, of course, if Kratzer is right that indicative conditionals just *are* sentences headed by epistemic modals).

Embedding Again

So either these considerations fail to show that indicative conditionals do not express propositions, or they show that sentences containing epistemic modals do not express propositions.

Do sentences containing epistemic modals embed inside larger constructions?

- (1) If the water might flow west, then I had better warn Hannah.

It does seem that epistemic modals can embed inside conditionals (though, as Stalnaker emphasized in his response to Lewis, it also seems that some occurrences of epistemic modals in the consequent of counterfactuals get maximal wide-scope). But if epistemic modals can embed inside conditionals, then either stand-offs do not show that constructions that give rise to them fail to express propositions, or constructions that fail to express propositions can embed inside conditionals. But if constructions that fail to express propositions can meaningfully embed inside conditionals, what is the NTV response to Lewis's triviality results?

Embedding Again (Again)

Is it really the case that indicative conditionals resist embeddings?

(1) If Anscombe will be there if Strawson is there, then Kripke will be there.

This sentence is odd. But what about:

A: If my husband is at home, then dinner will be on the table.

B: If that's true, you've got a great husband!

It does seem that the content of an indicative conditional can be freely embedded inside the antecedent of another indicative conditional.

Another Objection to Context-Sensitivity: What about inferences?

The more context-sensitivity there is, the harder it will be for an inference to be valid.

Modus Ponens under threat?

The case of Universal Instantiation:

Every F is G.

F(x)

G(x)

This inference doesn't work, because the domain indices associated with the two occurrences of 'F' might differ.

Every student is Scottish. (said in Aberdeen).

X is a student (said in New Brunswick)

X is Scottish.

By *not* recognizing context-sensitivity, one opens oneself up to error, not by *recognizing* it.

How is communication possible with context-sensitive constructions?

- (a) Successful communication does not require that I grasp the same proposition you express. It is sufficient that I grasp a proposition that is *similar enough* (Richard Heck, “Do Demonstratives have senses?”)
- (b) It is easier to grasp the same proposition that one might think.

The advocate of context-sensitive accounts of indicative conditionals is free to borrow Heck’s response, which is devised to defend Fregean accounts of the contents of demonstrative expressions (see also Anne Beziedenhut (1997)).

Let’s explore response (b).

Three tempting thoughts:

- (1) It is tempting to think that successful communication requires the interlocutor to think of the objects and properties that constitute the proposition in the same way as the person who utters the sentence thinks of those objects and properties.
- (2) It is tempting to think that grasping a property requires being able to distinguish that property from very similar ones.
- (3) It is tempting to think that one grasps the proposition expressed by someone else’s utterance only if, had one uttered the same sentence in a similar context, one would thereby express the same proposition.

If any of these three tempting thoughts is true, it poses a problem for (b).

First: Suppose I utter the sentence, pointing at John, “He is tired”. I may think of John somewhat differently than you think of John. But I can still grasp the singular proposition about John that you express. A similar point holds for properties. It is no doubt a difficult matter to state the conditions under which someone has a *de re* thought about an object or a property, and the conditions for *de re* acquaintance with an object or property might themselves be situation dependent. But it is a difficult matter that has nothing specifically to do with context-sensitivity in the philosophy of language.

However: Not an available response when propositions are construed as Heck (2002) does, as Fregean propositions.

Second: Suppose John utters the sentence “Everyone is a philosopher”, meaning to express the proposition that everyone in the room is a philosopher. But suppose everyone in the room is sitting on the right side of the room. One might think that unless John’s audience knows that he intends the property of being in the room *rather than* the property of being on the right side of the room, they do not grasp the proposition he expresses.

But why accept the epistemic requirement on grasp of the constituents of a proposition that motivates this line of thought? If it is an epistemic requirement on grasp of content,

we would have trouble explaining how we grasp the propositions expressed by many eternal (non-context-sensitive) sentences.

Third: Cappelen and Lepore (2006, section 3.2) write:

Consider two sailors on the ship, Popeye and Bluto. After the sad departure, Popeye observes ‘That was a nice occasion. Every sailor waved to every sailor’. Immediately afterwards, Bluto concurs, ‘That’s right. Every sailor waved to every sailor’. In such a circumstance the following is often obvious: we treat these utterances as expressing agreement. Popeye and Bluto agree that every sailor waved to every sailor...But if Stanley and Szabo [whose theory of quantifier domain restriction is under dispute] were right about the semantics of quantifiers, their concurrence would be a minor miracle.

Is it the case that Bluto grasped what Popeye said only if Bluto’s utterance of the same sentence expressed the same proposition as Popeye’s previous utterance?

Suppose speaker intentions determine the value of quantifier domain indices, and suppose, for the sake of argument, that Bluto intends to refer to slightly different domains for his two uses of “every sailor” than Popeye did. Then their two utterances express different propositions. But it simply does not follow that Bluto did not grasp the proposition expressed by Popeye. Suppose Popeye expressed the proposition that every sailor on the ship waved to every sailor on the shore. So, the domain for Popeye’s first use of “every sailor” is the property of being on the ship, and the domain for Popeye’s second use of “every sailor” is the property of being on the shore. Bluto could grasp this proposition in this context by thinking of the property of being on the ship (which is the domain for the first quantified noun phrase used by Popeye) as the unique ship-related property intended by Popeye, and he could grasp the property of being on the shore as the unique shore-related property intended by Popeye. In this context, this would suffice to give him a *de re* grasp of the quantifier domain properties contained in the proposition expressed by Popeye’s utterance of “every sailor waved to every sailor”. So, whether or not Bluto succeeds in expressing the same proposition by his subsequent utterance of the same sentence, he can grasp what is said by Popeye. *Mutatis Mutandis* for indicative conditionals.