NECESSARY AND SUFFICIENT CONDITIONS ARE CONVERSE RELATIONS

ABSTRACT

According to the so-called 'standard theory of conditions', the conditionship relation is converse, that is, if A is a sufficient condition for B, B is a necessary condition for A. This theory faces well-known counterexamples that appeal to both causal and other asymmetric considerations. I show that these counterexamples lose their plausibility once we clarify two key components of the standard theory: that to satisfy a condition is to instantiate a property, and that what is usually called 'conditionship relation' is an inferential relation. Throughout the paper this way of interpreting the standard theory is compared favourably over an alternative interpretation that is outlined in causal terms, since it can be applied to all counterexamples without losing its intuitive appeal.

Keywords: necessary condition; sufficient condition; conditionals; properties; causality; inference.

1. THE STANDARD THEORY, ITS FRIENDS, AND ITS FOES

The standard theory of conditions claims that a sufficient condition for x is something whose satisfaction guarantees x by itself; while a necessary condition for x is something that must be satisfied for x to come about. The most important corollary of the standard theory is that 'being a sufficient condition of' and 'being a necessary condition of' are converse relations, that is, if A is a sufficient condition for B, B is a necessary condition for A. This theory is supported by intuitive examples. For example, if Socrates being an Athenian is a sufficient condition for being Greek, then being Greek is a necessary condition for being an Athenian; or if a geometric figure being round is a sufficient condition for being a circle, then being a circle is a necessary condition for this geometric figure being round. This theory is also taken by many to be integral to our talk about essentialist definitions. An essentialist definition of x attempts to presents the essential properties of x by offering the conditions that are individually necessary and jointly sufficient for something being x, for example, something is water if, and only if, is H_2O. This is in accordance with the standard theory, since if H_2O is a sufficient condition for water, then water is a necessary condition for H_2O. The standard theory is also the first hypothesis about conditions that students will find in logic textbooks (see, for example, Suppes (1957, pp. 8–10), Blumberg (1976, pp. 133–134), Forbes (1994, pp. 20–25), Hurley (2000, p. 306), Barker-Plummer et al. (2011, pp. 181–182)[1].

Despite these merits, the standard theory has received a fair amount of criticism. Objections to the theory can be divided into counterexamples that involve causal relations, and counterexamples based on what I call 'relevantist intuitions'. With the goal of salvaging the standard theory from these objections, some amendments to the theory in the causal examples

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[1] By using the term 'standard theory' I'm following Brennan (2011, sec. 2). This hypothesis was also called 'the conditionship symmetry thesis' by Sanford (1976, p. 199), because it makes the conditionship relation symmetric; and 'the logical theory of conditions' by Ingthorson (2008), since it implies that the conditionship relation is solely determined by the truth values of A and B or can be understand in terms of entailment relationships. According to Sanford (1976), the first one to endorse the standard theory was von Wright (1957, ch. 4), and the first one to mention it was Broad (1930, p. 310; 1944) who uses the concepts of sufficient and necessary condition in a logic of the inductive methods.

have been proposed. Despite proving useful insights, these amendments still have some shortcomings, and cannot explain the objections based on relevantist intuitions—or so I argue.

Here I will provide a new defence of the standard theory by interpreting it in a way that allows us to deflect both the causal and relevantist objections at once. In a first moment, I will briefly present the causal counterexamples that have been advanced against the standard theory. Then, in section 3, I will present the attempt to amend the standard theory as an effort to fit it to causal examples, and show why this causal approach is not satisfactory. The failure of this solution is instructive: identifying the reasons why it fails helps us make a stronger case for the standard theory. This is what I do in section 4. Despite a new defence of the standard theory being provided, there remains in the background of the discussion a looming worry, about the very point of providing an account of necessary and sufficient conditions. One could argue that the relevant disputes among advocates of different accounts as merely verbal, and hence pointless. Section 5 dismisses this worry and concludes.

2. THE STANDARD THEORY: ITS FOES

It is commonly assumed that conditionals in the form of 'If A, then B' express that A is a sufficient condition for B, and conditions in the form of 'A only if B' express that B is a necessary condition for A. If the standard theory is correct, conditionals in the form of 'If A, then B' can be paraphrased as 'Aonly if B'. Now, consider the conditional 'If you touch me, I'll scream'. Intuitively, this sentence cannot be paraphrased as 'You touch me only if I'll scream', as the speaker seems to suggest that screaming will be the *effect* of being touched, not a condition for being touched (McCawley, 1993, p. 317).

Another similar counterexample involves the conditional 'If you learn to play the cello, I'll buy you a cello', which intuitively cannot be paraphrased as 'You will learn to play the cello only if I buy you a cello', since it would invert the *causal* order of what is assumed in the first sentence (Sanford, 2003, p. 175).

Yet another counterexample involves the conditional 'If the butter is heated, it melts' and its 'only if' paraphrase: 'Butter is heated only if it melts'. These two conditionals do not seem to have the same meaning: heating the butter is the cause of melting, not its effect (McCawley, 1993, p. 317). The latter counterexample is not at all surprising. Assuming that the condition in this case is a cause, the melting of the butter cannot be a condition of its being heated, as that would violate the asymmetry of causality. If A is a cause of B, B cannot be a cause of A, since it is an effect of A.

There are also counterexamples in which the consequent is a necessary condition for the antecedent, but the antecedent does not seem to be a sufficient condition for the consequent, for example, 'My pulse goes above 100 only if I do heavy exercise'. The corresponding paraphrase seems off: 'If my pulse goes above 100, I do heavy exercise' (McCawley, 1993, p. 82). And it seems off precisely because the corresponding paraphrase seems to violate the causal assumptions that were present in the initial conditional.

One feature of the standard theory I haven't mentioned yet is that it implies that if A is both a necessary and a sufficient condition for B, then B is both a necessary and a sufficient condition for A. Now, while the occurrence of a lightning is intuitively a necessary and a sufficient condition for the occurrence of a thunder, the thunder is not a necessary and sufficient condition for lightning, since it is merely a booming sound produced by rapidly expanding air along the path of the electrical discharge of the lightning. It cannot be a condition of the thunder, because it is its *effect* (Ingthorson, 2008, p. 130). Another counterexample is that from the standard theory and the merely accidental fact that all creatures with kidneys have hearts, it follows that

having kidneys is both a sufficient and necessary condition for having a heart, and that having a heart is both a sufficient and necessary condition for having kidneys.

Notice that these criticisms are not only motivated by the fact that the standard approach fails to vindicate intuitions about causal relationships. On top of that, a reason why these counterexamples seem plausible is that the standard approach seems to operate purely on truth-functional grounds. Let me explain: if B occurs when A occurs, the standard theory claims that A is a sufficient condition for B simply because the truth of A guarantees the truth of B, and B is a necessary condition for A, simply because B must be true if A is true in this context. In other words, the standard theory apparently assumes that the logical relationship determined by the truth values of A and B implies a conditionship relation between them (Wertheimer, 1968, p. 358). The counterexamples are then motivated by intuitions that A can only be a sufficient condition for B if it is *responsible* for the truth of B, or that B can only be considered a necessary condition of A, if B is one of the factors responsible for A's truth.

One could argue that the standard theorist should stand her ground against these counterexamples. She could insist that these counterexamples betray a lack of understanding of what 'condition' means. She could argue that being heated is indeed a sufficient condition for the butter to melt, after all the fact that the butter is heated allows us to infer that it melts—and this is all that being a condition means.

This line of reasoning, however, does save the standard theory from criticism, but only at the cost of making the notion of condition redundant. If one is merely concerned with the inferential relations between two propositions, is there any point in talking about conditions at all? If there is a dispute about the meaning of 'condition' and all that the standard notion offers is a logical triviality about inferential relations, then perhaps we should replace it with a more robust notion of condition. If the standard theory is to be defended at all, its defence should be done in a way that clarifies the motivations behind the counterexamples. What I call 'the causal approach 'is an attempt of doing precisely that.

3. THE CAUSAL APPROACH

As we have seen, at least some counterexamples to the standard approach assume that conditions are causes. A cause gives origin to an effect, but not vice versa. Similarly, if A is a condition of B, the occurrence of B stems from A, but the inverse is not true. In the counterexamples involving causal conditionals, the acceptance of the standard theory implies that the antecedent is a sufficient cause of the consequent and the consequent is a necessary cause of the antecedent, which is absurd.

Gomes (2009) presented an interesting way of defending the standard theory in these cases by explaining the converse relation between sufficiency and necessity in causal terms. Take the conditional 'If butter is heated, it melts'. According to this approach, the antecedent is regarded a sufficient *cause* of the consequent, which in turn is regarded as a necessary *effect* of the antecedent. If A is a sufficient cause of B, B is a necessary effect of A (Gomes, 2009, pp. 376–377). Now, consider the sentence 'If my pulse goes above 100, I have done heavy exercise'. In this case the consequent is a necessary cause of the antecedent, but the antecedent is interpreted as a sufficient effect of the consequent (Gomes, 2009, p. 379). By explaining the converse relation in causal terms, the causal approach manages to preserve our causal intuitions without abandoning the standard theory.

Gomes (2009, p. 377) also tries to explain the counterintuitive aspects of the equivalence between 'If A, then B' and 'A only if B' by observing that the causal direction needs to be preserved in the formulation of the sentence. The conditional 'If butter is heated, it melts' is

paraphrased as 'Butter is heated only if it melts', but this 'only if' formulation is misleading as it suggests an inversion of the causal sequence. Instead, the relevant verbs of the paraphrase should be reformulated in a tense that preserves the causal sequence, namely, as 'Butter has been heated only if it has melted'. This 'only if' formulation makes clear that the cause still precedes the effect. The same solution works for similar examples: 'If you touch me, I'll scream' and 'If you learn to play the cello, I'll buy you a cello' (Gomes, 2009, p. 377). And the strategy also seems to work for the cases where the antecedent does not seem to be a sufficient condition for the consequent (for example, 'My pulse goes above 100 only if I do heavy exercise'), and for the cases involving conditions that are both necessary and sufficient (for example, the lightning example).

Despite its elegance and ability to deal with a range of examples, the causal approach fails to address all the difficulties the standard theory faces. First, the causal approach predicts that in causal examples we either have a sufficient antecedent and a necessary effect, or a sufficient effect and a necessary cause. However, if the only way to preserve a converse relation is by replacing conditions for cause and effect, then the causal approach fails as a defence of the standard theory. The standard theory requires that if *A* is a sufficient condition of *B*, *B* must be a *necessary condition* of *A*, not just a *necessary effect* of *A*. This is important because the causal intuition assumed in the counterexamples is that an effect cannot be a condition in any way. The same criticism applies to the cases in which the causal approach predicts that the sufficiency component of a conditionship relation is a sufficient effect. This ignores that the standard theory requires that if *B* is a necessary condition of *A*, *A* must be a *sufficient condition* of *B,* not just a *sufficient effect* of *A*. The problem is that the causal approach attempts to explain away the counterexamples by muddling together concepts that are irreconcilably different, that is, the notions of cause and effect, and the notion of condition assumed in the standard theory.

Second, the causal approach assumes that the conditionship relation should be established by the causal factors in place. This works in some examples. In a sentence such as 'If the butter is heated, it melts', the antecedent is interpreted as a sufficient cause of the consequent in the sense that its truth will be causally responsible for the truth of the consequent, while the consequent is interpreted as a necessary effect of the antecedent, in the sense that the consequent necessarily stems from the antecedent in usual circumstances. However, in some examples, the effect doesn't fulfil any meaningful causal role since the sufficient condition is merely inferential. In the sentence 'If my pulse goes above 100, I have done heavy exercise', the consequent is a necessary cause of the antecedent, but the antecedent is interpreted as a sufficient effect of the consequent, because the truth of the antecedent is sufficient to accept the consequent. However, this is only because the acceptance of 'If *A*, then *B*' implies that *A*'s truth is sufficient for *B*'s truth, for the simple reason that a conditional cannot be true if its antecedent is true and its consequent is false.

This point should not be ignored. The causal approach is motivated by an attempt to explain the converse relation of sufficient and necessary conditions in causal terms, but the only way to make sense of a sufficient effect is by ascribing an inferential role to it, not a causal role. Consequently, the causal approach can only be applied to the intended examples in an inconsistent manner: in some cases, the cause and the effect are sufficient or necessary in a causal role, while in others they are sufficient or necessary in an inferential role. This raises some doubts. If the inferential roles of cause and effect are good enough to satisfy our intuitions about the subject, then causal factors are not needed to our understanding of conditions at all.

Third, Gomes' approach to paraphrases also faces difficulties, since some paraphrases remain counterintuitive even when the relevant verbs are in a tense that preserves the causal sequence. The conditional 'If you touch me, I'll scream' should be paraphrased as 'You had touched me only if I screamed', while the conditional 'If you learn to play the cello, I'll buy you a cello' should be paraphrased as 'You had learned to play the cello only if I bought it'.

However, both paraphrases are still implausible, which suggests that a different approach is required if the standard theory is to be defended from the counterexamples.

Fourth, the causal approach cannot explain counterexamples that involve non-causal asymmetrical aspects. The fact that snow is white makes the proposition 'Snow is white' true, and thus this fact is (intuitively) a condition both sufficient and necessary for the truth of the proposition. However, this fact *does not cause* the truth of the proposition. This is also a problem for the standard theory, since the fact that snow is white is intuitively a sufficient and necessary condition of the truth of the proposition, but the truth of the proposition is not intuitively a sufficient and necessary condition for the fact that snow is white, since it is a (non-causal) consequence of it.

The causal approach is also unequipped to explain counterexamples that are implied by the connections between the standard theory and classical logic. The inferential aspect of the standard theory in conjunction with the classic conception of deductive validity implies that there are vacuous sufficient conditions and vacuous necessary conditions. If a given proposition is a contradiction, then it is a sufficient condition for any proposition, since a contradiction entails any proposition. If a given proposition is a tautology, then it is a necessary condition for any other proposition, since a tautology is entailed by any proposition (Corcoran, 2007, p. 127). Vacuous conditions have further ramifications. Since a contradiction is a sufficient condition for any other proposition, any other proposition is a necessary condition of a contradiction; and given that a tautology is a necessary condition for any other proposition, then any other proposition is a sufficient condition for it. This may be seen as counterintuitive, but cannot be explained with the causal approach.

The formulation of the standard theory through the material conditional is also another source of vacuous conditionship (Brennan, 2017, sec. 2). As explained earlier, 'If A, then B' can express the claims that A is a sufficient condition for B, and that B is a necessary condition for A. The reason for this is that when 'If A, then B' is true, if A is true, B is true; and if B is false, A is false. Now, if a conditional 'If A, then B' has the same truth conditions of $A \supset B$, that is, it is only false when A is true and B is false, and true in the remaining cases, 'If A, then B' will be vacuously true simply because A is false or B is true. Thus, if A is false or B is true, A will be a sufficient condition for B and B will be a necessary condition for A simply because 'If A, then B' is vacuously true. This commits the standard theory with the counterintuitive aspects of the material conditional. For example, the conditional 'If John drinks the hemlock, he will become a famous philosopher' is vacuously true simply because John will not drink the hemlock. The vacuous truth of this conditional implies that John drinking the hemlock is a sufficient condition for him becoming a famous philosopher, and that John becoming a famous philosopher is a necessary condition for John drinking the hemlock. This is implausible as both facts are completely irrelevant to each other.

The standard theory also implies trivial conditionship. Since every proposition implies itself, the truth of every proposition is trivially a necessary and sufficient condition for itself (Corcoran, 2007, p. 127). And if A and B are each necessarily true, then the truth of each one is trivially a necessary and sufficient condition for the truth of the other (Wertheimer, 1968, p. 356). The postulation of trivial conditionship is implausible, since the conditionship relation is intuitively a relation between two different things and nothing can be both a condition and a consequence of itself (Ingthorson, 2008, p. 130).

These examples seem counterintuitive because they assume a view about conditions that we can call relevantist assumption'[2] shares with the causal counterexamples the assumption that conditionship is an asymmetrical relation between conditions and their consequences, but

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[2] This notion of condition is probably associated with what metaphysicians identified as a ground. The fact that snow is white *grounds* the proposition that 'Snow is white'. See (Bliss & Trogdon, 2016).

replaces the temporal asymmetrical assumptions of causes with ontological assumptions about priority. If *x* is a condition for *y*, it must be in some way prior to *y*, existentially non-dependent on *x*, and responsible for *y* (Bunge, 1959, pp. 38–39; Wertheimer, 1968, p. 357). It does not matter whether *x* is a sufficient or a necessary condition of *y*, if it is a condition, it must be able to fulfil some fundamental role in a justification or an explanation about the truth of *y* (Bunge, 1959, pp. 38–39; Wertheimer, 1968, p. 357; Ingthorson, 2008, pp. 133–34). If *x* is a sufficient condition of *y*, *x* must be the reason why *y* is true. Similarly, if *x* is a necessary condition of *y*, *y* could not be true without *x* being true.

4. THE ATTRIBUTIVE APPROACH

Some examples that provide intuitive support for the standard theory were already mentioned in the first section. Intuitively, if being Athenian is a sufficient condition for being Greek, being Greek is a necessary condition for being Athenian. However, this would not be a genuine example of converse sufficient and necessary conditions if we were employing conditions in a causal or relevantist sense: neither is it the case that being Athenian is the cause for which someone is Greek, nor it is the case that being Greek is the reason why someone is Athenian. The reason for the disagreement is that critics assumed that examples with causal or relevantist factors cannot exemplify conditionship relations that are converse in any meaningful way. However, an analysis of the examples that are in agreement with the standard theory suggests a notion of condition that can both occur in counterexamples and be convertible.

A condition is nothing more than a property, for example, being an Athenian, being a father, etc. A condition is satisfied by a particular if the particular has that property. For instance, the condition of being a father is satisfied by Socrates because he is a father. The examples also suggest that what is usually classified as conditionship relations are actually inferential relations. Let's use '*F*' and '*G*' for any property and 'a' to represent any particular[3]. *Fa* is a sufficient condition for *Ga* only in the sense that knowing that a particular *a* has the property *F* is a sufficient reason to infer that *a* has *G*; and *Ga* is a necessary condition for *Fa* only in the sense that knowing that *a* does not have *G* is a sufficient reason to infer that *a* does not have *F*. I will call this interpretation of the standard theory 'attributive'[4].

The sentence '*A* is a sufficient condition of *B*' means that the satisfaction of a condition by a particular that is expressed in the proposition *A* is sufficient to infer the satisfaction of a condition by a particular that is expressed in the proposition *B*; and saying that '*B* is a necessary condition of *A*' is an indirect way of saying that 'the satisfaction of a condition by a particular that is expressed in the proposition *B* is necessary evidence to infer the satisfaction of a condition by a particular that is expressed in the proposition *A*'. The satisfaction of a condition can be necessary evidence for another condition in the sense that the non-satisfaction of the latter is sufficient to infer the non-satisfaction of the first. As it can be seen, the present solution fully explains the role of sufficiency and necessity of the conditionship relation in inferential terms. In doing so, it avoids the charge of inconsistency raised against the causal approach.

It was mentioned earlier that any attempt to defend the standard theory by insisting that conditionship is a mere inferential relation seems inadequate, since it does not do justice to the categories used in the previous discussions about the problem. In fact, such attempt does not explain why we are talking about conditions in our discussions of the standard theory and it

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[3] I will focus on conditions that can only be satisfied by particulars, e.g., redness can be satisfied by apples, but it is arguable that we can talk about higher-order conditions that can be satisfied by properties, e.g., the condition of being a colour can be satisfied by redness itself. I will not discuss higher-order conditions in this article.

[4] The notion of attributive condition is neutral between different theories about properties. The realist would explain a property as a universal that is instantiated by a particular. The nominalist will attempt to explain particulars without universals.

also ignores the examples that motivated the standard theory in the first place. The claims that being an Athenian is a sufficient condition for being Greek, or that a definition of *x* attempts to present the conditions that are individually necessary and jointly sufficient for something being *x,* are not just a matter of inferential relations.

The present interpretation of the standard theory avoids this issue, since the conditionship relation is an inferential relation, but it is an inferential relation about the satisfaction of properties. The attributive approach thus has both an epistemic element, given the role of evidence that can be sufficient or necessary for an inference, and a metaphysical element, in the form of the satisfaction of a condition, that is, the instantiation of properties in particulars. The metaphysical element explains why we are still dealing with conditions in the standard theory instead of only inferential relations implied by truth-functional grounds.

These elements enable us to explain why the counterexamples do not work. The butter being heated is a sufficient condition for its being melted in the sense that it is sufficient to infer that the butter is melted. Being melted is a necessary condition for being heated in the sense that we need to accept that the butter is melted when it is heated given the context or, to put it another way: given the fact that the butter is not melted is sufficient to infer that the butter was not heated in that context. The fact that the butter melted was just an effect does not change the fact that it is still a necessary condition, that is, that a particular must satisfy this property in this context.

The conditional 'If you touch me, I'll scream' can be explained in a similar fashion. The fact that the speaker was touched by a given person is a sufficient condition to infer that she screamed at that person, while the fact that she screamed at that person (a relational property) is necessary, or must occur, if she was touched in that given context. We can also explain the equivalence between 'If *A*, then *B*' and '*A* only if *B*' in a similar fashion. For instance, the conditional 'If butter is heated, it melts' can be paraphrased as 'Butter is heated only if it melts' if by this we mean that 'The butter can satisfy the condition of being heated only if in this context it also satisfies the condition of being melted'.

Now, consider the example that lightning is a necessary and sufficient condition for thunder, which according to the standard theory implies that thunder is a necessary and sufficient condition for lightning. This is not a genuine counterexample for the simple reason that neither lighting nor thunder are conditions in the attributive sense, that is, they are not properties.

Another problem is that the standard theory implies that having kidneys is both a sufficient and necessary condition for having hearts for the simple reason that all animals that have kidneys have hearts. This seems implausible since in other possible worlds animals with kidneys may not have hearts. This criticism can be rebutted with the observation that having a kidney is a both a sufficient and necessary condition for having a heart *relatively to the actual world*, where the collection of individuals that have kidneys have hearts. The sufficient and necessity involved in the inference is merely extensional, since it is determined by the relevant extensions of individuals. In other words, having kidneys is extensionally sufficient and necessary for having hearts. This interpretation is justified, since the attributive approach allows the conditionship relation to have different (including modal) qualifications. For instance, about an example of conditionship where *A* is logically sufficient for *B*, it could be said that *B* is logically necessary for *A*; or that given that *A* is nomologically sufficient for *B*, *B* is a nomologically necessary for *A;* or that since *A* is alethically sufficient for *B* given, *B* is alethically necessary for *A*.

The attributive interpretation also allows us to explain the counterexamples involving the relevantist intuitions. The fact that the condition of being white is satisfied by the snow is sufficient to infer that the condition of being true is satisfied by the proposition 'The snow is

white', while the fact that the condition of being true is satisfied by the proposition 'The snow is white' is necessary to assume that the condition of being white is satisfied by the snow.

Regarding the counterexamples involving vacuous and trivial conditionship, one could always argue that they are not counterexamples to the standard theory per se, but only the counterintuitive aspects that result from its joint adoption with the classical conception of validity and the material conditional. It could be objected then that we should simply abandon the classical conception of validity and the material conditional in order to preserve the standard theory. The problem with this line of reasoning, however, is that it is reasonable to think that a proper theory of conditions should be consistent with classical logic, which is widely used. Therefore, we must address the counterexamples accordingly if the standard theory is to be taken seriously.

The attributive approach can be used to explain the vacuous conditions that result from the classic conception of validity in the following way: the fact that a contradictory proposition satisfies the condition of being true is a sufficient reason to infer that any proposition satisfies the condition of being true; and the fact that any proposition satisfies the condition of being true is necessary for the contradictory proposition to satisfy the condition of being true. These strange consequences are harmless, since contradictory propositions cannot satisfy the condition of being true to begin with. Moreover, the fact that a tautological proposition satisfies the condition of being true is necessary for any proposition to satisfy the condition of being true, while the fact that any proposition satisfies the condition of being true is sufficient to infer that a tautological proposition satisfies the condition of being true.

The vacuous conditionship that results from the association between the standard theory and the material conditional can be made reasonable with the following interpretation: when 'If A, then B' is true, A is a sufficient condition for B, because if A is true, B must be true. In case 'If A, then B' is true simply because A is false, A is a vacuously sufficient condition for B, because if A is true, B must be true, even if A is actually false. Notice that in this case it would be wrong to claim that A is a vacuously sufficient condition for B, because if A *were* true, B must be true, even if A is actually false, since the conditional is true *because A is false* and there is no guarantee that it would be true if A turned out to be true. In other words, the assumption that the false antecedent satisfies the condition of being true is sufficient to infer that the consequent satisfies the condition of being true. This result is inferentially harmless because the false antecedent does not satisfy the condition of being true after all.

The examples of trivial conditionship can also be rendered plausible when they are interpreted according to the attributive approach. Consider the statement that every proposition is trivially a necessary and sufficient condition for itself. This is plausible, for since every proposition implies itself, the truth of every proposition is trivially a necessary and sufficient condition of itself. The other example of trivial conditionship is the claim that if A and B are each necessarily true, the truth of each one is trivially a necessary and sufficient condition for the truth of the other. This claim is reasonable since if A and B satisfy the condition of being necessarily true, then A (B), by satisfying the condition of being true, provides a necessary and sufficient reason to infer that B (A) satisfies the condition of being true. This also explains why the conditionality relation does not need to be a relation between two things, since it is an inferential relation about the possession of properties, that is, something can be a condition of itself in the sense that the satisfaction of a property by a particular (for example, being true) is trivially a sufficient reason to infer the satisfaction of this same property by this very particular.

5. IS THIS DISCUSSION A VERBAL DISPUTE?

One could argue that there are at least three competing views about the notion of condition. An attributive view, in which condition is an attribute or property of something, for example,

'Being human is a sufficient condition for being mortal'; a causal view in which condition is a causal factor, for example, 'The discarded cigarette butt was a necessary condition for the forest fire'; and a relevantist view in which condition is a grounding factor, for example, "The fact that snow is white is a sufficient and necessary condition for the proposition 'Snow is white' being true".

It could be argued that these different notions of condition seem perfectly legitimate when they are restricted to their respective objects. Therefore, any further discussion about the nature of conditionship is merely a verbal dispute. The different approaches analyse, or reduce the concept of conditionship to more basic elements. Nonetheless, since each approach will use different basic elements, they use the word 'condition' to refer to different things, and its proponents end up talking past each other. The attributive approach will reduce conditionship to inferential relations about the exemplification of properties by particulars, while the causal approach will reduce the concept of conditionship to causality, and the relevantist will reduce the concept of conditionship to relations of grounding. However, once we settle in which sense each claim about condition must be understood, the disagreement is eliminated.

This interpretation, however, fails to do justice to the dialectics of the discussion, since the causal view is just an attempt to defend the standard theory from causal counterexamples. Moreover, critics of the standard theory are perfectly aware that a sufficient condition in the standard theory can be plausibly understood as a sufficient condition on mere truth-functional grounds, yet still criticise it for its incompatibility with the nature of conditionship in ontology (Ingthorson, 2008, p. 130; Wertheimer, 1968, p. 358). Rather than being a discussion about words, the critiques against the standard theory must be understood as a demand for the proper conceptual credentials in a broad sense. The assumption then is that a proper theory of conditions must be sufficiently general to be applied with success to different cases, especially in ontology. Now, in defence of the standard theory, it must be said that it passed the generality test with flying colours, since it can be consistently applied to all counterexample candidates when the attributive approach is adopted.

Nevertheless, even if the previous discussions about conditions were merely verbal disputes, there are still pragmatic standards that one can use to advocate for a normative view about how that term should be used. In this case we engage in a metalinguistic negotiation about what a word should mean (Plunkett, 2015, p. 845). The fact that we expect our philosophical terminology to be uniform and unambiguous should be an important factor. There is no upside in using such an important notion as condition with different meanings in different sub-areas of philosophy. We would be better off stipulating that only one of the different meanings must be the official notion. The attributive view of the standard theory is the natural candidate to become the official notion of condition. It is widely used due to its presence in logical textbooks, and it plays an important role in the search for essentialist definitions, which is one of the main driving forces of philosophy. It is the received theory after all. Let us keep it.

6. CONCLUDING REMARKS

It has been argued that: (1) the causal approach was not successful in its defence of the standard theory, since it cannot explain why necessary and sufficient conditions are converse relations in causal examples or other counterexamples; (2) the acknowledgement that conditionship is an inferential relation about the satisfaction of properties allows us to explain away the counterexamples, either because it can be successfully applied to these cases, or because they do not involve properties; (3) this view of conditions should be favoured, since it is more all-encompassing than its alternatives, and it is consistent with the way we already use conditions in logic textbooks and essentialist definitions.

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