
In the preface to the second edition the author says, "I dedicated the first edition to three early teachers. The second edition is not revised enough to justify a rededication..."


The usefulness of these reviews is preserved by the fact that the page numbers which Stalnaker (for instance) refers to in his review of the first edition remain valid in the second. What is worrisome is that the last chapter, "A problem about validity," which raised Stalnaker's eyebrows, has not been changed, and Stalnaker's interesting example about Lincoln is not discussed. If Stalnaker's example does not undermine Sanford's notion of circumstantial validity, then surely Sanford should say why. If it does, then some patch-work is needed. But neither has been done. I do recommend reading this book. It is important to remember that much recent material is absent, but it has its own strengths. For one, the author gives an excellent historical introduction, starting from the Stoics. Socrates had influential pupils other than Plato, and the line from Socrates to Euclid of Megara (distinct from the geometer Euclid) was quite productive in Logic. In particular, two lines of interpretation of conditionals, the one due to Philo which corresponds somewhat to our material conditional, and the one due to Diodorus (corresponding more closely to a necessary material conditional, or strict conditional) were discussed. Thus, If John Kerry is president then the moon is made of green cheese is a true Philonian conditional but a false Diodorian conditional. Since Kerry is not president, the material conditional is true. On the other hand we have no reason to suppose any connection between US presidential elections and the composition of the moon, so the Diodorian conditional is false.

The treatment in the first part of the book begins with these Stoic logicians, proceeds through the middle ages, through Boethius, Abelard, Ockham, and pseudo-Scotus, on to Frege in the nineteenth century. Pseudo-Scotus is of course not the name of a real person, but refers to that person who actually wrote the works which were once attributed mistakenly to Duns Scotus (1266-1308).

Frege re-discovered the material conditional but did not know that it had already been studied by Philo.
Charles Peirce developed many of the same notions as Frege but was unaware of Frege's work, although he was aware of Philo.

Many logicians were dissatisfied with the material conditional as the interpretation of the conditional, because if we did go that route, then for every P and Q, we would always have either the conditional If P then Q, or the conditional If Q then P.

But from this it follows that either If I sneeze you will dance a tango, or else If you dance a tango I will sneeze. And surely this is implausible if I only sneeze on Mondays and you only dance a tango on Fridays. Grice did offer a spirited defense of the material conditional (and other truth functions) using his notion of implicature. But while implicature itself is a brilliant notion and explains much about our practices of speech, it does not yield a full defense of the material conditional after all.

Dissatisfied with the paradoxical properties (to our intuitions) of the material conditionals, C.I. Lewis suggested interpreting If P then Q as (P ® Q) where the ® is the necessity operator and ® is the material conditional. This interpretation (the strict conditional) has its own troubles, as a necessary proposition is still 'implied' by any other, and an impossible proposition 'implies' any other.

I put "implies" in single quotes above because Sanford (like Quine) wants to distinguish the conditional, which is a single proposition composed of two others, from implication, which is a relation between two propositions. Of course this is an important distinction, analogous to the difference between an axiom which contains the ® sign and a rule of inference.

Philosophically more sophisticated treatments of the conditional were due to Ramsey, Goodman, and Chisholm. The subjunctive (sometimes called counterfactual) conditional is extremely interesting and the problem of giving an account of it is still (in my view) open. Stalnaker and (David) Lewis developed accounts of the counterfactual conditional If P were the case, then Q would be the case using the notion of possible world.

Let us suppose that P is not true. Then of course the material conditional If P then Q is true. But we still might not believe that it expresses what we mean to say. If you do drink the Coke and I say, "If you had not drunk the Coke you would have received a billion dollars", then you are not likely to accept this, whereas if I said, "If you had not drunk the Coke then the glass would not be empty", you will.

The explanation according to Stalnaker is that if we consider the closest possible world where you did not drink the Coke (different from the actual world of course) then in that world we would find that the glass was empty but you still did not have a billion dollars. That explains why one conditional is true and the other false.

Stalnaker's semantics has nice logical properties. For instance it explains why an inference from if P then Q to if not Q then not P is no longer valid, even though it is valid with both material conditionals and with strict conditionals. Similarly there are easy explanations of the failure of hypothetical syllogism and strengthening the antecedent, both valid with material and strict conditionals.

Still, at least to this reviewer, possible world semantics is quite incomplete as an explanation of anything. Sanford too is unhappy with possible worlds as a tool to understand conditionals.
Lewis' version does not have the closest world but a closest world, so that if one closest world satisfying P satisfies Q and another one satisfies not Q, then neither of the conditionals If P then Q, and If P then not Q, will hold. But for Stalnaker, one or the other must hold.

A better explanation not relying on possible worlds, hinted at by McGee in his review, is a doxastic one. If we took our state of belief now and amended it just a little to accommodate the non-truth, You did not drink the coke, then in this amended state of belief, the statement The glass is empty would be believed, and You have a billion dollars not. This way of explaining goes back to F.P. Ramsey in his well-known 1929 paper "General Propositions and Causality".

Sanford does discuss the Ramsey test (chapter IX), but some of the more recent discussion of it, for instance Gardenfors' 1988 result casting doubts on it, is not mentioned.

It might of course happen then that you might reasonably believe If P then Q, and I might believe If P then not Q. By Stalnaker's account, one of us must be right, but epistemically it may happen that neither you nor I am right or that both of us are. Thus someone who has seen sly Pete's weak poker hand may reasonably believe If Pete called, then he lost, whereas someone who knows that Pete is quite an astute player, might equally reasonably believe, If Pete called, then he won.

It looks as if the first conditional is on a more solid footing, but the two conditionals could be put on a more equal footing by stipulating that whoever saw Pete’s hand saw it in semi-darkness.

After a historical introduction through the first half of the book, Sanford then turns to his own theory. Unlike McGee, I did not find this part valuable as a treatment of conditionals, but valuable as a source of ideas. It is rather difficult to give a reviewer's account of this part but I will mention one example due, apparently, to Tom Stoppard.

If Beethoven had been killed in a plane-crash at twenty two, the history of music would have been very different. As would the history of aviation of course. The reason why the two conditionals seem very different is that Beethoven's death would have caused the history of music to be different. Whereas, with aviation, its history would have needed to be different already in order for a plane crash to cause Beethovern's death.

Sanford discusses this issue over several chapters, and rightly so. There is a suggestion that an analysis of causation cannot be entirely logical. Here is what Sanford says:

...a theory that holds a cause to be a causally necessary and sufficient condition, and that also defines 'necessary condition' and 'sufficient condition' so that 'is a necessary and sufficient condition' is symmetric, thereby implies that causation is symmetric.

Let me close by making my own rash suggestion. Wittgenstein said in the Tractatus that the world is not made up of things but of facts. This was a radical departure from naive intuition. I will suggest a similar radical departure. Perhaps the world is not made up of static facts but is indeed made up of facts and conditionals.

There is always a puzzle how a sequence of static pictures on a movie reel can become a movie. One answer is that it cannot, until something else, motion, is supplied from outside. But that outside is still in
the world. The actual world cannot consist of static time slices without any intrinsic connection with each other. In the same way, conditionals are perhaps already in the world and cannot be explained by going outside it to other worlds.

If we do take Stalnaker's semantics seriously, then where is the function $f$ which, given a world $w$ and a proposition $P$, gives us the world $w'$ nearest to $w$ which satisfies $P$? The function $f$ ought also to be in the world, but that world cannot be itself $w$. There needs to be a richer notion of world than $w$ or $w'$ can accommodate.

The distinction I suggest here can be understood in terms of the states in Kripke semantics for modal logic. Two different states in a Kripke model which satisfy the same atomic facts, or ground facts, might still satisfy different modal formulas as they may have different accessible worlds. This fact allows us to entertain two different ways to understand possible worlds: possible worlds as collections of atomic propositions, and possible worlds which are richer in that they contain their modal properties.

Now Kripke semantics places the modal properties of a world not inside it, but outside, in its relation to other worlds. But it is possible to have a notion of a world where the richness is inside.

For instance, the economist Aumann uses a dual notion of possible world in his semantics for knowledge. There is a set $S$ of possible worlds which are merely collections of facts and a second set $W$ of richer possible worlds. Aumann then has an operator $K$ defined on subsets of $W$ which, given a subset $X$, yields $K(X)$, the set of all worlds in $W$ where the agent knows he is in $X$. There is a many-one correspondence between $W$ and $S$ so that many worlds in $W$ may correspond to the same world in $S$. This allows for two different worlds $w$ and $w'$ in $W$ to have the same ground facts, i.e., correspond to the same world in $S$, but to have different states of knowledge. Unfortunately, the operator $K$ is not in any $w$, and so the explanation is still incomplete.

If this sort of notion could be fleshed out, then we might come to understand conditionals better and understand why they have come to be so important.

I thank Jonathan Adler, Horacio Arlo Costa, Carol Parikh, Brian Renne, and Robert van Rooy for comments on an earlier draft of this review.

Rohit Parikh
City University of New York