

The problem of counterfactual conditionals

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What are counterfactual conditionals?

Conditionals = If-then-sentences (or synonymous expressions)

Indicative conditional: antecedent may be true in the actual world, may be purely contingent

If Oswald did not kill Kennedy, somebody else did

Counterfactual/subjunctive conditional: antecedent is false in the actual world, subjunctive mood, always modal in nature

*If Oswald would not have killed Kennedy,
somebody else would have*

Distinction is still disputed

Why fascinating?

- We have no direct empirical way to test counterfactuals. How to know whether they apply?
- Their semantics is complicated, but often humans employ them successfully in practice
- Understanding them means understanding the rational flexibility of the human mind

Why important?

- Crucial in scientific discovery and justification, particularly in historical sciences
- Links with philosophy of laws of nature, causality, explanation, logic, necessity
- Counterfactual reasoning makes our knowledge robust

Main problems

logic: how to reason with COFA's?

semantics: when is a COFA true/acceptable?

pragmatics: when is a COFA assertible in a communication context

epistemology: how can we know/rationally believe COFA's?

metaphysics/ontology: how can COFA's be objectively true in the world?

counterpossibles: how can we deal with COFA's the antecedents of which are (logically) impossible?

Ramsey test for indicative conditionals

If two people are arguing 'If p, then 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; so that in a sense 'If p, q' and 'If p, not-q' are contradictories. We can say that they are fixing their degree of belief in q given p. If p turns out false, these degrees of belief are rendered void. If either party believes not-p for certain, the question ceases to mean anything to him except as a question about what follows from certain laws or hypotheses

Footnote of Ramsey, F.P. (1929). General Propositions and Causality. Printed in Mellor, D. H. (Ed.). (1990). Philosophical papers: F. P. Ramsey (pp. 145–163). Cambridge, MA: Cambridge University Press.

Main solutions

- **Contentability** (Goodman, Chisholm, Rescher, Kvart)
 $A > B$ iff $\Gamma \cup A \vdash B$, where Γ is the set of truths which are contentable with A .
- **Belief revision** (Gärdenfors, Levi)
 $A > B$ is acceptable in a belief system K iff revising beliefs K with A makes B a consequence of the revised beliefs.
- **Conditional probability** (Adams)
 $A > B$ is acceptable iff the conditional (subjective) probability $P(B | A)$ is close to 1.
- **Possible worlds** (Lewis, Stalnaker)
 $A > B$ is true iff B is true in all possible worlds which are as similar as possible to the actual world, but in which A is true.

Texts to be read (1)

- Adams, E. W. (1976). Prior probabilities and counterfactual conditionals. In Harper, W. L., and Hooker, C. A., editors. *Foundations of Probability Theory, Statistical Inference, and Statistical Theories of Science*. Dordrecht, The Netherlands: Reidel, pp. 1–21.
- Kim, J., 1973. Causes and Counterfactuals. *Journal of Philosophy*, 70: 570–72.
- Kvart, I. (1992). Counterfactuals. *Erkenntnis*, 36, 1–41.
- Hannes Leitgeb (2012). A Probabilistic Semantics for Counterfactuals. Part A. *The Review of Symbolic Logic*, 5, pp 26-84.
- Lewis, D. K. (1973). *Counterfactuals*. Oxford, UK: Blackwell. **(first two chapters)**

Texts to be read (2)

- Pollock, J. (1981) A refined theory of counterfactuals. *Journal of Philosophical Logic*, 10: 239-266.
- Mares, E. D. and Fuhrmann, F. (1995). A Relevant Theory of Conditionals. *Journal of Philosophical Logic* 24 (6):645 - 665.
- Stalnaker, R. C. (1970). Probability and conditionals. *Philosophy of Science*, 37, 64–80. Reprinted in Harper et al. (1981, pp. 107–128).
- Veltman, F. (2005). Making counterfactual assumptions. *Journal of Semantics*, 22, 159–180.