Conditionals, Part II: Philosophical Logic.

Lecture I, *Introduction to Conditionals*, 10th October

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1. *Introduction*

1.1. Conditionals are found widely in natural language. For example:

(1) If the train is on time, we should arrive by 5pm. (Practical)

(2) If done for personal use, picking a wild mushroom is not theft. (Legal)

(3) If it hadn't been for the cause of the fire, there would be no fire. (Causal)

We make conditional promises, commands, and ask conditional questions. Here, we focus on conditional statements and their semantics. The core question: what are the truth conditions for conditional statements?

2. *Indicative vs. Subjunctive*

2.1. It's important to first distinguish two kinds of conditional, the indicative conditional and the subjunctive conditional. It's useful to consider pairs of conditionals like the following in (Adams, 1970).

(4) If Oswald did not kill JFK, then someone else did. (Indicative)

(5) If Oswald had not killed JFK, someone else would have. (Subjunctive)

(4) and (5) differ with respect to mood, not their sub-sentential parts. That is, let p := Oswald did not kill JFK and q := Someone else killed JFK. (4) can be rewritten as 'If p, then q' and (5) as 'If it were the case that p, then it would be the case that q'. In what follows, we mark the difference between these conditionals by writing $\ulcorner p \rightarrow q \urcorner$ for the indicative and $\ulcorner p \mathrel{\Box\!\!\rightarrow} q \urcorner$ for the subjunctive.

2.2. Our theorising about conditionals should respect the difference between $\rightarrow$ and $\Box\!\!\rightarrow$. Why? Well, (4) can be *true* without (5) being true. Mood also matters for assertability: being confident that Kennedy was killed by a 'lone wolf' is enough to be confident in (4), but not enough to be confident in (5).

We won't challenge this distinction here. The core question we're tackling, then, promptly becomes two:

$$\text{What are the truth conditions for} \begin{cases} \text{(a) indicative conditionals?} \\ \text{(b) subjunctive conditionals?} \end{cases}$$

3. *Indicative as Material Conditional*

3.1. The material conditional is familiar from Part IA, i.e., $\ulcorner p \supset q \urcorner := \ulcorner \neg p \vee q \urcorner$. One view is that the indicative conditional should just be identified with the material conditional. That is, the truth conditions for $p \rightarrow q$ are those for $p \supset q$. Many have found this view compelling, see (Stalnaker, 1975) for some good reasons.

3.2. But the material conditional view is problematic, since either $\neg p$ or q is sufficient for $p \supset q$, but plausibly not for $p \to q$. This fact leads to the so-called Paradoxes of Material Implication. Some try to shift the blame away from the truth conditions and towards pragmatic, or epistemic factors. The idea is that the purportedly problematic conditionals are in fact true, but the problem is that they violate:

(**Conversational Implicature**) Pragmatic norms govern assertion. We argue that problematic conditionals are *strictly speaking* true, but seem wrong as they break these norms (Grice, 1989).

(**Conventional Implicature**) We could appeal to a notion of implicature derived from the meanings of the words involved—problematic conditionals are, again, true, but violate those conventional uses of conditionals, see (Jackson, 1979). For instance, compare: 'She was buried and died'.

(**Epistemic heuristics**) We could appeal to hard and fast, but useful rules for conditional judgements as an explanation for why such conditionals appear problematic which preserves the true, material conditional analysis of the indicative, see (Williamson, 2020).

4. *Indicative Conditionals and Probability*

4.1. Here's an alternative *probabilistic* problem for the material conditional analysis. Consider the following example. I blindly/randomly take out one item from a container containing in total four items: one blue cube, one red cube, one blue sphere, and one red sphere. Given this situation, consider the conditional (i) If I take out a red item, then I take out a cube. It's natural, regardless of how we think about probability, to take Pr(i) = 1/2. However, the probability of (ii) 'I take out a red item ⊃ I take out a cube' is 3/4. Thus Pr(i) ≠ Pr(ii).

4.2. We should want to say something more general about the probability of indicative conditionals. An influential idea about the probability of conditionals has been the so-called 'Equation'.

The Equation, (Eq): $\mathrm{Pr}(p \to q) = \mathrm{Pr}(q|p)$, where $\mathrm{Pr}(q|p) = \dfrac{\mathrm{Pr}(p \wedge q)}{\mathrm{Pr}(p)}$ given $\mathrm{Pr}(p) > 0$).

Also known as 'Stalnaker's Thesis', see (Bennett, 2003: §24). (Eq) is often called 'Adams's Thesis', but this also stands for a weaker constraint tying the *assertability* of a conditional $p \to q$ to high $\mathrm{Pr}(q|p)$.

4.3. (Eq) is on the right track. Indeed, (Eq) seems to track how we *reasoned* to $\mathrm{Pr}(p \to q)$ = 1/2 above. This observation is related to the famous 'Ramsey Test' for whether you should accept a conditional.

> 'If two people are arguing about 'If p then q' [i.e., $p \to q$] and are both in doubt as to p they are adding p hypothetically to their stock of knowledge and arguing on that basis about q ... We can say that they are fixing their degrees of belief in q given p' (Ramsey, 1929)

On the assumption that when you come to believe a new proposition q, your degree of belief in any proposition p should be equal to $\mathrm{Pr}(p|q)$, (Eq) entails the validity of the Ramsey Test.

References

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