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1. The Strict Analysis of counterfactuals and why
2. (Reverse) Sobel Science and the need for context dynamics
3. What we don't understand

Negative Polarity Items (NPIs)

- (1) Sophie didn't leave *any later* than 3pm.
- (2) *Sophie left *any later* than 3pm.

- (3) *Some student left *any later* than 3pm.
- (4) No student left *any later* than 3pm.
- (5) Every student who left *any later* than 3pm missed Pedro.

- (6) If Sophie had left *any later* than 3pm, she would have missed Pedro.

(7) If Sophie had gone to the parade, she would have seen Pedro.

≡

(8) Sophie couldn't have gone to the parade and not seen Pedro.

$$p > q \equiv \neg \diamond (p \& \neg q)$$

Sobel Sequences

- (9) If I (or you, or anyone else) walked on the lawn, no harm at all would come of it; but if everyone did that, the lawn would be ruined.

(10) If the USA threw its weapons into the sea tomorrow, there would be war; but if the USA and the other nuclear powers all threw their weapons into the sea tomorrow there would be peace; but if they did so without sufficient precautions against polluting the world's fisheries there would be war; but if, after doing so, they immediately offered generous reparations for the pollution there would be peace; ...

(11) If Otto had come, it would have been a lively party; but if both Otto and Anna had come it would have been a dreary party; but if Waldo had come as well, it would have been lively; but ...

Edgington:

”a piece of masonry falls from the cornice of a building, narrowly missing a worker. The foreman says:

‘If you had been standing a foot to the left, you would have been killed; but if you had (also) been wearing your hard hat, you would have been alright.’”

Lewis' solution: build exquisite sensitivity to the antecedent into the semantics

- (12) $p > q$ is true in w
iff
 q is true in all the p -worlds most similar to w .

(13) If Caesar were in command, he would use the atom bomb.

(14) If Caesar were in command, he would use catapults.

“Counterfactuals are notoriously vague. That does not mean that we cannot give a clear account of their truth conditions. It does mean that such an account must either be stated in vague terms — which does *not* mean ill-understood terms — or be made relative to some parameter that is fixed only within rough limits on any given occasion of language use.”

“It may be objected that [...] that comparative similarity is hopelessly imprecise unless some definite respect of comparison has been specified. Imprecise it may be; but that is all to the good. Counterfactuals are imprecise too. Two imprecise concepts may be rigidly fastened to one another, swaying together rather than separately, and we can hope to be precise about their connection.”

The explanation for why Sobel Sequences are fine:

$p > q$ fully compatible with $p \& r > \neg q$

Suspicion:

The initial conditional is accepted in a context that does not countenance the possibility of other nations joining in; the second conditional explicitly introduces that possibility, so it is interpreted in a different context.

“our problem is not a conflict between counterfactuals in different contexts, but rather between counterfactuals in a single context. It is for this reason that I put my examples in the form of a single run-on sentence, with the counterfactuals of different stages conjoined by semicolons and *but*.” (Lewis 1973)

Edgington:

“the building foreman’s remarks above [...] constitute a single, pointful piece of discourse”

Moss:

“Intuition says that the counterfactuals in [the Sobel sequence] can be true together.”

Nevertheless: strong intuition that the second sentence in a Sobel Sequence undermines the first sentence, by shifting the context to one in which the first one couldn't any longer be maintained.

Moss, a defender of variably strict analysis:

“[The first sentence] is **intuitively no longer common ground** once [the second sentence] is uttered.” (p. 570, our emphasis)

(15) If the USA threw its weapons away, there would be war. If the USA and all others threw their weapons away, there would be peace. Therefore, if the USA threw its weapons away, the others would not.

(16) I know two things: If the USA threw its weapons away, there would be war. If the USA and all others threw their weapons away, there would be peace. Therefore, if the USA threw its weapons away, the others would not.

The dynamic strict analysis

- counterfactuals are evaluated with respect to a Lewis-ordering (a comparative similarity relation) and a “modal horizon” (a limit for how far we’re venturing into counterfactual space)
- counterfactuals update the current modal horizon so as to make sure that there are antecedent worlds within the horizon (**dynamic semantics**)
- counterfactuals assert that all the antecedent worlds within the horizon verify the consequent (**strict conditional**)
- subsequent sentences are sensitive to the potentially expanded modal horizon

NB: If we interpret each counterfactual *de novo*, with respect to a trivial modal horizon (singleton set of the evaluation world), the resulting truth-conditions are identical to the variably strict analysis.

It is entirely conceivable that people with pure Lewisian intuitions are able to reset the modal horizon before each new counterfactual.

[Cf. Russellian intuitions about definite descriptions, at odds with naive speaker intuitions but capturable within a principled semantic/pragmatic Fregean/Strawsonian account.]

Predicted asymmetry:

- If a subsequent counterfactual has an antecedent that is already represented in the current modal horizon, no expansion will occur.
- If a subsequent counterfactual introduces a “novel” antecedent, expansion will occur. This will obscure the monotonicity of the counterfactual.

(17) If the USA threw its weapons into the sea tomorrow, there would be war; but if the USA and the other nuclear powers all threw their weapons into the sea tomorrow there would be peace.

Reverse Sobel Sequences (RSSs)

When we reverse the Forward Sobel Sequence (FSS), the dynamic strict account predicts infelicity:

- (18) #If the USA and the other nuclear powers all threw their weapons into the sea tomorrow there would be peace; but if the USA threw its weapons into the sea tomorrow, there would be war.

RSSs show that the context is easy to shift and that the perceived meaning of counterfactuals is sensitive to that easily shifted context, so easy that claiming that FSSs are probative is a no-go.

A matrix of four possibilities:

- underlying semantics:
 - strict vs. variably strict
- context shift:
 - (partially) built into semantics vs. (entirely) built into pragmatics

Moss develops a combination of variably strict semantics plus a pragmatics of raising possibilities that lead to “epistemic irresponsibility”.

- (19) That animal was born with stripes.
But cleverly disguised mules are not born with stripes.
- (20) Cleverly disguised mules are not born with stripes.
But that animal was born with stripes.

(EI) It is epistemically irresponsible to utter sentence S in context C if there is some proposition ϕ and possibility μ such that when the speaker utters S :

- (i) S expresses ϕ in C
- (ii) ϕ is incompatible with μ
- (iii) μ is a salient possibility
- (iv) the speaker of S cannot rule out μ .

“if $p \& r$, not q ” makes salient the possibility that “if p , might r ”

[“if p , might r ” is incompatible with “if p , q ”]

Why does “if p & r , not q ” raise the possibility that “if p , might r ” ?

No reason to think that under the variably strict analysis there is any connection between the two claims (no entailment, no obvious way of getting it as an implicature).

The closest gas stations are expensive but the closest Shell stations are cheap.

[Would you think that the second part of this sequence raises the possibility that some of the closest gas stations are Shell stations?]

Moss: “my analysis shares a general virtue of pragmatic theories: it explains more, using less”

Package needed:

- how are undermining possibilities made salient
- how is the semantics (or pragmatics) of counterfactuals sensitive to those undermining possibilities

BTW: we do agree that “if p & r , not q ” makes salient that “if p , might r ”.
In fact, the dynamic strict analysis delivers this as a (dynamic) entailment.

Infelicitous FSSs

Santorio:

- strict conditional analysis + no context shifts (sort of)!
- what makes FSSs à la Lewis felicitous is neither variable strictness nor context shifts but the possibility of reading the first conditional as covertly exhaustified:

- (21) If the USA had thrown its weapons into the sea, ...
≡ If *only* the USA had thrown its weapons into the sea, ...

(22) If Otto or Anna had come, it would have been a lovely party.
#If Otto had come, it would have been a dreary party.

Santorio:

- (23) ??If John was from France, his English would be terrible.
If John was from Paris, his English would be pretty good.
- (24) ??If John had a pet, he would be happy.
If he had a dog, he would be unhappy.
- (25) ??If I had a sibling, I would be much happier.
If I had a sister, I would be much less happy.

(26) If I went to the store, it would be closed by the time I got there.
But if I ran really fast to the store, it might of course still be open.

(27) If John had a pet, he would be happy.

If he had a pet llama, he would be unhappy.

(28) If I had spent the summer in Europe, I would have enjoyed it.

If I had spent the summer in Albania, I would not have enjoyed it.

- (29) If the patient had measles, his clinical history in the last week would have been very different from the way it's been.
If the patient had measles and this other interfering condition, his clinical history would have been exactly the one he has had.

(30) If Thony had come to this workshop, he would have been lonely.
If he had been at this workshop with us, he would have had fun.

(31) If Ben Nelson had voted for the bill, it would have failed miserably.
If all Democrats had voted for the bill, it would have passed even more impressively.

[Ben Nelson = the most conservative Democrat; the bill passed with a majority of Democrats, and some Republicans, voting for it.]

Felicitous RSSs

- (32) If the USA threw its weapons into the sea tomorrow, there would be war. Well, if the USA and the other nuclear powers all threw their weapons into the sea tomorrow, there would be peace. **But of course, that would never happen.** So, as things stand, if the USA threw its weapons into the sea tomorrow, there would be war.

- (33) A: If John had been at the party, it would have been much more fun.
B: Well, if John had been at the party and had gotten into a fight with Perry, that wouldn't have been any fun at all.
A: Yes, **but Perry wasn't there**. So, if John had been at the party, he wouldn't have gotten into a fight with Perry.

Moss:

- (34) If John had proposed to Mary and she had said yes, he would have been really happy.
But if John had proposed, he would have been really unhappy.

Nichols:

(35) If I played the violin, I would own a violin. But, if I played any instrument, I would play the piano.

Unexpected RSS effects

- (36) The closest gas stations are crummy. But the closest Shell stations are great, of course.
- (37) #The closest Shell stations are great. But the closest gas stations are crummy.

(38) The closest gas station is crummier than the closest Shell station.

(39) ?? The closest Shell station is nicer than the closest gas station.

Conclusion

- Enough with the rearguard action.
- Accept the inevitability of context shifts.
- Work on understanding context shifts.

- Lewis recognized that context shifts but tried to built too much of that into a static semantics.
- Our bet: strict conditional will be the best underlying semantics to understand context shifts.

References (selected)

Stalnaker 1968

Lewis 1973

von Stechow 1999

von Stechow 2001

Schlenker 2004

Gillies 2007

Moss 2012

Holst 2013

References (selected)

We have also profited from unpublished work by:

Greenberg 2012

Dohrn 2013

Nichols 2013

Santorio 2013