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Knowledge and the Value of Cognitive Ability

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(Forthcoming in *Synthese*)

Abstract: We challenge a line of thinking at the fore of recent work on epistemic value: the line (suggested by Kvanvig [2003] and others) that if the value of knowledge is “swamped” by the value of mere true belief, then we have good reason to doubt its theoretical importance in epistemology. We offer a value-driven argument for the theoretical importance of knowledge—one that stands even if the value of knowledge is “swamped” by the value of true belief. Specifically, we contend that even if knowledge itself has no *special* epistemic value, its relationship to other items of value—*cognitive abilities*—gives ample reason to locate the concept at the very core of epistemology.

Keywords: knowledge; epistemic value, cognitive ability

1. Value-driven Challenges to the Theoretical Importance of Knowledge

As Matt Weiner [2005: 1] observes, “Analyses of knowledge should aspire not only to explain our use of the word ‘know’ *but also to explain why knowledge might be important.*” But, how is this explanatory task to be accomplished?

One straightforward route to vindicate the importance of knowledge would involve showing that knowledge has special (epistemic) value—that is, that knowledge bears epistemic value not attributable to any proper subset of its presumed parts (e.g. truth and justification).¹ To take this line, however, one must be prepared to meet recent and influential value-driven challenges by Kvanvig [2003; 2009*b*] and Pritchard [2010], challenges which advance (for different reasons) the claim that knowledge should be less important in epistemology precisely *because* knowledge is less epistemically valuable than widely assumed. Let’s briefly consider these value-driven challenges.

Kvanvig [2003] argues to the effect that knowledge lacks any special epistemic value in his much-discussed “Swamping Argument,” according to which the epistemic value of true belief is thought to ‘swamp’ the value of other paradigmatically epistemically valuable properties we might try to add to true

¹ The kind of value that has been of primary interest in the contemporary debate surrounding the value of knowledge (as well as the value of cognitive ability) is *epistemic* value; for ease of exposition, we use ‘value’ as a placeholder for epistemic value throughout. Also, we are not committing ourselves to any particular substantive account of what epistemic value *is* (as this extends beyond the scope of our purposes here), though we follow (broadly) Alston [2005: 28] in supposing something’s *epistemic* value is value it has when evaluated from a *purely epistemic point of view*—or, put alternatively, from a point of view where it is our purely epistemic ends that matter.

belief to get knowledge. If Kvanvig is right that the value of knowledge does not exceed the value of any proper subset of its parts, then a direct implication is that the insight² that knowledge possesses a special value not shared by those states that fall short would appear to be mistaken. Further, he suggests that if this insight is mistaken, then this counts against the theoretical importance of the concept of knowledge; after all, the theoretical importance of knowledge is justified in part by the implicit assumption that its possession has special value from an epistemic point of view. Kvanvig [2009a: 12] endorses this line of reasoning in his replies to critics:

... the myopic focus in the history of epistemology on the nature and extent of knowledge cannot be defended. The result may be that some special value can be found for knowledge, but it won't be a special value of the sort that would be needed to justify the singular attention to the concept of knowledge that the history of epistemology displays.³

Kvanvig suspects, and Riggs [2003] follows suit here, that it's *understanding*, rather than knowledge, that (i) our pre-theoretical intuitions license us to assume is something more valuable than mere true belief, and (ii) which accordingly belongs at the center of epistemological theory.⁴

Reaching this conclusion rather differently, Duncan Pritchard [2010] argues that it is *cognitive achievements*—which he, following Greco [1993; 2010] defines as cognitive successes primarily creditable to cognitive ability—that have special value, where cognitive achievement is, he argues, neither necessary

² Thanks to an anonymous referee for suggesting that, though the insight that knowledge has special epistemic value is a common insight (and one shared by many philosophers working on the value problem, e.g. especially those—viz. Goldman & Olsson [2009], Olsson [2007], Sosa [2007]—who have tried to meet Pritchard's and Kvanvig's challenges), it is helpful to consider why this insight is often held. There are many ways to make the point, but one helpful way is Pritchard's thought experiment for generating the insight: suppose you are offered by a demon the opportunity to have one hundred beliefs that qualify as knowledge, or one hundred merely true, but unknown, beliefs. Naturally, we would prefer to know; our preference can't be defended in terms of practical value. Accordingly, we suppose there is some epistemic value that knowledge has, but which states that fall short (i.e. merely Gettiered true beliefs) lack.

³ Kvanvig [2003] clarifies in the closing chapter that he has not argued that knowledge is not valuable, nor even that there are no valuable properties of knowledge besides truth: "...nothing argued here suggests that knowledge is not valuable. What has been argued is rather a more specialized point: that the problem suggested by Socrates in the *Meno* concerning whether knowledge has more value than its subcomponents is a problem requiring a negative answer. Knowledge is valuable, to be sure, but its value is exhausted by the value of a subset of its constituents" [Kvanvig 2003: 185].

⁴ In his [2003: 202] Kvanvig highlights "grasped coherence relations" as the especially valuable feature of understanding, and later in Kvanvig [2012] he focuses on the value of understanding in so far as it plays a special role in satisfying curiosity.

nor sufficient for knowledge.^{5,6} Because, however, cognitive achievement is, on Pritchard's view, an essential component of understanding (but not knowledge), Pritchard ultimately agrees with Kvanvig that the theoretical importance of knowledge is overstated, and that perhaps our central focus should be on some other epistemic state. Both Kvanvig's and Pritchard's *value-driven challenges* underscore the necessity of and the potential difficulty in providing an explanation of the theoretical importance of knowledge.

Our purpose in this paper is to suggest a value-related route for explaining the theoretical importance of knowledge, which does not require that we meet, or even engage with, Kvanvig's and Pritchard's challenges. Even supposing that the theoretical importance of knowledge cannot be vindicated by showing it to have some special value,⁷ we will suggest how considerations of value might bestow a certain theoretical importance to knowledge nonetheless—at least, assuming that having true beliefs rather than false beliefs is valuable.⁸ This importance derives from the theoretical role knowledge appears to play in assessing cognitive abilities: knowledge may well turn out to be important because the instrumental value of cognitive abilities vis-à-vis the end good of true rather than false beliefs is measured by (the extent of) their capacity to yield knowledge.

2. The Value of Cognitive Abilities

The first step in our discussion is to point out that, although much of the philosophical literature has focused on understanding which aspects of beliefs might be valuable *per se*,⁹ beliefs are only one of the kinds of things that we can appraise as valuable. One might be interested instead in appraising the value of

⁵ As Pritchard [2009b: 19] puts it: "...as matters stand, what we end up with is a kind of revisionism rather than a form of validationism, in that it is actually cognitive achievements that are distinctively valuable, rather than knowledge."

⁶ On Pritchard's [2010; *forthcoming*] view, cognitive achievements are not *necessary* for knowledge because of what he calls "Jenny-style" cases, which are testimony-style cases similar to Jennifer Lackey's [2007; 2009] "Chicago Visitor" case. Cognitive achievements aren't *sufficient* for knowledge because cognitive achievements are compatible with environmental luck—or so Pritchard contends. Cf. [REFERENCE SUPPRESSED] for an opposing view.

⁷ We dispute this point elsewhere. Cf. [REFERENCE SUPPRESSED]

⁸ When we speak of the end of good of having true rather than false beliefs, the complex end good we have in mind acknowledges not only the value of true belief, but the disvalue of false belief. For our purposes, it doesn't matter whether this end good is the only epistemic good. In this respect, we are not committing ourselves to what Pritchard has called epistemic value truth-monism, the view that truth is the sole fundamental epistemic good; we are open to the possibility that, as Riggs [2004] has suggested, understanding could be also a fundamental epistemic goal. We suggest only that truth is one such goal.

⁹ Responses to Kvanvig's "swamping problem" have typically taken the form of defending particular accounts of knowledge as requiring (for knowledge) epistemically valuable properties *of beliefs* that are not swamped by the value of a belief's being true. See Goldman & Olsson [2009] and Olsson [2007] for arguments to the effect that a belief's "being reliably formed" is not swamped by the value of its being true; see Greco [2010] and Sosa [2007] for similar arguments vis-à-vis beliefs that arise from intellectual virtue.

belief-forming dispositions. Indeed, it seems natural enough to think that certain belief-forming dispositions are valuable—those that qualify as genuine *cognitive abilities*.

For our purposes, cognitive abilities will simply be a species of stable dispositions involved in belief formation that are (at least) instrumentally valuable with regard to inquiry.¹⁰ Our understanding of cognitive abilities is not meant to be exclusive. We certainly want to include stable dispositions to form beliefs by way of faculties such as memory or eyesight as among a subject's cognitive abilities. Similarly, we want to include stable dispositions to engage in certain good inferential patterns from beliefs to other beliefs. However, intellectual character traits, viz. intellectual courage, might also qualify insofar as they have a regular impact on the formation of beliefs. Our intention is to remain somewhat neutral on what constitutes a cognitive ability as such. For instance, we will not take a position on whether or not *any* stable disposition that secures true belief under ordinary operating circumstances would be a cognitive ability.¹¹ For related reasons, we wish to be open minded about what exactly qualifies as a cognitive ability. Our discussion, accordingly, should be applicable to cognitive abilities understood as character traits—e.g. as these traits are conceived of by *virtue responsibilists*—and as reliable faculties—e.g. as they are conceived of by *virtue reliabilists*.

It is very plausible that cognitive abilities have at least some of their instrumental value in virtue of their connection to the end good of having true rather than false beliefs,¹² either by ordinarily *securing* this good¹³ (e.g. Sosa [1991], Greco [2002; 2010]), or by being characteristically *motivated* (e.g. Montmarquet [1991], Battaly [2004]) toward this end. The line taken by most virtue epistemologists is that the connection to true belief that is apposite for accounting for the truth-related instrumental value of cognitive ability is the former, rather than the latter. We will assume that cognitive abilities are typically instrumentally valuable

¹⁰ As Pritchard [forthcoming] points out, one might think of cognitive abilities more broadly, but we are, here, interested only in cognitive abilities that output beliefs.

¹¹ Likewise, we need not take a stand on whether a cognitive ability must secure true belief under ordinary circumstances. Perhaps there are cognitive abilities that are instrumentally valuable because of their connection to epistemic goods besides having true rather than false beliefs. See *fn* 8.

¹² Code [1987] can be understood as viewing the relevant epistemic end as something like intellectual flourishing; Zagzebski [1996] can be understood as viewing it as something like “cognitive contact with reality.”

¹³ Cf. Driver's [2003] discussion of the contrast between moral and epistemic virtues, for a more nuanced “reliabilist” account of the value of cognitive ability, according to which the value of cognitive ability is explained in terms of reliable acquisition of truth for the agent (as opposed to truth simpliciter). As Driver [2003: 374] suggests, “...intellectual virtues have—as their source of primary value—truth or, more weakly, justified belief for the person possessing the quality in question, and this is what ‘getting it right’ means for the intellectual virtues, whereas for the moral virtues the source of value is the benefit to others, the well-being of others, and for the moral virtues this is what ‘getting it right’ means. Further, no appeal to motive is needed to make the distinction at the level of value-conferring property. It is not the motive that makes the trait a given type of virtue.”

because (1) true belief is valuable while false belief is disvaluable, and (2) under ordinary operating circumstances, cognitive abilities secure true beliefs rather than false ones.

When it comes to the value of an already formed belief, it might be argued that the value of the property of *having been produced by cognitive ability* is “swamped” by the belief’s already being true.¹⁴ Much as one might not care about whether one’s coffee was produced by an able barista so long as the coffee has already turned out to be good, likewise, one might not care whether a belief has the property of having been produced by a cognitive ability, either, so long as the value of being true is already secured.¹⁵ Ostensibly, however, the instrumental value of cognitive ability will *not* be subject to “swamping” by the value of already delivered true beliefs in this way. Even though the good of true belief might already be gotten *in these cases*, it seems clear that a cognitive ability could continue to have instrumental value since it could be deployed again and again *to acquire further, as-of-yet-unattained true beliefs*. This seems to be the thought behind (somewhat hackneyed) adages like, “Give a man a fish and you feed him for a day. Teach a man to fish, and you feed him for a lifetime.” Even if or when the good of having a fish has already been gotten, the ability to fish continues to have instrumental value because this ability facilitates attaining the good again.

If cognitive abilities have instrumental value that is not “swamped” by the value of true belief, then, plausibly, cognitive abilities should have a position of theoretical importance in epistemology (particularly if the kind of value in question is epistemic value).¹⁶ This result opens up the possibility of a way in which knowledge might retain theoretical prominence in the face of the value-driven challenges mentioned previously (in §1). Suppose that, as it turns out, the nature of knowledge is intimately tied up with the nature of cognitive ability, so that the former is central to understanding certain aspects of the latter. Then, it might turn out that knowledge inherits much of the theoretical importance of cognitive ability *even if* it turned out that the value of knowledge itself is “swamped” by the value of true belief. That is precisely what we suggest might be the case.

3. Knowledge and Cognitive Ability

¹⁴ In [REFERENCE SUPPRESSED], we argue that this is not the case.

¹⁵ Cf. Zagzebski [2003] for a notable example of this sort of argument.

¹⁶ In his earlier work on intellectual virtue, Kvanvig [1992] argues that intellectual virtues deserve a more fundamental place in epistemology, and that an important research project (more important to epistemology than an examination of the valuable properties of beliefs) is the specifically the social and diachronic aspects of intellectual virtue.

This last suggestion leads us to the second step of our discussion: in this section, we consider how knowledge might be central to understanding aspects of cognitive abilities.

There is, to begin with, the possibility that cognitive abilities might be best characterized in terms of knowledge. A cognitive ability (at least in the sense that we are interested in here) is a relatively stable belief-forming disposition. But, obviously, not all belief-forming dispositions are cognitive abilities. Plausibly, the difference between cognitive abilities and mere belief-forming dispositions is that the former but not the latter have the capacity to yield knowledge—not infallibly, of course, but when conditions are favorable. This sort of idea is suggested by Pritchard [forthcoming: 12] when he writes, “...a cognitive ability is a knowledge-conducive belief-forming process.” Mere belief-forming dispositions might, of course, *happen* to yield true beliefs, but these true beliefs are just “lucky.” By contrast, cognitive abilities have the capacity to yield true beliefs systematically even if not in all possible circumstances. But arguably knowledge (and not, for instance, mere justified true belief) is precisely this systematically produced species of true belief, so the difference between cognitive abilities and mere belief-forming dispositions might appear to be precisely this capacity to yield knowledge. (Whether knowledge is, in fact, this systematically produced species of true belief depends on what we say about the lottery paradox. See §6.)

This line of reasoning will convince some but not others. Although it strikes us as not entirely implausible, we do not endorse it here. Some will want to contest the proposed link between knowledge and cognitive ability while others will claim that the explanatory order goes from the latter to the former rather than holistically or the other way around. For our purposes, we can remain neutral at least on the question of explanatory order. What matters for us is not that cognitive abilities be constitutively explained by their capacity for yielding knowledge. Our contention will be rather that (the extent of) this capacity for yielding knowledge is very plausibly the *best measure* of the instrumental value of a cognitive ability whether or not it constitutes it as such.¹⁷

¹⁷ Here, we restrict the instrumental value under consideration to the instrumental value vis-à-vis the end good of having true rather than false beliefs. Henceforth, when we speak of instrumental value, the reader should understand this restriction as applying implicitly. By restricting the discussion in this way, we do not intend to indicate that cognitive abilities are only instrumentally valuable towards this end rather than some other. See *fn.* 8 and 11. We simply intend to point out that knowledge has some theoretical importance when it comes to assessing this particular kind of instrumental value whether or not cognitive abilities are instrumentally valuable in other respects (e.g. in virtue of their connection with some other epistemic good or goods).

To begin to motivate our contention, consider how we should measure the instrumental value¹⁸ of a doctor vis-à-vis the end good of having healthy rather than unhealthy patients. It should be relatively clear that what matters for these purposes is not the frequency at which patients of this doctor improve in health. Having healthy patients is an end good of medicine, but even ineffective doctors—e.g. ones that use questionable techniques like, for example, blood-letting leeches—will end up with some healthy patients. Indeed, the frequency at which patients improve might be quite high even for ineffective doctors if only because human beings might be fairly resilient even in the face of bad medicine. Moreover, it doesn't make you an ineffective doctor to take patients that, due to the seriousness of their illness, are more likely to die (as, for example, oncologists do). What matters, then, is the *difference* that a doctor makes for the health of his or her patients—that is the proportion that improve precisely *because of* the doctor's intervention—rather than the proportion that improve in health overall.

Similarly, when measuring the instrumental value of a cognitive ability, what matters should not be whether the cognitive ability has the capacity to yield true beliefs or even the frequency of true beliefs so much as the *difference* that having a cognitive ability makes in these respects over and above alternative belief-forming dispositions.

Both a cognitive ability and a standard exemplar of a mere belief-forming disposition will yield some baseline proportion of true beliefs, but a cognitive ability will turn out to be instrumentally valuable due to the extra proportion that it yields. In order to yield this extra proportion, however, cognitive abilities must yield true beliefs systematically so that there are some beliefs that are true rather than some beliefs that are false *because of* the presence of cognitive abilities.¹⁹ Once again though, it is arguable that knowledge is precisely this systematically produced species of true belief. Consequently, it appears that instances of knowledge are the difference-making species of true belief that account for instrumental value of cognitive abilities: the more robust the capacity for producing this particular species true beliefs, the more the instrumental value of the cognitive ability in question.

¹⁸ To make this analogous in the relevant way, suppose here the value at issue here is purely “health” value, as opposed to any other value. By parity of reasoning, (a la Alston) health value would be the value something has when evaluated from the point of view where it is just health considerations that matter.

¹⁹ The relevant because of relation here has been articulated in various ways by virtue epistemologists who view knowledge as a kind of success because of ability. Zagzebski [1996] uses the ‘because of’ locution but does not offer a thorough explanation. Following Greco [2010] one might say that a belief's being correct (as opposed to incorrect) is because of one's cognitive ability just in case, that one is correct rather than incorrect, is primarily creditable to that ability, and this will be so when the ability is most salient in a causal explanation of the belief's being correct.

It is important to notice that we are making *no* assumption concerning what value the property of being knowledge might confer on a belief above and beyond the value conferred by being true. Our suggestion is rather that the instrumental value of cognitive abilities is measured by their prospects for delivering knowledge. Our explanation for this suggestion is that further instances of knowledge account for the *marginal increase* of the proportion of the good of true belief that are brought about by the presence of more valuable cognitive abilities over and above the presence of less valuable belief-forming dispositions (including less valuable cognitive abilities). Our claim and the supporting explanation are entirely compatible with thinking that these true beliefs at the margin—e.g., these instances of knowledge—are no more valuable than true beliefs that are definitively not at the margin—e.g., instances of mere true belief. We suggest that knowledge is theoretically important because knowledge, rather than other species of true belief or true belief more generally, is directly relevant to the measure of the instrumental value of cognitive ability *whether or not knowledge is more valuable than true belief*. (Compare: having been cured is theoretically important for medicine because having been cured, rather than other species of improved health, is relevant to the measure of the instrumental value of a doctor whether or not having been cured is more valuable than improving health in some other way.) The reason is that the measure of the instrumental value of cognitive ability is precisely a matter of what happens *at the margin* when a more valuable cognitive ability is substituted for a less valuable belief-forming disposition. This is just another way of saying that the instrumental value of cognitive abilities should be assessed by the *difference* they make in increasing the proportion of true beliefs.

For our purposes, the point that is most crucial to defend is that *it is instances of knowledge, rather than some other species of true belief, that constitute the marginal increase in the proportion of this end good brought about the presence of a more valuable cognitive ability*. In particular, we must support the claim that *knowledge* rather than *justified true belief* is the species of true belief which is systematically produced as such by more instrumentally valuable cognitive abilities so as to account for a higher proportion of delivered true beliefs. To support this claim, we must show not only that knowledge yielded by a cognitive ability does raise the proportion of true beliefs, but also, for instance, that Gettierized justified true beliefs delivered by cognitive abilities do not generally do so.

4. Gettierized Justified True Belief

In this section, we begin our defense of the claim that it is a more robust capacity to yield un-Gettierized justified true belief *per se* rather than justified true belief that marks a cognitive ability as more instrumentally valuable. Whether this claim is enough to establish that it is a more robust capacity to yield *knowledge (per se)* that marks a cognitive ability as more instrumental valuable depends on, for instance, whether un-Gettierized justified true belief is one and the same with knowledge.²⁰ We will consider these and other related issues in §6. For this and the next section, we will content ourselves to argue that the instrumental value of a cognitive ability is determined by the extent of its capacity for un-Gettierized justified true belief.

We will begin in this section by arguing first for a *restricted conclusion* about the comparative instrumental value of two cognitive abilities that, as such, are both capable of delivering knowledge. The conclusion is that a cognitive ability, *A*, is more instrumentally valuable than another cognitive ability, *B* if and only if *A* yields proportionately *fewer* Gettier cases than *B* across the space of ordinary possibilities (of which the actual world is presumably one).

For our purposes, we will stipulate a Gettier case to be a case of justified true belief such that, given how the belief is formed, a false belief could easily have been formed instead. More carefully, a Gettier case is a case of a justified true belief such that in (not just some but) significantly many nearby possible worlds where the subject forms a belief in the relevantly same way as she forms her belief in this case, the subject's belief is false.

There are two ways that this definition of Gettier cases might be met.

First, Gettier cases might be cases of *intervening luck* where luck “comes betwixt the ability and the success.”²¹ Gettier's [1963] original counterexamples to the tripartite theory of knowledge are cases of intervening luck. Intervening luck cases involve a reasonable and unavoidable mistake in the process of forming the belief in question. Given this mistake, one should not expect the formed belief to be true. In significantly many nearby possible worlds with this mistake, the belief is false. Yet, the belief turns out to be true in this case despite the mistake.

²⁰ Zagzebski [1996] points out that it is typical in contemporary epistemology to think that knowledge is non-accidentally true belief, but notes that to endorse as much is not to offer a substantive account of knowledge, but rather, to articulate a desideratum that an adequate account of knowledge would have to preserve. We suggest in a similar vein that something counts as knowledge only if satisfying this desideratum while leaving the question open as to what a substantive condition realizing this desideratum would look like.

²¹ Pritchard [2009b: 410] who paraphrases from Unger [1968: 159].

Second, Gettier cases might be cases of *environmental luck*. In a case of environmental luck, environmental features that ordinarily would lead the belief-forming process to issue a false belief do not do so. Barn façade cases exemplify environmental luck. In these cases, the subject could, in the relevantly same way, easily have formed a different false belief about one of the many surrounding barn façades rather than the belief she did in fact form about a real barn. In significantly many nearby possible worlds where the subject attempts to categorize something as a barn merely by the visual appearance of the façade, the resulting belief is false.

Whether in cases of intervening or environmental luck, a prerequisite of a Gettier case is the *fallibility* of the cognitive abilities that delivered the Gettierized justified true belief. Indeed, for a Gettier case to occur, *this fallibility must be made manifest* due to unfavorable circumstances. These unfavorable circumstances might contribute to the subject making an unavoidable mistake in the reasonable formation of her belief resulting in a case of intervening luck. Alternatively, these unfavorable circumstances might ordinarily lead to such a mistake even if they don't in the case in question—as in a case of environmental luck. The agent must have the “bad luck” of one or the other of these kinds of unfavorable circumstances before also having some “good luck” so that the belief in question turns out to be true nevertheless.²² However, cognitive abilities that are more instrumentally valuable are precisely just those that are less fallible, especially across the range of ordinary possibilities. Hence, the fallibility of these more instrumentally valuable cognitive abilities will not be made manifest under quite so many ordinarily possible circumstances.

The result is our intended restricted conclusion: these more instrumentally valuable cognitive abilities (being less fallible) will yield Gettier cases under a narrower range of ordinarily possible circumstances, and any cognitive abilities that yield Gettier cases under a narrower range of ordinarily possible circumstances (being less fallible) are more instrumentally valuable cognitive abilities. It is an immediate corollary of this conclusion that when it comes to determining whether one cognitive ability is more or less instrumentally valuable than another cognitive ability what matters is not the capacity for delivering justified true belief *per se*, but rather the capacity for delivering un-Gettierized justified true belief. Both capacities are inversely correlated with the fallibility of the cognitive ability in question, but only because un-Gettierized justified true belief is the most prominent kind of justified true belief. The

²² Cf. Zagzebski [1994].

inverse correlation between the capacity for un-Gettierized justified true belief and fallibility is the more explanatory of the two, precisely because the capacity for Gettierized true beliefs is positively correlated with fallibility (and hence not with instrumental value). Thus, for the purposes of weighing instrumental value, the extent of the capacity for un-Gettierized justified true belief is the proper measure.

5. Gettierized Justified True Belief Again

We think that these results can be generalized so as to apply not only to comparing the instrumental values of cognitive abilities, but also measuring the value of a cognitive ability against mere belief-forming dispositions. Of course, it would be quite strange if the capacity for Gettierized justified true beliefs *per se* helped to explain why cognitive abilities yielded proportionately more true beliefs than mere belief-forming dispositions even though, among cognitive abilities, this capacity is positively correlated with greater fallibility. However, the generalization is not immediately obvious given that mere belief-forming dispositions do not lead to Gettier cases precisely because they do not deliver *justified* beliefs. In short, we cannot say that a cognitive ability leads to proportionately fewer Gettier cases than a mere belief-forming disposition across the space of ordinary possibilities because the latter doesn't lead to any.

However, we can generalize on our result from last section by recognizing that Gettier cases are a subspecies of a more general kind of case: luckily true beliefs. For our purposes, it is helpful to understand luckily true beliefs (of the variety we are taking to be incompatible with knowledge) in the following way: a belief is luckily true (and so not knowledge) just in case, given how it is formed, a false belief could easily have been formed instead. More carefully, a case of luckily true is a case of a true belief such that in (not just some but) significantly many nearby possible worlds where the subject forms a belief in the relevantly same way as she forms her belief in this case, the subject's belief is false. The difference, then, between Gettier cases and other cases of luckily true beliefs is that the beliefs in Gettier cases are justified.

To avoid confusion, it is worth noting that there is another irrelevant sense in which a true belief can be "lucky" in a way that is compatible with knowledge: these are cases of *evidential luck*, where it is lucky that one has some true belief *p* because one could easily not have had the evidence she does for *p*.²³ By way of example, consider this fluke belief acquisition: Jill happens to trip and fall in such a way that she notices on the ground a small diamond and forms the belief *there is a diamond on the carpet*. While she could have

²³ Cf. Engel [1992] and Pritchard [2005].

easily not have had the true belief that she does (because she could have easily not fallen and acquired the evidence she has), it is *not* lucky that the belief that she formed was true. Jill knows *there is a diamond on the carpet*. The relevant sense of luckily true belief for our purposes (following Pritchard [2005]) is one where we hold fixed the way the belief was formed and then ask: could a false belief easily have been formed instead? If so, the belief is luckily true and in a way that is incompatible with knowing.

Luckily true beliefs of this sort form a more general kind than Gettier cases wherein the fallibility of a belief-forming disposition is made manifest due to circumstances that are unfavorable for the production of true beliefs by this disposition, and yet some delivered belief turns out to be true anyway by further good “luck.” Luckily true beliefs turn out to be Gettier cases when the belief-forming disposition in question is a cognitive ability that yields justified beliefs. However, luckily true beliefs don’t just include Gettier cases; they encompass all true beliefs that are not un-Gettierized justified true beliefs. The reason is that if the belief-forming disposition in question is *not* a cognitive ability, any true belief that the disposition delivers will turn out to be a luckily true belief. We can appreciate this point by noticing that there are only two ways that a mere belief-forming disposition might produce a true belief, coinciding at least roughly with the two kinds of Gettier cases.

First, the disposition might deliver the true belief due to something that looks like intervening luck. For instance, a wishful thinker might believe himself to be the next lottery winner, and, on that basis, believe that someone in their neighborhood will be the next lottery winner only to discover that he is right because his neighbor has won the lottery. This kind of case is fairly analogous to Gettier’s original counterexamples.

If the true belief is not delivered by the belief-forming disposition in this intervening luck kind of way, then it will almost certainly be delivered due to something that looks like environmental luck precisely because a cognitive incompetency will typically *not* deliver true beliefs safely, i.e. across the vast majority of nearby ordinary possibilities. For instance, wishful thinking might happen to work so that the wishful thinker turns out to be right in believing that he is the next lottery winner, but this isn’t a safe result: the features of the environment (e.g. the size of the lottery and the fairness of the draw) in which the agent is forming the target belief would ordinarily make it so that that belief-forming process to a false belief, but don’t do so in this case.

The fact that Gettier cases and mere true unjustified beliefs naturally fall under the more general kind of luckily true beliefs should prime us for the possibility that the regular production of neither one is

symptomatic *per se* of an especially instrumental valuable cognitive ability. This leads us to our *unrestricted conclusion*: a cognitive ability, *A*, is more instrumentally valuable than another belief-forming disposition, *B* if and only if *A* yields proportionately *fewer* cases of luckily true belief than *B* across the space of ordinary possibilities (of which the actual world is presumably one). In other words, *A* is more instrumentally valuable than *B* if and only if *A* yields proportionately more cases of un-Gettierized justified true belief than *B*.

Our argument for this unrestricted conclusion parallels our argument for the restricted conclusion. A prerequisite for cases of luckily true belief is the *fallibility* of the belief-forming dispositions that delivered the luckily true belief. Indeed, for a case of luckily true belief to occur, *this fallibility must be made manifest* (in the form of something at least analogous to either intervening or environmental luck) due to unfavorable circumstances. However, belief-forming dispositions that are more instrumentally valuable are precisely those that are less fallible, especially across the range of ordinary possibilities. Hence, the fallibility of these more instrumentally valuable belief-forming dispositions will not be made manifest under quite so many ordinarily possible circumstances. This time, the result is our intended unrestricted conclusion: these more instrumentally valuable belief-forming dispositions (being less fallible) will yield luckily true beliefs under a narrower range of ordinarily possible circumstances, and any belief-forming dispositions that yield luckily true beliefs under a narrower range of ordinarily possible circumstances (being less fallible) are more instrumentally valuable belief-forming dispositions. In other words, when it comes to determining whether one belief-forming disposition is more or less instrumentally valuable than another, what matters is the capacity for delivering true beliefs that aren't luckily true beliefs. These *systematically* true beliefs are un-Gettierized justified true belief.²⁴

6. Knowledge

Our conclusion from last section is not sufficient to establish the truth of our original suggestion that the extent of the capacity for yielding knowledge is the measure of the instrumental value of a cognitive ability. Instead, we have established that what matters is the extent of the capacity for delivering un-

²⁴ We assume that being systematically true is sufficient for the belief to be justified. This assumption might be doubted for if being a 'lottery belief' (see §6) is not only incompatible with knowledge, but also justification. Cf. Nelkin [2000], Sutton [2007], Smith [2010], and Littlejohn [2012]. As we are not here interested in the nature of justification, we are happy to use 'justified' in a quasi-stipulative way so as to avoid these difficulties.

Gettierized justified true beliefs. However, although un-Gettierized justified true belief is a necessary condition for knowledge, there is still an outstanding question whether knowledge is identical to un-Gettierized justified true belief—as we pointed out in §4.

Indeed, this question is pressing given that there are reasons for thinking that knowledge is not identical to un-Gettierized justified true beliefs due to *lottery cases*. By way of example, if n is the number of tickets in a lottery L , and n is a sufficiently large, a belief that the k^{th} ticket (where $0 < k \leq n$) will lose this lottery L would appear to be a justified true belief, assuming that it is true. Call these true beliefs rationalized by lotteries, “lottery beliefs.” It is arguable that lottery beliefs are not knowledge. However, lottery beliefs do not qualify as luckily true beliefs—and hence as Gettierized justified true beliefs either. There are nearby possible worlds where the subject forms a belief in the relevantly same way as she forms her lottery belief and the subject’s belief is false—because the belief is about the lottery ticket that wins rather than loses. However, there are not *significantly many* nearby possible worlds because n is sufficiently large. Indeed, this is definitional of what it is for n to be *sufficiently* large.

Nevertheless, a disposition to form lottery beliefs appears to be instrumentally valuable vis-à-vis the end good of having true rather than false beliefs. Assuming that lottery beliefs are justified beliefs, this claim is not problematic for our conclusion from last section that what matters is the extent of the capacity for delivering un-Gettierized justified true beliefs. However, it is problematic for our original suggestion that instrumentally valuable cognitive abilities are distinguished by their capacity for knowledge *per se*. We see three ways to respond to this challenge to our original suggestion.

First, appearances to the contrary notwithstanding, we may have reason to judge that lottery beliefs *are* knowledge. It may be that, on closer inspection, most instances of knowledge are not relevantly different from paradigmatic lottery beliefs.²⁵ If so, then rather than become eliminativists about knowledge, it may be more reasonable to simply accept that lottery beliefs are instances of knowledge, in which case, there is no barrier to accepting that knowledge is one and the same epistemic kind as un-Gettierized justified true belief. With this identification, the challenge dissolves.

Second, even if lottery beliefs are not knowledge, it may be that the justification for lottery beliefs is always explained by the presence of some or other instances of knowledge. In the example of the lottery L , it may be that our justification for believing that the k^{th} ticket (where $0 < k \leq n$) will lose this lottery L is

²⁵ Cf. Hawthorne [2004], Reed [2010], and Hill & Schechter [2007]

explained by our knowledge of how the lottery works, including that it is a “fair” lottery with n tickets. If one can have lottery beliefs only in the presence of certain kinds of knowledge, then we should measure the extent of the capacity of a disposition to produce lottery beliefs by measuring the extent of the capacity of some or other cognitive abilities to yield knowledge. We think that this result would establish the spirit of our suggestion that knowledge is theoretically important when it comes to appreciating the instrumental value of cognitive abilities and belief-forming dispositions.

Finally, suppose that, as it turns out, all we can say is that the measure of the instrumental value of a cognitive ability is the extent of the capacity for un-Gettierized justified true beliefs—including both lottery beliefs and knowledge, which are of distinct kinds. Even if this result falls short of our original suggestion, still, it gives some theoretical prominence to knowledge as one of the kinds that is relevant to measuring the instrumental value of belief-forming dispositions. More theoretical prominence might follow depending on how the principled division between lottery beliefs and knowledge is drawn.

7. Conclusion

It is natural to think that, in order to support the contention that the concept of knowledge should retain centrality in epistemic discourse, one would need to provide an adequate support for the claim that knowledge has some special value. Here, we suggested that, despite what might be appearances to the contrary, alternative resources can be marshaled to defend the theoretical importance of our concept of knowledge; this route does not depend on the success of resisting arguments from the likes of Kvanvig and Pritchard (among others) who contend that knowledge lacks such special value. Our argument has two stages:

First, we identified a way in which the theoretical prominence of knowledge *could* be well-founded *even if* knowledge has no value over and above that of true belief. Towards this end, we point out that, very plausibly, cognitive abilities have instrumental value that couldn't be “swamped” by the value of true belief. As a result, we suggest that, if the nature of cognitive ability is intimately tied to the nature of knowledge, then grounds for the theoretical prominence of knowledge could be derived by citing its special relationship to cognitive ability (which is clearly valuable), even if the value of knowledge is “swamped” by the value of true belief.

Second, we set about defending the claim that the nature of cognitive ability, is, in fact, tied to the nature of knowledge. In §3, we claimed that the measure of the instrumental value of a cognitive ability is not its capacity to produce true belief, or the frequency of true beliefs it produces, but rather, the *difference* that having a cognitive ability makes in these respects over and above alternative belief-forming dispositions. In §§4-6, we suggested that it is *instances of knowledge*, rather than some other species of true belief (e.g. justified true belief), that account for the marginal increase of the proportion of the good of true beliefs that are brought about by the presence of more valuable cognitive abilities over and above the presence of less valuable belief-forming dispositions. In §§4-5, we argued that in assessing the instrumental value of a belief-forming disposition, the significant feature is its capacity for yielding beliefs that aren't luckily true. So, what matters is not the extent of the capacity for delivering justified true belief *per se*, but rather the extent of the capacity for delivering *un-Gettierized justified true belief*. For those who hold that un-Gettierized justified true belief is knowledge, this may be sufficient to establish the conclusion that the capacity for yielding knowledge is the measure of the instrumental value of a cognitive ability. In §6, we gestured towards few routes to respond to those who would eschew the suggestion that un-Gettierized justified true belief is knowledge (due to the persuasiveness of well-known lottery-style objections).

Even if knowledge itself has no special value, its relationship to other items of value—cognitive abilities—gives ample reason to locate the concept at the very core of epistemology.

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