Conditionals, Part II: Philosophical Logic.

Lecture IV, *Introduction to Subjunctive Conditionals: Goodman and Lewis*, 31st October.

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1. *Introduction*

1.1. We've already seen that intuitively subjunctive and indicative conditionals should be separated. Think:

(1) If Oswald did not kill Kennedy, somebody else did

(2) If Oswald *had not* killed Kennedy, somebody else *would* have

Subjunctive conditionals like (2) are often called 'counterfactual conditionals' because we assert them typically believing that the antecedent does not hold, i.e., the antecedent is counter fact.

1.2. Often, two kinds of counterfactual conditionals are distinguished: *would* and *might* counterfactuals. Again, consider JFK. Most people are hesitant to commit to 'If Oswald had not killed Kennedy, then somebody else *would* have'. This seems to mean that it was inevitable that JFK was assassinated. But instead consider.

(3) If Oswald had not killed Kennedy, then somebody else *might* have.

In general, a might-counterfactual is of the form 'If X were the case, Y *might* have been the case' and a would-counterfactual is of the form 'If X were the case, Y *would* have been the case'. We'll write $\ulcorner p \mathrel{\Box\!\!\rightarrow} q \urcorner$ for a would-counterfactual and $\ulcorner p \mathrel{\Diamond\!\!\rightarrow} q \urcorner$ for a might-counterfactuals.

1.3. Let's focus first on would-counterfactuals. There are several logical features of such conditionals (some shared in common with *indicatives*) which distinguish them from the material conditional.

Non-Monotonic. $p \mathrel{\Box\!\!\rightarrow} q$ does not in every case entail $(p \wedge r) \mathrel{\Box\!\!\rightarrow} q$, for arbitrary r.

E.g., 'Were he in the library, he'd be reading' and 'Were he in the library *and dead*, he'd be reading'.

Non-Transitive. $p \mathrel{\Box\!\!\rightarrow} q$ and $q \mathrel{\Box\!\!\rightarrow} r$ do not in every case jointly entail $p \mathrel{\Box\!\!\rightarrow} r$.

E.g., 'Were he in the library, he'd be reading' and 'Were he reading, he'd be reading Tolstoy' do not jointly entail that 'Were he in the library, he would be reading Tolstoy'.

Non-Contrapositive: $p \mathrel{\Box\!\!\rightarrow} q$ does not in every case entail $\neg q \mathrel{\Box\!\!\rightarrow} \neg p$.

E.g., 'If the US were to halt the bombing, the North Vietnamese would not negotiate' and 'If the North Vietnamese were to negotiate, the US would not halt the bombing'.

2. *Nelson Goodman on Counterfactuals.*

2.1. Counterfactuals are closely related to laws of nature. A crucial difference between a law of nature and an accidental generalisation is that only the former *supports* a counterfactual. Goodman's (1947) account exploits this connection. The idea: $p \mathrel{\Box\!\!\rightarrow} q$ holds just in case q follows from p in conjunction with some truths T, one of which is a law of nature. Here's an example. Take a well-made and dry match and consider

(3) If I were to strike the match, it would light

Even if I do not actually strike the match, I accept this conditional because 'I strike the match' in conjunction with truths like 'The match is well-made' and 'The match is dry' and some relevant laws of nature (about combustion and red-phosphorus, etc.) entail that the match is lit.

2.2. It is very difficult to get this account to work. The central problem: *which* truths do we consider in conjunction with p? Not any will do, since $\neg p$ is true and $\neg p$ and p jointly entail anything, trivialising counterfactuals. Rather, as Goodman notes, we need certain *co-tenable* truths.

2.3. In the end, Goodman concluded that the only way of defining the co-tenable truths was as follows.

(*) B is co-tenable with A iff it is not the case that if A had been true, B would not have been true.

But this is plainly circular! Co-tenability was to be built into the semantics which told us the conditions under which counterfactuals are true. Yet (*) itself appeals to counterfactuals!

2.4. Another issue with Goodman's account is that not all counterfactuals are law-like in the way he proposes. Some good examples of such counterfactuals are found in (Edgington, 1995):

(4) If I'd known you were coming, I'd have baked a cake;

(5) If the lights were on, then they would have been home.

As Edgington notes, it is difficult to see what laws are going to underpin (4)–(5). Now, you might think that it is one thing for it to be *hard to say* what those laws are and another thing to say that there *are no such* laws. Perhaps there is some (very complicated) statement which in conjunction with 'the lights are on' entails that they would have been home. But other cases prove even more difficult. Consider:

(6) If I were to toss a (fair) coin a million times, at least one toss would come up heads.

We could accept (6) as true. However, we would not be able to accept that there was a law-like generalisation from which we could derive, in conjunction with some truths and 'I toss a (fair) coin a million times' the claim 'at least one toss comes up heads'. (Convinced? Think about this: is (6) *really* true?)

3. *David Lewis on Counterfactuals*

3.1. The most influential account of counterfactuals is found in (Lewis, 1973). Lewis's argues that counterfactuals are *variably strict conditionals*. A strict conditional is of the form $\Box(\phi \supset \psi)$, where $\ulcorner\Box\urcorner$ is some necessity operator and $\ulcorner\supset\urcorner$ is the material conditional. Here, $\ulcorner\Box\urcorner$ is defined over a certain class of worlds.

3.2. Counterfactuals are not simply strict conditionals, for some $\ulcorner\Box\urcorner$. Take, for instance:

(7) If John had come to the party, it would have been great

If we interpret (7) as a strict conditional for some $\Box_{\text{Party!}}$, then (7) is: $\Box_{\text{Party!}}$(John comes $\supset$ Party great). This might look acceptable. But (7) can be true and (8) can be true:

(8) If John *and* James had come to the (Halloween) party, it would have been terrible.

Problem: $\Box_{\text{Party!}}$(John comes $\supset$ Party great) is true if all worlds in the relevant class for $\Box_{\text{Party!}}$ are such that ($\neg$John comes $\vee$ Party great) is true. So, assuming that there are worlds where John comes is true, there are some worlds where ($\neg$(John comes $\wedge$ James comes) $\vee$ Party great) is true. Instead, counterfactuals should be *variably* strict conditionals, in some sense allowing for this sensitivity to the antecedent.

References

Edgington, Dorothy (1995). On Conditionals. *Mind* 104, 235–329. DOI: 10.1093/mind/104.414.235.
Goodman, Nelson (1947). The Problem of Counterfactual Conditionals. *Journal of Philosophy* 44, 113–128. DOI: 10.2307/2019988.
Lewis, David K. (1973). *Counterfactuals*. Malden, Mass.: Blackwell.