ABSTRACT. A standard account of understanding—one that is especially prevalent in the philosophy of science—treats understanding as essentially a type of knowledge—viz., knowledge of causes. Unfortunately, this proposal is untenable, in that there are cases of genuine understanding where the relevant knowledge is lacking, and cases where the relevant knowledge is present but understanding is lacking. In light of these problems, I propose an alternative view which treats understanding as a kind of cognitive achievement. In recent work, however, Stephen Grimm has argued for an adapted version of the view that understanding is constituted by knowledge of causes, one that appeals to a kind of knowledge of causes which is non-propositional. I argue that Grimm’s proposal, while admittedly ingenious, does not stand up to close scrutiny.

1. THE KNOWLEDGE ACCOUNT OF UNDERSTANDING

What is the relationship between knowledge and understanding? On a very popular picture, one that has a lot of intuitive appeal and which is especially prevalent in the philosophy of science, the relationship between these two epistemic standings is fairly straightforward. In a nutshell, the idea is that understanding is essentially a type of knowledge—viz., knowledge of causes. More specifically, to have understanding of why X is the case is to know why X is the case, where to know why X is the case is to know that X is the case is because of Y. Call this the knowledge account of understanding. One finds defences of the knowledge account, in varying levels of explicitness, in the work of such authors as Peter Achinstein (1983), Wesley Salmon (1989), Philip Kitcher (2002), James Woodward (2003) and Peter Lipton (2004).
So, for example, imagine a scientist—let’s call her ‘Kate’—in a lab observing a certain chemical reaction. Kate, let us stipulate, understands why this chemical reaction took place. On the knowledge account, Kate’s understanding of why this chemical reaction took place is constituted by her knowing why it took place. And her knowing why this chemical reaction took place is constituted by her knowing that it took place because, say, the substances in question were reacting to the oxygen that she introduced. Kate’s understanding of why the chemical reaction took place is thus constituted by her knowing what caused it to occur.

The simplicity of this picture makes it very attractive, and I think that for a wide range of cases it does generate the correct result. But, as I’ve argued elsewhere—e.g., Pritchard (2009) and Pritchard, Millar & Haddock (2010, ch. 4)—ultimately it is not quite right, and it is important to recognise why. The problem is that understanding and the corresponding knowledge of causes comes apart in both directions—viz., you can have understanding while lacking the relevant knowledge of causes, and you can have knowledge of causes while lacking the relevant understanding.

Consider first how an agent might have knowledge of causes while lacking the corresponding understanding. The point here is that there are ways in which one might gain knowledge of causes which wouldn’t suffice for understanding. So, for example, consider a counterpart of Kate, Kate*. Kate* comes to know that it was the introduction of the oxygen which caused the chemical reaction not because she figured this out for herself, but because a fellow scientist, who has specialised expertise in this regard which our hero lacks, informs her that this is the cause of the reaction. Furthermore, let us stipulate that Kate*, while generally proficient in chemistry, does not have any sound epistemic grip on why the introduction of oxygen should have this effect on the substances in question.

Given that Kate* has gained this (true) information about the cause of the chemical reaction from someone she recognises to be an expert in the field, she surely counts as knowing what the cause of the chemical reaction was. Moreover, it is also surely right that Kate* knows why the chemical reaction took place, given that she has this knowledge of the cause of the reaction. So Kate* knows why the chemical reaction took place, and she knows that it took place because of the introduction of oxygen. Crucially, however, Kate* does not understand why the chemical reaction took place, because in order to possess understanding in such a case it is surely required that she should have a sound epistemic grip on why cause and effect are related in this way. Since Kate* lacks this, she lacks understanding. One can thus have the relevant knowledge of causes (along with the relevant knowledge why) and yet lack understanding.

Consider now how one can possess understanding even while lacking the relevant
knowledge of causes. Imagine a second counterpart of Kate, Kate**. Kate** is like Kate except that her belief regarding the cause of the chemical reaction, while true, is only luckily true, in the sense that she could so very easily have formed a false belief. So, for example, suppose that Kate** forms her belief regarding the cause of the chemical reaction by employing an instrument. We can now imagine two ways in which the use of this instrument could introduce luck into Kate**’s acquisition of the target true belief.

The first way would be via the instrument malfunctioning (unbeknownst to Kate**), but happening to produce the right result nonetheless. This would be akin to a standard Gettier-style case, in that Kate** would be forming a justified true belief in the target proposition (viz., that oxygen is the cause of the chemical reaction), but failing to gain knowledge of this proposition because her belief is only luckily true (i.e., had the instrument not happened by chance to produce the right result, then Kate** would have believed falsely in this case).

The second way in which we could introduce epistemic luck into Kate**’s acquisition of the target true belief is more subtle. Suppose, for example, that the instrument which Kate** uses is not malfunctioning, and so delivers her the correct result. But suppose further that the instrument very nearly did malfunction, such that in most near-by possible worlds where Kate** employs this instrument it would be malfunctioning and so at best only delivering the correct result by chance. Let us also stipulate that had the instrument malfunctioned Kate** would not have noticed. Again, Kate** would form a justified true belief in the target proposition by using this instrument, but her belief would not amount to knowledge in virtue of how it is only luckily true (i.e., she could so very easily have formed a false belief in the target proposition).

Although our hero ends up with a belief which is only luckily true in both cases, the type of epistemic luck at issue in the second case is very different from that in play in the first. After all, in the second case Kate** really is using a properly functioning instrument in order to gain her true belief, unlike in the first case. Elsewhere I’ve called the particular kind of epistemic luck in play in the second case environmental epistemic luck—see, for example, Pritchard (2009)—on the grounds that the luck in question specifically concerns the epistemic environment that the agent is in (in this case, that the properly functioning instrument available to Kate** could so very easily have undetectably been malfunctioning).

The reason why it is important to mark this specific kind of epistemic luck is that while a luckily true belief can never amount to knowledge, even when the kind of epistemic luck in play is environmental, understanding is compatible with at least environmental epistemic luck. In order to see this, consider again the two variants of the Kate** case that we just described. In both cases our hero doesn’t gain knowledge of what caused the chemical reaction, since the belief that she forms is only luckily true. In both cases, then, she doesn’t know that the chemical reaction was
because of the introduction of the oxygen, even though she truly believes this in both cases (and, what is more, believes this with justification). But while it is also true in the first case that Kate** lacks an understanding of why caused the chemical reaction, she does seem to acquire this understanding in the second case. For while Kate** surely can’t acquire an understanding of what caused the chemical reaction by using a malfunctioning instrument which only happens to produce the right result, remember that in the second case the instrument being used is not in fact malfunctioning at all, but rather working just as it is supposed to. So what barrier would there be to Kate** gaining understanding in this case (unless, of course, one is already convinced that understanding requires the corresponding knowledge)?

There are thus problems with the idea that understanding is to be conceived of in terms of knowledge of causes, and this means that the knowledge account is under threat. In the next section I will suggest that the situation isn’t just that the knowledge account is problematic, but moreover that there is an alternative account available which offers a far superior picture of how these two epistemic standings relate. This is the cognitive achievement account.

2. THE COGNITIVE ACHIEVEMENT ACCOUNT OF UNDERSTANDING

As I have argued elsewhere—e.g., Pritchard (2009) and Pritchard, Millar & Haddock (2010, ch. 4)—I think there is a good reason why understanding and knowledge come apart in the particular ways just specified, one which further supports the reading offered of the cases in question. This is that understanding, unlike knowledge, is a specific kind of achievement. Achievements are, roughly, successes that are because of ability; that is, where the success in question is primarily creditable to the agent’s exercise of the relevant ability. So, for example, an archer’s success at hitting the bull’s eye counts as her achievement so long as this success is primarily creditable to her exercise of those abilities relevant to archery and not to other factors (such as a lucky gust of wind).

Interestingly, achievements, while not generally compatible with lucky successes, are compatible with lucky successes where the luck in question is entirely environmental. For consider an analogous case to the Kate** example involving environmental epistemic luck which concerns our archer. Suppose that the archer skilfully fires an arrow at a target, thereby successfully hitting the target as intended. Unbeknownst to our archer, however, this success could very easily have been failure. Imagine, for example, that it was pure chance that the archer fired in normal
environmental conditions, such that in most near-by possible worlds there would be very high winds which would have prevented the archer from hitting the target.

Our archer’s success is thus lucky, in that it is a success that could so very easily have been a failure. But nonetheless, isn’t it correct to say of our archer that her success was primarily creditable to her archery abilities, and thus that this was no less of an achievement as a result? After all, although it is true that she could so very easily have been unsuccessful, in fact nothing did get in the way of her displaying her archery abilities. Hence, there seems no reason to deny that her success constituted a genuine achievement, even despite the environmental luck in play.

Compare this with a case where a standard, non-environmental, type of luck is in play. Suppose, for example, that our archer skilfully fired the arrow but that it was knocked off course by an unlucky gust of wind, and then knocked back on course again by a second lucky gust of wind, so that the arrow does indeed hit the bull’s eye after all. In such a case we would have a display of archery ability and we would have the relevant success to go with it, but I take it that we wouldn’t say that this success constituted a genuine achievement. After all, the success was not primary creditable to the agent’s display of archery ability, but was rather down to the fortuitous second gust of wind. So while achievements are consistent with mere environmental luck, they are not in general consistent with lucky success.

What goes for achievements goes for cognitive achievements—viz., cognitive successes (i.e., true beliefs) which are because of the exercise of cognitive ability (where this means that the cognitive success in question is primary creditable to the agent’s cognitive ability). In a standard Gettier-style case, one’s cognitive success does not constitute a cognitive achievement since it is not primarily creditable to the agent’s cognitive ability (even though the agent does exercise the relevant cognitive ability) but rather down to the epistemic luck in play. But in cases that involve mere environmental epistemic luck, however, a cognitive achievement is nonetheless exhibited, since it remains that the cognitive success, while lucky, is even so primarily creditable to the cognitive agency of the subject.

This is one reason why we shouldn’t equate cognitive achievement with knowledge, as some have been tempted to do. For while knowledge is incompatible with lucky cognitive success, cognitive achievement is compatible with lucky cognitive success so long as the epistemic luck in question is purely environmental. In this sense, knowledge can be more demanding than cognitive achievement. But there is also a sense in which knowledge can be less demanding than cognitive achievement, and this is brought out quite nicely by the case of Kate* offered above where she gains her knowledge of causes by trusting the word of an expert. For while, as we noted there, this is a perfectly respectable route to knowledge, it is not a route to understanding, since this requires the agent to be able to carry the relevant cognitive load by herself (enough of it, anyway).
What goes for understanding also goes for cognitive achievement, and this is no coincidence. Think about Kate*’s cognitive success in coming to know, purely via this testimonial route, that the chemical reaction was caused by the introduction of oxygen. Is this cognitive success primarily creditable to Kate*’s cognitive abilities? Surely not. Indeed, if anything, it is primarily creditable to the cognitive abilities of her expert informant. This case thus doesn’t just demonstrate that one can have understanding without the corresponding knowledge demanded by the knowledge account, but also demonstrates that one can acquire knowledge without thereby exhibiting a cognitive achievement. As noted above, I don’t think this is a coincidence.

This is because the kind of epistemic standing involved in understanding is in its nature a cognitive achievement. That is, it is in its nature the kind of cognitive success which is primarily creditable to the exercise of the subject’s cognitive ability. As such, there should be no surprise (i) that it is compatible, along with achievements more generally, with environmental (epistemic) luck; and (ii) that it is not the kind of epistemic standing that one can acquire by for the most part trusting the word of another (no matter how authoritative one’s informant is).

I am thus suggesting an alternative picture of the relationship between knowledge and understanding to that offered by the knowledge account. Rather than think that understanding is constituted by a particular kind of knowledge (i.e., knowledge of causes), as the knowledge account demands, we should instead recognise that understanding is a kind of cognitive achievement and as such differs in some respects from knowledge, to such an extent that the knowledge account is untenable. Call this the cognitive achievement account of understanding.

3. GRIMM CONTRA THE COGNITIVE ACHIEVEMENT ACCOUNT

One of the principal defenders of the knowledge account of understanding has been Stephen Grimm (2006; cf. Grimm 2010). In an important new article, Grimm (this volume) has challenged the cognitive achievement view of understanding and in the process has offered a new defence of (a version of) the knowledge account. As we will see, what is key to his defence of the knowledge account is to offer a very different construal of how this account should be understood, to the extent that I think it is best to label Grimm’s new rendering of this view as a novel third position in the debate, albeit one that is in the spirit of the knowledge account. For reasons that will become apparent, we will refer to this new account of understanding as the grasping account. Before we consider the grasping account of understanding, however, it will be useful to review a particular critical line that Grimm makes regarding the cognitive achievement account, in that this critical
line is completely independent of the grasping account of understanding that he offers.

Grimm proposes to deal with the case offered above of an agent (Kate*, in our example) who has knowledge of the cause of an event and yet fails to have the corresponding understanding by, in effect, forcing a dilemma. On the one hand, Grimm argues that if the agent really does have no real conception of how cause and effect can be related, then it isn’t even plausible to suppose that this agent has the relevant knowledge. For instance, he writes that in such a case “it is not clear that [the agent] understands the content of that proposition [i.e., the proposition concerning cause and effect] well enough to actually believe it.” (Grimm this volume, §2). On the other hand, Grimm (this volume, §5) argues that insofar as we do credit the agent with having at least some conception of how cause and effect can be related, then both the ascription of knowledge and the corresponding understanding will be apt. Grimm defends this point by arguing that understanding comes in degrees, and thus that we shouldn’t be so quick to conclude from the fact that an agent has very little understanding that she has no understanding.

I think we can safely ignore the first horn of the dilemma being posed here, since it was never part of the argument against the knowledge account to suppose that the agent concerned had no conception at all of how cause and effect might be related, to the extent that we could seriously doubt whether the agent even had the conceptual resources to believe the target proposition. Consider how we described this case above. Since Kate* is a scientist she surely has some conception of how the introduction of oxygen might cause the chemical reaction in question. It is not then as if this relationship between cause and effect is something that is completely opaque to her, as might be the case if one, say, told a medieval alchemist that a certain chemical reaction was caused by the introduction of oxygen. As far as the medieval alchemist goes, Grimm might well be right that we wouldn’t even credit such a person with a belief about what caused the chemical reaction (much less knowledge), no matter who their informant is. But certainly we would credit Kate* with both the relevant belief and the corresponding knowledge too. Nonetheless, the point remains that she does not have a sufficient conception of how cause and effect are related to count as having understanding.

The crux of the matter is that there is more to understanding why an event took place than simply having some conception of how cause and effect might be related. In particular, what is required is some sort of grip on how this cause generated this effect, a grip of the kind that could be offered as an explanation were someone to ask why the event occurred. Significantly, if Kate* were asked the question of why the introduction of the oxygen caused the chemical reaction, she would be unable to respond. Indeed, one would expect her to instead direct the questioner towards her more knowledgeable informant.10

So, contra the first horn of Grimm’s dilemma, the claim being made is that our hero does
have a sufficient conception of how cause and effect might be related to genuinely count as having the relevant causal knowledge. What then of the second horn of the dilemma? In treating Kate* as having some conception of how cause and effect might be related, are we therefore committed to supposing that she has some limited degree of understanding of the event in question? The foregoing remarks suggest not, in that there is a distinction to be drawn between, on the one hand, having a sufficient conception of how cause and effect might be related to enable the agent to have the relevant causal knowledge, and, on the other hand, having a sufficient explanatory grip on how this particular cause generated this particular effect in order to possess the corresponding understanding. If we are to be speared on the second horn of Grimm’s dilemma, then he needs to make a case for thinking that this distinction is illusory.

Let’s look again at how Grimm motivates this second horn of the dilemma:

[…], when I start chopping onions and my eyes begin to water, I think I understand why my eyes are beginning to water, namely, because I am chopping the onions. I don’t think it is because of the time of day, or the colour of the shirt I am wearing, or anything like that; it’s because of the onions. But obviously someone with a greater understanding of onion (and eyeball) chemistry would be able not just to identify the onions as the cause but would be able to say what it was about the onions that was bringing this about—in this case, the particular sulphur compounds that were being broken down and released into the air when I did the chopping. […] what these facts seem to illustrate is not that the person who appeals to the compound understands while I fail to understand, but that understanding comes in degrees; I have less of it, and he has more. (Grimm this volume, §5)

To begin with, we need to consider whether it is enough to be credited with understanding that one can merely identify the cause, even if one lacks a conception of how cause and effect are related. This is, after all, what Grimm is suggesting here, in that he says that while he knows that it is the onions which are causing his eyes to water, he doesn’t know much more than that, still less does he know how onions cause eyes to water. And yet the claim is that he has some limited understanding of why his eyes are watering purely in virtue of knowing this cause.

If Grimm were right about this case, then it would follow that someone like Kate* can gain not just knowledge of the cause of the target chemical reaction by receiving the testimony of her authoritative colleague, but can also thereby gain an understanding of this event too. The case would then be neutralised in terms of the challenge it raises for the knowledge account. But how plausible is it that mere knowledge of a cause can suffice for understanding? I think that on closer inspection it isn’t plausible at all, even if we factor in the point that the kind of understanding in play is quite minimal.

We noted above that what we are looking for when we credit someone with understanding is more than just a general conception of how cause and effect might be related. What is required is rather a grip on how this cause generated this effect, a grip of a kind that could be offered as an explanation were someone to ask why the event occurred. Imagine, for example, that Grimm were
to represent himself to others as understanding why his eyes are watering, but when asked for further information merely pointed to the cause of this event (i.e., the chopping of the onion). Wouldn’t Grimm’s audience regard him as having misled them? The point is that in representing oneself as being in possession of an understanding of some event, no matter how limited, one is representing oneself as not merely being able to identify the cause of that event, but also as being able to offer a sound explanatory story regarding how cause and effect are related. If one cannot offer such an explanatory story, then one doesn’t count as having understanding, not even a limited understanding.

Note that this is not to deny Grimm’s point that understanding comes in degrees, and thus that sometimes one can genuinely possess an understanding which is quite minimal. So, for example, one could imagine someone having a rudimentary grasp of how chopping onions can cause one’s eyes to water which suffices for a limited kind of understanding of the target event, albeit one which is very deficient when compared with that possessed by someone who has the additional relevant chemical knowledge that Grimm mentions in the cited passage above. But the point is that the kind of example that we have posed as a problem for the knowledge account are precisely not of this sort. That is, they are not cases where the agent is in possession of a sound, if rudimentary, explanatory story relating cause and effect, but rather cases where the agent, while knowing full well what the cause of the event is, lacks the further explanatory story.

Think of Kate*, for example. As just noted, she will have some conception of why introducing oxygen might cause the target chemical reaction, but crucially she wouldn’t be able to offer even a rudimentary explanatory story about how the oxygen caused this effect. As noted above, merely having a conception of how something might cause something else is not the same thing as having even a rudimentary explanatory account of how a particular cause and effect are related. Grimm’s point about degrees of understanding is thus by-the-by, since once we properly understand the case at issue there is no temptation to ascribe even a limited degree of understanding to the agent.

The dilemma that Grimm poses for the cognitive achievement account of understanding is thus illusory. But even if this account of understanding can survive this critique, it still might be the case that the alternative account of understanding that Grimm offers should be preferred. Accordingly, let us now turn to examining this proposal.
Grimm holds is that the knowledge account is essentially right, to the extent that understanding is constituted by the possession of the relevant causal knowledge. Where the knowledge account goes wrong, according to Grimm, is to fail to notice that the causal knowledge in question is not propositional in nature. Instead, it is a kind of non-propositional grasping, where this means grasping the modal relationship between cause and effect.

Before we explore what this proposal amounts to, there is an odd feature of the dialectic of Grimm’s argument that deserves note, which is that it isn’t entirely clear on his view what is meant to be wrong with the knowledge account. The only type of counterexample that he offers to this proposal is that which is put forward by the cognitive achievement account, and yet, as we saw in the last section, Grimm’s own view is that this counterexample doesn’t work. As such it isn’t clear what problem with the knowledge account Grimm’s alternative proposal is meant to solve. Still, if Grimm’s alternative proposal is better than both the knowledge account and the cognitive achievement account, then that would be reason enough to adopt it as the best proposal available, and so we will explore it in that spirit.

In developing the grasping account of understanding, Grimm appeals to the recent literature on a priori knowledge. As he notes, there are some long-standing problems with the idea that a priori knowledge is to be understood in terms of knowledge of necessary truths. Knowledge of a necessary truth is clearly not sufficient for a priori knowledge, since this knowledge could be gained in an empirical fashion (e.g., via testimony), but the problem is that it is hard to see what would need to be added to this knowledge to ensure that it is a priori knowledge. For example, knowing a necessary truth and knowing that it is necessary won’t suffice, since knowledge of both propositions could be gained in an empirical fashion.

One solution to this problem that has been proposed has been to think of a priori knowledge not in the usual propositional terms, but rather as a kind of grasping which is due to rational insight. That is, we should not think of a priori knowledge in terms of knowing a particular proposition (or set of propositions), but rather as directly grasping, via rational insight, some feature of modal reality. The thought is that once we conceive of a priori knowledge along these lines, then the kind of problem just indicated cannot arise.

Grimm’s idea is that when it comes to understanding we should think of our knowledge of causes along the same lines. That is, having knowledge of the cause is not to be understood merely in terms of propositional knowledge, but should instead be regarded as a kind of non-propositional grasping. As he puts it, it is “seeing, or grasping, of the terms of the causal relata, their modal relatedness.” (Grimm this volume, §4) That is, “what would be seen or grasped would
be how changes in the value of one of the terms of the causal relata would lead (or fail to lead) to a change in the other.” (Ibid) The kind of counterexample that I have posed to the knowledge account is thus meant to be avoided by the grasping account of understanding that Grimm offers. For while Grimm may grant that Kate* can come to acquire, via testimony, propositional knowledge of the cause, such knowledge falls short of the sort of grasping of modal reality that Grimm has in mind and that explains why she lacks understanding.

While I think Grimm’s proposal is ingenious, I also think it is deeply problematic. Let’s begin with the putative parallel between the kind of knowledge of causes that is at issue when it comes to understanding and a priori knowledge. Now Grimm is quite clear that he wants his account of understanding to be assessed independently of the account of a priori knowledge that he appeals to. But even so I think we might legitimately ask how plausible this account of a priori knowledge is, particularly given that it is simply one view amongst others in this regard, since if it turns out to be suspect, then we might well be less impressed by any attempt to motivate an analogous view as regards the epistemology of understanding.

For example, one obvious question we might ask about this view is what this ‘grasping’ amounts to insofar as it is not reducible to knowledge of some suitable set of propositions, since this is far from clear. But I think that even if we grant the cogency of this non-propositional notion of grasping, we still have cause to be sceptical about the coherence of the view. For one thing, a key part of the proposal is that the grasping in question is via a faculty of rational insight. This is essential to the view, since if the grasping were the result of some empirical process, then clearly this wouldn’t be playing the required role in a theory of specifically a priori knowledge. But if we are able to appeal to such a faculty in our account of grasping, why can’t we appeal to this faculty in order to deal with the cases which supposedly create problems for the propositional view of a priori knowledge? That is, why can’t we say that a priori knowledge is propositional knowledge (e.g., knowledge of a necessary truth, and knowledge that it is necessary) which is gained via rational insight rather than through an empirical process?

Even setting aside these concerns about the account of a priori knowledge in play, there are worries about the parallels between a priori knowledge and the epistemology of understanding. For example, while there might be specific reasons for thinking that an appeal to the obscure notion of a non-propositional grasping via a faculty of rational insight is required in the case of a priori knowledge because of the special problems this type of knowledge faces, recall that we haven’t been given any reason for thinking that there is a parallel crisis when it comes to the epistemology of understanding. Indeed, as noted above, the only problem that Grimm considers for the knowledge account of understanding—the account of understanding most closely related to Grimm’s own
proposal—is one that he claims, on independent grounds, is illusory.

Moreover, there are, in any case, important disanalogies between the two domains. As noted above, it is vital to the grasping account of *a priori* knowledge that this grasping be the result of rational insight. In contrast, it is crucial to the grasping account of understanding that the grasping *not* be the result of rational insight. After all, knowledge of causes is not something which is gained in an *a priori* manner. But with that point in mind, why should we be so confident that the account of grasping which is meant to be applicable in the case of *a priori* knowledge is applicable here? In particular, even if we are confident that the grasping, via rational insight, of the necessary relatedness of certain properties that is involved in *a priori* knowledge cannot be cashed-out in terms of propositional knowledge, why should it follow that the very different kind of grasping which is involved when it comes to knowledge of causes (which concerns the ‘modal relatedness’ of the causal relata) is also not susceptible to being cashed-out in terms of propositional knowledge?

We can bring this point into sharper relief by considering the non-empirical grasping of causes that Grimm has in mind. He says that when someone grasps the cause of the event in the way that he has in mind, then one is “sensitive not just to how things are, but to how things stand modally, and in particular to how things might have been, if certain conditions had been different.” (Grimm *this volume*, §5) But why would the proponent of the cognitive achievement account dispute this? After all, this proposal insists that the agent must be in possession of a solid explanatory account of how the target cause and effect are related, and that will inevitably entail that one has a conception of how things might have been if certain conditions had been different. But there is nothing here which in itself suggests that we can’t conceive of this sensitivity to such modal facts in propositional terms, such as in terms of further propositional knowledge. For example, Kate*’s informant, who clearly understands why the oxygen caused the chemical reaction, will surely also be able to answer various further questions about what might have happened if things had been different (e.g., if the oxygen had been mixed with another gas, or if the pressure of the oxygen were increased).

The case that Grimm makes for modifying the knowledge account along the lines that he has suggested is thus very weak, and certainly does not give us a reason for preferring his proposal over the cognitive achievement account. I conclude that the cognitive achievement account of understanding remains the most compelling proposal currently available.13
REFERENCES


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NOTES

1 Note that we are here implicitly focussing on a particular kind of understanding, one which concerns understanding why something quite specific is the case. Typically, this will involve knowing why a specific event occurred. This kind of understanding is sometimes contrasted with a more general kind of understanding which concerns, say, an entire subject matter (e.g., ‘S understands quantum physics’). While there are connections between the two kinds of
2 Consider the following remark made by Lipton, for example:

“Understanding is not some sort of super-knowledge, but simply more knowledge: knowledge of causes”.

(Lipton 2004, 30)

Grimm (this volume) also attributes the knowledge account, broadly conceived anyway, to Aristotle, Lewis (1986), Miller (1987), Streven (2008) and Greco (2010; manuscript).

3 It is specifically environmental epistemic luck which is at issue in the famous ‘barn façade’ case, or so I have argued anyway. See, for example, Pritchard (2009) for more on this point.

4 For further discussion of the claim that a luckily true belief cannot amount to knowledge, see Pritchard (forthcoming). For a critical response to this claim, see Hetherington (forthcoming).

5 Interestingly, Kvanvig (2003) argues that understanding, unlike knowledge, is compatible with the kind of epistemic luck at issue in standard Gettier-style cases too. As I claim in Pritchard (2009), however, I think he reaches this conclusion because he fails to make the distinction between standard Gettier-style epistemic luck and environmental epistemic luck.

6 For further discussion of the nature of achievements, see Pritchard, Millar & Haddock (2010, chs 2 & 4) and Pritchard (2010).

7 For the main proponents of a view of this general form (though often not expressed in quite these terms), see Sosa (1988; 1991; 2007; 2009), Zagzebski (1996; 1999) and Greco (2003; 2007; 2008; 2009a; 2009b; 2009c).

8 It is an interesting question why knowledge should be such that it marks out an epistemic standing distinct from cognitive achievements, though it is not one that I can usefully engage with her. For further discussion of this issue, see Pritchard, Millar & Haddock (2010, ch. 3) and Pritchard (2011).

9 Drawing on my work on this topic, Hills (2009; 2010) has developed her own variant of the view that I am here calling the cognitive achievement account, though her focus is specifically on moral knowledge and understanding.

10 I think that what is muddying the waters here is that the example that Grimm focuses on—found in earlier work by myself (see, e.g., Pritchard 2009)—concerns a child who gains knowledge of the cause of an event while nonetheless lacking the corresponding understanding. As such, it is perhaps natural to wonder, as Grimm does, whether this child really does have knowledge of the cause that is being credited to her. As the case of ‘Kate*’ here illustrates, however, it is entirely incidental to this objection to the knowledge account that the agent concerned is a child.

11 Note that I am here setting to one side the potential complication that might be posed by a priori knowledge of contingent propositions, a possibility defended by Evans (1979) and Kripke (1980), amongst others.

12 The foremost exponent of this particular way of thinking about a priori knowledge is Bonjour (2001; 2005; cf. Bonjour 1998).

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