MACIEJ SENDŁAK [*]

ON CONDITIONALS: PREFACE

If you are reading this, there is a good chance that you are interested in conditionals. Also, depending on how deep your interest is, you may recognize the first sentence of this paragraph as an example of a conditional statement. If you did not recognize this, you should know that conditionals are complex expressions of the form "If *A*, then *C*" (formally, "$A > C$"). We often use them to indicate a connection between two states of affairs, expressed by the antecedent *A* (or if-clause) and a consequent *C* (or then-clause). For example: "If you ever lose your credit card, immediately inform your bank", "If there is an action, there is an equal and opposite reaction", "If the river were to rise another two feet, the subway system would be flooded". By asserting statements like these, one usually suggests a relationship between two states, such that one affects the other. In other words, the second somehow obtains under the condition of the first.

While the syntactical structure of conditionals may seem quite simple, their semantic and pragmatic consequences are hard to overestimate. The importance of conditionals is partly grounded in their commonness. Accordingly, many claim that these are useful (if not indispensable) tools for expressing our emotions or beliefs, as well as for acquiring and transferring knowledge (Nickerson, 2015; Williamson, 2016). Some believe that it is impossible to experience genuine grief or satisfaction without involving the use of conditionals (Byrne, 2014). Others argue that the capacity to perform conditional inferences is a hallmark of intelligence. It is safe to say that conditionals are essential to our intellectual life. This partly explains why they have become the subject of academic interest.

---

[*] University of Warsaw, Faculty of Philosophy. E-mail: m.sendlak@uw.edu.pl. ORCID: 0000-0002-0539-5924.

At the same time, the complexity of this subject and the richness of the uses of such expressions explain why it is so difficult to discover a statement about conditionals that is both interesting and finds universal acceptance among theorists. Accordingly, the question of conditionals is a breeding ground for vibrant debates among philosophers, psychologists, and linguists (Bennett, 2003; Kratzer, 2012; Sanford, 1989).

The debates mentioned concern such fundamental questions as what the logical structure of conditionals is and how their taxonomy looks. In this respect, many claim that one should draw a line between at least two types: indicatives and subjunctives (or counterfactuals). This distinction is nicely illustrated by the contrast between two sentences with the same antecedents and consequences, but different moods:

(IND) If Oswald did not kill Kennedy, someone else did.

(SUB) If Oswald had not killed Kennedy, someone else would have.

The first sentence is true, while the second seems to be false. If, during the investigation of the assassination of Kennedy, it had been proved that Oswald did not kill Kennedy, then someone else must have killed him. In this case, we rely on the knowledge that Kennedy had been killed, and we enrich this knowledge with the information that Oswald was not the person that killed him. If that is the case, then someone else did. After all, given that Kennedy was killed, someone must be his killer. Contrary to IND, SUB is false. In such a scenario, we consider a situation in which Kennedy had not been killed in the first place. Putting aside conspiracies, it is safe to assume that if Oswald had not killed Kennedy, Kennedy would not have been assassinated (Adams, 1970).

This also results in the question of whether IND and SUB should be the subjects of a uniform analysis. Some respond to this positively, and argue for a unified analysis of indicative and subjunctive conditionals (e.g., Chisholm, 1946; Nolan, 2003; Stalnaker, 1968), while others recommend treating them differently (e.g., Jackson, 1979; Lewis, 1973; Mackie, 1973). One of questions that follows is what the semantic nature of conditionals is: Are they subject to truth-values or not? Assuming that truth-values are properties of propositions, views that share the assumption mentioned might be labeled "propositional approaches". Not every analysis of conditionals is like this. Some consider an assertion of a conditional a distinctive *speech act*. While this involves two propositions (one of which is supposed, while the other is asserted in a way that is qualified by the supposition), it is claimed that the conditional itself is not a proposition. Accordingly, it is claimed that the condition of assertion of "$A > C$" depends upon the probability of C, given A. Thus, an assertion of "$A > C$" is acceptable or justified only if the probability of C being the case under the assumption of A being the case is sufficiently high. This is further determined by conditional probability $\Pr(C|A)$, which is analyzed in terms of the absolute probability of $\Pr(A + C) \div \Pr(A)$ (Adams, 1965; 1975; Appiah, 1985; Edgington, 1986; 1995).

A different view that also falls into the category of non-propositional approaches is one according to which conditionals are "condensed or telescoped arguments" (Mackie, 1973, p. 69). This means that when one asserts "$A > C$", one in fact performs more complex argumentation in which A is one of the premises and C is its consequence. Naturally, the other premises are often merely silently assumed, and not explicitly stated. The reason that Mackie's view differs from propositional approaches is that arguments are neither true nor false. Thus, if conditionals are considered "telescoped" arguments, they too are neither true nor false.

Interestingly, both of the above approaches have their propositional counterparts. Thus, some have claimed that conditional "$A > C$" is true if $Pr(C|A)$ is sufficiently high (or close to 1). An important assumption here is that $Pr(A)$ is greater than zero. Otherwise, the outcome of $Pr(C|A)$ would be undefined. In such cases, it is commonly stipulated that all conditionals of impossible antecedents are vacuously true (for an alternative approach, see Hájek, 2003; Leitgeb, 2012a; 2012b; McGee, 1994). Likewise, there are also propositional counterparts of Mackie's analysis. These are views that track back to the works Frank Plumpton Ramsey (1931), according to which "'If p then q' means that q is inferable from p, that is, of course from p together with certain facts and laws not stated but, in some way, indicated by the context" (Ramsey, 1931, p. 248). As the consequent of a conditional is somehow meant to be inferred (with the support of particular facts and laws) from the antecedent, this approach is sometimes labeled "inferentialism" or "support theory" (Bennett, 2003, p. 302). This was a point of interest for the two most prominent advocates of the truth-functional version of support theory—Nelson Goodman (1947) and Roderick Chisholm (1955). After years of bad press, we are witnessing a revival of inferentialism that is heavily grounded in empirical research (Douven, 2008; Krzyżanowska, Wenmackers, Douven, 2013).

What seems to be the most popular analysis of counterfactuals is the one delivered in terms of possible worlds semantics (Lewis, 1973; Stalnaker, 1968; Todd, 1964). By virtue of this approach, the truth-value of conditional $A > C$ depends upon the similarity between the actual worlds and a world where both A and C are true, compared to a world where A and $\sim C$ are true. Finally, there is a further view that has been partly motivated by the obstacles of possible world semantics, and which is based on truthmaker semantics (e.g., Embry, 2014; Fine, 2012). One such obstacle is the question of the truth value of counterpossibles, namely, counterfactuals with impossible antecedents. Popular examples of these are:

If whales were fish, they would have gills.
If whales were fish, they would not have gills.
If Kate squared the circle, mathematicians would be impressed.
If Kate squared the circle, mathematicians would not be impressed.

A standard possible worlds semantics has it that as there are no worlds where the antecedent of the above conditionals is true, all of them are consid-

ered vacuously true. Many considered this consequence to be questionable enough to seek an alternative approach. While truthmakers' semantics provide an analysis that distinguish false and true counterpossibles, it should be stressed that such analysis is also possible within the extended possible worlds semantics (e.g., Nolan, 1997). Furthermore, the question of whether an adequate theory ought to allow for non-vacuously-true counterpossibles is itself a subject of a debate (Berto, French, Priest, Ripley, 2018; Brogaard, Salerno, 2013; Sendłak, 2021; Williamson, 2018).

The above is merely a glance at the notion of conditionals. However, it should be clear that this is both a complex and intriguing notion. The present issue of *Studia Semiotyczne* addresses some of the questions mentioned above. We are happy to present a collection of papers that reflect the complexity of the subject of conditionals. Thus, the issue includes an article, *The Nature of Propositional Deduction—a Piagetian Perspective*, in which M. A. Winstanley addresses the question of the relationship between the logic and psychology of reasoning. He does this by comparing two dominant approaches to this subject matter, and eventually proposes a third one, which is directly inspired by the works of Jean Piaget.

An essential part of this issue is devoted to the semantics of conditionals. *A Probabilistic Truth-Condition Semantics for Indicative Conditionals* by Michał Sikorski proposes an approach designed to overcome some of the common obstacles or limitations of a probabilistic account of conditionals; one of them being the conditionals of embedded antecedents. As mentioned, a significant debate within the semantics of conditionals concerns the truth value of counterpossibles. We have two papers on this subject. The first one—*Against Vacuism* by Samuel Dickson—relies on the role of counterpossibles within the context of natural science and mathematics. Along with characterizing the mechanism that underpins the motivation for vacuism, Dickson argues that some counterpossibles are false. Whereas Dickson focuses on the role of the counterpossible in scientific inquiry, Felipe Morales Carbonell investigates the issue of counterpossibles from the point of view of the notion of subject matters. This makes his *Towards Subject Matters for Counterpossibles* a paper that puts together two intriguing subjects of semantics. Accordingly, Morales Carbonell compares two popular approaches to the subject matters—so-called way-based and atom-based—from the point of view of the question of counterpossibles, and shows how this affects the theoretical virtues of each of them.

While a vast part of the work is dedicated to semantics, it is difficult—if possible, at all— to omit the question of the pragmatics of conditionals (Moss, 2012; von Fintel, 2001). While pragmatics was a wastebasket of philosophy for many years (Carston, 2017, p. 453), it is clear nowadays that it plays a crucial role in understanding the nature of conditionals. Mariusz Popieluch in *Context-Indexed Counterfactual* addresses this, by combining both semantic and pragmatic features of conditionals. A result of this is his proposal to include a context factor within the semantics of counterfactuals.

REFERENCES

Adams, E. (1965). The Logic of Conditionals. *Inquiry: An Interdisciplinary Journal of Philosophy*, *8*(1–4), 166–197.

Adams, E. (1970). Subjunctive and Indicative Conditionals. *Foundations of Language*, *6*(1), 89–94.

Adams, E. (1975). *The Logic of Conditionals: An Application of Probability to Deductive Logic*. Dordrecht: Springer.

Appiah, A. K. (1985). *Assertion and Conditionals*. Cambridge: CUP.

Bennett, J. (2003). *A Philosophical Guide to Conditionals*. Oxford: OUP.

Berto, F., French, R., Priest, G., Ripley, D. (2018). Williamson on Counterpossibles. *Journal of Philosophical Logic*, *47*(4), 693–713.

Brogaard, B., Salerno J. (2013). Remarks on Counterpossibles. *Synthese*, *190*, 639–660.

Byrne, R. M. J. (2016). Counterfactual Thought. *Annual Review of Psychology*, *67*(1), 135–157.

Carston, R. (2017). Pragmatics and Semantics. In Y. Huang (Ed.), *The Oxford Handbook of Pragmatics* (pp. 453–472). Oxford: Oxford University Press.

Chisholm, R. M. (1946). The Contrary-to-Fact Conditional. *Mind*, *55*(220), 289–307.

Chisholm, R. M. (1955). Law Statements and Counterfactual Inference. *Analysis*, *15*(5), 97–105.

Douven, I. (2008). The Evidential Support Theory of Conditionals. *Synthese*, *164*(1), 19–44.

Edgington, D. (1986). Do Conditionals Have Truth Conditions? *Critica*, *18*(52), 3–39.

Edgington, D. (1995). On Conditionals. *Mind*, *104*(414), 235–329.

Embry, B. (2014). Counterfactuals Without Possible Worlds? A Difficulty for Fine's Exact Semantics for Counterfactuals. *Journal of Philosophy*, *111*(5), 276–287.

Fine, K. (2012). Counterfactuals Without Possible Worlds. *The Journal of Philosophy*, *109*(3), 221–245.

Goodman, N. (1947). The Problem of Counterfactual Conditionals. *The Journal of Philosophy*, *44*(5), 113–128.

Hájek, A. (2003). What Conditional Probability Could Not Be. *Synthese*, *137*(3), 273–323.

Jackson, F. (1979). On Assertion and Indicative Conditionals. *Philosophical Review*, *88*(4), 565–589.

Kratzer, A. (2012). *Modals and Conditionals: New and Revised Perspectives*. Oxford: Oxford University Press.

Krzyżanowska, K., Wenmackers, S., Douven, I. (2013). Inferential Conditionals and Evidentiality. *Journal of Logic, Language and Information*, *22*(3), 315–334.

Leitgeb, Hannes (2012a). A Probabilistic Semantics for Counterfactuals. Part A. *Review of Symbolic Logic*, *5*(1), 26–84.

Leitgeb, Hannes (2012b). A Probabilistic Semantics for Counterfactuals. Part B. *Review of Symbolic Logic*, *5*(1), 85–121.

Lewis, D. (1973). *Counterfactuals*. Oxford: Blackwell.

Mackie, J. L. (1973). *Truth, Probability, and Paradox*. Oxford: OUP.

McGee, V. (1994). Learning the Impossible. In E. Eells, B. Skyrms (Eds.), *Probability and Conditionals: Belief Revision and Rational Decision* (pp. 179–199). Cambridge: Cambridge University Press.

Moss, S. (2012). On the Pragmatics of Counterfactuals. *Noûs*, 46(3), 561–586.

Nickerson, R. S. (2015). *Conditional Reasoning. The Unruly Syntactics, Semantics, Thematics, and Pragmatics of "If"*. Oxford: Oxford University Press.

Nolan, D. (1997). Impossible Worlds: Modest Approach. *Notre Dame Journal of Formal Logi*c, *38*(4), 535–572.

Nolan, D. (2003). Defending a Possible-Worlds Account of Indicative Conditionals. *Philosophical Studies*, *116*(3), 215–269.

Ramsey, F. P. (1931). General Propositions and Causality. In F. P. Ramsey, *The Foundations of Mathematics* (pp. 237–255). New York: Humanities.

Sanford D. H. (1989). *If P, then Q: Conditionals and the Foundations of Reasoning*. London: Routledge.

Sendłak, M. (2021). Counterpossibles, Story Prefix and Trivialism. *Synthese*, *199*, 7283–7301

Stalnaker, R. (1968). A Theory of Conditionals. In N. Rescher (Ed.), *Studies in Logical Theory*. Oxford: Blackwell.

Stalnaker, R. (1975). Indicative Conditionals. *Philosophia*, *5*(3), 269–286.

Todd, W. (1964). Counterfactual Conditionals and the Presuppositions of Induction. *Philosophy of Science*, *31*(2), 101–110.

Von Fintel, K. (2001). Counterfactuals in a Dynamic Context. In M. Kenstowicz (Ed.) *Ken Hale: A Life in Language*. Cambridge: MIT Press.

Williamson, T. (2016). Knowing by Imagining. In E. Kind, P. Kung (Eds.), *Knowledge Trough Imagining* (pp. 113–122). Oxford: OUP.

Williamson, T. (2018). Counterpossibles. *Topoi*, *37*(3), 357–368.