CONDITIONALS ALL THE WAY DOWN

Draft of April 12, 2023
Matheus Silva
mateusmasi@gmail.com

ABSTRACT

It is commonly accepted that unconditional statements are clearer and less problematic than conditional ones. This article challenges this belief by proposing that all unconditional statements can be reduced to conditional ones since epistemic justification is inherently conditional in nature. The distinction between unconditional and conditional statements is similar to the distinction between assumptions and premises, which is an idealization that results from our attempts to limit epistemic complexity. This has perplexing consequences: (1) since any ordinary statement can be viewed as a disguised conditional, this sets off a chain of epistemic regress that results in a larger conditional that encompasses our entire belief systems; (2) this monster conditional can't never be justified since it always expands in the process of justification; (3) since there is no such thing as unconditional statements, conditionals themselves become meaningless, which implies that arguments and even entire belief systems become meaningless as well; (4) the only way to avoid these disastrous results is to admit that the meaning of conditionals and, ultimately, of our belief systems is a matter of convention.

1. INTRODUCTION

> Some ancient Asian cosmological views are close to the idea of an infinite regression of causes, as exemplified in the following apocryphal story: A Western traveller encountering an Oriental philosopher asks him to describe the nature of the world: "It is a great ball resting on the flat back of the world turtle." "Ah yes, but what does the world turtle stand on?" "On the back of a still larger turtle." "Yes, but what does he stand on?" "A very perceptive question. But it's no use, mister; it's turtles all the way down." Carl Sagan, Gott and the Turtles (1974), in Broca's Brain: Reflections on the Romance of Science (1979)

It is generally accepted that unconditional sentences[1] are more straightforward than conditional ones. For example, consider the sentence 'John went to the supermarket.' This sentence is true if John indeed went to the supermarket; otherwise, it is false. The truth of the sentence is dependent on the truthmaker, which is the fact that John went to the supermarket.

However, there are potential complications that arise when we delve deeper into the concept of truthmaking. For instance, we may question which worldly entities or state of affairs

[1] Or 'proposition'. I prefer 'sentence', but I will leave this terminological choice to the reader since this will not affect my argumentation.

can be potential truthmakers. We may also consider the implications of truthmaking for tensed sentences, such as those found in non-presentist theories or in the face of determinism.

Furthermore, we might also debate whether the primary bearers of truth-value are propositions rather than mere sentences, or even question the necessity of positing truthmakers altogether, as the truthmaking of all sentences may require the existence of strange entities like negative facts.

While these are all pertinent questions that we will encounter in discussions about truthmaking, it is fair to say that none of these difficulties are perceived by most philosophers as insurmountable. In the worst-case scenario, one can make an educated guess on each issue and come to terms with it.

These obstacles are dwarfed by the intricacies posed by conditional sentences. To begin with, we lack an apparent and intuitive way of addressing how conditionals depict reality or which worldly entities can render them true. If I say, 'If John went to the supermarket, he bought M&Ms,' what would be the actual truth-makers that can make this conditional true? It is not obvious that there is such a thing as a conditional fact, or even a conditional state of affairs[2].

To make matters worse, conditionals seem to have a dual nature[3]. On one hand, they are used to represent reality, so they have categorical-like features; but on the other hand, they are also inferential in nature, so they can be interpreted as arguments as well[4]. So, are conditionals statements or arguments? Perhaps both? We have a tested metaphysical vocabulary that allows us to make sense of the truth-value distinctions of categorical sentences and their connection to reality. But once we try to extend this vocabulary to conditional sentences, it falls apart spectacularly.

One may argue that the difficulties with conditionals stem from the fact that they are connectives and are inherently more complex. However, any argument along these lines is a non-starter. Unlike conditionals, connectives such as disjunction and conjunction seamlessly fit into our basic metaphysical toolbox. For example, when I say 'John went to the supermarket and bought M&Ms,' the statement is true if and only if it is true that John went to the supermarket and it is true that John bought M&Ms. There is no ambiguity or complexity. No muss, no fuss. Disjunctions also pass the normalcy test with flying colors. The sentence 'John bought M&Ms or a Hershey's Bar' is true if and only if it is true that John bought M&Ms or it is true that John bought a Hershey's Bar. It is worth noting that these examples are presented solely in natural language to avoid any formal logical intuitions. A competent language user does not need to be indoctrinated in formal logic to accept these truth conditions. If conditionals appear problematic, it is because they are inherently more complex. We cannot make sense of how conditionals represent how things are.

It gets worse. Our intuitive judgments of probability are also distorted when they are applied to conditionals. If I attribute a high probability to a sentence, I believe in it. But what would it mean to say that a conditional has a high probability? One reasonable guess is that the probability of a conditional, such as 'If John went to the supermarket, he bought M&Ms', is measured by the conditional probability of the consequent given the antecedent. This is the thesis known as the Equation[5]. This looks promising for ten minutes, but we know that if such a conditional ever existed, its probability would end up being the same as the probability of its

[2] Sanford (2003: 5–6).
[3] Jackson (2006: 1–2).
[4] Mackie (1973: 81).
[5] Jeffrey (1964: 702–703).

mere consequent[6]. This defies belief. The probability that John will buy M&Ms given that he went to the supermarket is not intuitively the same as the probability that he bought M&Ms.

So, conditionals don't get along with unconditional sentences or other connectives. We have no idea if they are either arguments or statements, and we don't understand how they can represent things in the world. The only tiny intuition that seemed clear is obviously incorrect. It would not be a stretch to suggest that nobody understands conditionals because they bamboozle our intuitions and force our prejudgments into submission.

As if that weren't enough, it seems that every ordinary statement is essentially a hidden conditional that triggers an epistemic regression, culminating in a larger conditional that encapsulates our entire belief systems. However, this colossal conditional cannot be justified since it continually expands during the justification process. As if that weren't enough, the fact that there are no unconditional statements means that conditionals themselves lose meaning, leading to the conclusion that not only arguments but also entire belief systems become meaningless. This epistemic doomsday scenario is presented in section 2.

The good news is that maybe we have a way out of this chaos with a conventionalist approach. I argue that the sheer complexity of our belief systems is overwhelming and forces us to distinguish between unconditional and conditional sentences to make the subject more tractable. This is an idealized model that involves a deliberate simplification of highly complex phenomena. That is the topic of section 3.

I conclude in section 4 with a possible explanation for why some believe that conditionals possess a distinct and unique character.

2. CONDITIONALS AND REGRESS

Conditionals have enormous expressive power. They can be used to represent any belief, from statements about metaphysical truths and epistemic relations to assertions on causal matters and empirical regularities. For instance, the statement 'This chair is breakable' can be expressed by the conditional 'If this chair were to drop, it would break'. Similarly, the true mathematical statement that 'all prime numbers are only divisible by themselves and by 1' can be translated as 'If n is not divisible by itself and by 1, it is not prime'. The rules of a football championship prevent a match from being called off if it rains, so we can infer that 'Even if it rains, the next match will not be cancelled'. Moreover, we believe that Oswald is the main suspect for Kennedy's murder, so it is safe to say that 'If Oswald did not kill Kennedy, someone else did'. Additionally, there are many health risks associated with smoking, so one can say that 'If you don't quit smoking, you will increase your chances of developing heart disease'. As such, it appears that every belief can be expressed as a conditional statement.

It is evident that not only assertive speech acts, but also interrogatives, warnings, requests, and other non-assertive speech acts can be reduced to conditionals. For instance, if I am expecting a call from Mary and ask, 'What shall I say?', it can be expressed as the conditional interrogative 'If Mary calls, what should I say?' Similarly, if I advise John to watch for falling rocks on a winding mountain road, it can be rephrased as the conditional warning 'If you're driving on winding mountain road, watch for falling rocks.' If I request someone to buy M&M's while they are going to the supermarket, it can be framed as the conditional request 'If you are going to the supermarket, could you please buy some M&M's?' The doctor can order the nurse to change the dressing assuming the patient to be alive in the morning, which

[6] Lewis (1976: 299–300).

can be expressed as the conditional command 'If the patient is still alive in the morning, change the dressing.' Lastly, if I expect Parasite to be nominated for best picture and bet $100 on it winning an Oscar, it can be reworded as the conditional bet 'If Parasite is nominated for best picture, I bet $100 on it winning an Oscar.' The examples are numerous, and it is apparent that conditionals have a ubiquitous presence.

This indicates that our typical approach to argumentative forms is shallow. As an example, let's consider a straightforward argumentative form, such as *modus ponens*[7]:

$P \rightarrow Q$
P

Q

Observe how simplistic this picture is. Firstly, there is no acknowledgement of the inferential justification in the second premise. The belief in P is supported by a belief in another sentence, let's call it O. This inferential justification is conditional in nature because the belief in P is only justified if O is justified. This implies that the unconditional sentence P is essentially a disguised conditional $O \rightarrow P$. Thus, the belief in the antecedent mentioned in the first premise is also justified by O. Therefore, the actual sentential form of the first sentence ought to be $O \rightarrow (P \rightarrow Q)$. Consequently, a more accurate depiction of the *modus ponens* argumentative form would be as follows:

$O \rightarrow (P \rightarrow Q)$
$O \rightarrow P$

Q

There are several reasons why this representation can be considered inaccurate. Firstly, it fails to acknowledge that the justification of a belief often requires multiple sentences. Secondly, both premises share the sentence P, which means they should share at least one antecedent. Therefore, we can propose that the first premise is justified by sentences L, M, N, and O, while the second premise is justified by sentences N and O. This leads to the following argumentative structure:

$(L\&M\&N\&O) \rightarrow (P \rightarrow Q)$
$(N\&O) \rightarrow P$

Q

Our work is not complete yet. The conclusion must be justified by the premises and carry their 'epistemic load,' so to speak. Therefore, after making the aforementioned adjustments, we arrive at the following outcome:

$(L\&M\&N\&O) \rightarrow (P \rightarrow Q)$
$(N\&O) \rightarrow P$

$(((L\&M\&N\&O) \rightarrow (P \rightarrow Q))\&((N\&O) \rightarrow P)) \rightarrow Q$

[7] I will use '→' or natural language conditionals and capital letters such as P and Q for sentential variables. I will not use quotes to highlight the use-mention distinction when there is no risk of confusion.

It is evident that each sentence used in constructing the premises in sentential form is also supported by additional sentences. For instance, *L* is justified by *K*, *M* by *J*, and *N* by *I*. Therefore, we can enhance the argumentative structure as follows:

$((I\&J\&K) \rightarrow (L\&M\&N\&O)) \rightarrow (P \rightarrow Q)$
$((J\&K) \rightarrow (N\&O)) \rightarrow P$

$((I\&J\&K) \rightarrow (L\&M\&N\&O)) \rightarrow (P \rightarrow Q))\&((J\&K) \rightarrow (N\&O)) \rightarrow P) \rightarrow Q$

Given that even the inferential rules are conditional in nature, we must accept the corresponding conditional containing the premises and the conclusion to recognize the validity of a *modus ponens*[8] argument. Therefore, we can reconstruct the argumentative structure as the following conditional:

$(((I\&J\&K) \rightarrow (L\&M\&N\&O)) \rightarrow (P \rightarrow Q))\&(((J\&K) \rightarrow (N\&O)) \rightarrow P) \rightarrow (((I\&J\&K) \rightarrow (L\&M\&N\&O)) \rightarrow (P \rightarrow Q))\&((J\&K) \rightarrow (N\&O)) \rightarrow P) \rightarrow Q)$

The current structure is quite convoluted, so let us simplify it by applying importation to each premise. This leads to the following modified form:

$(((I\&J\&K\&L\&M\&N\&O)) \rightarrow (P \rightarrow Q))\&(((J\&K\&N\&O)) \rightarrow P) \rightarrow (((I\&J\&K\&L\&M\&N\&O)) \rightarrow (P \rightarrow Q))\&((J\&K\&N\&O)) \rightarrow P) \rightarrow Q)$

If we remove the duplicated assumptions, we will have:

$(((I\&J\&K\&L\&M\&N\&O)) \rightarrow (P \rightarrow Q))\&P) \rightarrow Q$

If we use importation one more time, we get:

$((I\&J\&K\&L\&M\&N\&O\&P) \rightarrow Q)\&P) \rightarrow Q$

It is not a consolation that the resulting conditional is leaner than the previous two, as in order to make sense of inferential justification, we must continue adding more and more sentences, resulting in an increasingly large conditional. The deeper we delve into the justification process, the higher the level of complexity becomes[9]. In this revised structure, all our unconditional sentences containing our beliefs will be grouped into an unimaginably long conjunction in the antecedent of a conditional. You can simply reapply importation when a new inferential dependence is added, and a new conjunct will be added to the antecedent. If they happen to be asserted, other complex sentences such as conjunctions and disjunctions will also fall under the scope of this conditional. There are no argumentative forms anymore, as they will all be reduced to a single conditional[10]. Now, since we update and review our belief

[8] Carroll (1895).
[9] Notice that we can't use variable formulas to reduce the complexity to some extent because this would undermine the purpose of the entire project by concealing the logical structure of individual sentences. The goal is to represent arguments with greater precision, not less.
[10] One alternative way to maintain the distinction is to include the separate assertion of the extra antecedent. Thus, instead of $O \rightarrow (P \rightarrow Q)$ we would have O & $(O \rightarrow (P \rightarrow Q))$. This would turn the main conditionals in conjunctions, but this would imply that argumentative forms such as *modus tollens* and contraposition will have inconsistent sentences.

systems on a daily basis with the introduction or removal of beliefs, this conditional would change and grow constantly, revealing its systemic character. It's conditionals all the way down.

This radical reconstruction can be supported by an independent argument that relies on the nature of argumentation. When an argument is made, the arguer claims that the truth of the premises necessitates or makes the truth of the conclusion probable. Therefore, it is clear that the reasons for accepting the premises and the conclusion must be involved in the evaluation of the argument. Thus, whether a given argument is valid or strong will also depend on whether the reasons supporting the premises, in conjunction with the premises, necessitate or make the conclusion probable. Consequently, a more accurate representation of argumentative forms will be more complex and require considerably more analysis of the arguer's reasons. Now, the arguer's reasons for accepting the premises will involve some sort of inferential justification, so unconditional sentences will turn out to be conditionals, and conditionals will be under the scope of other conditionals, and so on and so forth.

In the previous description, *modus ponens* was utilised to demonstrate the conditional nature of our beliefs. The aim was to emphasize that any inferential process can ultimately be reduced to a single conditional encompassing all that we believe. However, this is just one strategy among many. It is apparent that the same inferential regress applies to any statement. For example, let us consider the belief that snow is white. This belief is conditional on a range of assumptions, including our trust in the accuracy of our experiences, the existence of an outside world, the regularity of natural kinds, the uniformity of nature and the reliability of our memories, which on their turn are conditional on other assumptions about the reliability of induction, personal identity, deductive practices, among others. The list of underlying metaphysical and ceteris paribus conditions is seemingly infinite, and are also interlinked with our beliefs, and so on.

One might object that some beliefs are justified non-inferentially or that their justifications lead to different conditionals. In such cases, instead of a chain of reasons corresponding to a long conditional, we would have a conjunction of individually isolated conditionals. However, from a conjunction of two conditionals, we can infer another conditional. For example, $(P \rightarrow Q)\&(R \rightarrow S)$ is logically equivalent to $[\neg(P \rightarrow Q) \vee \neg(R \rightarrow S)]$ (by De Morgan's laws) which is logically equivalent to $[(\neg\neg P \vee Q) \vee (\neg\neg R \vee S)]$ (by applying the rule of material implication twice) which is logically equivalent to $[(P\&R) \rightarrow (Q \vee S)]$ (by De Morgan's laws and simplification). Therefore, the conjunction of the two conditionals $(P \rightarrow Q)$ and $(R \rightarrow S)$ is logically equivalent to the single conditional $(P\& R) \rightarrow (Q \vee S)$. In conclusion, the conditional character of our beliefs cannot be circumvented.

The implications of this revision on conditional theory are profound. To begin with, the copious amounts of information required to evaluate a single conditional would transform it into a computational obstacle. The resulting conditional would become so unwieldy in our current logical notation that alternative conventions would be necessary, such as a detailed network graph. Let's ignore the multiple difficulties and assume that we have sufficient information to test how the different conditional theories would fare when applied to a conditional that would encapsulate a belief system. For instance, take the notion that the acceptance of a conditional is measured by the conditional probability of its consequent given its antecedent. It is unclear how this hypothesis would fit in the revised picture we offer. How can we measure the probability of a belief given an immense chain of antecedent assumptions that include many, if not most, of our beliefs? Can this belief be considered probable, given so many diverse beliefs, including those from the past? One puzzling consequence of this is that each belief would have to be likely, given the majority of our preceding beliefs.

Next, we have conditional-assertion theories[11]. These claim that a conditional is a conditional speech act, i.e., a performance of a speech act given the assumption of the antecedent. If the consequent is an assertive act, the conditional is a conditional assertion of the consequent given the antecedent. These theories imply that a conditional statement involving most of our beliefs is not a sentence with truth conditions. However, this is implausible. It is reasonable to think that a claim that a belief is justified by many others in an inferential chain is true or false.

Possible world theories maintain that $P \rightarrow Q$ is true if Q is true in the closest P-world[12]. These theories would also drown in the complexity of the phenomena because it is not obvious which world is the closest one where the extensive antecedent is true. Possible world theories seem accessible when applied to banal conditionals, but become very obscure with more problematic conditionals.

The material account[13] states that indicative conditional sentences and the material implication have the same truth conditions, i.e., $P \rightarrow Q$ is true if and only if $\neg(A\&\neg B)$. One obvious problem is that one sentence in the antecedent will probably be false, thus making the whole conditional vacuously true. There are also some considerations about possible transformations of the conditional into different expressions. For instance, if the belief system conditional is material, we can say that it is equivalent to a disjunction $\neg((I\&J\&K\&L\&M\&N\&O\&P) \rightarrow Q)\&P) \vee Q$. So, does the falsity of all beliefs or simple truth of a given belief Q make a whole belief system true?

When it comes to a conditional that encompasses an entire belief system, no theory of conditionals appears remotely plausible. If we construct an entirely new system to preserve our epistemic intuitions in such cases, it is doubtful that this will hold for ordinary conditionals. This is suspect. Theories should apply to conditionals of any size, as the size of a sentence should be irrelevant from a logical perspective. Perhaps we should construct our conditional theories using large conditionals from the outset. If no hypothesis can account for them, we may need to treat them as primitive. Our limited knowledge and desire to manipulate things should not be the measure of truth-conditions.

What is even more perplexing is that when we consider belief systems as a whole, even the simplest logical operations can result in paradoxical consequences. For instance, consider the expression $((I\&J\&K\&L\&M\&N\&O\&P) \rightarrow Q)\&P) \rightarrow Q$. This expression simply means 'if *I*, *J*, *K*, *L*, *M*, *N*, *O*, and *P* are all true, then *Q* is true.' If all of the conjuncts are indeed true, then we can infer that *Q* is true. However, if even one of the conjuncts in the antecedent is false, we cannot infer *Q*. This means that any belief of an epistemic agent at a given point will depend on the truth of all of their previous beliefs, which is an unrealistic expectation.

This hypothesis would quickly lead us into a skeptical scenario. If a belief system is contained in a single proposition, any attempt by the epistemic agent to justify her system will result in a new extended proposition. Therefore, she cannot be justifying her belief system, by definition. Thus, a belief system can only be justified by a third party. But if an epistemic agent cannot justify her belief system, she cannot justify her individual beliefs either. Therefore, every one of her individual beliefs will require the validation of an external source. Now, if

[11] Some of the main proponents of the theory are Appiah (1985), Edgington (1986, 1995), Barker (1995), Woods (1997); DeRose (1999), and DeRose & Grandy (1999).
[12] Stalnaker (1968: 102). There are many variants of this theory. See, for example, Lewis (1973); Davis (1979); Nolan (1997); Sorensen (1996); and Zalta (1997).
[13] See Ajdukiewicz (1956), Allott & Uchida (2009a; 2009b), Breul, (2022), Clark (1971), Hanson (1991), Lewis (1976), Grice (1989), Jackson (1987, 2006), Mellor (1993), Noh (1998); Rieger (2006; 2015); Smith (1983); Smith & Smith (1988); Williamson (2020).

every epistemic agent requires the endorsement of a separate agent, and ultimately, every single epistemic agent individually requires external validation, we are stuck in a closed loop of irrational beliefs.

On the other hand, if we accept that individual beliefs can be justified when the belief system is unjustified, the question arises as to how many justified beliefs would be necessary to justify the system. Would most of them be enough? All of them? And why? Any demarcation in this regard will seem arbitrary.

One might object that my argument only demonstrates a one-to-one correspondence between each conditional and unconditional sentence. Thus, there is no actual reduction taking place, as conditional sentences can be 'reduced' to unconditional ones just as well. However, this objection misses the mark because once we have a proper understanding of unconditional sentences, the only distinction that remains is between bigger and smaller conditionals. At some point along the inferential chain, we must cut ties with background assumptions, but this occurs with both premises of a typical *modus ponens*. The only difference is that with constructions traditionally certified as conditionals, the cut is made only after one assumption has been introduced into the assertion content, whereas with unconditional premises, all background assumptions are left out. Nonetheless, both statements are made conditionally on some background assumptions that have been excluded from the picture. The content that is explicitly expressed is merely the tip of a vast iceberg of assumptions that are interconnected and embody our belief systems (see figure 1).

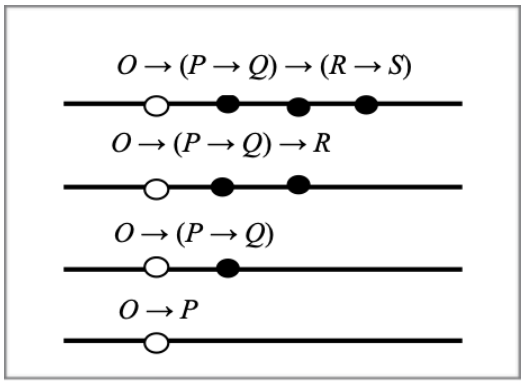

Fig. 1. The white nodes represent the conditionality that is beneath the assertion surface, and the black ones the conditionality on the assertion surface.

When these types of facts are discussed in literature, they are often dismissed as 'unstated premises,' 'background assumptions,' or 'ceteris paribus conditions.' As a result, these topics are considered unimportant, or even completely ignored in pragmatics. However, while this dogmatic approach may not have any epistemic merits, it does have pragmatic ones. If we were to embrace a more accurate representation of argumentation, we would be faced with such a level of complexity that it would severely impair our understanding of the world. As previously argued, even the evaluation of a simple argument would require a thorough analysis of a belief system, blurring the distinction between logic and epistemology.

The imminent disaster could be described in different ways. The first undesired consequence is that all conditionals would become redundant without unconditional sentences. Conditionals merely serve as inferential devices that enable us to derive one unconditional sentence from another. However, without unconditional sentences, there would be no content to derive in the first place. Instead, we would have infinite chains of conditional sentences

intertwined in our belief systems and connected to one another. If there existed an all-knowing being in possession of a comprehensive description of every individual's belief system, she would perceive every argument of an individual as connected, but she would be unable to make any inference about any subject at all. It is as if all our assertions and theoretical commitments were entangled in one big conditional statement. Furthermore, we would have no reasons whatsoever to accept one premise over another. The reason for this is simple: when an arguer accepts a premise she proposes, she does so because there are reasons to believe the premise is true. But if the reasons to accept the premise become part of the premise's content, and the reasons that motivated those reasons are also included in the premise, there will be no reasons left to support the premise in the first place. Therefore, even if we managed to accurately represent all the background beliefs in the premises, this would mean that every premise would be arbitrary, rendering every argument arbitrary. However, the more significant threat is that conditionals themselves would become meaningless, as they only make sense in conjunction with unconditional sentences. To compound matters, since both unconditional statements and arguments are concealed conditionals, they too would become meaningless as a consequence. Finally, our belief systems would be compromised and rendered meaningless in the process. It would be a catastrophe.

2. A MATTER OF CONVENTION

Perhaps it would not be a bad idea to stick to our basic logical notions after all. One way to justify the status quo on this subject is to argue that the distinction between unconditional and conditional sentences is a matter of convention. This convention arises from our need to control chaos and divide belief systems into manageable parts. The distinction between the two types of sentences will vary from person to person depending on the circumstances and interests.

I can use convention to legislate that a given premise is *P* because I'm not interested in a more complete logical form. On the other hand, another person may be interested in one of its assumptions in a different context and therefore fixate by convention that it is a disguised conditional, such as $O \rightarrow P$. Both options are equally correct, and the choice between them depends on what is more convenient to use in the given context.

The abrupt division of our belief systems into 'unconditional sentences' and 'conditional sentences' is an epistemic fiction that we create for our purposes, rather than a factual question. This implies that the meaning of conditionals and, ultimately, of our belief systems is also a fiction, a matter of convention. This custom is makes our inferences and exchange information possible. Like all conventions, it is a natural and collective response to a demand and is guided by pragmatic reasons. Our cognitive resources are limited, so demarcations are necessary. The meaning of cognitive concepts depends on our epistemic limits.

In a sense, not only *modus ponens* arguments, but other valid argumentative forms are conventional to the extent that they are cut-outs of larger structures. Whether the truth of the premises is preserved in a given argumentative form is not a matter of convention, but the fact that those premises are presented in that way is a matter of free choice. This is especially evident in logic, which involves a technical formal language specifically designed to analyze natural language.

The framework we choose for philosophical practice involves relying on simplified fictions in logic textbooks and articles. This is a conventional stipulation motivated by pragmatic considerations such as simplicity, which is in line with known conventional habits in our understanding of logic.

Of course, this does not imply that every pragmatic decision is justified. In any given logical system, there is an infinite number of valid argumentative forms, but we tend to focus on only a handful of them, such as *modus ponens*, hypothetical syllogism, and so on. Although there are infinitely many valid argumentative forms, we can count on our fingers the number of forms that attract all our attention and support our main intuitions.

A case in point for convention is the arbitrary differentiation between an arguer's assumptions and premises. When introduced to this distinction in logic textbooks, students may question why the arguer's assumptions are not included. If this concern is raised, the response is typically dogmatic, as there are no satisfactory answers to the question. Ultimately, our interests determine what constitutes a premise or assumption, much like pragmatic conventions determine what is a conditional or not. The distinction between unconditional and conditional sentences and that between assertion and assumption are related, as the evidential relation between assumptions and assertions takes on a conditional form. (See Figure 2.)

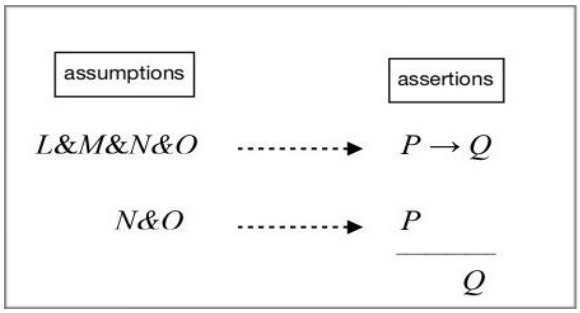

Fig. 2. The assumptions are left out of the logical analysis. This is a common practice.

If some conventions are inadequate[14], it is because the arbitrariness of a convention is constrained by non-social facts. The distinction between unconditional and conditional sentences, and the reliance on textbook cases as paradigmatic examples of argumentative forms, is beneficial as it offers a clear and simplified way to understand basic inferences and validity. However, there are reasons for this choice as well. Hence, it is not feasible to invent new systems and impose adherence to them by force or followers. One can design a car with a foot-controlled steering wheel, but no one would want such a car. Conventions must provide a meaningful advantage over current practices, or they will not gain any traction. Conventions are created to fulfill practical human needs and solve coordination problems. Thus, deviant conventions must also meet these criteria and represent an improvement over accepted practices.

The distinction between unconditional and conditional sentences has a conventional character that bears resemblance to the causes/conditions distinction. Usually, the cause of a phenomenon is linked to a change in the background facts that was sufficient for something to occur, while a condition is perceived as the elements present in the background facts that are necessary for something to occur[15]. For instance, suppose a wildfire breaks out in the woods, and it is reported that a lighted cigarette caused it. However, the cigarette was just as necessary for the fire to occur as the presence of oxygen, which we arbitrarily choose to ignore as a

[14] My argumentation is solely focused on theoretical conventions aimed at solving problems, and not on conventions such as games or other non-cognitive interests, which are beyond the scope of this article.

[15] Ducasse (1969: 19).

condition. This choice is motivated by several factors, including the moral accountability of the person who dropped the cigarette.

The causal fields are another way in which the cause/effect and unconditional/conditional distinctions are similar. A causal question is posed about a particular causal field[16], which could be about a wildfire, a traffic accident, or a homicide. The causal considerations that are not relevant to our concerns are disregarded. Choosing to consider only certain aspects of the situation as causally significant is akin to making surgical incisions in belief systems for conceptual analysis. In both cases, we are knowingly making distinctions that are arbitrary from a general point of view that takes into account all the facts. However, these distinctions are perfectly acceptable in that situation due to our human limitations and concerns. Please refer to figure 3 for further illustration.

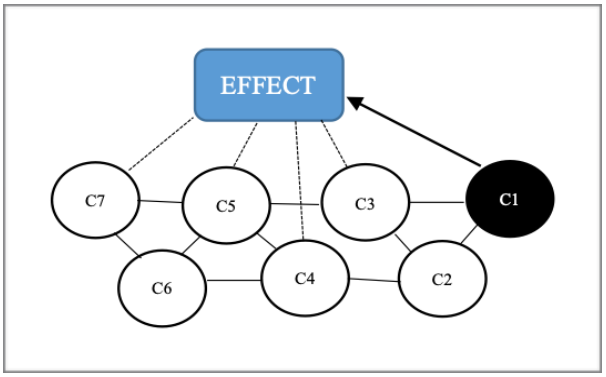

Fig. 3. Conventions at work. C1 is taken as the only cause of the phenomenon. C2-C7 are ruled out as

There are no independent and pre-existing divisions between conditional and unconditional sentences. This division is a convenience, and it helps us share ideas and exchange information. The typical structure of argumentative forms presented in logic textbooks is just as conventional as the choice of logical symbols. The convention between conditionals and unconditionals is implicit and spontaneous. It is not implemented by a particular decision at any given moment in time. It needs to be this way under the penalty of circularity, for in order to apply the distinction between conditionals and unconditionals, we already have to make a distinction between them. The rules and examples we see in textbooks are codifications of practices that have always occurred in natural language. They result from an epistemological need to make sense of arguments when the real structure of argumentation is too complex for a compelling analysis.

The description of the conventional and social aspect of our baby logic conventions assumes the importance of idealised models. These models occur when there is an intentional attempt to simplify or distort highly complex phenomena in order to make them more accessible and easier to grasp[17]. The distinction between conditional and unconditional sentences is a deliberate simplification or distortion of belief systems to cope with their immense complexity. The aforementioned distinction between background conditions and causes is also an idealised model. We can also add to the list physics models involving frictionless planes, economic models that work under assumptions that agents are omniscient and fully rational, and biology models that study isolated populations.

[16] Mackie (1974: 35).
[17] Potochnik (2017).

It is possible that the conditional/unconditional distinction can be described as a toy model. A toy model represents an extreme simplification and distortion of the research subject by focusing on a very restricted number of explanatory factors[18]. There are some examples of toy models that can also be described as caricatures, as they focus on a few salient properties of a system and distort them into extreme cases[19]. This description fits our explanation like a glove. The distinction between conditionals and unconditionals is a caricature that focuses on epistemic cuts, thereby disregarding all other factors that could negatively impact our understanding of logical consequence, including the background assumptions of the speaker and the inferential nature of belief justification. Nevertheless, this allows us to gain an intuitive understanding of what a valid argumentative form looks like, get used to logic conventions, and so on.

4. THE BOTTOM LINE

It has been argued that the distinction between unconditional and conditional sentences is largely a matter of convention. However, this does not diminish its importance for our theoretical endeavors. On the contrary, it suggests that the prevailing tendency to view conditionals as fundamentally more obscure and inaccessible than unconditional sentences may be fundamentally mistaken. This demands some explanation. One plausible explanation is that the blame lies with the prevalent view that conditionals can be interpreted as functions. This is bound to cloud our views on the subject, since it moves us away from the use of conditional sentences in natural language, which only reinforces their artificial character. Conditionals are intuitive and natural when they are interpreted alongside unconditional sentences and their inferential justification, but they appear strange and inaccessible when they are interpreted as artificial functions. This does not imply that conditional logics that rely on such functions are incorrect, but it might shed some light on why there is some unease associated with the distinct hypothesis about the nature of conditionals. Whether there is an important piece of the puzzle hidden underneath this aspect of conditional theories remains to be seen.

REFERENCES

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

Ajdukiewicz, K. (1956). Conditional Sentence and Material Implication, *Studia Logica:* An International Journal for Symbolic Logic, 4(1), 117–153.

Allott, N; H. Uchida (2009a). Classical logic, conditionals and "nonmonotonic" reasoning. Behavioral and Brain Sciences 32(1), 85.

Allott, N; H. Uchida (2009b). *Natural language indicative conditionals are classical*. UCL Working Papers in Linguistics, 1–17. http://www.ucl.ac.uk/psychlangsci/research/linguistics/publications/wpl/09papers/allott.

Appiah, A. 1985. *Assertion and Conditionals*. Cambridge: Cambridge University Press.

Barker, S. 1995. Towards a Pragmatic Theory of 'If'. *Philosophical Studies.* 79(2), 185–211.

[18] Hartmann (1995).
[19] Gibbard & Varian (1978).

Breul, C. (2022). If a man buys a horse, … you have no argument against material implication: On a flaw in the foundations of the restrictor approach to conditionals. *Linguistische Berichte* 269, 43–54.

Carroll, L. 1895. What the Tortoise Said to Achilles? *Mind* 4, 278–80.

Clark, M. (1971). Ifs and Hooks, *Analysis*, 32(2), 33–39.

Davis, W. 1979. Indicative and Subjunctive Conditionals. *The Philosophical Review*, 88(4), 544–64.

DeRose, K. 1999. Can It Be That It Would Have Been Even Though It Might Not Have Been?," *Philosophical Perspectives*, 13: 387–413.

DeRose, K., Grandy, R. (1999). Conditional Assertions and "Biscuit" Conditionals. *Noûs*, 33(3), 405–420.

Ducasse, C. J., 1926. On the Nature and Observability of the Causal Relation. *Journal of Philosophy*, 23: 57–68.

Edgington, D. 1986. Do Conditionals Have Truth Conditions? *Crítica*: *Revista Hispanoamericana de Filosofía*, 18(52), 3–39.

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

Gibbard, A., Hal. V. 1978. Economic Models, *The Journal of Philosophy*, 75(11): 664–677.

Grice, P. (1989). Indicative Conditionals. In: *Studies in the way of words*. Cambridge: Harvard University Press.

Hanson, W. (1991) Indicative Conditionals Are Truth-Functional. *Mind*, New Series, 100(1), 53–72.

Hartmann, S. 1995. *Models as a Tool for Theory Construction: Some Strategies of Preliminary Physics*, in Herfel, William, Wladiysław Krajewski, Ilkka Niiniluoto, and Ryszard Wojcicki (eds.), Theories and Models in Scientific Process (Poznań Studies in the Philosophy of Science and the Humanities 44), Amsterdam: Rodopi: 49–67.

Jackson, F. (1987). *Conditionals*. Oxford: Basil Blackwell.

Jackson, F. 2006. Indicative Conditionals Revisited. *Seminar at the Chinese University of Hong Kong*. URL: http://phil.arts.cuhk.edu.hk/~phidept/TCIVP/jackson/indicative.pdf

Jeffrey, R. 1964. If (Abstract). *Journal of Philosophy*, 61, 702–703.

Lewis, D. 1973. *Counterfactuals*, Oxford: Blackwell Publishers.

Lewis, D. 1976. Probabilities of Conditionals and Conditional Probabilities. *Philosophical Review*, 85(3), 297–315.

Mackie, J. L. 1973. *Truth, probability and paradox*: studies in philosophical logic. USA: Oxford University Press.

Mackie, J. L. 1974. *The Cement of the Universe*. Oxford: Oxford University Press.

Mellor, D. (1993). How to Believe a Conditional. *The Journal of Philosophy*, 90(5), 233–248.

Noh, E.-J. (1998). A relevance-theoretic account of metarepresentative uses in conditionals. In Rouchota, V. and A. H. Jucker, eds., *Current Issues in Relevance Theory*, Amsterdam: John Benjamins, 271–304.

Nolan, D. (1997). Impossible Worlds - A Modest Approach. *Notre Dame Journal of Formal Logic*, 38(4), 535–572.

Potochnik, A. 2017. *Idealization and the Aims of Science*, Chicago, IL: University of Chicago Press.

Rieger, A. (2006). A simple theory of conditionals. *Analysis*, 66(3), 233–40.

Rieger, A. (2013). Conditionals are material: the positive arguments. *Synthese*, 190(15), 3161–3174.

Sanford, D. 2003. *If P, Then Q: Conditionals and the Foundations of Reasoning.* London: Routledge.

Smith, N. (1983). On Interpreting Conditionals. *Australian Journal of Linguistics*, 3(1), 1–24.

Smith, N; Smith, A. (1988). A Relevance-theoretic Account of Conditionals. In Larry M. Hyman; Charles N. Li, eds., *Language, Speech and Mind*: Essays in Honour of Victoria A. Fromkin, pp. 322–352. London: Routledge.

Sorensen, R. (1996). Modal Bloopers - Why Believable Impossibilities Are Necessary. *American Philosophical Quarterly*, 33(3), 247–261.

Stalnaker, R. 1968. A Theory of Conditionals. In *Studies in Logical Theory*. Oxford: Blackwell Publishers.

Williamson, T. (2020). *Suppose and Tell: The Semantics and Heuristics of Conditionals*, Oxford University Press.

Woods, M. 1987. *Conditionals*. Oxford: Clarendon Press.

Zalta, E. (1997). A Classically-Based Theory of Impossible Worlds. *Notre Dame Journal of Formal Logic*, 38(4), 640–660.