

The Epistemic Value of Understanding-why

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Abstract

Some philosophers (e.g., Pritchard, Grimm, and Hills) recently have objected that veritism cannot explain the epistemic value of understanding-why. And they have proposed two anti-veritist accounts. In this paper, I first introduce their objection and argue that it fails. Next, I consider a strengthened version of their objection and argue that it also fails. After that, I suggest a new veritist account: Understanding-why entails believing the truth that what is grasped is accurate (or accurate enough), and it is this true belief, along with many other true beliefs understanding-why entails, that makes understanding-why finally epistemically valuable. Then, I explain why the two anti-veritist accounts are both false. Finally, I briefly discuss the idea that understanding involves a kind of know-how and show how veritism can explain the epistemic value of know-how in general.

Keywords: Understanding; epistemic value; veritism; know-how

Introduction

It is widely recognized that understanding-why is of high epistemic value. Understanding-why takes the “why” questions as its objects, such as “Peter understands why his plants’ leaves turned yellow” and “Siyi understands why Napoleon lost the battle of Waterloo.”¹ Apparently, understanding why *p* is more epistemically valuable than merely knowing that *p*.

Yet philosophers disagree on how to explain the epistemic value of understanding-why. According to a traditional view known as veritism, only true beliefs are of (basic) final epistemic value: If anything other than true belief is epistemically valuable, it is because it stands in a certain relation to true belief, e.g., it is a means of acquiring true beliefs, or it partly consists of true beliefs.² (N.B., to say that *X* is of final epistemic value is to say that *X* is valuable as an end in the domain of inquiry. And to say that *X* is valuable as an end in the domain of inquiry is to say that *X* is a goal of inquiry. Thus,

¹Understanding-why is different from objectual understanding, which is understanding of a topic, subject matter, or body of information. Whether objectual understanding can be reduced to understanding-why is a controversial issue. This paper is chiefly concerned with understanding-why.

²This formulation of veritism says nothing about final epistemic disvalue, which is not my concern in this paper. Veritism about both final epistemic value and disvalue states that “(i) true beliefs, and only true beliefs, have final epistemic value, and (ii) false beliefs, and only false beliefs, have final epistemic disvalue,” as Berker (2013: 369) characterizes it.

veritism is equivalent to the claim that *the* goal of inquiry is to obtain truth.) Veritists would say that the epistemic value of understanding-why can be fully explained in terms of the epistemic value of true belief. Roughly, understanding-why is of instrumental epistemic value because the person who understands why *p* is more likely to acquire true beliefs on similar issues than the person who does not. In addition, understanding-why is of (non-basic) final epistemic value because it partly consists of true beliefs: Understanding why *p* requires believing a set of true propositions such as that *p*, that *q*, and that *p* is the case because of *q*.

However, some philosophers (e.g., Pritchard 2010; Grimm 2012; Ahlstrom-Vij and Grimm 2013; Hills 2016) recently have objected that the veritist account of the epistemic value of understanding is false. And they have proposed two anti-veritist accounts. In this paper, I will first introduce their objection and argue that it fails. Next, I will consider a strengthened version of their objection and argue that it also fails. After that, I will suggest a new veritist account: Understanding-why entails believing the truth that what is grasped is accurate (or accurate enough), and it is this true belief, along with many other true beliefs understanding-why entails, that makes understanding-why finally epistemically valuable. Then, I will explain why the two anti-veritist accounts are both false. Finally, I will briefly discuss the idea that understanding involves a kind of know-how and show how veritism can explain the epistemic value of know-how in general.

1. The nature of understanding-why

Before addressing the objection to veritism, a few words on the nature of understanding-why are in order. Philosophers generally agree on two necessary conditions for understanding-why. (C1) Understanding why *p* requires believing the truth that *p* is the case because of *q*.³ (C2) Understanding why *p* requires grasping how *p* depends on *q*. Yet there is no consensus about what “grasping” precisely consists in. Since this paper mainly discusses the ideas of Stephen Grimm, Alison Hills, and Duncan Pritchard, I will only introduce their accounts of grasping.⁴

First, following Woodward (2003), Grimm holds that to grasp how the different aspects of a system depend upon one another is “to be able to anticipate how changes in one part of the system will lead (or fail to lead) to changes in another part” (Grimm 2010a: 89; cf. Grimm 2006). To illustrate this idea, Grimm (2010a, 2014) offers the following example: Suppose that your knee bumps the table at your local coffee shop, leading your cup to spill, and that I am a few tables over, taking this all in. To understand why the coffee spilled, I must not only believe that the coffee spilled because of the jostling, but also grasp how the spilling of the cup depends on the jostling of the knee, that is, to have an ability to anticipate what things would have been like, if the bump were less forceful, or if the knee bump did not occur, or if it were a fist bump instead, etc. Grimm further suggests that this idea of grasping can also be put in terms of the ability to answer what-if questions. For if one is able to anticipate how changes in one part of the system will lead (or fail to lead) to changes in another part, then one is able to answer a series of the relevant “What if...?” questions, and vice versa. Thus, to grasp how *p* depends on *q* is to be able to answer a series of the relevant “What if...?” questions.

³Here “because of” is to be understood in a broad sense, including both causal dependence and non-causal dependence. While I will mainly use examples of understanding why a natural event happened in this paper, my analysis purports to apply to moral and metaphysical understanding-why as well.

⁴For a recent survey of accounts of grasping, see Hannon (Forthcoming).

Second, on Hills' (2016) view, grasping a relationship between two propositions requires "cognitive control," which is a set of abilities. These abilities include following some explanation of why *p* given by someone else, giving an explanation of why *p* in your own words, drawing the conclusion that *p* (or that probably *p*) from the information that *q*, etc. (Hills 2016: 663). Further, Hills suggests that to have cognitive control to a great enough extent is to be able to answer a series of the relevant "What if ...?" questions, as she writes, "After all, how do you test whether someone really understands why global warming is occurring ...? You ask them a series of 'What if ...?' questions. What if the initial conditions were different? What would be the consequences? What if there was a different outcome? How could that be explained?" (Hills 2016: 666). Hills suggests if one cannot answer these questions, one does not understand why *p* very well, whatever else one can do. Thus, Hills largely agrees with Grimm that to grasp a dependency relationship is to be able to answer a series of the relevant "What if ...?" questions.

Finally, Pritchard claims that grasping how *q* depends on *p* amounts to an ability to give an explanation of why *p*. He writes, "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" (Pritchard 2014a: 321). Pritchard does not tell us what counts as an explanation, though. He might think that a legitimate explanation must take a certain specific form such as the DN model. But if he endorses a counterfactual theory of explanation and thinks that to give an explanation of why *p* is to answer a series of the relevant "What if ...?" questions, then his account of grasping is no different from Grimm and Hills'.

So much for the nature of understanding-why. I will now turn to the major objection to the veritist account in recent literature.

2. The objection from testimony

Pritchard (2010: 81) uses a case of testimony to argue that knowing that *p* because of *q* is not sufficient for understanding why *p*:

Suppose my house burned down, and a fire expert conducted an analysis of the fire scene. Consequently, she understands why my house burned down: it is because of faulty wiring. Surely, she also knows that my house burned down because of faulty wiring. Suppose my son believes, via the expert's testimony, that my house burned down because of faulty wiring. But he has no conception of how faulty wiring might cause a fire. Then, he does not understand why my house burned down. But he does seem to *know that* my house burned down because of faulty wiring, since he receives this information from a perfectly reliable source, and in a language he could understand.

Drawing on similar cases, some philosophers (e.g., Grimm 2014; Hills 2016) further suggest that understanding-why is not a species of propositional knowledge.

To this view, Sliwa (2015) responds that Pritchard is right – merely knowing via testimony that the house burned down because of faulty wiring is not sufficient for understanding why the house burned down. But it does not follow that understanding-why cannot be reduced to knowing a set of true propositions. If Pritchard's son also knows, via the fire expert's testimony, many other true propositions about faulty wiring, fire, and the house (in addition to the proposition that the house burned down because of faulty wiring), perhaps he would understand why the house burned down. Put

differently, if Pritchard's son does not understand why the house burned down, that is because he lacks sufficient (propositional) knowledge. If he has sufficient knowledge, he will understand why the house burned down.

However, some philosophers would disagree with Sliwa. On their view, even if Pritchard's son acquires via testimony exactly the same beliefs (and thereby exactly the same knowledge-that) as the fire expert has, he might fail to have any understanding of why the house burned down. This is because understanding why *p* requires grasping how *p* depends on *q*, but one might acquire via testimony exactly the same beliefs as the testimony giver (who understands why *X* happened) has, but fail to have any grasp of how *p* depends on *q*. To establish this point, Ahlstrom-Vij and Grimm (2013: 341) ask us to imagine an experienced fire investigator who is trying to teach her apprentice how to identify the causes of fires:

The investigator takes the apprentice to a couple of straightforward fire scenes, and starts to explain to the novice how certain features of the scene indicate that certain factors were present at the time of the fire, as well as how they contributed to the fire starting or spreading. Pretty soon, the novice will start to ask questions: "Why would this-or-that factor have this-or-that effect?" and so on. The investigator will do her best to answer the relevant questions with reference to the chemistry and physics of fires – radiation, conduction, proportioning, and so forth – but at some point, the why-questions have to stop. Because when the why-questions have probed deep enough, the investigator is just going to have to resort to saying "Well, can't you see that, if these factors are present, that's what's going to happen?" (Ahlstrom-Vij and Grimm 2013: 341)

At this point, the investigator has explained everything she knows about how to identify the causes of fires, and she has answered every question the apprentice could ask. Further, the apprentice epistemically defers to the investigator and is willing to believe whatever the investigator says. Still, the apprentice feels puzzled about certain things, and unlike the investigator, she is *unable* to read a new complex fire scene on her own.

The best explanation of this, according to Ahlstrom-Vij and Grimm (2013: 341), is not that the apprentice fails to believe certain propositions that the investigator believes, but that the apprentice does not – while the investigator does – "grasp certain causal dependencies between the variety of factors that went into the starting of the fire." Thus, one might acquire via testimony exactly the same beliefs as the testimony giver (who is an expert and understands why *p*) has, but fail to have any grasp of the relevant dependency relations that the testimony giver has.⁵

Drawing upon this idea, Ahlstrom-Vij and Grimm (2013) raise the following objection to veritism:

- (1) Understanding why *p* requires not only believing that *p* is the case because of *q* but also grasping how *p* depends on *q*.
- (2) One might acquire via testimony exactly the same beliefs as the testimony giver (who is an expert and understands why *p*) has, but fail to have any grasp of how *p* depends on *q*.

⁵This view is compatible with the claim that understanding can *sometimes* be easily transmitted via testimony.

- (3) Thus, one might acquire via testimony exactly the same beliefs as the testimony giver has, but fail to have any understanding-why that the testimony giver has. (from 1 & 2)
- (4) The person who understands why p is doing finally epistemically better than the person who does not (*ceteris paribus*).
- (5) Therefore, one might be doing finally epistemically better than another even though they share exactly the same beliefs. (from 3 & 4)
- (6) Veritism implies that two people who share exactly the same beliefs must enjoy the same final epistemic goods: One is not doing finally epistemically better than the other.
- (7) Thus, veritism is false. (from 5 & 6)

This is the objection from testimony. We have explained Premises 1–3, which are endorsed by many philosophers (e.g., Zagzebski 2001, 2008; Pritchard 2010; Hills 2016) who hold that grasping is an ability that often cannot be transmitted via testimony. And many seem to take Premise 4 to be a datum that a good account of the value of understanding-why should explain. Premise 5 follows from 3 & 4. Premise 6 is trivially true.

3. Why the objection from testimony fails

In this section, I will critically examine the objection and argue that Premise 2 is false. To refute Premise 2, we must show that if one acquires via testimony exactly the same beliefs as the testimony giver (who is an expert and understands why p) has, then one must have some grasp of how p depends on q. Here is an outline of my argument:

- (1) If one acquires via testimony exactly the same beliefs as the testimony giver (who is an expert and understands why p) has, then one knows that p is the case because of q.
- (2) If one knows that p is the case because of q, then one must be able to rule out a few alternatives to [p is the case because of q].
- (3) If one is able to rule out a few such alternatives, then one must be able to answer a few relevant “What if ...?” questions.
- (4) If one is able to answer a few relevant “What if ...?” questions, then one must have at least a rudimentary grasp of how p depends on q.
- (5) Therefore, if one acquires via testimony exactly the same beliefs as the testimony giver (who is an expert and understands why p) has, one must have at least a rudimentary grasp of how p depends on q.⁶

Premise 1 can be justified as follows. Since the testimony giver understands why p, she must believe the truth that p is the case because of q. Accordingly, if one acquires via testimony exactly the same beliefs as the testimony giver has, then one acquires via testimony the belief that p is the case because of q. Now the testimony giver is a reliable source of information (as she is an expert). It follows that if one acquires via her testimony the belief that p is the case because of q, one knows that p is the case because of q.

Premises 2 & 3 are both intuitively plausible. Reconsider the fire case. If one knows that faulty wiring caused the fire, then one must be able to rule out a few alternatives

⁶Malfatti (2020) makes a different argument that knowing requires grasping: In order to know that p because of q via testimony, one must make sense of the testimony giver’s utterance “p because of q.” In order to make sense of this utterance, one must grasp some relevant connections. Thus, in order to know p via testimony, one must grasp some relevant connections.

such as that a certain wire being red caused the fire, that the house spontaneously erupted into flames, that the house owner's washing his hands caused the fire, and so on. If one is able to rule out a few such alternatives, then one is able to answer a few "What if ...?" questions such as "If the color of the wire were different, would the house have burned down? If faulty wiring did not occur, would the house have spontaneously erupted into flames? If faulty wiring did not occur, would the house have burned down if the owner washed his hands?" (N.B., Premise 2 can be derived from the more general principle that knowing that *p* entails the ability to rule out at least some alternatives to *p*. This principle is intuitively appealing. The relevant alternatives theory of knowledge purports to capture this intuition.)

Premise 4 is true according to Grimm and Hill's account of grasping, which I take for granted for the sake of argument. On this account, grasping how *p* depends on *q* is defined in terms of the ability to answer a series of "What if ...?" questions. Premise 4 is couched in terms of "rudimentary grasp," which indicates that grasping comes in degrees. Grimm (2014) suggests that understanding-why comes in degrees because grasping comes in degrees, and grasping comes in degrees in the following sense: the more one's grasp of how *p* depends on *q*, the more relevant dependency relations one grasps, and the more "What if ...?" questions one can answer. To illustrate, consider two people, S1 and S2, who both believe that *X* was caused by *Y* and have some grasp of how *X* causally depends on *Y*. Suppose S1 sees a middle step between *X* and *Y*: *Y* first caused *M*, which then caused *X*. Suppose S1 grasps both how *X* causally depends on *M* and how *M* causally depends on *Y*. Then S1's grasp of how *X* causally depends on *Y* consists of (a) a grasp of how *X* causally depends on *M* and (b) a grasp of how *M* causally depends on *Y*. By contrast, S2 does not see any middle step between *X* and *Y*. Consequently, S2 grasps neither how *X* causally depends on *M* nor how *M* causally depends on *Y*. Intuitively, S2 has less grasp of how *X* causally depends on *Y* than S1, for S1 grasps more relevant dependency relations than S2, which enables S1 to answer more "What if ...?" questions than S2. For example, S1 can answer questions such as "If *Y* changed into *Y*^{*}, how *M* would have changed?" and "What if a certain thing prevented *M* from happening?" S2 is unable to answer such questions.⁷

Given Premises 1–4, it follows that Premise 2 of the objection from testimony is false. A logical consequence is that if one does not have any grasp of how *p* depends on *q*, then one cannot acquire via testimony exactly the same beliefs as the testimony giver (who is an expert and understands why *p*) has – in particular, one cannot genuinely believe that *p* is the case because of *q*. Put differently, genuinely believing the truth that *p* is the case because of *q* requires having at least a rudimentary grasp of how *p* depends on *q*. If it is not always easy to have a rudimentary grasp of how *p* depends on *q*, then transmission of belief and knowledge is not always easy, *pace* Zagzebski (2001, 2008) and Hills (2016). The apprentice might fail to believe what the expert tells her even if she epistemically defers to the expert and is willing to believe whatever the expert says.⁸

⁷One may improve one's grasping by acquiring new true beliefs, e.g., Ross (2020) suggests that acquiring a true belief that one does not know can sometimes help one grasp a set of dependence relations required for understanding.

⁸Even if the apprentice *thinks* she believes whatever the expert says, and she is ready to repeat it to others, it does not follow that she can genuinely believe every proposition the teacher says. As Grimm (2014: 337) notes, there are two other possibilities. First, the apprentice might simply be accepting the information as a parrot might – ready to repeat it, but without really grasping what is being said (or being repeated). Second, it might be that what the apprentice believes is not the proposition in question but rather a "nearby" proposition, such as that whatever the expert just said is true. Sliwa (2017) makes a similar point.

4. A new objection and why it also fails

Some might agree with my analysis above but think the objection from testimony can be strengthened. Specifically, given that grasping comes in degrees, one might acquire via testimony exactly the same beliefs as the testimony giver has, but have less understanding-why than the testimony giver has, for one might have less grasp of how p depends on q than the testimony giver has. In the case offered by Ahlstrom-Vij and Grimm, the apprentice, unlike the investigator, cannot read a similar new fire scene. The best explanation of this difference is not that the apprentice has no grasp of the relevant causal dependency, while the investigator has. Rather, the best explanation is that the apprentice has some grasp of the relevant causal dependencies, while the investigator has *more* grasp. The more grasp one has, the more understanding one has. Now the person who has more understanding-why is doing finally epistemically better (*ceteris paribus*). Thus, one might be doing finally epistemically better than the other even though they share exactly the same beliefs. It follows that veritism is false.

Interesting as this objection sounds, it cannot stand close examination. Here is why:

1. Understanding-why entails not only grasping the relevant dependency relations but also assenting to what is grasped.
2. To assent to what is grasped is to believe that what is grasped is accurate (or accurate enough).
3. If S1 (e.g., the testimony giver) has more grasp of how p depends on q than S2 (e.g., the testimony receiver), then S2 does not have an exact idea of what S1 grasps.
4. If S2 does not have an exact idea of what S1 grasps, then S2 cannot fully believe the proposition that what S1 grasps is accurate (or accurate enough).
5. Therefore, if S1 has more understanding than S2 because S1 has more grasp of how p depends on q than S2, then they cannot hold exactly the same beliefs.

Let me explain each premise in turn. To appreciate Premise 1, it is important to see that one might grasp dependency relations without assenting to what is grasped. Consider a Pyrrhonian skeptic who does not believe any propositions or theories about fire. Yet this does not prevent her from grasping how the relevant true theories work: She might still be able to apply them to different particular cases and draw the correct conclusions about the cause of each fire. Thus, a Pyrrhonian skeptic might grasp real worldly dependence relations via grasping how a true theory works. But since she does not assent to the true theory and the propositions about particular circumstances, she does not assent to what is grasped. (N.B., this would not prevent a Pyrrhonian skeptic from living a normal life or teaching apprentices how to analyze a fire scene like a non-skeptic.)

I'd like to further suggest that grasping dependency relations without assenting to what is grasped is analogous to entertaining/considering a proposition without believing that proposition. Many philosophers (e.g., Strevens 2008; Grimm 2010a; Greco 2014; Hills 2016) hold that we do not directly grasp real worldly dependency relations: We grasp real worldly dependency relations via grasping relations that hold among the propositional contents of our beliefs.⁹ Put differently, what we directly grasp is a representation, i.e., the dependency relations between various propositions. We

⁹Greco (2014) argues that we should make a distinction between the objects of grasping vs. the vehicles of grasping. The objects of grasping are real worldly causal dependency relations. Logico-linguistic relationships are the vehicles through which we grasp real worldly relations.

indirectly grasp real worldly dependency relations when the dependency relations between various propositions we grasp *accurately represent* or *mirror* the dependency relations between various facts (I will return to this point in section 6). This is just like we do not directly entertain/consider the facts. What we directly entertain/consider is a representation, i.e., a set of propositions. We indirectly entertain/consider the facts when the propositions we consider are true. Now we might entertain/consider a set of true propositions without believing them. Similarly, we might grasp an accurate representation of real worldly dependency relations without assenting to what is grasped. (Perhaps here is a better analogy: In order to believe a proposition, one must *grasp* the proposition. But one might grasp the proposition without believing it. To grasp a proposition is to see how some elements of the proposition are connected to other elements, that is, to grasp dependency relations between various elements of the proposition. Thus, in the case of grasping a proposition, one might grasp dependency relations without assenting to what is grasped. Grasping dependency relations between propositions is similar.)

In fact, some anti-veritists like Grimm note the possibility of grasping dependency relations without assenting to what is grasped. Grimm (2010b: 341) makes a distinction between what he calls “simple grasp” and “conditional grasp.” Simple grasp is the case where “we grasp a representation in a straightforwardly assenting way, as *when we take the representation to be the sober truth* about the system it represents” (Grimm 2010a: 89, my italics). By contrast, we *conditionally* grasp a representation when we do not straightforwardly assent to what is grasped, e.g., when we say “*Supposing* that Priestley was right, the lighting of the tinder was due to the presence of phlogiston.” Thus, for Grimm, simple grasp = conditional grasp + assent to what is grasped. I think the distinction between simple grasp and conditional grasp unnecessarily complicates the matter, for in the case of the so-called “conditional grasp,” we simply do not take the representation to be the truth about the system it represents, that is, we do not assent to what is grasped. Given this, I suggest what Grimm calls “conditional grasp” is better called “grasp *per se*” and what he calls “simple grasp” better called “grasp with assent.”

Intuitively, a Pyrrhonian skeptic who grasps how *p* depends on *q* without assenting to what is grasped does not understand why *p*, just like a Pyrrhonian skeptic who is able to ride a bike without believing what she rides is a bike does not *know* how to ride a bike.¹⁰ This point is recognized by many philosophers. For example, Baumberger *et al.* (2017: 6) claim that understanding requires individuals to “possess a representation of what is understood” and that “the representation must in some way be accepted by the agent.”

So much for Premise 1 of my response. Premise 2 states that to assent to what is grasped is to believe that what is grasped is accurate (or accurate enough). Specifically, assenting is a doxastic/propositional attitude. To assent to a certain proposition is to believe that the proposition is true (or true enough).¹¹ To assent to a certain non-propositional representation is to believe the *proposition* that the non-propositional representation is accurate (or accurate enough). Grimm and Hills suggest that what is grasped in the case of understanding-why is non-propositional representation. Let’s grant this view for the sake of argument. Then to assent to what is grasped is to believe

¹⁰Grimm and Hills claim that grasping dependency relations in the case of understanding-why is a kind of know-how. This claim is plausible because one assents to what one grasps in the case of understanding-why. I will discuss this point in the last section of this paper.

¹¹Grimm (2006) notes, belief is taken to be a kind of assent or saying ‘Yes’ to the content of the proposition: “to believe that something is so is to assent to the claim that things are so.”

the proposition that what is grasped – a non-propositional representation – is accurate (or accurate enough).

A few clarifications. (1) First, the phrase “accurate enough” in the parentheses means something similar to what Catherine Elgin means by “true enough.” Elgin (2004: 119) makes a distinction between belief and acceptance: “to accept a claim is not to take it to be true, but to take it that the claim’s divergence from truth, if any, is negligible. The divergence need not be small, but whatever its magnitude, it can be safely neglected.” Simply put, “We accept a claim ... when we consider it true enough.” However, this distinction between belief and acceptance seems unnecessary, for to take *p* to be true enough is just to believe that *p* is true enough. What Elgin actually draws is a distinction between believing that *p* is true and believing that *p* is true enough. Such a distinction can make sense of certain cases of understanding where the agent grasps dependency relations through an ideal model. Elgin claims that in such cases, the agent accepts the model without believing it is true. But this claim is essentially the same as the claim that the agent believes that while the model is not true, it is true enough.¹² (2) In addition, the claim that the person with understanding-why believes the proposition that what she grasps is accurate (or accurate enough) is consistent with the claim that it can be difficult for her to express what is grasped in words/propositions (and thereby difficult for her to transmit what is grasped to others via testimony). This is just like one can believe the proposition that a certain map is accurate without being able to describe everything of the map in words.¹³ (3) Further, there is no denying that, in the case of understanding-why, one might assent to what is grasped without being aware of the proposition that what one grasps is accurate. But again, this is consistent with the claim that one actually believes what one grasps is accurate. This belief might be simply unconscious.¹⁴

Now let’s move on to Premise 3, which states that if *S*₁ has more grasp of how *p* depends on *q* than *S*₂, then *S*₂ does not have an exact idea of what *S*₁ grasps. For if *S*₁ has more grasp of how *p* depends on *q* than *S*₂, then *S*₁ grasps more relevant dependence relations than *S*₂ (as we have seen above). But if *S*₂ has an exact idea of what *S*₁ grasps, then *S*₂ has an exact idea of all the dependence relations that *S*₁ grasps and thereby grasps exactly what *S*₁ grasps. Thus, Premise 3 is true.

Premise 4 states that if *S*₂ does not have an exact idea of what *S*₁ grasps, then *S*₂ cannot fully believe the very proposition that what *S*₁ grasps is accurate (or accurate enough). To see this, consider an analogy: Suppose you saw an exotic animal that I never saw. Suppose you try to explain what the animal looks like to me. I learned via your testimony that the animal has certain properties *F*. So, in a sense I have a mental representation of the animal. But *F* is not everything you noticed about the animal. You also noticed many other properties, which it is difficult for you to describe or explain to me. In this case, your mental representation of the animal is more complex than mine. I do not have an exact idea of what is on your mind. Suppose you tell me that you believe the proposition that your mental representation of the animal is accurate. I cannot fully believe this very proposition, however. For me, your mental representation of the

¹²It is worth noting that Elgin’s distinction between belief and acceptance is different from L.J. Cohen’s (1992) distinction. According to Cohen, one believes that *p* just in case one is normally disposed to feel it true that *p* when one considers whether *p*. By contrast, one accepts that *p* just in case one treats it as given that *p*.

¹³Sliwa (2017: 532) makes a similar point: “The fact that the expert knows that *p* does not guarantee that ... she will be able to express it in a sentence whose meaning captures exactly what she knows.” But she does not discuss whether knowing requires grasping.

¹⁴For discussions of unconscious beliefs, see section 2.2 of Eric Schwitzgebel’s entry “Belief” for SEP: Varieties of Implicit Belief (Schwitzgebel 2019).

animal consists of your belief (that the animal has certain properties F) + X, where I do not have the faintest idea of what X is. I can believe that your belief that the animal has certain properties F is true, but I cannot genuinely believe that X is accurate. So, I can only half-believe the proposition that your mental representation of the animal is accurate. Put differently, you and I cannot share exactly the same beliefs. Premise 4 is true for similar reasons.¹⁵

It is worth noting that Premise 4 can be generalized: if one does not have an exact idea of what *W* refers to, then one cannot fully believe a proposition formulated in terms of *W*. Dennett (2013: 68) offers the following example:

A young child is asked what her father does, and she answers, “Daddy is a doctor.” Does she believe what she says? In one sense, of course, but what would she have to know to really believe it? (What if she’d said, “Daddy is an arbitrager” or “Daddy is an actuary”?) ... Clearly her understanding of what it is to be a doctor ... will grow over the years, and hence her understanding of her own sentence, “Daddy is a doctor,” will grow. ... If understanding comes in degrees, as this example shows, then belief, which depends on understanding, must come in degrees as well, even for such mundane propositions as this. She “sorta” believes her father is a doctor – which is not to say she has reservations or doubts, but that she falls short of the understanding that is an important precondition for any useful concept of belief. (Cf. Dennett 1969: 183)

Such half-belief is often called quasi-belief. Dennett and some other philosophers (e.g., Stalnaker 1984; Recanati 1997) seem to think that belief and quasi-belief are not different in kind. Rather, their difference is merely a matter of degree. But some (e.g., Sperber 1982) argue that quasi-belief is an attitude different in kind from belief. I will not take sides on this issue. It is enough to point out that on either side, if S1 believes *p*, and S2 can only half-believe or quasi-believe *p*, then S1 and S2 cannot share exactly the same beliefs.

So far, I have explained each of the four premises of my response. If all these premises are true, then it follows that if S1 has more understanding than S2 because S1 has more grasp of how *p* depends on *q* than S2, then they cannot hold exactly the same beliefs. The strengthened version of the objection from testimony fails accordingly.

5. A new veritist account of the value of understanding

At the beginning of this paper, I noted that veritists can agree that understanding-why is of final epistemic value: Veritists would say understanding-why is of (non-basic) final epistemic value because it partly consists of true beliefs: Understanding why *p* requires believing a set of true propositions such as that *p*, that *q*, and that *p* is the case because of *q*.

Here I’d like to propose a new version of the veritist account by adding a few details. First, as the case of the Pyrrhonian skeptic shows, understanding why *p* requires not only (i) grasping the relevant dependence relations but also (ii) believing the truth that what one grasps is accurate (or accurate enough).¹⁶ Understanding-why is of

¹⁵Sliwa (2017: 533) also suggests that what the hearer can come to know based on the speaker’s testimony depends on the hearer’s linguistic and conceptual resources and how much the hearer already knows about the subject matter at hand. She does not discuss how this idea applies to grasping though.

¹⁶Grimm makes a distinction between subjective understanding and objective understanding. Grimm (2010a: 91) claims that objective understanding requires “the representation of the world that is grasped to be correct (more or less).” That is, one acquires objective understanding only when the dependency

final epistemic value partly because of (ii) rather than (i). (I shall say more about this in section 6.2, where I argue against Grimm and Hills' double mirroring account of the value of understanding.)

Second, veritism does not imply that all true beliefs are of equal final epistemic value, for veritism merely states that only true beliefs are of final epistemic value (cf. Hu 2017). Thus, veritists may hold that fully believing a certain truth p is of more final epistemic value than half believing p (if half-belief is a kind of belief). Suppose a biologist fully believes the truth that living organisms have descended with modifications from species that lived before them, while a middle school student can only half-believe the same truth. Then the biologist is doing finally epistemically better than the student with regard to the truth. In the case of understanding why the fire happened, the investigator fully believes the true proposition that what she grasps is accurate enough. But her apprentice can only half believe the same proposition. Thus, the investigator is doing finally epistemically better than the apprentice with regard to this proposition.

On top of that, veritists may incorporate our intuition that some truths are more significant than others by claiming that fully believing some truths is of more final epistemic value than fully believing some others. For example, fully believing a truth about how the solar system works is of more final epistemic value than fully believing a truth about the number of blades of grass in my backyard. This point has an implication on the value of understanding-why. Suppose the investigator has more understanding-why than the apprentice because the investigator has more grasp of how the fire causally depends on faulty wiring than the apprentice. Suppose the investigator fully believes the truth that what she herself grasps is accurate enough. And the apprentice also fully believes the truth that what she herself grasps is accurate enough. What the investigator grasps is different from what the apprentice grasps. So, they believe different truths. Veritists may say that fully believing the truth that what the investigator grasps is accurate enough is of more final epistemic value than fully believing the truth that what the apprentice grasps is accurate enough. This partly explains why the investigator is doing finally epistemically better than the apprentice.

Admittedly, veritists will have to do a lot of work to spell out what exactly makes some true beliefs more finally epistemically valuable than others (for preliminary discussions, see Grimm 2011 and Hu 2017). But it is plausible to say that veritism can incorporate the idea that some true beliefs are of more final epistemic value than some others, just like hedonism can incorporate the idea that some pleasures are more finally valuable than others.

6. Against two anti-veritist accounts

In this section, I will further defend the veritist account of the value of understanding-why by arguing against two anti-veritist accounts in recent literature: the double mirroring account and the achievement account.

6.1. The double mirroring account

Some anti-veritists (Grimm 2012; Ahlstrom-Vij and Grimm 2013; Hills 2016) argue that understanding-why is of final epistemic value, because it involves two things: (a) believing a set of true propositions and (b) grasping an accurate (or accurate enough) representation of the real worldly dependency relations. Both (a) and (b) are of final

relations between various propositions one grasps mirror the real worldly dependency relations. By contrast, if what one grasps does not mirror the real worldly dependency relations, one can only acquire subjective understanding. I focus on objective understanding-why in this paper.

epistemic value because they both mirror the world, in different ways or forms, and any accurate representation of the world is of final epistemic value. Veritists are wrong in denying that (b) is of final epistemic value.

How does grasping causal dependency relations mirror the world? We have seen that many philosophers hold that we do not directly grasp real worldly dependency relations: We grasp them via grasping relations that hold among the propositional contents of our beliefs. As Strevens (2008) and Hills (2016) note, grasping logico-linguistic relations (e.g., relations of deductive entailment and probabilistic support) that hold among our beliefs may mirror the causal dependency relations that obtain in the world if our beliefs are true. Suppose you believe that (a) the house burned down because of faulty wiring, and you grasp how this belief depends on the three other beliefs: that (b) there was faulty wiring, that (c) given faulty wiring and some other conditions, a fire will start, and that (d) these other conditions are satisfied in this case. Suppose this dependency relationship between your beliefs mirrors the dependency relationship between the facts in the world. Then when you grasp the dependency relationship between your beliefs, your mind is mirroring the dependency relationship between the facts in the world. As Hills (2016: 680) puts it, this kind of mirroring is about “the similarities between the relationships between those beliefs and the relationships between the facts in the world: for instance, a dependence between two beliefs might mirror a dependence between two facts.”

But how is grasping a dependence relation between two beliefs different from believing a true proposition about a dependence relation between two beliefs? How is the way [grasping dependency relations mirrors the world] different from the way [believing true propositions about dependency relations mirrors the world]? According to Grimm, when you merely believe/know (through testimony) a set of true propositions about the causal dependency relations between various facts (e.g., believing the proposition that the fire happened because of faulty wiring), your mind is propositionally mirroring the structure of the world, but in a shallow way. But when you grasp dependency relations between various facts via grasping dependency relations between various true beliefs, you are able to anticipate or “see” how changes in one factor of a system will lead (or fail to lead) to changes in another factor, “[your] mind will mirror the world more profoundly than before because [your] mind will now ‘take on’ the nomological structure of the world,” writes Grimm (2012: 109). A striking feature of this profound mirroring, according to Grimm (2017), is that it is “unsaturated,” in the sense that it is characterized in terms of unsaturated variables that can become saturated by taking on different values. Put another way, it is “mobile” in the sense that it can adapt and change as the variables take on different values. Further, this profound mirroring is non-propositional on Ahlstrom-Vij and Grimm’s (2013: 341) view, because “it would be very hard, if not impossible, to cash out what is grasped in propositional terms.”

To sum up, the double mirroring account states that understanding-why is of final epistemic value because it mirrors the world twice: both what is believed and what is grasped are accurate representations of the world. As Hills (2016: 680) puts it, “If mirroring the world is valuable for its own sake, exercising your understanding in order to understand why *p* must be valuable twice over.”

6.2. *Against the double mirroring account*

Insightful as the double mirroring account is, it falsely presupposes that “mirroring the world is [epistemically] valuable for its own sake.” Mere accurate representation of the world is not of final epistemic value, or so I shall argue.

To see this, consider the mirror analogy: A good mirror would form an image of a visible physical object placed in front of it. Such mirror images are accurate non-

propositional representations of reality. They are instrumentally valuable from an epistemic point of view: We can form true beliefs because of seeing such mirror images. But intuitively, it is implausible to say that the mirror is doing finally epistemically well when it forms an accurate image. Why so? A plausible explanation is that the mirror cannot take any epistemic attitude towards a mirror image. In particular, it cannot assent to the image.

Now our mind, like a mirror, can form an accurate mental image of an external object without assenting to the mental image. Suppose when I see two parallel lines, I form an accurate image of the two lines. But I might suspect that I am under delusion and that the lines are not actually parallel. In such a case, I do not assent to the image my mind forms: I do not believe that the image is accurate though it is actually accurate. Similarly, our mind can form a true proposition without believing that the proposition is true. It can also form an accurate mental map without believing that the map is accurate. Intuitively, when our mind forms an accurate representation – be it a proposition or a non-propositional image – without assenting to the representation (like the mirror), then we are not doing finally epistemically well: This accurate representation is of no final epistemic value.

I suggest that the bearer of final epistemic value consists in taking a special epistemic attitude towards an accurate (or accurate enough) mental representation, namely, *assenting* to it. To assent to a representation is to believe that it is accurate (or accurate enough). It follows that only true beliefs are the bearers of (basic) final epistemic value. The double mirroring account is right in claiming that true beliefs are the bearers of (basic) final epistemic value, but it is wrong in explaining what makes true beliefs finally epistemically valuable. On this account, true beliefs are of final epistemic value because their contents are true propositions, which are, as Hills (2016: 680) says, “an accurate reflection of the way things are: they are a mirror of nature.” But on my analysis, true beliefs are of final epistemic value not because their contents are true propositions, but because they involve *assenting* to true propositions. In addition, the double mirroring account is also wrong in claiming that merely grasping an accurate representation is of final epistemic value, for one might grasp an accurate representation without assenting to what is grasped, as we have seen in section 4.

6.3. The achievement account

The other anti-veritist account is based on the observation of a salient difference between the expert and her apprentice in the fire case: the expert believes the truth that faulty wiring caused the fire *because* she figures it out on her own (i.e., she exercises her grasp of the relevant dependency relations). By contrast, the apprentice believes the truth that faulty wiring caused the fire because the expert tells her so, not because she figures it out by herself. Some philosophers claim that this difference means that the expert makes an intellectual achievement, while the apprentice does not. They further argue that understanding-why is of (basic) final epistemic value because it is a kind of intellectual achievement. More specifically,

- (i) Believing the truth that p is the case because of q is a cognitive success.
- (ii) Grasping how p depends on q is an ability to answer a series of “What if ...?” questions.
- (iii) In the case of understanding-why, one believes that p is the case because of q *because* one grasps how p depends on q, and this belief-forming process involves either the overcoming of a significant obstacle or the exercise of a significant level of ability. (See Pritchard 2010.)

- (iv) “Achievements are successes that are because of ability where the success in question either involves the overcoming of a significant obstacle or the exercise of a significant level of ability” (Pritchard 2010: 70).
- (v) Therefore, understanding why p is an intellectual achievement.
- (vi) Intellectual achievements are of (basic) final epistemic value.
- (vii) Thus, understanding-why is of (basic) final epistemic value.

Call it the achievement account. Before critically examining this account, I’d like to note that Carter and Pritchard (2015) explain the epistemic value of know-how (e.g., knowing how to play a guitar riff) along similar lines: when one succeeds in doing something (e.g., playing a guitar riff) because of exercising one’s knowledge of how to do it (rather than because of luck), one makes an intellectual achievement. They seem to think understanding-why can be seen as a special case of succeeding in doing something because of exercising one’s know-how, since a grasp (with assent) of dependency relations is a kind of know-how (I will return to this point at the end of the paper).

6.4. *Against the achievement account*

The achievement account has been challenged on the ground that there are cases of easy understanding-why, which involve neither the overcoming of a significant obstacle nor the exercise of a significant level of ability, as some philosophers (Grimm 2012, 2020; Boyd 2017; Hu 2019) have shown. Given Pritchard’s definition of intellectual achievement, it follows that not all cases of understanding-why are intellectual achievements.

But this challenge does not help veritism much. If at least some cases of understanding are intellectual achievements, and intellectual achievement is of (basic) final epistemic value, then veritism would be false, for veritism states that only true beliefs are of (basic) final epistemic value. In what follows, I will grant Pritchard’s definition of achievement and argue that intellectual achievement is not of final epistemic value.

Suppose Peter is a six-year-old. Three-digit addition questions like “ $207 + 86 = ?$ ” are difficult for him. Yet Peter can overcome the difficulties and reliably solve such questions on his own. Thus, when Peter figures out $207 + 86 = 293$ because of ability, he makes an intellectual achievement, for his figuring out the answer involves both the overcoming of a significant obstacle and the exercise of a significant level of ability. Suppose you hold a PhD in mathematics. You can easily figure out the question on your own, but you never bother to do it. Instead, you believe that $207 + 86 = 293$ through Peter’s testimony (as you recognize that Peter can reliably solve such questions). Thus, your true belief does not amount to intellectual achievement, because it involves neither the overcoming of a significant obstacle nor the exercise of a significant level of ability. As Pritchard (2010) argues, easily acquiring a true belief through testimony is not an intellectual achievement (cf. Lackey 2009).

Now if intellectual achievement is of final epistemic value, then Peter is doing *epistemically* better than you on the math question. But it is implausible to say that a six-year-old is doing *epistemically* better than a mathematician on such simple addition questions. Therefore, it is implausible to say that intellectual achievement is of final epistemic value.

A possible objection: Some might think you are doing epistemically better than Peter in the sense that you have greater general mathematical ability than Peter. But with regard to that particular question, Peter’s performance is indeed epistemically better than yours.

While I agree that you have greater general mathematical ability than Peter, I do *not* think that Peter’s performance is epistemically better than yours with regard to the

particular question. Peter knows that $207 + 86 = 293$, so do you, for testimony generates knowledge in this case. Peter has some understanding of why $207 + 86 = 293$, so do you, for testimony also generates understanding in this case: It is easy for a mathematician like you to grasp how $207 + 86$ and 293 are connected. If both Peter and you know that $207 + 86 = 293$ and understand why so, then it is unclear why Peter's performance is *epistemically* better than yours on this question. It is implausible to say Peter understands why $207 + 86 = 293$ better than you.

To be sure, Peter's performance is an intellectual achievement, and we do value intellectual achievements. We do think that figuring out " $207 + 86 = ?$ " *on his own* is very meaningful to a six-year-old like Peter, though it is not very meaningful to a mathematician like you. But that seems to be because an intellectual achievement is of final value (in the sense that it can, like intellectual pleasure, make one's life better), *not* because it is of final *epistemic* value (just like intellectual pleasure is of final value, but not of final *epistemic* value).¹⁷

7. Conclusion

To sum up, I have defended the veritist account of the value of understanding against the objection from testimony. I have also argued that the two major anti-veritist accounts are flawed. In my view, understanding-why is of (non-basic) final epistemic value because it involves believing not only ordinary true propositions such as that p is the case because of q but also the extraordinary true proposition that what is grasped is accurate or accurate enough. This proposition is extraordinary in the sense that it is often difficult to transmit knowledge of it to others, for it is difficult to articulate what is grasped. Further, I have suggested that veritism can explain why more understanding why p is more finally epistemically valuable than less understanding why p .

Before closing, I'd like to further suggest that veritism can explain the epistemic value of know-how. Some philosophers (e.g., Grimm and Hills) claim that grasping dependency relations is a kind of knowing-how in the case of understanding-why (which requires assenting to what is grasped), i.e., knowing how to answer a series of what-if questions. We have seen that the objection from testimony appeals to the following view: One might acquire via testimony exactly the same beliefs as the testimony giver (who understands why p) has, without having any grasp of the dependency relations that the testimony giver has, that is, without knowing how to answer a series of what-if questions. Many anti-intellectualists hold a similar view about know-how: One might acquire via testimony exactly the same beliefs as the testimony giver (who knows how to φ) has yet fail to know how to φ . For example, Gilbert Ryle (1945) asks us to "imagine a clever [chess] player generously imparting to his stupid opponent so many rules, tactical maxims, 'wrinkles,' etc., that he could think of no more to tell him; his opponent might accept and memorise all of them, and be able and ready to recite them correctly on demand" (Ryle 1945: 5). Ryle claims that the "stupid" person "might still play chess stupidly, that is, be unable intelligently to apply the maxims, etc." (1945: 5). And he thinks this example shows that know-how cannot be reduced to a set of beliefs/knowledge-that: two people who share exactly the same beliefs/knowledge-that might differ in their know-how. But Ryle's argument seems invalid, for fully believing certain propositions about how to play chess – e.g., the proposition that w is a correct way to play chess – may require an ability to play chess. One can fully believe that w is a correct way to play only when one is able to play chess. And w may be too

¹⁷Pritchard (2014b) suggests a similar view, though he argues that understanding-why is of final epistemic value in his 2010 essay.

complicated to be completely expressed in words/propositions. Thus, even though the “clever” player told the “stupid” person that w is a correct way to play chess, the “stupid” person may not fully believe that w is a correct way to play chess and thereby “still play chess stupidly.” If this is correct, then veritists may argue, against the achievement account of the epistemic value of know-how (Carter and Pritchard 2015), that knowing how to φ is of (non-basic) final epistemic value because it entails believing a set of true propositions including that w is a correct way to φ .¹⁸

References

- Ahlstrom-Vij K. and Grimm S.R. (2013). ‘Getting it Right.’ *Philosophical Studies* 166(2), 329–47.
- Baumberger C., Beisbart C. and Brun G. (2017). ‘What is Understanding? An Overview of Recent Debates in Epistemology and Philosophy of Science.’ In S. Grimm, C. Baumberger and S. Ammon (eds), *Explaining Understanding: New Perspectives from Epistemology and Philosophy of Science*, pp. 1–34. Abingdon: Routledge.
- Berker S. (2013). ‘The Rejection of Epistemic Consequentialism.’ *Philosophical Issues* 23(1), 363–87.
- Boyd K. (2017). ‘Testifying Understanding.’ *Episteme* 14(1), 103–27.
- Carter A.J. and Pritchard D. (2015). ‘Knowledge-How and Epistemic Value.’ *Australasian Journal of Philosophy* 93(4), 799–816.
- Cohen L.J. (1992). *An Essay on Belief and Acceptance*. Oxford: Oxford University Press.
- Dennett D.C. (1969). *Content and Consciousness*. Abingdon: Routledge.
- Dennett D.C. (2013). *Intuition Pumps and other Tools for Thinking*. New York, NY: WW Norton & Company.
- Elgin C.Z. (2004). ‘True Enough.’ *Philosophical Issues* 14(1), 113–31.
- Greco J. (2014). ‘Episteme: Knowledge and Understanding.’ In K. Timpe and C. Boyd (eds), *Virtues and Their Vices*, pp. 285–302. New York, NY: Oxford University Press.
- Grimm S.R. (2006). ‘Is Understanding a Species of Knowledge?’ *British Journal for the Philosophy of Science* 57(3), 515–35.
- Grimm S.R. (2010a). ‘Understanding.’ In S. Bernekjer and D. Pritchard (eds), *The Routledge Companion to Epistemology*, pp. 84–94. New York, NY: Routledge.
- Grimm S.R. (2010b). ‘The Goal of Explanation.’ *Studies in History and Philosophy of Science Part A* 41(4), 337–44.
- Grimm S.R. (2011). ‘What is Interesting?’ *Logos and Episteme* 2(4), 515–42.
- Grimm S.R. (2012). ‘The Value of Understanding.’ *Philosophy Compass* 7(2), 103–17.
- Grimm S.R. (2014). ‘Understanding as Knowledge of Causes.’ In A. Fairweather (ed.), *Virtue Epistemology Naturalized*. Cham: Springer.
- Grimm S.R. (2017). ‘Understanding and Transparency.’ In S. Grimm, C. Baumberger and S. Ammon (eds), *Explaining Understanding: New Perspectives From Epistemology and Philosophy of Science*, pp. 212–29. Abingdon: Routledge.
- Grimm S.R. (2020). ‘Transmitting Understanding and Know-How.’ In S. Hetherington (ed.), *What the Ancients Offer to Contemporary Epistemology*. New York, NY: Routledge.
- Hannon M. (Forthcoming). ‘Recent Work in the Epistemology of Understanding.’ *American Philosophical Quarterly*.
- Hills A. (2016). ‘Understanding Why.’ *Noûs* 49(2), 661–88.
- Hu X. (2017). ‘Why do True Beliefs Differ in Epistemic Value?’ *Ratio* 30(3), 255–69.
- Hu X. (2019). ‘Is Knowledge of Causes Sufficient for Understanding?’ *Canadian Journal of Philosophy* 49(3), 291–313.
- Lackey J. (2009). ‘Knowledge and Credit.’ *Philosophical Studies* 142(1), 27–42.
- Malfatti F.I. (2020). ‘Can Testimony Transmit Understanding?’ *Theoria* 86(1), 54–72.

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- Pritchard D.** (2010). 'Part I. Knowledge and Understanding.' In D. Pritchard, A. Millar and A. Haddock, *The Nature and Value of Knowledge: Three Investigations*. New York, NY: Oxford University Press.
- Pritchard D.** (2014a). 'Knowledge and Understanding.' In A. Fairweather (ed.), *Virtue Epistemology Naturalized*, pp. 315–28. Cham: Springer.
- Pritchard D.** (2014b). 'Truth as the Fundamental Epistemic Good.' In R. Vitz and J. Matheson (eds), *The Ethics of Belief*, pp. 112–29. New York, NY: Oxford University Press.
- Recanati F.** (1997). 'Can We Believe What We do Not Understand?' *Mind and Language* 12(1), 84–100.
- Ross L.D.** (2020). 'Is Understanding Reducible?' *Inquiry: An Interdisciplinary Journal of Philosophy* 63(2), 117–35.
- Ryle G.** (1945). 'Knowing How and Knowing That: The Presidential Address.' *Proceedings of the Aristotelian Society* 46, 1–16.
- Schwitzgebel E.** (2019). 'Belief.' In E.N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/archives/fall2019/entries/belief/>.
- Sliwa P.** (2015). 'IV – Understanding and Knowing.' *Proceedings of the Aristotelian Society* 115, 57–74.
- Sliwa P.** (2017). 'Moral Understanding as Knowing Right from Wrong.' *Ethics* 127(3), 521–52.
- Sperber D.** (1982). 'Apparently Irrational Beliefs.' In M. Hollis and S. Lukes (eds), *Rationality and Relativism*, pp. 149–80. Cambridge, MA: MIT Press.
- Stalnaker R.** (1984). *Inquiry*. Cambridge: Cambridge University Press.
- Strevens M.** (2008). *Depth: An Account of Scientific Explanation*. Cambridge, MA: Harvard University Press.
- Woodward J.** (2003). *Making Things Happen: A Theory of Causal Explanation*. Oxford: Oxford University Press.
- Zagzebski L.** (2001). 'Recovering Understanding.' In M. Steup (ed.), *Knowledge, Truth, and Duty: Essays on Epistemic Justification, Responsibility, and Virtue*. New York, NY: Oxford University Press.
- Zagzebski L.** (2008). *On Epistemology*. London: Wadsworth Press.
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