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Counterfactual Skepticism

Lecture 1

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INALCO, June 3-7, 2019

The plan

Lecture 1:

  Background:

  - Counterfactuals
  - Logic
  - (David) Lewisian truth conditions
  - Counterfactual skepticism: 3 puzzles

Lecture 2:

  Counterfactual contextualism:

  - The truth conditions of counterfactuals are sensitive to conversational relevance: solving the 3 puzzles
  - Compare counterfactual contextualism to some alternatives

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Some examples of counterfactuals

(1) If I had dropped my coffee mug this morning, it would have fallen to the floor.
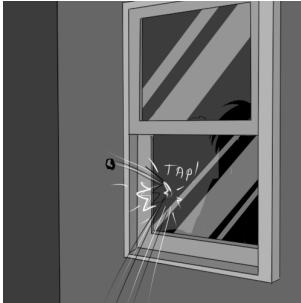

Some examples of counterfactuals

(2) If Oswald hadn't killed Kennedy, someone else would have.

Some examples of counterfactuals

(3) If Henry hadn't thrown the rock at it, our window wouldn't be broken.

Some examples of counterfactuals

(4) If Jane had the measles, she would have exactly the symptoms she's displaying.

Variably Strict Conditionals

- Truth conditions: A counterfactual *If A, would C* is true iff all the closest A-worlds are C-worlds

- David Lewis: "Roughly, a counterfactual is true if every world that makes the antecedent true without gratuitous departure from actuality is a world that also makes the consequent true."
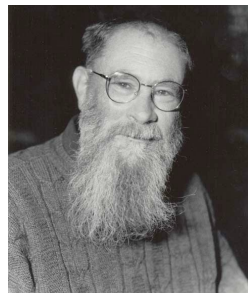
Some assumptions

- **Limit assumption**: There is a closest antecedent world

- **Uniqueness assumption**: There is a unique closest antecedent world.

Variably Strict Semantics: Logic

- Strengthening the antecedent, contraposition, and transitivity are all invalid

$$A \rightarrow C \vDash (A \wedge B) \rightarrow C$$
$$A \rightarrow C \vDash \neg\, C \rightarrow \neg\, A$$
$$A \rightarrow B,\, B \rightarrow C \vDash A \rightarrow C$$

Counterexamples to strengthening the antecedent

(5) If the USA had thrown all its nuclear weapons into the sea yesterday, there would have been war.

(6) But if the USA and all the other nuclear nations had thrown their weapons into the sea yesterday, there would have been peace.

(7) If kangaroos had no tails, they would topple over.

(8) But if kangaroos had no tails and used crutches, they would not topple over.
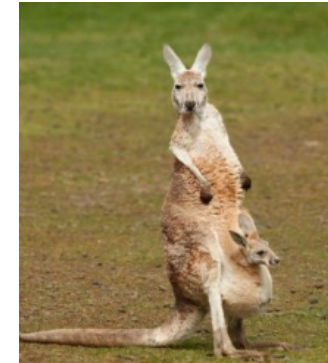
Counterexample to contraposition

(9) If Anna had gone to the party, Barbara would have (still) gone.

(10) If Barbara hadn't gone to the party, Anna would have gone.

Counterexample to transitivity

(11) If Hoover had been a communist, he would have been a traitor.

(12) If Hoover had been born in Russia, he would have been a communist.

(13) If Hoover had been born in Russia, he would have been a traitor.

Might-counterfactuals

- Lewis treat mights as the duals of woulds:

  - *If A, then might C =$_{df}$ It's not that case that if A, then not would C*

- A counterfactual *If A, might C* is true iff at least one of the closest A-worlds is a C-world

Similarity

- What makes one possible world closer than another?

  - Closeness is a measure of similarity to the world of evaluation

David Lewis on Similarity

I. It is of the first importance to avoid big, widespread, diverse violations of law.

II. It is of the second importance to maximize the patio-temporal region throughout which perfect match of particular fact prevails.

III. It is of the third importance to avoid even small, localized, simple violations of law.

IV. It is of little of no importance to secure approximate similarity of particular fact, even in matters that concern us greatly.

Similarity

- A more intuitive way of characterizing similarity: the most similar worlds are exactly the same up until some time shortly before the antecedent occurs. Then there is some small break from the actual world such that the antecedent occurs. The laws of the actual world hold thereafter.

- Similarity after the time of the antecedent counts for little or nothing (whether it counts for little or nothing won't matter for our purposes anyway).

Approximate similarity of particular fact (a digression)

- Whether approximate similarity of particular fact counts for little or nothing is often thought to depend on the causal chain involved in the matter of particular fact

- If the causal chain is the same in a possible world w_1 as in the actual world, then particular fact matters. If the causal chain is different, then it doesn't.

Suppose that we have an indeterministic coin-tossing machine. Abby and Bob are using the machine. Bob is going to push the button and tells Abby she should bet on heads. Abby doesn't take the bet. Bob presses the button on the machine and the coin comes out heads.

(14) If Abby had pushed the button, the coin would have (still) come out heads.

(15) If Abby had taken the bet, she would have won.
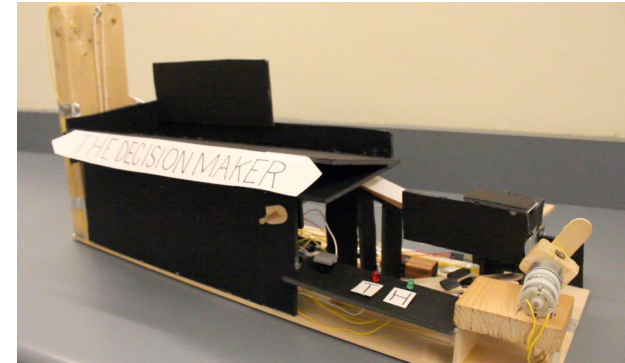
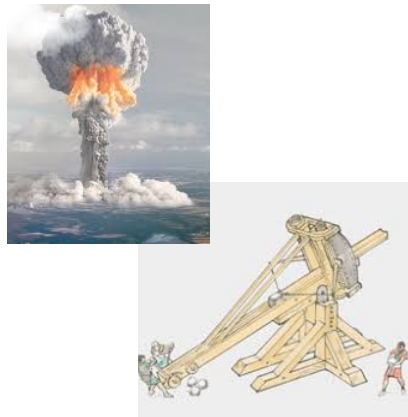
Some issues with similarity

Context-sensitivity of which facts to keep fixed:

(16) If Caesar had been in command in Korea, he would have used catapults.

(17) If Caesar had been in command in Korea, he would have used the atom bomb.

Counterfactual skepticism

Are all, or at least very many, of the counterfactuals we normally take to be true actually false?

FALSE.

Puzzle 1:
The clash between mights and woulds

(19) If I had dropped my coffee mug this morning, it would have fallen to the floor.

Ordinary possible event:

(20) If I had dropped my coffee mug, I might have deftly caught it before it fell to the floor.

If the physical laws are the indeterministic laws of quantum mechanics:

(21) If I had dropped my coffee mug, it might have quantum tunneled to China.

"Chanciness undermines wouldiness" — Alan Hájek

If the laws are the deterministic laws of statistical mechanics:

(22) If I had dropped my mug, it might have flown sideways and landed safely on the counter.

"Indeterminacy undermines wouldiness" — Alan Hájek

- These all support the truth of:

(23) If I had dropped my coffee mug, it might not have fallen to the kitchen floor

- Which *inescapably clashes* with (1):

(24) #If I had dropped my coffee mug, it might not have fallen to the kitchen floor; if I had dropped my coffee mug, it would have fallen to the kitchen floor.

Puzzle 2:
The Similarity Ordering

The problem: on classic accounts of the similarity ordering, many undermining worlds are among the closest worlds, so most would-counterfactuals are not true in the first place.

Quantum mechanics case

- If the laws of the actual world are the indeterministic laws of quantum mechanics, then the very same history up to and including the small miracle that brings about the antecedent will lead to the mug falling in one world and the mug quantum tunneling to China in another.

Statistical mechanics case

- Because the antecedent is underdescribed, there are different but equally small miracles that could potentially bring about the antecedent, one of which leads to, say, the mug flying sideways and landing on the counter.

Ordinary cases

- For ordinary cases, perhaps not all the undermining outcomes will be among the closest worlds in a Lewisian-style similarity ordering.

  - E.g. I am not a terribly coordinated person, so perhaps worlds in which I catch the mug before it falls to he floor are not among among the closest worlds.

  - On the other hand, perhaps what it means to not be terribly coordinated in that there are not *many* worlds among the closest in which I catch the mug.

Ordinary cases continued

- There are some ordinary cases, however, in which it is pretty clear that undermining outcomes are among the closest worlds, e.g…

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

Puzzle 3:
Heim sequences (Reverse Sobel Sequences)

- Sobel sequences are felicitous, consistent sequences of counterfactuals in which strengthening the antecedent causes the consequent to flip.

- The puzzle from Heim sequences is that reversing them are infelicitous — in fact, they sound like contradictions.

Sobel Sequences

(26) If you had come to my party, you would have seen Lady Gaga.

(27) But of course, if you had come to my party and been sick in the bathroom the whole time, you would not have seen Lady Gaga.

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

(29) But of course, if Sophie had gone to the parade and been stuck behind someone tall, she wouldn't have seen Pedro dance.

Heim sequences (Reverse Sobel Sequences)

(30) If you had come to my party and been sick in the bathroom the whole time, you would not have seen Lady Gaga.

(31) #But of course, if you had come to my party, you would have seen Lady Gaga.

(32) If Sophie had gone to the parade and been stuck behind someone tall, she wouldn't have seen Pedro dance.

(33) #But of course, if Sophie had gone to the parade, she would have seen Pedro dance.

Taking stock

- Many people have examined these puzzles separately, e.g.:

  - Lewis (1986) and Williams (2008) address the similarity puzzle by arguing for a similarity ordering that takes into account quasi-miraculousness and typicality, respectively

  - DeRose (1999) gives a pragmatic account of the clash between woulds and mights

  - von Fintel (2001), Gillies (2007), and Moss (2012) give dynamic semantic and pragmatic accounts, respectively, of the Heim sequence data (Gillies also addresses the clash between woulds and mights)

- I argue that counterfactual contextualism has the potential to solve all three, and save us from counterfactual skepticism.

Thank you!

P ■ ➡ Q Counterfactual Skepticism

Lecture 2

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Counterfactual skepticism

- Most counterfactuals (that we take to be true) are false. (Or: all contingent counterfactuals without explicit mention of probability in the consequent are false).

- Puzzle 1: Clash between woulds and mights

- Puzzle 2: Similarity ordering

- Puzzle 3: Clashes between woulds and woulds (Heim sequences)

Counterfactual Contextualism

2 central ideas:

- The closeness ordering is sensitive to both similarity and conversational relevance.

- Lots of things can make a possibility relevant when it wasn't before, including the assertion of a might- or would-counterfactual.

Contextualist truth conditions for counterfactuals

- For all contexts c, a counterfactual *If A, then would C* is true in c if and only if all the closest worlds in which A is true are worlds in which C is true, **where closeness is determined by both similarity and relevance**.

- For all contexts c, a counterfactual *If A, then might C* is true in c if and only if at least one of the closest worlds in which A is true is a world in which C is true, **where closeness is determined by both similarity and relevance.**

Relevance

- Some possibilities are (ir)relevant given conversational purposes, such as making a prediction, expressing regret, assigning blame, lamenting a friend's absence, etc.

- Irrelevant possibilities, even when among the most similar worlds, can legitimately be ignored when evaluating counterfactuals.

  - E.g. Quantum events in casual conversation

Relevance continued

- Given the nature of counterfactual claims:

  - The actual world is always relevant if it is an antecedent world.

  - High probability (conditional on the antecedent, macroscopically-described) outcomes are always relevant.

  - Really dissimilar worlds (relative to how much departure from the actual world the antecedent requires) are always irrelevant.

Relevance continued

- What is actually relevant is not necessarily the same s what speakers take to be relevant.

- Relevance is based on how the world actually is, not on how conversational participants think it is.

Relevance continued

- Some possibilities are irrelevant for conversational purposes so long as speakers don't bring them into play, at which point they become relevant, unless interlocutors resist the conversational move.

A comparison

(1) Main Street is flat.

(2) There is nothing in the fridge.

Puzzle 1 revisited

(3) If I had dropped my coffee mug this morning, it would have fallen to the floor.

- In the context of utterance, all the most relevant-similar worlds in which I drop my coffee mug are worlds in which it falls to the floor.

(4) If I had dropped my coffee mug, it might have quantum tunneled to China.

- This introduces a possibility into the conversation that was previously legitimately ignored.

- If conversational participants don't resist the move, i.e. the new possibility is accommodated, it cannot be ignored in subsequent conversation, thus worlds in which my mug quantum tunnels to china become relevant.

- In the new context, (3) is false.

Pragmatic accounts of the would/might clash

- Keith DeRose (1999) argues for a solution to puzzle 1 in which all might-counterfactuals are treated as epistemic (following Stalnaker (1968) who argues that most are epistemic), and so the clash is pragmatic.

- Epistemic account of might-counterfactuals: might-counterfactuals are treated as would-counterfactuals with an epistemic possibility operator taking wide-scope over them.

- I.e. *It is (epistemically) possible that if I had dropped my cup, it would have quantum tunneled to China.*

Problems with the pragmatic account

- It doesn't address the similarity ordering or Heim sequence problems (nor does it seem to have the resources to do so).

- Has to maintain that all might-counterfactuals have epistemic force (at least in the context of the clash).

Puzzle 2 revisited

Undermining worlds that are among the most similar are no longer a problem for the truth of would-counterfactuals, since in many contexts, these worlds are not relevant, and thus not among the closest worlds.

Other proposed solutions: Quasi-miraculousness and Typicality

- Lewis (1986): A *quasi-miracle* is a remarkable, low-probability event

  - Quasi-miracles, like miracles, add to the distance of a world.

  - The relevant might-counterfactuals are true on a different reading (the "would-be possible" reading): If P had been the case, then it would have been possible that Q was the case.

Quasi-miraculousness: problems

- Remarkableness is a psychological property.

- It does not account for many ordinary cases (e.g. Sophie standing behind someone tall).

- For a thorough discussion of quasi-miraculousness, see Hawthorne (2005) and Williams (2008).

Typicality

- Typicality is a global, holistic feature of an outcome: it is not about the probability of the particular outcome, but the probability of a certain set of properties that the outcome instantiates.

- A typical outcome is objectively random — is has all the appropriately simple high-probability properties.

- Perhaps this is the right way to think of the kind of probability invoked by relevance, but this doesn't account for the ordinary cases.

- Both quasi-miraculousness and typicality give up the duality between woulds and mights, and can't explain the clash between woulds and mights, or why the would-counterfactual seems false when the might-counterfactual is raised by the skeptic.

Truth conditions in terms of probabilities

- Discussed by e.g. Bennett (2003) and Hawthorne (2005), endorsed by Leitgeb (2012a and b).

- A would-counterfactual If P, then would Q is true iff it is highly probably that Q is the case, given P, i.e. if most of the closest P-worlds are Q-worlds.

Probability: the clash between woulds and mights

- If one maintains that mights are the duals of woulds, then the truth of the relevant might-counterfactuals is unaccounted for.

- If one gives up the duality of mights and woulds, then the inescapable clash has to be explained another way.

Probability: agglomeration

- Probability theories have to give up the principle of agglomeration:

  If A, B; If A, C entails If A , (B & C)

- Counterfactual contextualism does not validate agglomeration, but it does endorse it as a reasonable inference, i.e., in any context in which the premises are truly asserted, the conclusion is truly asserted.

Puzzle 3 revisited

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

(6) But of course, if Sophie had gone to the parade and been stuck behind someone tall, she wouldn't have seen Pedro dance.

(7) If Sophie had gone to the parade and been stuck behind someone tall, she wouldn't have seen Pedro dance.

(8) #But of course, if Sophie had gone to the parade, she would have seen Pedro dance.

Other accounts

- Moss (2012), von Fintel (2001), Gillies (2007)

- No account of why would-counterfactuals are true in the first place (no account of the similarity ordering)

Dynamic accounts

- Don't have an account of felicitous reverse sequences

- Dynamic semantics (von Fintel (2001) and Gillies (2007)) validate inferences such as those from (9) to (10):

(9) If Sophie had gone to the parade and been shorter than she actually is, she wouldn't have seen Pedro.

(10) If Sophie had gone to the parade, she might have been shorter than she actually is.

- Doesn't have an account of why counterfactuals seemed to be undermined by possibilities raised by non-conditionals.

Alan Hájek: *Chanciness (or indeterminacy) undermines wouldiness.*

Karen Lewis: *Chanciness (or indeterminacy), when raised to salience and accommodated in the conversational context, undermines wouldiness.*

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