# Elements of a theory of conditionals

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Let's set aside examples like 'If a farmer owns a donkey, he is rich' and 'If I eat the pizza or the week-old sausages I'll be ill'.

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| 'If P, Q' $=_{df}$ 'Either there is no accessible P-world, or the closest accessible P-world is a Q-world' |

**1. 'Accessible'**

a. Context-sensitivity

b. The presupposition of non-vacuity.

c. Counterfactuals versus indicatives

(1) 'If Anna has baked a cake, Bob will be embarrassed'; 'You said that if Anna had baked a cake, Bob would be embarrassed, but you were wrong, since it turns out that if Anna had baked a cake, Bob would have been delighted.'

d. Epistemic 'Must', epistemic 'might', and indicative 'if'.

(2) If P, Q; might P $\vdash$ might $(P \wedge Q)$

(3) Must$(P \vee Q) \vdash$ If not-P, Q

- Stalnaker's view makes (2) but not (3) valid.

e. Constrained versus unconstrained epistemic modals and indicative conditionals.

f. Introspection

- It's not plausible that when something is epistemically possible it is epistemically necessary that it is epistemically possible.
- Nevertheless, in ordinary settings, we tend to ignore the possibility of introspection failures. For example, we strongly gravitate towards some constrained, or non-speaker-centric, reading of the 'might' in 'I'm not sure whether this mushroom might be dangerous.'
- Some inferences that work when accessibility is transitive and symmetric:

(4) Might $(P \wedge Q) \vdash$ If P, might Q

(5) If P, might Q; might P $\vdash$ might Q[1]

(6) Must(P∨Q) $\vdash$ Must(If not-P, Q)

**2. 'Closest'**

a. Edgington's argument against theories that connect closeness to qualitative similarity

b. Van Fraassen priors

- The Limited Equation: $P_{\varnothing}$(If A, C) = $P_{\varnothing}$(C | A) for "categorical" A.
- McGee's independence principle: $P_{\varnothing}$(If A, C) = $P_{\varnothing}$(If A, C | ¬A∧B) for "categorical" A and B.

c. Hypothesis: rational credences derive from van Fraassen priors by conditionalising on some "categorical" proposition. How this hypothesis delivers the Limited Equation in speaker-centric, unconstrained, introspective settings.

d. Is the Limited Equation enough?

(7) If the plate cracked if it was dropped, it wasn't worth what you paid for it

- The antecedents is naturally interpreted as constrained. We take it that for some F, the speaker knows (and knows she knows) that if the plate is F and was dropped it cracked, and if the plate isn't F and was dropped it didn't crack. So the speaker knows the following: the plate is F ≡ the closest world where the plate is dropped that is consistent with her knowledge and is accurate as regards whether the plate is F is one where the plate cracked.

e. Violations of the Limited Equation with constrained interpretations

(8) It's looking probable that if he jumped, he was killed.

(9) (Kaufman example): It's unlikely that if a red ball was drawn, it had a black spot.

f. Violations of the Limited Equation with non-speaker-centric interpretations

g. Violations of the Limited Equation when introspection fails

**3. 'World'**

a. The debate about counterfactuals with impossible antecedents

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[1] We also get the inference 'If P, must Q; might P $\vdash$ must Q', which seems crazy. But remember that we'll need to say something special in any case about all these 'must's in consequents, as discussed in weeks 3–4. If we treat the inner modal as constrained, 'If P, must Q' will be equivalent to 'If P, it's epistemically necessary that (P⊃Q)'. If we plead scope mismatch, it'll be 'Must (If P, Q)'.

b. How non-hyperintensionality for indicatives forces truth-functionality (Williamson)

- Let Alf be the set of all truths. Suppose A≡C, B≡D and If A, B. We know that A≡(A∈Alf) and similarly for B,C and D. Then If A∈Alf,B∈Alf. But □(A∈Alf ≡ C∈Alf) and □(B∈Alf ≡ D∈Alf). So by non-hyperintensionality, If B∈Alf, D∈Alf. So If B, D.

c. Worlds as sets of propositions

- The actual world is the only one that is both epistemically and metaphysically possible.
- 'Russellian' and 'Fregean' propositions
- Failures of duality for 'might' and 'must'. '∃x(x might not be a politician, and x must be a politician)' is consistent. So is 'Paderewski might not be a politician, and Paderewski must be a politician'.
- Failures of closure for 'must' and 'might'. 'It must be that Paderewski is a pianist and Paderewski is a politician' ⊭ 'It must be that some pianist is a politician'. 'It must be that Paderewski is a pianist and it might be that Paderewski is a politician' ⊭ 'It might be that some pianist is a politician'.
- Failures of closure for 'if'. '∃x (if there are two people named "Paderewski", x is a pianist ∧ if there are two people named "Paderewski", x is a politician)' ⊭ '∃x(if there are two people named "Paderewski", x is a pianist and a politician)'.
- Leibniz's Law and conditionals.

d. If tails are called 'legs', how many legs has a horse?

e. Goodbye, conditional logic?

(10) If 'and' means *or*, it is raining and not raining.