

# Understanding: not know-how

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**Abstract** There is considerable agreement among epistemologists that certain abilities are constitutive of understanding-why. These abilities include: constructing explanations, drawing conclusions, and answering questions. This agreement has led epistemologists to conclude that understanding is a kind of know-how. However, in this paper, I argue that the abilities constitutive of understanding are the same kind of cognitive abilities that we find in ordinary cases of knowledge-that and not the kind of practical abilities associated with know-how. I argue for this by disambiguating between different senses of abilities that are too often lumped together. As a consequence, non-reductionists about understanding—those that claim that understanding-why is not reducible to knowledge-that—need to find another way to motivate the view. In the end, the fact that abilities are constitutive of understanding-why does not give us reason to conclude that understanding is a kind of know-how.

**Keywords** Understanding why · Know-how · Knowledge-that · Cognitive ability

## 1 Understanding-why and know-how

Imagine that an unfortunate homeowner comes home to discover that his house is in flames. The unfortunate homeowner discusses the possible cause of the fire with the fire marshal at the scene. The marshal determined that ironically the fire started because a box of old 9 V batteries from the homeowner’s smoke detectors sparked, causing the box they were in to catch fire and subsequently destroy his house. The fire marshal explains that 9 V batteries are a common cause of house fires and that in

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the future the homeowner should put tape across the top to prevent sparks. After this conversation, the homeowner has a grip on why his house burned down. He has important background beliefs about the way that 9 V batteries work, including the memory of sticking his tongue on the top of one as a kid and feeling a jolt of electricity. The homeowner now sees how the fire could have been prevented and sees precisely how the fire started. The unfortunate homeowner understands.

However, if we imagine further that the unfortunate homeowner tells his young daughter simply that the house burned down “because old batteries caught fire,” she would not thereby have understanding. Unlike her father, she does not have any background beliefs about 9 V batteries nor does she have any grip on how batteries could start a fire. After all, there are batteries in all sorts of household items and they have never caused a fire before. The homeowner’s young daughter does know that her house burned down because of batteries, but she does not understand why.<sup>1</sup>

The epistemic failure of the homeowner’s daughter is not simply that she lacks background beliefs. What makes the homeowner and the fire marshal understand why the house burned down is that they both see how different parts of the situation led to the fire and how the outcome could have changed if certain variables were altered. Moreover, our attribution of understanding-why also seems to track the fact that the homeowner and fire marshal are able to *explain* what happened. The homeowner’s daughter is not able to explain why or how the fire started. She cannot answer another type of question besides one that asks her to identify the cause. The fire marshal and homeowner understand why the house burned down because they have *know-how* that the daughter lacks.

Most accept that in testimony cases such as this, the daughter lacks understanding because she lacks abilities that the relevant know-how would provide, such as the ability to give an explanation of what happened, how to apply her knowledge to a new case, or how to potentially manipulate the variables to prevent such an occurrence (Carter and Pritchard 2015; Pritchard 2010; Grimm 2014, 2017; Hills 2016; Sliwa 2015).<sup>2</sup> Alison Hills puts the point nicely in the following passage:

Understanding why p...requires more than the correct belief that p because q. It requires a grasp of the reason why p, or more precisely, a grasp of the relationship between p and q...When you grasp a relationship between two propositions you have that relationship under your control. You can manipulate it. You have a set of abilities or practical know how, which you can exercise if you choose. For instance, if you understand why p, you can give an explanation of why p and you can do the same in similar cases. If you find out that q (where q is why p), you can draw the conclusion that p. (2016, 663)

<sup>1</sup> A version of this case was introduced in Pritchard (2010). I simply changed the cause of the fire from faulty wiring to batteries sparking for the sake of variety and as a genuine public service announcement.

<sup>2</sup> Some, such as Sliwa (2015), claim that the daughter understands here, but she just has very limited understanding. Despite this, there is agreement that for the daughter to understand *better* would be for her to have additional knowledge—knowledge-how to give an explanation. This nuance will be developed in more detail in Sect. 2.

While there is disagreement about the types and precise nature of the abilities necessary for understanding and how an agent satisfies manifesting such abilities, there is considerable agreement that understanding *does* involve abilities and thus know-how in some way. Given this agreement, any view of understanding-why must account for the abilities that an understander has. Consequently, epistemologists working on understanding-why, it seems, must address the nature of know-how.

However, in this paper, I argue that the intuition that understanding involves an ability, and *on that basis* is a kind of know-how, rests on an equivocation between epistemic and practical abilities. Once this equivocation is disambiguated, I aim to show that understanding-why is not know-how. As a consequence, the motivation for the view that understanding is not reducible to knowledge-that can no longer appeal to the abilities constitutive of understanding. Furthermore, those who claim that understanding-why *is* reducible to knowledge-that need not worry about defending a view of know-how that is itself reducible to knowledge-that. In other words, one can account for the abilities constitutive of understanding without endorsing any particular view on the nature of know-how.

I proceed as follows. First, in Sect. 2, I survey the way in which epistemologists have linked understanding-why to know-how in order to motivate their favored view of understanding. In Sect. 3, I look to virtue epistemology to highlight the fact that there are many different senses of ability that easily get tangled. Importantly, there is one sense of ability where an agent has a cognitive ability to form beliefs or knowledge and another sense where one has an ability to perform a practical task or action with their body, such as making a vase on a potter's wheel. In Sect. 4, I argue that the type of abilities that are constitutive of understanding are of the first type: a cognitive ability to form a grasp. As a result, epistemologists working on understanding need not take a stand on the nature of know-how to account for the abilities constitutive of understanding.

## 2 Understanding-why and knowledge-that

Views on the nature of understanding-why fall into two broad camps: reductionists and non-reductionists. According to the *reductionist view*, understanding-why reduces to knowledge-that. On such a view, to understand why is to know that *q* explains *p* or to know that *p* occurred because *q*.<sup>3</sup> By contrast, *non-reductionist* views of understanding-why claim that an agent needs more than knowledge-that in order to understand. For example, one needs to *grasp* how propositions or causal relations are related.<sup>4</sup> The non-reductionist claim—that understanding involves a grasp of patterns or connections—should not be confused with a possible different type of understanding, which epistemologists have termed “objectual understanding.”

<sup>3</sup> The following endorse a reductive view of understanding: Lipton (2004), Kelp (2015), Khalifa (2013a, b), Riaz (2015), Sliwa (2015).

<sup>4</sup> The following endorse a non-reductive view of understanding: Elgin (2007), Grimm (2014), Hills (2016), Lawler (2016), Pritchard (2014), Riggs (2003).

Unlike understanding-why, objectual understanding involves understanding whole subject matters or bodies of information. For instance, when we say that “Matty understands computer science,” we mean she understands a whole body of information. Some authors have suggested that objectual understanding is distinct from understanding-why, while others have argued that objectual understanding is reducible to understanding-why.<sup>5</sup> I put this issue aside for now. I will return to the topic of objectual understanding at the end of the paper to suggest ways in which my account of the abilities constitutive of understanding might impact such debates.

In order to tip the scales in favor of joining one camp over the other, epistemologists *on both sides* make explicit appeals to abilities constitutive of understanding and in the process adopt stances on the nature of know-how. For instance, on the non-reductionist side, J. Adam Carter and Duncan Pritchard argue that understanding comes apart from knowledge-why and knowledge-that because understanding, like know-how, is a cognitive achievement. They say “we should think of know-how as a kind of cognitive achievement, and thus group it with understanding-why, in contrast to forms of knowledge-wh which are naturally grouped with propositional knowledge” (2015, 13).

Stephen Grimm argues that the object of understanding is “the modal relationship that obtained between the terms of the explanation rather than the propositions that described those relationships.” He explains further that “our proposal also accords with the common idea that to have understanding is to have a kind of *ability* or *know how*. On our proposal, ‘seeing’ or ‘grasping’ would count as a kind of ability because the person who sees or grasps how certain properties (objects, entities) are modally related will characteristically have the ability to answer a variety of... ‘what if things were different?’ questions” (2014, 339).<sup>6</sup> Still further, Hills draws the conclusion that knowledge-that is not enough to constitute the kind of know-how and understanding under consideration. She says, “It is perfectly possible for you to know that Tibbles is a cat, to know that Tibbles is a mammal, and to know that Tibbles is a mammal because she is a cat, all because you have read a book about Tibbles...But having knowledge does not guarantee that you have the ability to draw these connections...essential to understanding why” (2016, 679).

The common thread among non-reductionists is that in order to be able to—know how to—make inferences and draw conclusions, the understander needs something in addition to propositional knowledge-that. It is precisely because abilities are constitutive of understanding that non-reductionists argue understanding is non-propositional.

On the other side, reductionists about understanding argue that the type of abilities associated with understanding can in fact be achieved through propositional knowledge-that. For example, Paulina Sliwa argues that differences in understanding amount to differences in propositional knowledge. Concerning a fire case similar to the one described above, Sliwa says, “[Reductionists] can explain why it’s so

<sup>5</sup> For example, Grimm (2017, especially n. 2) and Khalifa (2013b) claim objectual understanding is not different from understanding-why. See, Elgin (2007), Kelp (2015), Kvanvig (2003), Riggs (2003), Wilkenfeld (2013), and Zagzebski (2001) for more on the uniqueness of objectual understanding.

<sup>6</sup> Emphasis in original.

natural to describe the epistemic asymmetry between parent and child in terms of a difference in understanding. Since the parent knows more about why the house burned down, he understands better why it burned down” (2015, 69). As such, reductionists claim that the reason that most intuitively think the young child does not understand why the house burned down is because she does not know *that e* is an explanation for the cause of the fire, or because she does not know *that a* is the answer to a “what if things were different?” question. For instance, Amber Riaz suggests that “someone who really or fully understands why P has a kind of hyper-knowledge involving, among other things, knowing why P, why P’, why P\* (where the situations corresponding to the judgments that P, that P’ and that P\* have slight differences), knowing why the differences between those situations warrant different judgments and so on” (2015, 123).

Reductionists are suggesting that our abilities to answer questions and draw conclusions *can* in fact be cashed out in terms of propositional knowledge-that, implying that the sort of know-how needed for understanding can be reduced to knowledge-that.

Notice that the reductionist debate about understanding mirrors a familiar debate concerning knowledge-how. In the know-how literature authors either argue for an *intellectualist view* of know-how on which the nature of know-how can be reduced to propositional knowledge or an *anti-intellectualist view* on which knowledge-how is distinct from propositional knowledge-that. Moreover, it is often the appeal to agential abilities that is at the heart of debates concerning the nature of know-how.<sup>7</sup> Similarly, both sides of the reductionist debate about *understanding* are not debating whether abilities are necessary for understanding; they are disagreeing about the nature of know-how (whether they say so explicitly or not). On the one hand, the central motivation for taking understanding to involve *more* than propositional knowledge is a set of anti-intellectualist sentiments that propositional knowledge is not enough to account for the abilities constitutive of understanding. On the other hand, the strategy of reductionists has been to exploit intellectualist sentiments to show that propositional knowledge *is* enough. All this suggests that in order to gain more headway into our investigation of the nature of understanding we should jump into the trenches of debates concerning the nature of know-how.

However, shifting the debate from the nature of understanding to the nature of know-how to settle the score on reductionism is not actually necessary and may not even be helpful. In the remainder of this paper, I aim to show that there is an overlooked equivocation on the kinds of cognitive abilities that agents who understand manifest. In particular, if we look to the work virtue epistemologists have done on the nature of knowledge we see that there are particular kinds of intellectual abilities that, while constitutive of knowledge, do not undermine the fully propositional nature of knowledge. These intellectual abilities are different in kind from more practical or actionable abilities. I argue that, properly understood, the abilities constitutive of understanding are of the same kind as those constitutive

<sup>7</sup> The following endorse anti-intellectualism: Adams (2009), Carr (1981), Devitt (2011), Ryle (1949), Wallis (2008). The following endorse intellectualism: Pavese (2015), Stanley (2011), Stanley and Williamson (2001).

of knowledge-that and not the kind constitutive of practical know-how, no matter what we should make of the intellectualist and anti-intellectualist debate concerning know-how.

### 3 Virtue epistemology and ability

The distinctive methodology of virtue epistemology conceptualizes knowledge as a kind of *competent performance* understood as a success through ability.<sup>8</sup> For instance, Ernest Sosa explains, “[P]ropositional knowledge can be understood as belief that attains its aim (truth) and does so not merely by luck but through competence. Such knowledge is a special kind of performance that is not just lucky but apt: i.e., performance whose success is owed sufficiently to the performer’s relevant competence” (2015, 12). Knowers are those who have the ability to form true beliefs in the right way and in an instance of knowledge actually do so. Thus, on such a view, we could say that a knower *knows how* to form a true belief reliably or responsibly. Despite this colloquialism, as I show below, the epistemic abilities that are constitutive of knowledge are actually quite different from practical know-how.

#### 3.1 ABILITY<sub>ACCIDENTAL</sub> and ABILITY<sub>DISPOSITIONAL</sub>

Virtue epistemologists look to practical performances, like playing sports or working a trade, to explain and motivate their view. Take for example the ability to make a clay vase on a potter’s wheel. Such a task is very involved and takes a lot of skill. It can also be broken up into many different underlying abilities. For instance, centering the clay in the middle of the wheel is one ability and raising the walls of the clay to form the vase is quite another. Abilities are taken to be dispositions of the agent to reliably succeed at performing the action. A potter has the ability to make a vase on the potter’s wheel only if she has the disposition to succeed at centering the clay and raising the walls when she is in the position to do so. As such, Sosa argues that all competences follow what he calls an SSS (triple-S) structure. For an agent to have a competence or an ability she must first have an innermost *Skill*. One continues to have the skill regardless of situational circumstances or the state the agent happens to be in. For example, the potter does not lose the ability to make a vase when she is running or sleeping. In the case where the potter actually is awake she is in the right *Shape* to exercise her ability or competence. Still further, abilities and competences are responsive to changing conditions. If the clay has several air bubbles, it will be harder to center. However, if a potter has the ability to center

<sup>8</sup> The following endorse a virtue theoretical approach to the nature of knowledge: Baehr (2006), Greco (2009, 2010), Pritchard (2010), Riggs (2009), Sosa (2009, 2015), Zagzebski (1996). There is an interesting debate within virtue epistemology whether or not epistemic virtues are best understood as character traits (Baehr 2006; Zagzebski 1996) or processes and powers of the mind (Greco 2010; Sosa 2015). For the purposes of this paper I focus on the view that epistemic virtues are powers and processes of the mind.

clay, she would be able to adapt to these conditions and still center reliably and successfully.<sup>9</sup> The third S, *Situation*, accounts for conditions under which one has a competence. Putting this together, the innermost skill of the agent is determined on the basis of her being likely enough to succeed in relevant shape and situation combinations. An agent is said to perform an action competently when she has the skill, is in the right shape, is in the right situation, and succeeds because of her skill (Sosa 2015).

Therefore, it is not just the *success* of making a vase that is constitutive of having an ability to make a vase. It could be that a beginning potter just by tinkering mindlessly with the clay forms a vase. In such a case the beginner succeeds in making a vase, but she does not have an innermost skill to make a vase. She does not have an underlying *ability* to make a vase. The main difference between the beginner and someone who has an ability is that the completion of the vase is not properly creditable to the beginner; it was just by pure luck that she succeeded. Even though the beginner potter may truly say “I was able to make a vase,” it does not follow that she has an ability to make vases on a potter’s wheel. To broaden the discussion to fit beyond Sosa’s view, let’s disambiguate these first two senses of “ability” as follows:

ABILITY<sub>ACCIDENTAL</sub>:

The sentence “*S* is able to do *x*” is true simply because *S* succeeds in doing *x*.

ABILITY<sub>DISPOSITIONAL</sub>:

*S* has an ability to reliably succeed in doing *x* even when conditions differ to some extent.

The evaluation of practical performances involves a kind of normativity that gets at more than mere success, it gets at a competence: an ABILITY<sub>DISPOSITIONAL</sub> for success. The ability of interest is one where the agent’s success is creditable to *her* (not because of luck) and she has the ability, an innermost skill, to succeed again in the future.

Epistemic performances have a parallel structure with practical performances. A subject may form a true belief—that is *succeed*—but if that success is not *because of* the agent’s underlying ability to form true beliefs through a reliable process, then the agent does not have knowledge. It is only when the true belief is from an actual competence or ability to form true beliefs that an agent knows. Like practical abilities, cognitive abilities for knowledge are dispositional powers of an agent that are responsive to changing conditions (Greco 2009, 2010; Sosa 2009, 2015).

Take, for example, perceptual knowledge. Eyesight is a power that most human agents have. Yet, we do not have our eyes open all the time and sometimes we might be in conditions that are too dark to see. This means that we are not always able to manifest our ability, our innermost skill, of sight to gain knowledge through

<sup>9</sup> The scope of the conditions under which one must get things right in order to have an ability is determined by the particular domain, subject matter, or practical context.

visual perception. Instead, we only gain visual knowledge when certain triggering conditions take place, such as being in the right shape and situation, like having one's eyes open while being in a lit room with no funny business going on (such as being on a mind-altering drug). Mel only gains knowledge that the traffic light is red if Mel would have gotten the color of the traffic light correct in close possible worlds as well. To use Sosa's language, Mel's belief is not only *accurate*, but also *adroit* in that it manifests epistemic competency or ability. Still further his belief is *apt* since Mel formed his belief *because of* his competency.<sup>10</sup> Thus, if Jane says "I was able to determine the state of the traffic light," but did so simply by a lucky guess, he is still saying something true. However, Jane, unlike Mel, does *not* know the state of the traffic light because the success was not from an underlying perceptual ability to reliably determine the state of the traffic light. Jane does not have an apt belief; he does not have an ABILITY<sub>DISPOSITIONAL</sub>.

As in the practical case, the epistemology of knowledge and understanding is tracking a normative concept. ABILITY<sub>DISPOSITIONAL</sub> is of more interest to epistemologists than ABILITY<sub>ACCIDENTAL</sub>. Epistemologists are not simply concerned about agents forming beliefs that happen to be *true*, but when agents *know* or *understand*. Therefore, virtue epistemologists are exclusively referring to ABILITY<sub>DISPOSITIONAL</sub> when they claim that knowledge is a success from ability.

### 3.2 ABILITY<sub>FUNCTIONAL</sub> and ABILITY<sub>JUDGMENTAL</sub>

There are different species of ABILITY<sub>DISPOSITIONAL</sub> that need to be disambiguated in the epistemic case. Consider again the case of the unfortunate homeowner. Recall that he tells his young daughter that their house burned down because of old 9 V batteries. Nothing peculiar is going on in this case to stand in the way of the daughter gaining testimonial knowledge from her father. The daughter then knows that her house burned down because of batteries. According to the virtue epistemology story endorsed by Sosa (2015) and Greco (2010) the reason that the daughter knows is that she exercises her competence to know. Moreover, we can say in this case that her true belief is creditable to her since she forms the belief because of *her own* ability.

However, a major criticism has been leveled against simple cases of testimonial knowledge like the fire case under consideration. Exploring this criticism in some detail will reveal the multiplicity of abilities virtue epistemologists take to be constitutive of propositional knowledge and help to shed light on sort of abilities constitutive of understanding.

The problem with the testimony case is this: It does not seem that the daughter's true belief is actually due to her own cognitive abilities, but rather the cognitive abilities of her father and ultimately the fire marshal. The daughter does not display a significant enough ability to deserve credit or display an epistemic achievement.

<sup>10</sup> Not only does Sosa discuss an triple-S structure of competency more generally, he also discusses epistemic norms through an AAA (triple-A) structure. For the purposes of this paper, we can discuss the general themes about ability using theory neutral language to broaden the lessons beyond Sosa's view and perhaps even beyond virtue epistemology itself.



The criticism is not that the daughter fails to know, but rather that sometimes we gain knowledge apart from an underlying competence worthy of the knower's credit and achievement (Lackey 2009; Pritchard 2010). The ability to comprehend sentences and believe them on the say-so of another is not very creditworthy.

The standard reply to such an objection is to say that the daughter *does* believe because of her own cognitive ability. The ability in question: to pick out reliable testifiers and to be able to comprehend what the testifier says (Greco 2010). After all, the daughter would not have trusted her brother's testimony on account of the fact that her brother has a tendency to exaggerate the truth. So the daughter's ability to pick out reliable testifiers is responsive to changing situations in the appropriate way and is creditable to her.

The exact details of how testimony cases should be interpreted does not matter for our purposes. This debate illuminates the fact that the type of abilities that constitute knowledge vary from pure functional states, like perceptual knowledge, to more intentional abilities, such as searching for and recognizing reliable testifiers. Even if we accept the criticism that in order to have an *achievement* or to be *deserving of credit* we need a significant ability, such acceptance does not alter the core aspect of virtue epistemology: that there are varying types of cognitive abilities with varying levels of complexity that help to constitute propositional knowledge. Sosa explains: "Knowledge comes in two sorts. One is functional, so that its aim can be teleological, like that of perception. By contrast, the aim of judgmental knowledge is like that of intentional action. This is because judgment *is* a kind of action, with judgmental belief the corresponding intention" (2015, 25). Thus, there are two other senses of "ability" to disambiguate:

ABILITY<sub>FUNCTIONAL</sub>

S has an ability to form a true belief that is the result of a non-intentional and purely functional process.

ABILITY<sub>JUDGMENTAL</sub>

S has an ability to form a true belief that is the result S's intentional judgment.

Simple knowledge such as perceptual knowledge and the kind of knowledge associated with comprehension of sentences constitutes an ABILITY<sub>FUNCTIONAL</sub>. However, knowledge that is more difficult to come by where one might need to weigh evidence before believing involves an ABILITY<sub>JUDGMENTAL</sub>.<sup>11</sup> The disagreement about the unfortunate homeowner's daughter's ability in the fire case is that in order for her knowledge to be creditworthy she needs to have an ABILITY<sub>JUDGMENTAL</sub> and not merely an ABILITY<sub>FUNCTIONAL</sub>. The disagreement is *not* about the propositional object of knowledge. One can have an ABILITY<sub>FUNCTIONAL</sub>, such as perception, that in part constitutes knowledge and grounds knowledge, and yet the knowledge gained remains propositional. Mel still knows *that* the traffic light is red even though what

<sup>11</sup> The lines between ABILITY<sub>FUNCTIONAL</sub> and ABILITY<sub>JUDGMENTAL</sub> are blurry. Since I am arguing that both are constitutive of propositional knowledge, the precise line does not matter for our purposes.

constitutes this knowledge is an underlying cognitive ability to form beliefs based on visual perception. The unfortunate homeowner's daughter has an  $ABILITY_{FUNCTIONAL}$  to comprehend the meaning of sentences which constitutes her knowledge that her house burned down because of old batteries. Abilities that are  $ABILITY_{FUNCTIONAL}$  resemble processes that do not involve agential control. It makes sense why some epistemologists do not want to say that such functional abilities are achievements or are fully creditworthy.

$ABILITY_{JUDGMENTAL}$  is another story.  $ABILITY_{JUDGMENTAL}$  does involve intentional judgment and control. This is not to say that the agent must be occurrently aware of this judgment. For instance, a good detective may reliably be able to distinguish trustworthy sources from untrustworthy sources as if it were second nature. However, the good detective's ability displays judgment that has been fine-tuned over time. Similarly, if as it happens, the daughter of the unfortunate homeowner does have an  $ABILITY_{JUDGMENTAL}$  to discern reliable from unreliable sources, then it does suggest that the daughter deserves credit and that she did achieve something.

The important point for our purposes is that  $ABILITY_{JUDGMENTAL}$  just like  $ABILITY_{FUNCTIONAL}$  constitutes *propositional knowledge-that*. It is because the good detective has an  $ABILITY_{JUDGMENTAL}$  that he forms true beliefs that constitute knowledge. Without such an ability, the good detective does not have knowledge. Thus, epistemic performances involving agential judgment-type abilities and epistemic performances involving mere functional abilities can *both* be constitutive of propositional knowledge. This point will be important for the discussion of understanding in Sect. 4, but before then it is important to briefly consider abilities constitutive of practical action and know-know.

### 3.3 $ABILITY_{EMBODIED}$

Consider again practical performances, such as making a vase or changing the batteries in a smoke detector. The ability here is not merely an  $ABILITY_{FUNCTIONAL}$  as is the case with seeing and hearing; it is also different from a kind of judgment or weighing of options, even though it may involve both. Tasks such as centering clay on a potter's wheel involve a direct sense of *embodiment*. There is a tangible interaction with *things*. No amount of instructional videos I watch on how to center clay on a potter's wheel will guarantee that I will be able to do so at my next pottery class. Part of the problem is that my hands need to experience what it *feels* like to handle the clay. There is a third kind of  $ABILITY_{DISPOSITIONAL}$  that is *unique* to practical performances.<sup>12</sup>

$ABILITY_{EMBODIED}$

S has an ability to manipulate tangible objects to perform a practical task.

<sup>12</sup> There is dispute over the way in which dispositions contribute to the nature of know-how. For an in-depth discussion on the difference between intellectualists and anti-intellectualists on the way dispositions contribute to know-how see Bengson and Moffett (2012). Despite this, it is enough for our purposes to stick with the dispositional approach adopted by virtue epistemologists.

It is not clear whether an ABILITY<sub>EMBODIED</sub> has a propositional nature. This is where the contentious debate about the nature of know-how gains traction. On the one hand, anti-intellectualists deny that know-how is propositional and reducible to knowledge-that. Some reasons on offer have been because know-how cannot be linguistically represented or because the object of know-how is an *act* not a proposition (Adams 2009; Carr 1981; Devitt 2011; Wallis 2008). On the other hand, intellectualists argue know-how is unique from knowledge-that only in that the agent has a “practical mode of presentation” of a proposition along the lines of “*w* is a way for *me* to center clay.” (Stanley 2011; Stanley and Williamson 2001). I am not going to take a side here. Instead, my only aim is to highlight that there is a different sense of ability concerning practical action which is distinct from ABILITY<sub>JUDGMENTAL</sub>.

A more familiar distinction between theoretical and practical knowledge will be helpful here. Judgments as to whether to believe *p* can be about purely theoretical matters. The good detective judges that a certain source is trustworthy and believes a certain fact based on this ability to make a judgment. Practical knowledge of how to perform actions includes judgments *that this* is a particular action to do, but it also includes the actual success of *doing* the task, not simply forming a belief.<sup>13</sup> An ABILITY<sub>JUDGMENTAL</sub> is agent-intentional, but it is not task-oriented in the way that an ABILITY<sub>EMBODIED</sub> is. The sort of knowledge we gain from ABILITY<sub>JUDGMENTAL</sub> does not require a practical mode of presentation and it is in principle linguistically representable.

With all these different senses of abilities roughly disambiguated, we can now turn back to understanding-why. I argue that the kind of abilities constitutive of understanding are ABILITY<sub>JUDGMENTAL</sub> and ABILITY<sub>FUNCTIONAL</sub>, similar to those constitutive of knowledge-that; they are not abilities characteristic of ABILITY<sub>EMBODIED</sub> and those typically associated with practical know-how.

#### 4 Abilities constitutive of understanding

In what follows, I suggest that if we adopt the separation between the species of ABILITY<sub>DISPOSITIONAL</sub> described above and apply them to understanding-why, there is no longer a strong connection between understanding and practical know-how. This means one can account for the abilities constitutive of understanding without endorsing any particular view on the nature of know-how.

Recall that epistemologists working on understanding-why generally agree that understanding involves abilities. In order to keep the following discussion as simple as possible I will adopt Hills’s (2016) characterization of the abilities needed for understanding:

- (1) Follow some explanation of why *p* given by someone else.
- (2) Explain why *p* in your own words.
- (3) Draw the conclusion that *p* (or probably that *p*) from the information that *q*.

<sup>13</sup> See Pavese (2015) for a discussion on the way that know-how is uniquely about practical tasks and for an account of practical sense.

- (4) Draw the conclusion that  $p'$  (or probably  $p'$ ) from the information that  $q'$  (where  $p'$  and  $q'$  are similar to but not identical to  $p$  and  $q$ ).
- (5) Given the information that  $p$ , give the right explanation,  $q$ .
- (6) Given the information that  $p'$ , give the right explanation  $q'$ . (Hills 2016, 663).

Hills's cognitive control view of understanding-why is the most demanding in terms of the amount of know-how needed for understanding. For example, others such as Pritchard (2014) and Grimm (2014) argue that being able to answer questions and give explanations are necessary but do not explicitly endorse all of (1)–(6). Adopting Hills's abilities ensures that my job of showing that the abilities constitutive of understanding are not properly the same kind constitutive of know-how is quite difficult.

To start, Hills and others are interested in *intellectual* understanding-why, *not* practical understanding. It is fairly intuitive that understanding how to make a vase on a potter's wheel is close to knowing how to make a vase on a potter's wheel. However, it would make for a very demanding view of understanding to require that in order to understand why the clay must first be centered on the potter's wheel before raising the walls of the vase, one must be able to *make* a vase. Understanding-why is a theoretical concept not a practical concept. The implicit claim that epistemologists are making when they claim abilities are constitutive of understanding-why is that theoretical understanding involves *intellectual* abilities that *resemble* practical abilities in the relevant respects. It is my task in the remainder of this paper to show that the intellectual abilities constitutive of understanding-why resemble the kind of abilities constitutive of knowing-that: ABILITY<sub>JUDGMENTAL</sub> and ABILITY<sub>FUNCTIONAL</sub>. I address each of the six abilities Hills outlines in turn.

#### 4.1 Understanding abilities (1) and (2)

Consider:

- (1) The ability to follow some explanation of why  $p$  given by someone else.

Simply following an explanation involves an ability to comprehend a sentence uttered by a speaker or to comprehend a series of sentences written in a book. The ability to follow an explanation is not different in kind from being able to follow testimonial information in a case of knowledge. The daughter of the unfortunate homeowner has the ability to follow the simple explanation of why her house burned down: because of old batteries. The daughter could also follow a more detailed, yet still shallow, explanation. For instance, her father can explain further that the fire started in part due to the fact that the design of 9 V batteries is more prone to sparks than the batteries she is more familiar with, such as AA batteries. The ability to comprehend sentences and follow the train of because-of statements is why she has knowledge and what allows her to have this first ability necessary for understanding-why. In this case, though we may colloquially say "she knows how to follow an explanation," it is not the kind of know-how that is thought to be distinctive from knowledge-that. This kind of "know-

how” is speaking to the competence the daughter has to form beliefs through comprehending the meaning of language. In order for someone to know *that*  $q$  is an explanation for  $p$ , one must still have the ability to follow the explanation. Thus, this first ability for understanding-why resembles a standard cognitive ability that is constitutive of ordinary cases of propositional knowledge.

Consider next:

(2) The ability to explain why  $p$  in your own words.

Explaining why  $p$  in your own words is more demanding than simply following an explanation. And again we may colloquially say that one “*knows-how to explain why  $p$* .” However, this use of “know how” still does not resemble practical know-how. Here’s why.

To give an explanation is just to answer a why-question. For example, Hills explains:

an explanation is an answer to the question: why  $p$ ? It’s possible to answer that question in a more or less full and detailed way, using more or less fundamental terms (for instance, answering a question like ‘why did she decide to pick the blue box’ in the language of folk psychology or of neuroscience). (2016, 664).

Answering questions correctly is not unique to understanding-why. In an ordinary case of knowledge-that the agent knows how to answer a “whether  $p$ ” question. The daughter of the unfortunate homeowner knows that batteries caused the fire, so she can correctly and reliably say whether or not batteries caused the fire. She can also answer a variety of questions that take a similar form, such as “did matches cause the fire?”, and “what was the cause of the fire?” The daughter has an ABILITY<sub>DISPOSITIONAL</sub> to answer a certain set of questions about the cause of the fire. We must ask whether answering questions that take the form “why  $p$ ?” more closely resemble a “whether  $p$ ” question or does answering why questions involve an ABILITY<sub>EMBODIED</sub>? I suggest the former.

Understanding-why comes in degrees. It is uncontroversial to hold that one can understand why something happened in more or less detail. Similarly, as Hills herself explains, explanations can have more or less detail and can be rather simple or quite complex. This means an explanation can consist of even one or two sentences. The unfortunate homeowner could explain to his daughter: “9 V batteries caused the fire. AA batteries would not have under the same conditions because 9 V batteries are designed in a way that make them more prone to sparks.” One can imagine further that the daughter proceeds to tell a similar story to her curious friend. Perhaps she would say something like: “The 9 V batteries are made differently from the ones in TV controllers. They spark sometimes.” If her curious friend asks, “Why does making them differently cause sparks?” the natural response of the unfortunate homeowner’s daughter would be “I don’t know,” or a simple  $\neg$  (ノ)  $\neg$ . The lesson here is that giving a simple explanation in one’s own words is a manifestation of a similar ABILITY<sub>DISPOSITIONAL</sub>, which is also present in any case of answering a “whether  $p$ ” question. Answering a why-question involves first and

foremost having a linguistic ability to comprehend sentences and form new sentences that express similar meaning. It is neither surprising nor counter-intuitive that linguistic abilities take propositions as their object.

On the other hand, abilities (3) and (4) require that the agent be able to perform a cognitive *action* instead of merely having a linguistic competence.<sup>14</sup> We are moving away from ABILITY<sub>FUNCTIONAL</sub> to ABILITY<sub>JUDGMENTAL</sub>. It is these two abilities that I turn to next.

## 4.2 Understanding abilities (3)—(6)

Consider next:

- (3) The ability to draw the conclusion that p (or probably that p) from the information that q.

Hills comments further:

What I mean by ‘draw the conclusion p from the information q’ here is that you correctly believe that q and on that basis you draw the correct conclusion (p). You do not have to represent q as the basis of p or even necessarily be explicitly aware of it at all. Even the judgment that p may be implicit (2016, 667).

Again, one could colloquially say about someone who has this ability that she “knows how to draw the correct conclusion from a set of evidence or information.” If any of the abilities for understanding-why resemble practical know-how, this is the one.

The ability to draw a correct conclusion based on a set of information is clearly a type of ABILITY<sub>JUDGMENTAL</sub>. One is able to reliably and successfully make a correct judgment and form a belief on that basis. Is the type of judgment associated with drawing a conclusion importantly different from typical judgments we associate with ordinary cases of propositional knowledge? I suggest not.

Consider our good detective. He is able to reliably distinguish trustworthy sources of information from non-trustworthy sources. Since he has this ability, in any case where a trustworthy source gives him a piece of information he knows that the information is accurate. It is because he forms a true belief in virtue of having this ability that he has propositional knowledge. The ABILITY<sub>JUDGMENTAL</sub> that he has is not necessarily occurrent and is a skill that may be difficult to come by. However, as explained in Sect. 3, the impressive nature of the skill does not change the object of his knowledge. Moreover, we could re-describe this case to say that the good detective “knows how to *draw the conclusion* that so-and-so is a trustworthy source given the information at hand.” Importantly though, re-describing the case in this

<sup>14</sup> There is an objection to the first two abilities that Hills (2016) discusses. The objection is that one may not have any linguistic abilities and still have understanding. I think this objection is on track. After all, one can have knowledge without having any linguistic abilities to give a verbal answer to a “whether p” question. For simplicity’s sake I focus on cases in which agents already have an ordinary set of abilities, including linguistic.

way does not change the underlying structure of the case nor the nature of the kind of knowledge he has; it is just a misleading re-description.

What about a different case where one understands why a conclusion of a complex mathematical proof follows? Surely, in such a case the kind of know-how is more akin to a practical sense of know-how. It seems that in order to understand why, one must know how to *perform* the complex mathematical operation. In order to peer behind the appearances here, first consider a simple mathematical operation of counting to 10. In order to count to 10, one only needs to know that 2 comes after 1, that 3 comes after 2, that 4 comes after 3, and so on. If someone knows this series, it is improbable that one would not be able to draw the conclusion that 6 is before 7. Thus, in this case of drawing the conclusion of what number comes after another, one uses an ABILITY<sub>JUDGMENTAL</sub>. This ability constitutes propositional knowledge even though we still say things like “S can draw the conclusion that 10 comes after 9.” The suggestion here is that there is no difference in kind between a more complex mathematical problem and a simple one, such as counting to ten. Solving a more complex mathematical problem similarly involves a series of steps. If one has an ABILITY<sub>JUDGMENTAL</sub> to reliably form the true belief that the mathematical problem is solved, for example, by following three steps, then one also has a similar sort of ABILITY<sub>JUDGMENTAL</sub> to draw the conclusion that step 2 comes after step 1.

Even if we maintain the thesis that in order to perform some complex mathematical equation one goes beyond a mere propositional ABILITY<sub>JUDGMENTAL</sub>, we can draw a similar distinction as we did above between understanding why centering clay on the potter’s wheel is important for making a vase and actually being able to center the clay. In the mathematical case, one can understand why step 3 comes after step 2, but it is not necessarily the case that one could also successfully complete the proof. It seems too demanding to suggest that in order to understand why something is the case, one must also be able to *perform* the related action. The judgmental act of weighing evidence or drawing a conclusion is different from performing a further practical task *with* this judgment.

Consider next:

- (4) The ability to draw the conclusion that  $p'$  (or probably  $p'$ ) from the information that  $q'$  (where  $p'$  and  $q'$  are similar to but not identical to  $p$  and  $q$ ).

Given that what I have said about ability (3) is correct, I see ability (4) as expressing a safety criterion on understanding. In any case of propositional knowledge, in order to have knowledge the knower must be able to get the truth not just on *this* particular occasion, but get things right even if conditions were slightly different.

If it so happened that the batteries in the unfortunate homeowner’s basement were AA batteries, the fire would *not* have started. It seems reasonable that in order to *know* the cause of the fire one would still need to have a true belief about the state of the house *in the case where the batteries were different*. It is reasonable to suggest that if one could draw the conclusion that the fire started because of the 9 V batteries’ interaction with a cardboard box, then one could also draw the conclusion that if the batteries inside the box were AA, then the fire would not have happened.

That said, Hills does not take this fourth condition as a counterfactual condition on the reliability of knowledge. She is claiming that it is not merely the case that the

agent would have gotten things right if the circumstances were slightly different, but that one is able to *now currently* draw conclusions in similar cases. However, if it is the case that the agent would have drawn the right conclusion if circumstances were different—as is necessary with a simple case of knowing—then the agent would be capable of actually drawing the conclusion in the actual situation as well. So long as one has an ABILITY<sub>JUDGMENTAL</sub> to draw a conclusion that is reliable across changing conditions, then the agent thereby satisfies being able to *actually now draw* the correct conclusion about a similar, but slightly different case. Notice that this is not some new ability to draw conclusions in similar cases. It is simply a consequence of having an ability constitutive of knowledge that the agent is able to get things right in slightly different conditions and circumstances.<sup>15</sup> Any ABILITY<sub>DISPOSITIONAL</sub> is responsive to changing conditions—that is what it means to have an ABILITY<sub>DISPOSITIONAL</sub>.

The remaining abilities (5) and (6) combine the lessons from abilities (1)–(4). Consider next:

(5) The ability to, given the information that p, give the right explanation, q.

The information available to the agent can be more or less complex and the agent might have more or less work to do in constructing the explanation. This work could involve drawing a conclusion or it could involve giving an explanation in one's own words, like ability (2).

Lastly consider:

(6) The ability to, given the information that p', give the right explanation q'.

In order to understand why p, one needs to not only be able to explain why p, but also be able to give an explanation about something similar to p. On the face of it, it seems that the ability to give a novel explanation requires something more than an ABILITY<sub>JUDGMENTAL</sub> to make inferences. In particular, it seems to require a creative power where one has a *feel* for the subject matter, just as the potter has a feel for the clay. However, I take this ability to be similar to ability (4) in that it expresses a counterfactual safety condition that is necessary for any ABILITY<sub>DISPOSITIONAL</sub>.

In order for the unfortunate homeowner to explain why 9 V batteries caused his house to catch fire, he must include the fact that the batteries still had some leftover charge which caused the sparks that lit up the flammable cardboard box. Since the unfortunate homeowner has the ability to construct this explanation, he is also able to construct another explanation about a case that is slightly different. For instance, the homeowner would be able to explain why the fire would have still occurred if the batteries were surrounded by newspapers. This is because the homeowner, in having the ability to know the former explanation, is able to get things right if

<sup>15</sup> This may bring to mind Sosa's triple-S and triple-A structure of competences. To have an innermost skill is to reliably get things right in a set of shapes and situations. My claim here is that if someone has an ability in one situation, then the person will also have the ability in a similarly relevant situation. For example, since I know how to drive, the exact road I am on, be it the BQE or the New Jersey Turnpike, I will still get on driving just as well. In the epistemic case, if I have the ability to see that the fire is caused by a particular battery in one house, I can make judgments about another house, or even concerning different battery types.



conditions were slightly different. Thus he has the ability to construct another similar explanation.

My response here trades on the fact that someone can understand something more or less. To understand *more* involves an ABILITY<sub>JUDGMENTAL</sub> to weigh evidence and organize information such that alternative explanations can be generated when conditions differ. Just as we could say that the good detective has developed a “feel” for which sources are reliable and which ones are not, we can say the unfortunate homeowner has a feel for how the batteries caused the fire. Yet, the “feel” that the good detective and the unfortunate homeowner have is at its core an ABILITY<sub>JUDGMENTAL</sub> that constitutes their propositional knowledge.

There is a difference between a modest ABILITY<sub>JUDGMENTAL</sub> to construct a new explanation for an event that is quite similar to a more familiar event and a more significant ability to construct an accurate and yet completely novel explanation of a new phenomenon. For example, many novel explanations in science are not straightforward and do in fact seem to involve a more creative power on the part of the agent. However, the ability to construct completely novel explanations for new under-explored phenomena is too strong a criterion for every case of understanding why. It is too demanding to require the ability to construct a new model of electrons or be able to explain newly discovered electron behaviors in order to understand why electrons with a negative charge are attracted to those with a positive charge. On the contrary, the physicist who is able to construct a novel explanation for newly discovered phenomena has something beyond understanding-why: she has the ability to construct *novel theories and hypotheses that fit new experimental data*. Therefore, again we must take care to make the distinction between understanding why something is the case and the ability to perform certain actions based on one’s understanding.

In sum, none of the six abilities laid out by Hills suggest that understanding is a kind of practical know-how, at least once we disambiguate between the types of abilities and how they figure into knowledge and understanding.

### 4.3 Understanding-why and grasping

The reader might still not be convinced that the abilities associated with understanding do not resemble abilities we typically associate with practical know-how. In particular, one might appeal to the insight that understanding why is to *grasp why*. Put simply, the difference between knowledge-that and understanding-why is that knowledge involves a belief that something is the case or a belief that an event occurred because *q*, whereas grasping requires more. However, changing the focus from the cognitive state of belief to the cognitive state of grasping does not take away from the thesis that the *abilities* constitutive of understanding-why more closely resemble epistemic abilities constitutive of knowledge-that.

Consider again the virtue epistemologist’s account of knowledge and how cognitive abilities constitute knowledge. In a case of knowledge the agent has an end goal of truth. The agent has reliable abilities that allow her to form true beliefs. The abilities could be as simple as the ability to perceive or as complex as weighing

evidence or thinking through problems. These abilities lead the agent to *affirm that a proposition is true* and successfully answer a “whether p” question in this situation and in others where conditions are slightly different. Notice that a cognitive ability is a power that the agent has to reliably form true beliefs. It is not the beliefs *themselves* which are propositional since they are cognitive states of the agent. It is the *object* of the belief that is propositional. So on this account, abilities are constitutive of forming beliefs and these beliefs take a proposition as their object, thus giving rise to propositional knowledge. Practical abilities, on the other hand, are constitutive of performing *actions* in which the actions may not take propositions as their object.<sup>16</sup>

Now consider understanding-why. Assuming that understanding is factive, the agent also has a goal of acquiring truth or accuracy. The epistemic agent has reliable abilities that allow her to form a *grasp*. These abilities can be as simple as perceptual abilities or following an explanation. Understanding also involves more complex abilities such as thinking through problems, drawing conclusions, and constructing explanations. These abilities lead the agent to grasp the way that pieces fit together and successfully answer “what if things had been different?” questions. On my view, cognitive abilities are what allow the agent to grasp correctly. Thus, as with the virtue-theoretic story for propositional knowledge where cognitive abilities are what allow the agent to believe truly, in a case of understanding, cognitive abilities are the very things that allow the agent to grasp accurately.

There is an open question as to whether grasping takes propositions as its object or if grasping takes a non-propositional object. Notice that this question—“What is the object of grasping?”—is different from the one that epistemologists working on understanding-why have been focusing on. Epistemologists are focusing on the fact that *abilities* are constitutive of understanding-why and, on that basis, concluding that understanding is a kind of know-how. And I have aimed to show that the abilities constitutive of understanding-why more closely resemble epistemic abilities than practical abilities.

Lastly, after all this has been said, the reader might think knowledge-that is built up in such a way that it no longer seems purely propositional. In other words, knowledge-that involves more than what we typically associate with propositional knowledge.<sup>17</sup> Maybe so. Nothing I have said here excludes this kind of view. However, if a radically anti-propositional view is right, it still follows that understanding-why should be considered a type of knowledge-that and not a type of know-how that is centered on *practical action*.

## 5 Implications and conclusions

In this paper, I have argued that the abilities that constitute understanding do not justify the view that understanding-why is a kind of know-how. This means that in order to settle the debate between reductionists and non-reductionists about

<sup>16</sup> See Sect. 3.3.

<sup>17</sup> For example, Hetherington (2006) argues for such a view.

understanding, looking to the nature of know-how will not be useful. In fact, if what I have said here is correct, non-reductionists lose their intuitive appeal in suggesting that understanding-why is non-propositional because it is a kind of know-how.

That said, there are still avenues for non-reductionists about understanding-why to advance their view. For example, non-reductionists can argue that the cognitive attitude of grasping is not one that is fully reducible to knowledge-that even though it is a propositional attitude. On this sort of view, understanding-why may involve a different mode of presentation of a unique set of propositions. Alternatively, a non-reductionist can provide a full account of the grasping attitude in a way that suggests the object is non-propositional. However, this type of argument will need to look much different from the abilities argument that has been put forward in the literature thus far.

Furthermore, the debate between objectual understanding and understanding-why may come in handy for the non-reductionist. If non-reductionists could first show that objectual understanding does not take a propositional object and then show that objectual understanding is like understanding-why in the relevant respects, then non-reductionism of understanding-why would again be viable. Interestingly, this line of argument would borrow both from non-reductionist intuitions about objectual understanding and also from existing reductionist arguments that aim to show objectual understanding is similar to understanding-why in the relevant respects.

Reductionists about understanding, on the other hand, can rest easy for a bit. They are no longer making a contentious claim about the nature of know-how when they claim that abilities are in fact constitutive of understanding and yet understanding reduces to knowledge-that. In the end, the abilities that are constitutive of understanding-why do not give us reason to conclude that understanding is know-how.

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