

Testing Theories of Conditionals

Lukáš Bielik

Faculty of Arts, Comenius University in Bratislava
Department of Logic and Methodology of Science
APVV-21-0405 (CONDITIO)

Outline

1. Introductory note
2. Background
3. Questions
4. Theories of indicative conditionals
5. Testing theories of conditionals

1. Introductory note

- Bennett (2003, 3):
“We encounter conditionals through a sentence expressing it, that is a sentence whose meaning it is.”
- Conditionals vs. conditional sentences
 - Conditional as a semantic content of conditional sentence (i.e. truth-function, proposition, propositional construction, credence-function, ...)
 - Primacy of syntactic features?
 - Some conditional sentences may express a non-conditional
 - Indicative conditional – conditional expressed by an indicative conditional sentence; the verb in the consequent is in the indicative mood
 - Counterfactual – conditional expressed by a subjunctive conditional sentence; the verb in the consequent is in the subjunctive mood (MacFarlane 2021)

2. Background

- Theories of conditionals aim to explain the semantic content of conditional sentences in an indicative or counterfactual mood;
- Theories of conditionals differ in what theoretical assumptions they invoke, what extra-semantic goals they pursue, and in what kinds of communicative contexts they are supposed to be applicable;
 - Frege, Russell, Carnap: ideal language vs natural language
 - Stalnaker, Adams, et al.: pay attention to an agent's epistemic context

3. Questions

- What then does it mean to test a given theory of conditionals?
- What constitutes a counterexample for a given theory?
- When should we prefer one theory over the other?
- Does testing theories of conditionals have specific features that distinguish it from testing other (semantic and non-semantic) theories?

4. Theories of indicative conditionals

- Three main groups (Edgington 2020):
 - Indicative conditionals have a semantic content of material implication (IC are truth-functional) – view of logic textbooks; Grice, Jackson, ...
 - Indicative conditionals have truth-conditions but they are not truth-functional (Stalnaker)
 - Indicative conditionals express credence-function (“When saying ‘If A, B’, we are judging that B under the supposition that A”). (Ramsey, Mackie, Adams, Edgington etc.)

4. Theories of indicative conditionals

- The classification's caveats:
 - There are some semantic theories that use the apparatus of possible worlds without losing the truth-functional character of logical connectives, including those of material implication. See, for instance, Transparent intensional logic of Pavel Tichý (Tichý 1988) or its modern development in Duží, Jespersen, Materna (2010). Then, such a theory should count as a sort of the material implication's account even though its procedural semantics invokes possible worlds.

4. Theories of indicative conditionals

- The classification's caveats (continues):
 - It is an open question how we are to conceive of conditionals with the *ceteris paribus* clause. Does *ceteris paribus* clause represent a conjunction of additional antecedent conditions within conditional such that they are accounted for by the material implication theory? Or does it refer to a possible world parameter in the manner of Stalnaker's theory? Or, if it is not, strictly speaking, possible to test and evaluate conditionals with *ceteris paribus* clause, do they have got any truth conditions at all?

5. Testing theories of conditionals

- What is evidence E?
 - E is a philosophical argument whose conclusion says that T is a true/plausible theory.
 - E is an instance of a correctly formed conditional sentence.
 - E is a valid inferential rule (of classical logic) which is (in)consistent with theory T.
 - E is a user's evaluation (assertability conditions, belief, credence function, etc.) of an instance of conditional which is (in)coherent with T.
 - E is a piece of information that accords with some theoretical assumptions or extra-semantic aims/goals of an agent.
 - E is T's explanatory power (over competitors) with respect to a given phenomenon.

5. Testing theories of conditionals

- What is a counterexample to theory T?
 - a) some E such that $E \vdash \neg T$ and hence: $T \vdash \neg E$
Or: $E \vdash \neg(T \wedge A)$; and hence: $T \wedge A \vdash \neg E$
 - b) some E such that $T \not\vdash E$ but according to some theoretical assumptions A, an adequate theory T' should entail E or even should account for E.
- Option a) coheres with HD model of testing.
- Option b) is close to IBE model.
- But what counts as positive or negative evidence depends, partially, on what a theory T should entail or explain – so it is relativized to some background assumptions on language and meaning in general.

5. Testing theories of conditionals

- Comparing theories
 - If $\vdash \neg(T_1 \wedge T_2)$ and $T_2 \not\vdash E_1$, is evidence E_1 for T_1 , in general, an evidence against T_2 ?
 - Every theory of conditionals have some problem cases (negative evidence). How should we compare those theories?
 - To prefer theory with the minimal amount of counterexamples? (Let's generate more counterexamples!)
 - To prefer theory with the least serious counterexamples? (What is the least serious counterexample depends on background assumptions, again.)

References (a selection)

- Adams, E. W. (1998): *A Primer of Probability Logics*. Stanford: CSLI Publications.
- Adams, E. W. (1965): A Logic of Conditionals. *Inquiry* 8, 166–197.
- Bennett, J. (2003): *A Philosophical Guide to Conditionals*. Oxford: Clarendon Press.
- Edgington, D. (2020): Indicative Conditionals. In: *The Stanford Encyclopedia of Philosophy* (Fall 2020 Edition), E. N. Zalta (ed.), <https://plato.stanford.edu/archives/fall2020/entries/conditionals/>
- Gibbard, A. (1981): Two Recent Theories of Conditionals. In: Harper, W. L., Stalnaker, R., and Pearce, C. T. (eds.): *Ifs*. Dordrecht: Reidel, 211–247.
- MacFarlane, J. (2021): *Philosophical Logic: A Contemporary Introduction*. London, New York: Routledge.
- Sanford, D. H. (2003): *If P, then Q: Conditionals and the Foundations of Reasoning*. London: Routledge.

Thank you!