

Conditional emotions

Christina Hope Dietz 

Dianoia Institute, Australian Catholic University

Correspondence

Christina H. Dietz, Dianoia Institute, Australian Catholic University.
Email: christinadietz@gmail.com

Abstract

Some conditionals involving factive emotives present a prima facie challenge to the thesis that conditionals obey *modus ponens*. Drawing on recent work by Timothy Williamson, I offer an error-theoretic diagnosis of the phenomenon, one that appeals to a heuristic that we use in suppositional reasoning.

Conditionals that embed factive emotives in the consequent seem to present a counterexample to *modus ponens*. In this essay, I present the puzzle and propose a solution—one that connects in interesting ways to the role of emotion in suppositional reasoning and in our cognitive lives more generally.¹

1 | THE CHALLENGE

1.1 | The Initial Puzzle

Consider a simple conditional:

- (1) If John is at the party, then he is having a good time.

It is natural to assume that conditionals expressed in the English language obey *modus ponens*. Thus, if it is true that John is at the party, and the conditional (1) is true, then it follows that John is having a good time. Meanwhile, if it is true that John is at the party, and it is false that he is having a good time, then the conditional (1) is false.

We can generate an apparent challenge to *modus ponens* by inserting ‘know’ in the consequent. Suppose I say,

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(2) If John is at the pub, then I know that John is having a beer.

Let us also suppose that given what I know about John (namely, that he always has a beer when he is in a pub), it is intuitive to think that (2) is true. Yet, it is important to notice that the most natural setting in which I utter a conditional like (2) is one where I do not know whether the antecedent is true, and so one where I do not know whether John is at the pub and do not know whether he is having a beer.

It is very easy to imagine a case where both the conditional (2) is intuitively true and the antecedent ('John is at the pub') is true. If we are right to assume that conditionals expressed in the English language obey *modus ponens*, then on the face of it, it seems to strictly follow that I must know that John is having a beer. This is a problematic result given that we have already stipulated that I do not know whether or not John is at the pub and I do not know that John is having a beer. Given the details of the case, (2) seems to present an apparent counterexample to *modus ponens*.

The standard way to explain what is going on in the case of (2) is to say that the logical form of the conditional expressed by my utterance in (2) is not as it appears. In (2) 'know' appears to take narrow scope but at some level of deep structure, the logical form of my utterance is actually one where the attitude takes wide scope. Thus, the standard explanation of the puzzle says that what I *really* meant by (2) was something more like (3):

(3) I know that if John is at the pub, then John is having a beer.

Notice that in (3) the consequent says nothing about my knowledge anymore (it merely says that John is having a beer). If (3) reflects the underlying logical structure of (2) then there is no counterexample to *modus ponens*. When a conditional like (2) is true, the apparent challenge posed by a narrow scope reading disappears under the wide scope reading. In sum, we use this wide scope move to show how embedding knowledge in the consequent of a conditional like (2) does not pose a genuine threat to *modus ponens* after all.

1.2 | The Phenomenon

Factive emotive states are a special class of attitudes that pose a similar challenge to *modus ponens* and in these particular kinds of cases, the solution is not straightforward. Suppose I utter (4) in a setting where the conditional is intuitively true though I lack knowledge of the truth value of the antecedent:

(4) If John is at the pub, I'm angry.

Preserving the assumption that conditionals obey *modus ponens*, it follows that—even though I do not know whether John is at the pub, I'm angry. (4) is an example of a strange phenomenon that occurs when factive emotives are embedded in the consequent of conditionals (for it is very natural to think that *I am not angry* in the situation where I utter (4) given that I do not know whether John is at the pub). On the assumption that the consequent ('I'm angry') is shorthand for, 'I'm angry that John is at the pub', the claim that the consequent is true, and means what it seems to mean, violates the very plausible claim that being angry that P entails knowing P.² Thus, (4) seems to pose an additional *prima facie* counterexample to *modus ponens*.

In the case of 'know', the standard solution is to make the wide scope move (adjust the narrow scope of the attitude verb by moving it from its position in the consequent to the front of the conditional).³ Recall that the wide scope move is meant to give us a more accurate reading of the conditional's true meaning by appealing to its deep logical structure.

When we adjust the scope of the attitude using the overt materials in (4), it delivers the following result:

(5) I'm angry that if John is at the pub, then ____.

As (5) shows, an application of the wide scope move does not yield a well-formed sentence. It is plausible that the underlying logical structure of (4) contains 'John is at the pub' in the consequent. Taking this into account, let us stipulate that (4) is actually shorthand for (6):

(6) If John is at the pub, then I'm angry that John is at the pub.

An application of the wide scope move delivers (7):

(7) I'm angry that if John is at the pub, then John is at the pub.

It is clear that (7) is infelicitous.⁴ Anything of the form, 'if P, then P' is a tautology, and it is clear from (6) that I am *not* angry about a tautology. (More generally, it does not seem like tautologies are the sort of things to be angry about.)⁵ These points are even more vivid in the case of surprise. Consider the following minimal pair:

(8) If John is at the pub, then I'm surprised that John is at the pub.

(9) I'm surprised that if John is at the pub, then John is at the pub.

(8) seems to be a perfectly fine thing to say (though it is an instance of the phenomenon), while (9) sounds terrible because it is completely obvious that the tautology is not surprising. In sum, the wide scope move that we standardly use in the case of 'know' is not available for conditionals that embed factive emotives. The standard wide scope solution cannot make sense of these particular kinds of cases. Does that mean that these conditionals are genuine counterexamples to *modus ponens*? In what follows, I shall present an error theory that can make sense of the puzzling phenomenon generated by conditionals like (4), (6), and (8) in a way that preserves *modus ponens*.

2 | THE COGNITIVE EXPLANATION

2.1 | The Basic Story

I shall offer an explanation of the phenomenon that will deploy some of the tools provided by Timothy Williamson's work on conditionals and supposition (2016; 2020). Let us begin by considering some pertinent ideas from his discussion.

The way that we ordinarily evaluate conditionals is very similar to the way that we update on new information.⁶ To illustrate, consider how I come to endorse the conditional, 'If the train is delayed by fifteen minutes, I am running late to work.'

First consider a scenario where I learn that *the train will be delayed by fifteen minutes*. Upon learning this fact, I update on this new information, and conclude that *I am running late to work*. Now consider a suppositional case: I am waiting for the train. I notice that the train is running a few minutes late but I do not know how much longer the train will be delayed. As I am waiting, I begin to run through various imagined scenarios in which the train is delayed. First, I imagine that the train is delayed by two minutes, and I think to myself, 'Well, that would be fine.' Then I imagine a scenario in which the train is delayed by fifteen minutes. The key idea is that when I suppose that *the train is delayed by fifteen minutes*, I arrive at the same conclusion that I would have arrived at in the scenario where I learned that the train is delayed by fifteen minutes, and this leads me to imaginatively conclude (under the supposition) that *I am running late to work*.

The cognitive exercise that occurs upon supposing that an antecedent is true is an offline-simulation of the 'online' reasoning process that occurs in the scenario where upon one learns that the antecedent is true. The above case is thus an example of *offline-reasoning under supposition*. Under the supposition that the antecedent is true, I simulate the way that I would reason in the actual case, and this offline-reasoning process leads me to offline-believe the consequent which, in turn, generates an online-belief in the conditional, 'If the train is delayed by fifteen minutes, I am running late to work.' In general, this is the way that we use supposition to evaluate conditionals.

Observation One: *When reasoning under supposition, we typically reason using the following heuristic: If I offline-believe that P under supposition S, I believe the conditional: If S then P.*

It bears repeating that offline-reasoning under supposition closely approximates the way that we reason when we update on new information (the 'online' analogue). When one reasons 'offline' under supposition, the informational input is the supposition, and the offline-process of updating on the supposition generates 'offline-states'. Thus, when I reason under the supposition that the train is delayed by fifteen minutes, I come to offline-believe exactly what I would have online-believed in the online-scenario where I learned that the antecedent obtained.⁷

Although offline-reasoning under supposition is inferentially similar to online-reasoning, offline-reasoning is likely to be disconnected from intentional action in some important respects.⁸ For example, if I learned that *the pig pen has been left open*, I will conclude that some of my pigs are loose and this will prompt various actions: Rushing to the garden, calling for the farmhand to capture the loose pigs, etc. In the case where I merely suppose that *the pig pen has been left open*, I offline-conclude (i.e. form the offline-belief) that some of my pigs are loose. Usually, this offline-belief will not culminate in analogous actions. While there is an analogy in inferential role, offline-beliefs do not engage our desires and intentions in ways that are characteristic of genuine belief. (Of course, one should not think that offline-beliefs are *totally* disconnected from action. Sometimes offline-beliefs play a role in the process of coming to online-believe some conditionals that yield various actions.)⁹

It is reasonable to expect that the parallel between what we offline-believe under a supposition and what we would believe if we learned the antecedent of the relevant conditional will not always be exact. For example, if I suppose that *someone is stealing from me without my ever learning about it*, it would not make sense to say that whatever I offline-believe under that supposition is exactly what I would believe if I learned that *someone is stealing from me without my ever learning about it* because that is simply not something that I could learn. Consider another example. If I suppose that *a bear is running towards me right now*, it would be natural for me to develop the supposition by offline-believing that I don't know it, yielding the intuitively correct conditional: 'If I bear is running towards me right now, I don't know it.' But of course, if I learned that a bear was running

towards me, I would not think, 'I don't know that a bear is running towards me.' In that respect, what I offline-think under the supposition does not (in this case) match what I would think if I learned the antecedent.

Returning to the phenomenon at issue, how can we explain what is going on in cases where conditionals embed factive emotives? We can answer this question by first observing that the exercise of supposing things may not merely result in the production of offline-beliefs but can also result in the production of offline-emotion. Just as we simulate what we would believe (offline) under a supposition, we also simulate the way that we would feel (offline) in a world under that supposition. (For example, under the supposition that *I will be burned at the stake tomorrow evening*, I am offline-terrified.) This observation will play a key role in the cognitive story of what is going on in cases of conditionals that involve emotion like (4) and (8).

Observation Two: *When reasoning under supposition P, we typically have various offline-emotions such that for various emotive V's, we offline-V that P.*¹⁰

The pattern described in the case of belief/offline-belief carries over to emotion/offline-emotion. Just as there are deep analogies between what we believe upon learning P and what we offline-believe upon supposing P, there is a deep connection between the emotions we would have upon learning P and the offline-emotions we have upon supposing P.

It is also worth noting that merely supposing that I will be burned at the stake tomorrow might prompt various involuntary physiological reactions (like an increase in heart rate) even though such reactions would be less intense versions of the reactions I would have upon *learning* that I will be burned at the stake.¹¹ And while the intentional content of my offline-terror is similar to the content of the online-terror felt in the scenario where I learn that I will be burned at the stake, the way that either state relates to action is importantly different: online-terror prompts certain actions like begging for mercy, and making plans of escape while offline-terror might prompt actions that would evade the scenario where I am scheduled to be burned in the first place. If offline-terror prompts any action at all, it surely does not prompt begging for mercy and making plans of escape.

(It is worth noting that the phenomenon of offline-emotion has some capacity to shed light on the much-discussed topic of fearing fictions. See Walton, 1976. The kind of offline-sadness that I have when I suppose that a chef has cooked my pet pig into a schnitzel is similar to the mental state I undergo when I watch a movie in which someone's pet pig is cooked into a schnitzel. In both cases, the temptation to call the mental state 'genuine sadness' is encouraged first, by a tendency to think of sadness as essentially involving a *quale*, and second, by a tendency to think of the involuntary physiological reactions associated with sadness as sufficient for being sad.)¹²

The cognitive explanation of the phenomenon requires a third and crucial observation. Ordinarily, when we learn that P and subsequently V that P (e.g. become angry/surprised/happy/ etc. that P) we also believe that we V that P. When I see that Frank is dressed like a cowboy, I am surprised that Frank is dressed like a cowboy, and I believe that I am surprised that Frank is dressed like a cowboy. Similarly, under the supposition that Frank is dressed like a cowboy, I am offline-surprised that Frank is dressed like a cowboy, and I offline-believe that I am surprised that Frank is dressed like a cowboy. In short, we can observe that there is a transition from having an offline-emotion under a supposition to having an offline-belief about having that emotion.

Observation Three: *The offline-emotion to offline-belief transition: When we offline-V that P (for emotional Vs) under a supposition that P, we tend to also have an offline-belief that we V that P.*

It is important to be very clear that the idea is *not* that under the supposition, I offline-believe that I am offline-angry/offline-surprised/etc. If we are trying to provide the best cognitive explanation of what is going on, we must remember that most people do not have beliefs (online or offline) about ‘offline-emotions’ (this is really just a term of art). The key idea is that when we suppose P, and then offline-V that P, we also tend to have an offline-belief that we V that P. In other words, an offline-emotion under a supposition tends to trigger an offline-belief about oneself as having an online-emotion.

We can now make sense of the phenomenon at issue in light of the discussion above. Suppose John promised me that he would work on the farm today instead of going to the pub. Around noon, Jason (our farmhand) calls me and asks me about John’s whereabouts to which I reply,

“Well, John promised that he would be working on the farm today. Maybe John is working in the stable. Go check, and call me back if you don’t find John there.”

I hang up the phone and wonder where John is. In my mind, I play out two salient possible scenarios. In the first, I suppose that Jason finds John working in the stable, and under that supposition, the world that develops in my mind is one where I am offline-relieved that Jason found John working in the stable, and I offline-believe that I am relieved that Jason found John working in the stable. I also imagine a scenario in which it turns out that John is at the pub. In the scenario where I suppose that John is at the pub, I am offline-angry that John is at the pub (Observation Two), and I offline-believe that I am angry that John is at the pub (Observation Three).

The cognitive explanation of the phenomenon generated by the conditional (6) ‘If John is at the pub, I’m angry that John is at the pub’, can be made vivid by considering how the three observations figure in the story above. (An analogous story can be told about the conditional, ‘If John is in the stable, I am relieved.’)

When I begin by supposing that John is at the pub, Observation Two tells us that: I’m offline-angry that John is at the pub. Observation Three tells us that: I offline-believe that *I’m angry that John is at the pub*. And the heuristic we use to evaluate conditionals that is described in Observation One generates my online-belief in the following conditional:

(6) If John is at the pub, I’m angry that John is at the pub.

We know that conditionals obey *modus ponens* and yet these cognitive habits (as detailed by the three observations above) work together to actually produce a false judgment about the conditional (which thereby generates the puzzling phenomenon: A conditional that seems to be an apparent counterexample to *modus ponens*). In summary, the way we ordinarily evaluate conditionals leads us to think that false conditionals like (4) and (6) are true. We make mistakes about conditionals when they embed factive emotives because the heuristic we ordinarily use to evaluate conditionals leads us to mess up in these particular kinds of cases. If these conditionals are false, they pose no problem for *modus ponens* after all. In short, *modus ponens* is not wrong—we are. Our cognitive habits lead us to make mistakes when evaluating these particular kinds of conditionals—and in such cases, we are simply not reasoning carefully.

2.2 | Non-trivial Suppositional Reasoning

The idea that the heuristic (described by Observation One) often leads us into error is not an objection to my proposal. After all, Williamson (2017; 2020) describes various cases (that are quite different from this one) where this heuristic can get us into trouble.¹³

Given that making this mistake depends on not reasoning carefully, I do not expect that we *always* make these errors but it is unsurprising that we often do. By way of illustration, consider what happens if one extends the error theory above, in a completely mechanical way to ‘belief’. That extension predicts that if we suppose P, we offline-believe P, and then offline-believe that we believe P. And yet, when P is the proposition that *Goldbach’s conjecture is true*, we do not endorse the resulting conditional:

(10) If Goldbach’s conjecture is true, then I believe that Goldbach’s conjecture is true.

The infelicity of (10) is evidence that the suppositional mechanism does not *always* lead us to make mistakes that deliver false conditionals but it is relatively easy to explain why. In the puzzle cases, when we go in for false conditionals of the form, ‘if P then I believe that Q’, it tends to be because it involves some non-trivial reasoning under the supposition that P. And when there is non-trivial reasoning of this sort, the false conditional can sound much better. (10) sounds bad but (11) below sounds good when we assume that we have reasoned somehow from the antecedent to the Riemann hypothesis, under supposition.

(11) If Goldbach’s conjecture is true, then I believe that the Riemann Hypothesis is true.

Similarly, consider the following minimal pairs:

(12) If that’s not a fake diamond then I believe that it’s not a fake diamond.

(13) If that’s not a fake diamond then I believe that it’s the biggest diamond that I have ever seen.

(14) If Boston is near Salem then I know that Boston is near Salem.

(15) If Boston is near Salem then I know that Salem is near Boston.

Notice how (12) sounds terrible but (13) sounds pretty good. Also notice that (14) sounds markedly worse than (15). These examples seem to illustrate how the acceptability of conditionals of the form, ‘if P then I believe that Q’ depends on whether Q is arrived at by trivial or non-trivial suppositional reasoning from P.

The Boston/Salem pair is particularly striking – the fact that going from, ‘Boston is near Salem’ to ‘Salem is near Boston’ requires just a little bit of reasoning makes for a striking contrast between (14) and (15). This strongly suggests that the right explanation of the data will relate to whether we bother to go in for offline-reasoning when processing the relevant conditionals. The cognitive explanation that I have offered is a promising basis for explaining the discrepancies displayed by the above pairs. By contrast, appealing to either the availability of the standard wide scope move, or to an inventive semantics for ‘believe’ (when it occurs in the consequent of a conditional) does not seem to offer a promising way to account for these contrasts.

2.3 | Some More Complex Embeddings

Conditionals that embed psychological expressions in the consequent differ in subtle ways that are unsurprising given the cognitive approach. For example, consider:

(16) If Bill is too sick to come to the party, then it’s not right that I’m angry at him.

Under the supposition that Bill is too sick to come to the party, I am not offline-angry at him. Rather, I am offline-sympathetic. Thus, the route to (16) does not proceed via offline-anger that was brought about by offline-reasoning under the supposition of the antecedent. Rather, the natural setting in which I utter (16) is one where I know that I am angry at Bill. In this special case, when I offline-reason, I add certain background beliefs (like my belief that I am angry) to the supposition. Having supposed Bill is too sick to the party, and holding fixed that I am angry, I offline-reason to the conclusion that *it's not right that I'm angry*. In this case, I am engaging in a routine suppositional procedure—a procedure in which one adds the content of a supposition to some salient set of propositions that one believes, and uses the resulting set as a basis for offline-reasoning.

[Note that in the case of (16), the way I offline-reason under supposition does not exactly match the way I would reason if I learned the antecedent. If I learned the antecedent, my anger would dissipate – just as my ignorance that a bear is running towards me would dissipate if I learned that a bear was running towards me. In this respect, (16) is analogous to the conditional, ‘If I bear is running towards me right now, then I don’t know it’. Note also that it cannot be that the entire set of what one believes is carried forward into suppositional reasoning. After all, in the most natural setting where I utter (16), I actually do believe that it is right for me to be angry at Bill but I do not carry that belief forward when I reason under the supposition of the antecedent. This connects with an issue that is widely known to be delicate –namely, the issue of which propositions are held fixed when we evaluate indicative conditionals.]

We can thus see that these are two slightly different mechanisms that can lead to an occurrence of a psychological expression (V) in the consequent of a conditional. In some cases, the V may be triggered by offline-Ving under the supposition of the conditional’s antecedent (via the mechanism described in section 2.1). In other cases, it may express part of the content of a proposition that is arrived at in suppositional reasoning—not via offline-Ving—but by offline-reasoning from some background beliefs in combination with the supposition of the antecedent. (4) is a paradigm of the first mechanism and (16) is a paradigm of the second. Whether ‘anger’ is processed in the first or the second way will depend on complex clues. However, it is certainly no part of my story that either mechanism is ubiquitous.

The cognitive explanation can also make sense of an even more complex conditional: ‘If Bill is on a plane to Cuba right now, then I am surprised that Jane knows this but I don’t.’ This conditional (which appears in Blumberg and Holguín 2019, p.20) requires some scene setting. Imagine a setting in which Jane claims, ‘Bill is on the plane to Cuba’ and in a somewhat skeptical spirit, I think to myself, ‘Either Bill is not on a plane to Cuba right now or he is and Jane knows that he is.’ And let’s suppose that in this case, I am not worried about the possibility that Jane is guessing (and so is right by luck) but I am aware of the fact that I do not believe (and hence do not know) that Bill is on a plane to Cuba right now. Assuming this background information, under the supposition that Bill is on a plane to Cuba, I offline-believe the conjunction: Jane knows that Bill is on a plane to Cuba and I don’t. I then feel offline-surprised about this conjunction and by the familiar mechanism described in Observation Three, I come to offline-believe that I am surprised that Jane knows that Bill is on a plane to Cuba right now and I don’t. This in turn leads me to endorse Blumberg and Holguín’s conditional (via the familiar heuristic). The uses of ‘know’ explicit in ‘Jane knows’ and implicit in ‘I don’t’ are triggered by the second mechanism [akin to (16)] detailed above. By contrast, the occurrence of ‘surprise’ is triggered by offline-surprise under the supposition and is thus, caused by the first mechanism [akin to (4)]. Given these two suppositional mechanisms, it is easy to explain what would allow one to assert such a conditional.

A detailed understanding of the clues that drive our divided treatment of psychological expressions that are embedded in the consequent of conditionals is a delicate matter for further research. (One one might wonder if there is any plausibility to the generalization: *If a psychological verb occurs under the scope of another in a consequent of a conditional, it occurs by way of the second suppositional mechanism.* But upon reflection, this generalization is not sustainable. For it is obvious that in the case of, ‘If he is at the pub, you had better believe I’m really angry’, ‘angry’ is embedded under the scope of ‘belief’ but is clearly triggered by the first mechanism described above. Similarly, consider, ‘If he is at the pub, you need to know that I am really angry about it.’)

2.4 | Disjunctions

I have focused on conditionals but as Blumberg and Holguín (2019, p.4) have noticed, similar puzzles arise for certain disjunctions. For example,

Disjunction: Either there are a lot of people on the deck outside or I regret that I didn’t bring more friends.

My model extends naturally to this case because it seems that we arrive at Disjunction One by the following reasoning:

Premise 1: Either a lot of people are on the deck outside, or not.

Premise 2: If not, I regret that I didn’t bring more friends.

Conclusion: Either there are a lot of people on the deck outside or I regret that I didn’t bring more friends.

How else should one reach Disjunction? The conditional plays a natural and predictable role in reasoning to the disjunction.¹⁴

Insofar as we have an explanation for why one might accept the conditional, ‘If there are not a lot of people on the deck outside, I regret that I didn’t bring more friends’, we also have a good explanation of why we find the disjunction acceptable. In short, the error we make when processing conditional emotion leads us to make further errors with non-conditionals deduced from those false conditionals.¹⁵

3 | SOME NATURAL LANGUAGE DATA

Let us move on to consider three pertinent pieces of natural language data that the cognitive explanation does well to explain.

3.1 | First-Person/Third-Person Data¹⁶

One might have already noticed that the challenge posed by the puzzling phenomenon (exemplified by conditionals that embed factive emotives) has thus far been presented using examples where the conditional’s consequent is in the first-person. Does the phenomenon occur if the consequent is in the third-person? Consider the following minimal pair.

- (4) If John is at the pub, I'm angry.
 (17) If John is at the pub, John's mother is angry.

Recall that (4) sounds fine even if I am in a setting where the antecedent is true and I do not know that the antecedent is true. We know that (4) is an instance of the phenomenon and we know that it sounds like an acceptable thing to say in the relevant contexts. But (17) has importantly different felicity conditions.

In the third-person, (17) is felicitous if I am in a context where I expect that if John is at the pub, then his mother would know that he is and would also be angry that he is. In that context, (17) does not present a challenge to *modus ponens*. But in the context where I do not expect that John's mother knows whether John is at the pub, (17) would be an odd thing for me to say.

My error theory (the cognitive explanation) can make sense of the data brought out by the first-person/third-person contrast. Observation Three details the transitional mechanism whereby one goes from having an offline-emotion under a supposition to having an offline-belief about having an online-emotion. This transitional mechanism is not available in the third-person case.

There is no such transition from my having an offline-emotion to having an offline-belief that John's mother or anyone else (but me) has an emotion. Of course, in a setting where I know that John's mother knows whether John is at the pub (and I know that is the sort of thing that would make her angry if it were true), my offline-supposition will induce an offline-belief that John's mother is angry but that would not be triggered by my own offline-emotional state.¹⁷

3.2 | The 'Right-Now' Data

Consider the trio below.

- (6) If John is at the pub, I'm angry that John is at the pub.
 (18) If John is at the pub, I'm angry right now that John is at the pub.
 (19) If John is at the pub, right now I'm angry that John is at the pub.

Notice that (18) and (19) sound terrible but (6) does not. Why is this?

The cognitive explanation can explain why we assert (6) and can also explain why we do not similarly assert (18) and (19) via the same mechanisms: The reason why we make mistakes concerning conditionals like (6) but not concerning conditionals like (18) and (19) is because when we evaluate (18) and (19), 'right now' draws attention to the fact that I am not (in reality) angry that John is at the pub (because I do not know whether John is at the pub).¹⁸ Moreover, given that we know conditionals obey *modus ponens* and that for all we know, the antecedent is true—when our attention is drawn to the fact that the consequent is false, we are blocked from asserting the conditional. But when we are sloppy and forget that the consequent is false, we assert conditionals that exemplify the focal puzzle. As emphasized in §2.1, it is no part of my account that we *always* make the mistake described by the error theory. As such, it is relatively unsurprising that the use of 'right now' triggers the more careful mode of reasoning.

(The more careful mode of processing that is triggered by 'right now' can be triggered by other constructions too. 'If John is at the pub, then I'm having the very same emotion that you are getting therapy for' is extremely odd (even if one's interlocutor is undergoing extensive anger management therapy). Similarly, consider the infelicity of the following sentences: 'If John is at

the pub then *the one thing that I am angry about* is that he is at the pub.' 'If John is at the pub then, as a matter of fact, I am angry.' 'If John is at the pub, then *I am angrier than I have ever been.*')¹⁹

3.3 | Finite Agglomeration

My error theory can also make sense of a similar kind of infelicity that is generated by combining conditionals that embed factive attitudes. As a principle of reasoning, finite agglomeration tells us that:

- P1:** If P then Q.
- P2:** If P then R.
- C:** If P then (Q&R).

But consider an application of this principle of reasoning in the context of our discussion:

- P1:** If the chimney cleaner saw me naked, then I don't know that he did.
- P2:** If the chimney cleaner saw me naked, then I'm horrified that he did.
- C1:** If the chimney cleaner saw me naked, then I don't know that he did and I'm horrified that he did.
- C2:** If the chimney cleaner saw me naked, then I'm horrified that he did and I don't know that he did.

Individually, the conditionals expressed by P1 and P2 sound felicitous, but the conditionals expressed by C1 and C2 sound radically infelicitous.²⁰ Yet, finite conjunction tells us that each of C1 and C2 follow from P1 and P2. Presumably, we want to preserve finite conjunction and so this case calls for some explanation.

The Cognitive Diagnosis. This infelicity is explained by the fact that 'I don't know that he did' is playing the same role in C1 and C2 as the role 'right now' played in (18) and (19). These expressions play the role of making it vivid to us that the consequent of P2 is false. It is obvious that one would not say (of themselves) that they are horrified that P while also confessing that they do not know that P. Given that the consequent is false and *modus ponens* is true, we are blocked from asserting C1 and C2. The cognitive habits that allow us to be sloppy and assert P2 do not lead us to assert C1 and C2.

4 | NON-FACTIVE EMOTIVES

My initial puzzle concerned factive emotives, but we can extend the error theory (the cognitive explanation) to conditionals that embed non-factive emotives in the consequent too (e.g. 'hope', 'worry', 'fear', etc.). Extending the puzzle to non-factive emotives is not completely straightforward and requires some careful set-up. The error theory on offer does well to explain conditionals that embed factive emotives, but matters are slightly different in the case of non-factive emotives which take that-clauses as complements. It is difficult to find contexts where conditionals of the form, 'if P, I fear that Q' will satisfy the conditions that gave rise to the initial puzzle [i.e. a setting where (i) the conditional sounds *prima facie* felicitous, (ii) 'P' seems true and 'Q' seems false, and (iii) the wide scope move generates problematic results.]

(24) If my friends would enjoy the merlot more, I want to get the merlot.

It is difficult to sustain an error theory about (24) since, as Jerzak points out, the consequent is felicitously assertable by a friend who might reply:

‘You want the merlot!’

This data could be used to suggest that there is a good sense in which the consequent of (24) is true. One might appeal to this data to argue that conditionals that embed emotive verbs in the consequent are true too, which, in turn, would remove the need for an error theory about conditionals like (4) and (6). The problem with this strategy is that this data seems local to ‘want’. For example, suppose Adam says,

(25) If my friends would enjoy the merlot more, I *insist* on the merlot.

It would be infelicitous for a friend (who is aware of the truth of the antecedent) to reply:

‘You *insist* on the merlot!’

Similarly, consider an alternative setting where a friend knows that Adam’s friends hate Merlot, and Adam exclaims,

(26) If my friends don’t like Merlot, I’m annoyed that I bought it!

It would be quite unusual for the friend to reply,

‘You’re annoyed that you bought the Merlot!’

The fact that the consequent in conditionals like (24) can be detached and asserted by an onlooker seems to be a phenomenon that is local to conditionals that embed ‘want’ in the consequent.²² In other words, it is unlikely that Jerzak’s diagnosis of want-conditionals like (24) will be an adequate basis for forming a plausible model of conditional emotions. I suspect that Jerzak’s cases are driven by a reading of ‘want’ that is very close to ‘need’ as evidenced by the fact that in certain contexts, utterances are indifferent to the choice of using ‘want’ or ‘need’. For example, consider expressions like, ‘the soup wants more salt’ or ‘you want more sleep’.

5.2 | Drucker

Another way to motivate the idea that the relevant conditionals come out true is to appeal to Drucker’s (2017) analysis of attitude ascriptions which serves to motivate a special kind of externalism. According to Drucker, many attitudes (especially attitudes that do not play any role in reasoning) can be had to propositions/individuals in settings where one does not have any beliefs/credences towards those propositions nor knows of those particular individuals. His central idea is that our policies concerning attitudes, combined with worldly facts, can generate certain attitudes in a radically externalist way—on this way of thinking, our attitudes are completely divorced from any ability we have to cognize the propositions/individuals

that our attitudes concern. For example, suppose Eve has a policy she expresses by saying,

(27) I hate whoever kicks my dog!

On account of this policy, Eve hates John, even though Eve lacks beliefs and credences about John. Drucker argues that one important advantage of his radical externalism is that it can provide straightforward treatment of conditionals like,

(28) If I hurt John's feelings, I seriously regret that I did.

Drucker's radical externalism can account for the orthodoxy of *modus ponens* and the naturalness of uttering conditionals like (4), (6) and (28) by appealing to his radical externalism about attitudes like anger or regret (where the truth of the antecedent determines the truth of the consequent).

As Blumberg and Holguin (2019, p.5) have pointed out, Drucker's approach to conditional regret requires abandoning a view about factives that is widely-accepted—the view that *factive attitudes entail knowledge*. The truth of, 'Adam regrets that he danced with Eve' plausibly entails that Adam knows that he danced with Eve. (See footnote 2.)

Admittedly, this view is not sacrosanct and has been challenged. For example, Fantl (2015) argues that being happy that P presupposes P but does not entail P. Of course, the thesis that constructions of the form 'S is angry that P' presupposes P does not settle whether factive state ascriptions entail knowledge. It is not uncommon for constructions to both presuppose P and entail P, for some P. For example, 'Eve stopped eating the apple' presupposes and entails that Eve was once eating the apple. Indeed, such a view is quite common for positive uses of factive verbs, and is very much the orthodoxy for positive uses of 'know'.²³ This is not the place to give a detailed argument or defense for the widely-accepted view that factive state ascriptions entail knowledge but it does bear emphasis that Drucker's treatment of factive attitudes (like 'regret') requires that we abandon it.²⁴

It is also worth noticing that the puzzle of conditional emotions arises for verbs that do not carry a positive or negative quality but instead merely describe unexpectedness:

(29) If he is at the pub, I am astonished that he is.

(30) If he is at the pub, I am surprised that he is.

An application of Drucker's approach would recommend a radical externalism according to which one can be astonished that P or surprised that P without having any cognitive attitude towards P (such as belief or credence). It seems particularly eccentric to adopt Drucker's approach in these kinds of cases. Does it really make sense to suppose one can be astonished by a fact or individual about which one is completely ignorant? Moreover, it is worth noting the peculiarity of adopting policies for attitudes like astonishment or surprise. Can I really adopt the policy of being surprised whenever there is a thunderstorm even though I know that there will be many thunderstorms that I will never know about? It is notable that Drucker does not mention any examples involving astonishment or surprise. Once one concedes the implausibility of applying Drucker's views to astonishment or surprise, using Drucker's radical externalism as a basis for offering a general explanation of conditionals like (4), (6), and (8) seems a lot less promising.²⁵

for explaining the first-person-present tense constraint: If the function of restricted readings is to articulate offline-attitudes that occur in one's own suppositional reasoning, then we have the beginnings of a much better story as to why the first-person-present tense constraint is in place. Developed in this way, Blumberg and Holguín's account might be seen more as a semantically sophisticated tweak on my own picture rather than a radical alternative to it. Such an alternative would buy into the cognitive story of how conditionals with psychological consequents typically get processed while still saving the truth of the conditionals by restricted readings of the relevant verbs. I shall leave it to another occasion to see how a marriage of this sort might fare.

7 | FINAL REMARKS

To end, let us return to those special conditionals that gave rise to the initial puzzle presented in §1 (conditionals that embed 'know' or 'believe' in the consequent').

(2) If John is at the pub, then I know that John is having a beer.

Recall that the standard way to explain what is going on in these cases is to say that although the attitude verb appears to take narrow scope, when I say (2), I really mean (3).

(3) I know that if John is at the pub, then John is having a beer.

Perhaps the cognitive explanation can do better than the standard solution because it can do more explanatory work.²⁹ Perhaps what is *actually* going on is that our patterns of reasoning can systematically lead us to make mistakes. When I assert (2), the cognitive diagnosis says that under the supposition that John is at the pub, I offline-know he is having a beer, and I also offline-believe that I know that he is having a beer. (As we have already noted, we can extend Observation Three to other attitudes such as knowledge and belief.) While I will not explore this idea further here, I do think it is a topic that merits further research.³⁰ Such an approach should be taken seriously given its power to explain the puzzling phenomenon generated by conditionals that embed factive emotives—a phenomenon that cannot be resolved by the standard wide scope move.

ACKNOWLEDGMENT

Thanks to John Hawthorne, Timothy Williamson and two anonymous readers for feedback on an earlier draft of this paper.

Open access publishing facilitated by Australian Catholic University, as part of the Wiley - Australian Catholic University agreement via the Council of Australian University Librarians.

ORCID

Christina Hope Dietz  <https://orcid.org/0000-0002-7133-5882>

ENDNOTES

¹The puzzle I am concerned with is also presented in Drucker (2017) and Blumberg and Holguín (2019), though neither opt for anything like the solution that I shall present here. A related puzzle concerning desire is presented in Jerzak (2019). I shall address these related discussions in §5 and §6.

²This consideration applies directly if we focus on such sentences as, 'If John is at the pub, I'm angry that he is at the pub.' For the view that factive state ascriptions (e.g. S is happy that P) entail knowledge see Unger

(1979), Gordon (1987), and Williamson (2000). See Dietz (2017) for further reasons to think there is an intimate connection between factive emotional state ascriptions and knowledge via the relation factive emotional state ascriptions stand to personal reasons.

³ A *locus classicus* for discussion of scope is Russell's 'On Denoting' (1905).

⁴ The inadequacy of applying the wide scope move to these cases is also emphasized in Drucker (2017) and Blumberg and Holguín (2019).

⁵ Cf. Drucker (2017), who also points this out.

⁶ Cf. Ramsey (1929) and Williamson (2016). See Chalmers and Hajek (2007) for some concerns about Ramsey's idea (concerns that connect with this discussion).

⁷ 'Very roughly, the online and offline processes take the same input... and deliver the same output... by the same means. One process is online and the other is offline in virtue of the different sources of the input.' Williamson (2016, p.118).

⁸ For more detailed account of how suppositional reasoning relates to knowledge and action, see Williamson (2016).

⁹ If you are concerned enough about loose pigs, then having believed the conditional, you might check the pig pen anyway.

¹⁰ I use 'V' to cover two kinds of relations—the relations to propositions that are picked out by emotive verb constructions (such as, 'regrets that') and the relations picked out by emotive adjectival phrases (such as, 'is happy that').

¹¹ The physiological effects that can be prompted by imaginary anger and real anger can be quite similar. For example, Dearborn writes, 'There is a record showing the vasomotion of anger, a marked rise, through purely imaginary anger. I do not have to get my subjects really angry; merely to have them imagine that they are angry, recall certain company etc. is enough to have a great rise in the systolic and diastolic pressures.' (1918, p.20)

¹² I take it that feelings are neither necessary or sufficient for having 'genuine emotion' but here is not the place to expand on this view as it does not matter much for the points that I wish to make here.

¹³ Williamson (2017; 2020) suggests that this heuristic can sometimes lead us into trouble with counterpossibles and also in our estimation of the probabilities of conditionals.

¹⁴ Blumberg and Holguín (2019) have noted the importance of understanding order effects. They claim that when it comes to disjunctions, the puzzling phenomenon only occurs when the emotive verb occurs in the second disjunct. This thought certainly has some motivation. After all, 'Either I regret that I didn't bring more friends or there are a lot of people on the deck outside' is markedly worse. But it seems to me that the data is rather more complex than the 'second disjunct rule' would suggest. Consider the following exchange: A: 'He's either the guy who turned his life around and started a successful charity or the guy who embezzled all the money meant for charity.' B: 'I see. Well, in that case, I'm either happy for him or disgusted by him!' In this exchange, the puzzling use of 'happy for him' occurs in the first disjunct. But to my ear, this disjunction sounds fine (several other informants share this sensibility). For now, I will set aside order effects as a topic for further research.

¹⁵ A similar puzzling phenomenon (to the one exemplified by conditionals that embed factive emotives) can be generated from certain performative conditional speech acts. One can make conditional vows, conditional apologies, offer conditional advice, offer conditional thanks, and so on. Consider, for example: 'If you come back, I vow to kill you.' 'If I upset you, I apologize.' 'If you are behind on your payments, I advise you to sell your house.' 'If you made a donation, I thank you.' One might try to use the resources described earlier to illuminate such speeches appealing to offline-advice, offline-thanks, etc. But in these cases, it may be more plausible that there is no problem with applying *modus ponens* to these conditional speech acts. For example, if the last speech above was directed at an individual, that individual would be right to think that they have been thanked for their donation. A special issue can arise in cases where that speech is made without any particular person in mind. How can one reasonably say, 'I have been thanked' if the last speech is made with no one in particular in mind? See footnote 17 and 25 for relevant discussion. Also note that this is a major theme in Drucker (2017) who offers a different treatment of these cases (see §5 for more discussion).

¹⁶ Blumberg and Holguín (2019, p.16) also discuss this contrast and posit a 'first present restriction'. I shall offer a more detailed discussion of this restriction in §6.

¹⁷ The first-person/third-person contrast turns out to be less important when it comes to a slightly different phenomenon: Suppose I don't know whether anyone has contributed to my charity fund. In this setting, it wouldn't be unnatural for me to say, 'If anyone has contributed to my charity, I'm very grateful.' But it turns out that it is

not so bad for someone else to say (of me), 'If anyone has contributed to her charity, she is very grateful.' Similarly, saying 'If anyone is doing charity work in that war zone, I admire them' is felicitous but so is, 'If anyone is doing charity work in that war zone, she admires them.' This phenomenon is not confined to conditionals: 'I admire everyone/anyone doing charity work in that war zone' is felicitous too. I would like to tentatively suggest that this turns on a liberal use of 'admire' and 'is grateful'. After all, in this kind of setting, one could also get away with saying, 'She has considerable admiration for you' when addressing a group of charity workers in the war zone. By contrast, 'She is angry that John is at the pub' (said of me) is completely unacceptable in the original examples described using conditional (4). (Blumberg and Holgu n (2019) similarly suggest that the phenomenon that I am concerned with is distinct from conditionals that exemplify ultra-liberal attitude reports.) Examples similar to the gratitude and admiration examples figure alongside Drucker's (2017) anger and regret examples—though he does not distinguish his cases properly from the phenomenon that I am primarily concerned with. I shall address this issue in more detail in §5.

¹⁸ Consider the placement of 'right now' in the conditional, 'If John is at the pub, I'm angry that John is at the pub right now.' In this case, the conditional doesn't sound too bad and this is likely because 'right now' is not drawing attention to the fact that I am not angry at the time of my asserting the conditional—rather, 'right now' specifies the time of John's being at the pub.

¹⁹ A reader asked how I might explain that fact that intensifiers like 'really' do not similarly produce intuitions of infelicity? (For example, the conditional, 'if John is at the pub, I am really angry that he is' does not sound infelicitous.) This does not seem surprising. Just as there is a contrast between 'sort-of regretting the party' and 'really regretting the party', there is a contrast between *offline-sort-of-regretting x* and *offline-really-regretting x*. Intensifiers are not a reason to refrain from the cognitive strategy described in §2. (Similar points generalize to other intensifiers like 'very', 'extremely', etc.)

²⁰ Of course, the fact that P1 can be heard as felicitous illustrates a point already made—namely that we do not uniformly make the mistake (detailed in §2) when processing conditionals.

²¹ For example, suppose I say, 'If we have a party, then I'm not afraid that you will get too drunk but I'm afraid that I will.' An application of the wide scope move to 'I'm afraid' in the second conjunct, produces the terrible conditional: 'I'm afraid if we have a party, then I'm not afraid that you will get to drunk, but I will.'

²² We also get a striking contrast in third-person reports (as opposed to reports in the second-person). If an eavesdropping waiter hears (24) and knows that Adam's friends would enjoy the merlot, it would not be unnatural for the eavesdropping waiter to say to a fellow eavesdropper, 'That gentleman wants the merlot.' But in the scenario where the eavesdropping waiter has heard (26) and is apprised of Adam's friend's collective distaste for Merlot, it would be completely bizarre for the waiter to point to Adam and say, 'That gentleman is annoyed that he bought the merlot.'

²³ When discussing 'cognitive factives' such as 'realize', 'discover' and 'forget', Dudley, Rowe, Hacquard, and Lidz (2017) tell us that they 'take true complements' and 'the truth of the complement is *additionally* [my emphasis] presupposed.' When going on to discuss 'emotional factives' they say that such expressions have an '*additional entailment*' (my emphasis) that the subject has a certain emotional attitude to the complement.

²⁴ Of course, even if being happy that P does entail knowing that P, it may be easier to get away with using 'happy that P' in a situation where an ascription of knowledge is dicey owing to the fact that 'is happy that' does *not foreground* epistemic issues. The situation is similar with 'seeing that P'. Seeing that P plausibly entails knowing that P, but when we are talking about someone in fake barn county, it is much easier to get away with saying, 'He sees that there is a barn.' (For further discussion, see Magidor and Hawthorne, 2017). While here is not the place to pursue the point, I think this observation weakens the force of Fantl's arguments against the thesis that being happy that P entails knowing that P.

²⁵ Drucker's discussion introduces some interesting ordinary language data concerning quantificational expressions. Eve's speech in (27) can license conditionals like, 'If John kicked Eve's dog, Eve hates John.' This is not the place for a full treatment of quantificational sentences like (27). However, I think the data here trades on the well-known fact that attitude reports can be very liberal (at least in some contexts) and it does not drive an interesting wedge between belief and other attitudes. If we hear Eve say, 'I think every philosopher is going to Hell', there are contexts in which Eve's speech licenses me to say, 'Eve thinks I am going to Hell'. In these contexts, conditionals such as 'If Mark is a philosopher, Eve thinks he is going to Hell' can be treated as straightforwardly true. The hate case is parallel: Having overheard Eve say, 'I hate whoever does philosophy for a living', there are liberal contexts in which I can say 'Eve hates me'. (For an extensive discussion of liberalism in attitude reporting

see Hawthorne and Manley, 2012. See also Blumberg and Holguín's discussion of 'ultra-liberal' reporting and its relation to the puzzle at hand.)

²⁶Note that my brief summary of Blumberg and Holguín's (2019) account uses no formalism because it is not necessary for the points I make here.

²⁷This is their 'First-Present' tense restriction. (2019, p. 16)

²⁸Their semantic approach can make sense of the finite conjunction data so long as it can make plausible that there is some pressure to generate uniform readings of psychological verbs in the consequent, so that if one Q-restricts an attitude verb in the consequent, one should as a default Q-restrict other psychological verbs in the consequent. On their account, uniformity cannot be automatic however since, 'If he is in the pub, I am surprised I don't know it' is treated as requiring a mix of restricted and non-restricted readings (for 'surprise' and 'know'). I have discussed a somewhat similar issue that arises in my framework in 2.1. As noted in 2.1, depending on various clues (which themselves are a topic for further research), psychological verbs can be triggered by an offline version of the state or else express part of the propositional content of an offline attitude.

²⁹For example, recall the Boston/Salem contrast discussed in §4.

³⁰Of course, the points raised in §4 are relevant here and point to some competing considerations.

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How to cite this article: Dietz, C. H. (2023). Conditional emotions. *Philosophical Perspectives*, 37: 145–163. <https://doi.org/10.1111/phpe.12184>