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KNOWLEDGE-HOW AND EPISTEMIC VALUE

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A conspicuous oversight in recent debates about the vexed problem of the value of knowledge has been the value of *knowledge-how*. This would not be surprising if knowledge-how were, as Gilbert Ryle [1945; 1949] famously thought, fundamentally different from knowledge-that. However, reductive intellectualists [e.g., Stanley & Williamson 2001; Stanley 2011*a*; 2011*b*; Brogaard 2008; 2009; 2011] maintain that knowledge-how *just is* a kind of knowledge-that. Accordingly, reductive intellectualists must predict that the value problems facing propositional knowledge will equally apply to knowledge-how. We show, however, that this is not the case. Accordingly, we highlight a value-driven argument for thinking (*contra* reductive intellectualism) that knowledge-how and knowledge-that come apart.

Keywords: knowledge-how; epistemic value; cognitive achievement; epistemic luck; virtue epistemology

1. Revisionism about Epistemic Value

Propositional knowledge has long been taken (explicitly or implicitly) to be *distinctively* epistemically valuable—i.e., valuable in a way that would rationalise our intuitive preference for propositional knowledge in contrast with, for example, epistemic states that fall just marginally short of knowledge (e.g., Gettiered justified true belief).¹ Recent work in epistemology, however, shows that it is notoriously difficult to explain how this should be so.² For instance, consider whether the process reliabilist thesis that knowledge is type identical to reliably formed true belief could vindicate the insight that knowledge is *distinctively* epistemically valuable. It's hard to see how. As Linda Zagzebski [2003] has famously pointed out, a cup of coffee, provided that it tastes good, does not thereby become *additionally* valuable if it turns out that the coffee was,

¹ See especially Kvanvig [2003].

² For some attempts to do so, see Goldman & Olsson [2009], Greco [2012], Sosa [2007], Olsson [2010], and Carter et al [2013*a*].

as well as tasting good, also produced by a reliable machine. By parity of reasoning, she suggests that “truth plus a reliable source of truth cannot explain the [*presumed distinctive*] value of knowledge.”³ [Zagzebski 2003:14] As Jonathan Kvanvig [2003] has argued, other accounts of knowledge will run up against similar problems.⁴

Against this background, we want to briefly turn to what is perhaps the most promising proposal in the contemporary literature for vindicating the presumed distinctive value of propositional knowledge, namely *Robust Virtue Epistemology* (RVE), which has a number of influential defenders.⁵ In particular, we shall draw attention to how RVE’s appeal to *cognitive achievements* affords this proposal special promise for offering a potential way to vindicate the presumed distinctive value of knowledge. Having demonstrated why cognitive achievement bears, as RVE proponents maintain, a special kind of value (e.g., *final* value), we shall then show—with reference to the phenomenon of *epistemic dependence*—that (*pace* RVE) finally valuable cognitive achievement is neither necessary *nor* sufficient for propositional knowledge.

It is of course important to first clarify the proposal submitted on behalf of the RVE proponent. According to RVE, knowledge is essentially cognitive success (i.e., true belief) that is *because of* the subject’s exercise of relevant cognitive ability.⁶ In short, the idea is that just as achievements more generally are successes that are because of ability,⁷ so knowledge is a particular kind of *cognitive achievement*—*viz.*, cognitive success that is because of cognitive ability. This point is important for the debate about the putative distinctive value of knowledge, in that achievements are widely held to be of distinctive value (unlike successes which fall short of an achievement), and hence one can credibly argue that the distinctive value of knowledge is one that it inherits in virtue of being a member of this more general valuable class of successes.

³ Zagzebski adds that:

“It follows that there must be a value in the cause of a true belief that is independent of reliability or truth conduciveness.” [Zagzebski 2003: 14]

⁴ This difficulty is widely known in the literature as the ‘swamping problem’. For discussion of this problem, see Kvanvig [2010], Haddock, Millar & Pritchard [2010, ch. 1], Pritchard [2011], Carter & Jarvis [2012], and Carter et al [2013a; 2013b].

⁵ See especially Sosa [1988; 1991; 2007; 2009], Zagzebski [1996; 1999], and Greco [2003; 2007; 2008; 2009a; 2009b; 2009c].

⁶ Different versions of RVE unpack the ‘because of’ relation in different ways. In order to keep our discussion manageable, however, we will not be getting into this issue here. For further discussion of this topic, see Kallestrup & Pritchard [2011] and Greco [2012].

⁷ The standard way to think of cognitive achievement, as ‘success because of ability’—alternatively, ‘success due to ability’—owes largely to Zagzebski [1996], Sosa [2007; 2009], and Greco [2010]. This maxim should be understood as shorthand for something like the more cumbersome ‘success that is because of the agent’s exercise of her relevant ability’.

This line of argument is very plausible. First, the claim that achievements are successes that are because of ability. While clearly a necessary condition for an achievement, mere success by itself obviously won't be sufficient for an achievement, since mere success could be attained simply by luck. The exercise of the relevant skill is thus required. But one can Gettierize skilful performances, such that although they are in fact successful, the success in question is entirely due to luck, as when an archer skilfully fires an arrow at a target, and hits the target, but where the success in question is entirely due to the intervention of a helpful dog who snatches the arrow mid-air and inserts it into the bull's-eye. Genuine achievements thus require not just success and the exercise of the relevant skill, but also that the success be because of the ability in question, and not due to some other factor (such as a helpful dog).⁸

Second, the claim that knowledge should be understood as a cognitive achievement. As the foregoing indicates, adding the 'because of' relation serves to exclude the skilful performances which are only successful due to a lucky intervention from being genuine achievements. In short, adding the 'because of' relation excludes the luck in play in standard Gettier-style cases. By parity of reasoning, if we treat knowledge as a cognitive achievement we can thereby exclude Gettier-style luck as it originally applied in the epistemic realm. Skilfully forming one's true belief that there is a sheep in the field by looking at a sheep-shaped object (which obscures the genuine sheep behind) does not suffice for knowledge.⁹ Why not? Well, although we have the conjunction of cognitive success and cognitive skill on display here, we do not have cognitive success that is because of cognitive skill, and hence we do not have a cognitive achievement. Instead, the cognitive success is entirely down to the happenstance that there is a sheep hidden from view behind the sheep-shaped object that one is looking at.

Finally, the claim that achievements, and thus cognitive achievements, are distinctively valuable. Such a thesis is eminently plausible, at least when suitability qualified. A good life is arguably a life full of achievement, for example, such that it would possess a goodness that a life fraught with only Gettierised success (much less no success at all) would lack. More generally, achievements seem credible candidates for final (i.e., non-instrumental) value, at least when this claim is understood along *prima facie* or *pro tanto* lines. At the very least, it is plausible that

⁸ Note that for ease of expression we are here loosely equating abilities and skills. Strictly speaking, however, one should keep these two notions apart. For example, while both your average lay-person and Christian Ronaldo may have the ability to score a goal from the half-way line, only the latter has the skill to do this, because only he can do it reliably (in suitable conditions).

⁹ This particular Gettier-style example is due to Chisholm [1977: 105].

achievements might be the kind of thing which is generally, if not universally, of defeasible final value, in that we would value them not just instrumentally (e.g., for the plaudits that they might bring) but also for their own sake.

Putting all this together, RVE seems in a strong position to account for why knowledge has a distinctive kind of value that lesser epistemic standings lack, and that's because knowledge is to be understood as a cognitive achievement, and achievements have a special kind of value that corresponding lesser states lack. RVE runs into problems, however. In particular, while the claim that achievements, and thus cognitive achievements, have a special kind of value is very compelling, the identification of knowledge with cognitive achievement does not stand up to close scrutiny.

The general problem facing RVE is that it cannot accommodate the phenomenon of *epistemic dependence*, where this means the extent to which knowledge is dependent upon factors (over and above the truth of the target belief) outwith one's cognitive agency. Such dependency comes in both a negative and a positive form. *Positive epistemic dependence* concerns cases in which one exhibits a low level of cognitive agency which would not normally suffice for knowledge, but where one knows nonetheless due to factors outwith one's cognitive agency. *Negative epistemic dependence*, in contrast, concerns cases in which one exhibits a high level of cognitive agency which would normally suffice for knowledge, but where one lacks knowledge nonetheless due to factors outwith one's cognitive agency.

One can get a handle on negative epistemic dependency by considering what we call an *epistemic twin earth case*.¹⁰ Consider two counterpart agents, one on earth and one on twin earth, who are microphysical duplicates with identical causal histories. Moreover, both agents inhabit identical physical environments, both in terms of their local environment (i.e., their current environment which they are causally interacting with) and in terms of their global environment (i.e., the environment which they would be normally causally interacting with, where this could be different from their local environment). The only difference between our two agents' circumstances concerns their modal environment, in that there is a close possibility of error that's applicable on twin earth which isn't applicable on earth. The upshot of this difference in the

¹⁰ For more on epistemic twin earth cases, and epistemic dependence more generally, see Pritchard & Kallestrup [2011; 2012; 2013]. Such cases, and the general phenomenon of epistemic dependence, build on Pritchard's earlier distinction between intervening and environmental (epistemic) luck and his associated critique of RVE. See Pritchard [2009a, 2009b, chs. 3-4; 2009c; 2012a] and Haddock, Millar & Pritchard [2010, chs. 2-4]. See also note 14.

modal environment is that a true belief which is common to both subjects can differ in terms of whether it is subject to epistemic luck, in that the true belief formed on twin earth can be such that it could very easily have been false (unlike the corresponding belief formed on earth).

The crux of the matter is that the two subjects' true beliefs, formed on earth and twin earth, are equally attributable to their exercise of cognitive agency, even despite the difference in their susceptibility to epistemic luck—i.e., if the true belief formed on earth counts as a cognitive success which is because of cognitive ability, then the same applies to the true belief formed on twin earth. Manifestations of cognitive agency can be relative to features of one's actual and normal environment, but not relative to one's modal environment.¹¹ Indeed, this point applies to agency more generally. One's ability to play piano is relative to a range of relevant conditions, such that it wouldn't be a count against one's possession of this ability that one cannot play piano when one is (due to critically low blood sugar) in diabetic shock. Being able to play piano in a state of diabetic shock (e.g. while extremely fatigued and lightheaded) is, after all, a very different ability from the general ability to play piano. But playing piano when one could so very easily be in a state of diabetic shock (but isn't—suppose the pianist's blood sugar is hovering on the critical line), is not to manifest a special kind of piano playing ability, but is rather to manifest one's ordinary piano playing ability in conditions under which one's manifestation of that ability is *fragile*—i.e., one could very easily fail to manifest that ability.¹²

The epistemological moral is that the true beliefs formed on earth and twin earth do not differ in terms of the level of cognitive agency on display, even though they do differ in terms of whether or not they count as knowledge on account of the epistemic luck in play. Knowledge is thus not fragile in the way that manifestations of (cognitive) agency can be.¹³ This is negative epistemic dependence, in that a level of cognitive agency that would ordinarily suffice for

¹¹ One's modal environment contains the objects and properties with which she might *easily* have been causally connected. For example, suppose that on earth and epistemic twin earth, H₂O is the stuff in one's local and global environments; however, suppose that on twin earth, but *not* earth, the stuff one is pointing to could easily have been XYX, rather than H₂O. See Kallestrup & Pritchard [2011: 4-6] for a more detailed discussion.

¹² Of course, it's important to this example that one isn't aware that one could very easily be in diabetic shock just now, since playing the piano under those conditions might well require a special kind of ability.

¹³ Note that we are taking it as given here that knowledge is incompatible with veritic epistemic luck—i.e., with it being a matter of luck that one's belief is true (such that it could very easily have been false). Although widely held, this claim is not beyond controversy. See, for instance, Hetherington [2012] and Baumann [2014] for some notable challenges to traditional thinking about the incompatibility of knowledge and luck. For a recent exchange on this topic, see Hetherington [2013] and Pritchard [2013]. See also Pritchard [2005; 2007; 2012a; 2012b; *forthcoming*].

knowledge does not suffice in virtue of factors outwith the subject's cognitive agency, in this case features which are exclusive to the modal environment.¹⁴

The easiest way to grasp *positive* epistemic dependence is via cases of testimonial knowledge involving a high degree of trust. It is fairly standard to allow that such knowledge is *bona fide*.¹⁵ The problem it poses for RVE, however, is that in such cases the knowledge acquired doesn't seem to involve a cognitive success which is because of the *subject's* exercise of cognitive agency, as opposed to her *informant's*. Notice that the claim in play here is not the strong contention that testimonial knowledge can be acquired even when the subject fails to manifest any relevant cognitive agency.¹⁶ That claim is problematic since even in cases where a high level of trust is involved, for it to count as testimonial knowledge it seems that the subject ought to manifest some significant degree of relevant cognitive ability (i.e., such that she wouldn't just ask anyone, she wouldn't just believe anything, and so on).¹⁷ The testimonial case is thus not meant to be a counterexample to the intuition that knowledge demands cognitive success that is to some significant degree creditable to the subject's cognitive agency. The crux of the matter, however, is that in the right kind of conditions—i.e., where the environment is

¹⁴ Elsewhere—see Pritchard [2009a, 2009b, chs. 3-4; 2009c; 2012a] and Haddock, Millar & Pritchard [2010, chs. 2-4]—Pritchard has made a distinction between *intervening* and *environmental* epistemic luck, where the former is the kind of epistemic luck that is usually at issue in Gettier-style cases, such that something intervenes between the believing and the fact (but where the belief is true nonetheless). Environmental epistemic luck, in contrast, is when even though nothing intervenes the true belief in question is nonetheless veritically lucky (i.e., it could have easily been false) on account of some feature of the subject's environment. The barn façade case is an obvious example of environmental epistemic luck, since what makes the belief veritically lucky is not that the object observed isn't a genuine barn, but rather that the subject's environment is one in which what looks like a barn will likely not be a barn. Note that environmental epistemic luck is not quite the same as an epistemic twin earth case, in that the latter is a specifically modal case of epistemic luck. That is, what is epistemically amiss in the epistemic twin earth case only concerns the subject's modal environment and not her actual environment (whether local or global), unlike a case of environmental epistemic luck, such as a barn façade case, which could well concern the subject's actual environment (as indeed it does in the barn façade case). See Pritchard [forthcoming] for more on this point.

¹⁵ Anti-reductionists as regards the epistemology of testimony would surely accept this claim, but even most moderate forms of reductionism could consistently endorse it too. For more on the reductionism/anti-reductionism debate in the epistemology of testimony, see Lackey [2010].

¹⁶ Lackey [2007] argues for this strong contention in response to the credit view of knowledge, a position which is closely related to RVE.

¹⁷ See Greco [forthcoming] for the suggestion that the degree of trust compatible with knowledge might be sensitive to context and such a way that it tracks the function of testimony in that context (e.g., whether it is serving what he calls the 'dissemination function' or the 'origination function'). In the former case, we can imagine a mother teaching her young child an item of common knowledge. In the latter case, we might imagine a witness testifying in a criminal case. While one might be able to know in the former case by displaying a high degree of trust, it's less plausible that such a high level of trust is compatible with knowledge in the latter case. Note, however, that all that is required for our purposes is that knowledge is *sometimes* compatible with a high level of trust, so we can set this issue to one side for our purposes.

especially epistemically friendly—very little by way of manifestation of cognitive agency on the part of the subject can nonetheless suffice for knowledge, *contra* RVE.

The phenomenon of epistemic dependence highlights the sense in which knowledge involves an interplay between agential and non-agential factors. Knowledge is not just a matter of one's cognitive success being attributable to a high level of cognitive agency, since sometimes a high level of cognitive agency will not suffice for knowledge (negative epistemic dependence), and sometimes a low level of cognitive agency will suffice (positive epistemic dependence). Moreover, notice that this problem for RVE is particularly tricky in virtue of it pulling the view in two distinct directions. Whereas positive epistemic dependence calls on proponents of RVE to *weaken* the ability condition on knowledge, negative epistemic dependence calls on them to *strengthen* it. The view is thus in danger of being pulled asunder.

Interestingly, however, although the claim that knowledge should be equated with cognitive achievement is under threat, the idea that achievements, and thus cognitive achievements, are distinctively valuable is not affected by this critique of RVE. Indeed, the path now seems open to defend a revisionary story about the putative distinctive value of knowledge, such that it is not actually knowledge which is of special value but rather the related (but ultimately distinct) epistemic standing of a cognitive achievement. Given the close relationship between knowledge and cognitive achievement, in that these are notions which are widely overlapping in their extension, it is little wonder that we thought that knowledge was distinctively valuable. What we are picking out as having special value, however, is rather a particular kind of relationship that success can bear to agency which obtains in the epistemic realm (i.e., cognitive achievement). But it turns out on reflection that cognitive achievement is neither necessary nor sufficient for knowledge, *contra* RVE.

2. Knowledge-How and Epistemic Value

A conspicuous oversight in this debate about the value of knowledge has been knowledge-*how*. One might initially suspect this is because, as Jason Stanley and Timothy Williamson [2001: 411] remark, '[*m*]any philosophers believe that there is a *fundamental* distinction between

knowing that something is the case and knowing how to do something.¹⁸ For if there is such a fundamental distinction between these two kinds of knowledge, then even if there is a value problem for knowledge-that, it needn't follow that there must be a corresponding problem for knowledge-how.

The idea that there is such a fundamental distinction between these two kinds of knowledge no doubt owes in great part to Gilbert Ryle's [1945; 1949] challenge to what he called 'intellectualism' around the middle of the 20th century.¹⁹ The 'anti-intellectualist' line on knowledge-how is, in short, that when one knows how to (for instance) ride a bike, this will (at least in part²⁰) be in virtue of one's possessing a certain ability to ride a bike successfully, and (crucially) *not* in virtue of knowing any proposition (or propositions).²¹ Thus on the anti-

¹⁸ Our italics. See Hornsby [2003: 80-81] for an argument to the effect that this position (articulated in terms of 'fundamental')—which Stanley & Williamson [2001], and also Snowdon [2003], attribute to Ryle—actually misses the mark.

¹⁹ Somewhat confusingly, Ryle used the term 'intellectualist' to refer to his envisioned opponent, the proponent of what Ryle terms the 'Intellectualist Legend', a position which is a much stronger and less plausible account of the relationship between mind and action than is endorsed by contemporary writers who self-identify as intellectualists (for discussion, see Stanley [2011: ch. 1]). We shall be using 'intellectualist' specifically to refer to the thesis that one counts as having knowledge-how in virtue of knowing some proposition. And, even more specifically, we are interested in the version of this thesis—*reductive intellectualism*—according to which knowing how to do something just is a kind of propositional knowledge. See Bengson & Moffett [2011a; 2011b] for a different way in which the intellectualist thesis about knowledge-how can be defended (i.e., in a non-reductive fashion).

²⁰ See, however, Poston [2009] and Carter & Pritchard [2013; 2014] for versions of anti-intellectualism that do not take knowledge-how to be something one possesses *just* in virtue of possessing some ability.

²¹ See here Bengson & Moffett [2011b] for a helpful articulation of the terrain, and which informs our presentation of the intellectualism/anti-intellectualism debate. In particular, note that we will be following Bengson & Moffett [2011b] in *not* characterizing intellectualism as the claim that knowledge-how is knowledge-that. As they point out, such a characterisation of intellectualism runs two distinct issues together—*viz.*, what is it *in virtue of* which that one counts as knowing how to do something, and what is the metaphysical *nature* of knowledge-how. While *reductive intellectualism*, which we will describe shortly, provides a propositionalist answer to both questions, intellectualism, as such, merely needs to give a propositionalist answer to the first question. Indeed, such a non-reductive intellectualism is defended by Bengson & Moffett [2011b]. Note too the importance of the 'in virtue of' component in this formulation of the intellectualism/anti-intellectualism distinction. Even if it is true that propositional knowledge is necessary for some kinds of knowledge-how, this is compatible with anti-intellectualism just so long as the latter is not in virtue of the former. Bengson & Moffett [2011b: 162] cover this point in some detail, and note that 'in virtue of' picks out a grounding relation. Consider this example, which Fine [2012: 39] uses when talking about the metaphysical grounding relation (which is also captured by 'in virtue of'): 'the particle is accelerating in virtue of increasing its velocity over time'. Let's call Fine's particle 'P'. We can easily imagine a range of cases, C1, C2 and C3, where P would not have accelerated had it not been hit with a bat. We might then claim that in at least these three cases, it's true that being hit by a bat is necessary for P's acceleration, in that P would not have accelerated had P not been hit with a bat. Such examples, however, would not count against the metaphysical grounding claim that the particle is accelerating in virtue of increasing its velocity over time. Even if knowing how to do something in some cases entails propositional knowledge, this is compatible with the claim that when one knows how to do that thing, it is in virtue of possessing certain abilities, and not *in virtue of* the propositional knowledge at issue. Finally, an additional clarificatory point is in order regarding the attribution of reductive intellectualism (as articulated in this note) to Stanley & Williamson [2001]. Because Stanley & Williamson endorse a thesis about the *nature* of knowledge-how, as a kind of propositional attitude, they fall squarely within the 'reductive' intellectualist camp, in the sense explained in this note, and by contrast to Bengson & Moffett [2011b],

intellectualist proposal, the question of whether knowledge-how bears a distinctive value lacked by states falling short of propositional knowledge might not arise so naturally at all. After all, on this view the comparison between, on the one hand, Gettiered true belief (i.e., a propositional attitude with certain properties) and, on the other hand, an ability one has to ϕ which is *not* in virtue of having any particular propositional attitudes at all, is akin to comparing ‘apples and oranges.’²²

However, the tide has been turning against uncritical acceptance of the Rylean thesis. On one recent and influential proposal in the literature, known as *reductive intellectualism* [Stanley & Williamson 2001; Brogaard 2008; 2009; 2011; Stanley 2011*a*; 2011*b*], knowledge-how *just* is a kind of propositional knowledge. In short, the line advanced by reductive intellectualists is that *S* knows how to ϕ iff there is a way *w* such that *S* knows that *w* is a way for *S* to ϕ .²³

Obviously, reductive intellectualism—by reducing knowledge-how to knowledge-that—can’t avoid predicting that the value problems that arise for knowledge-that will take the same shape for knowledge-how.²⁴ That is, reductive intellectualism is committed to the idea that knowledge-how and knowledge-that have the same properties, including properties in virtue of which they stand to be valuable.²⁵ If, however, the same kind of problems investigated (and

whose intellectualist proposal does not involve this commitment. This point is germane because, Stanley & Williamson actually explicitly deny that their project is reductive *in the sense that* (as they put it) they are not ‘reducing talk of knowledge-how to talk that does not involve knowledge how’. Note that this is a different sense of reductive than the one we are appealing to in distinguishing Bengson & Moffett’s variety of intellectualism from the varieties we are challenging.

²² This is, of course, not to say that the two states are incomparable, *vis-à-vis* epistemic value.

²³ This is a rough statement of the position. Stanley’s [2011*b*: 122] own preferred formulation is more sophisticated, and insists that the item of propositional knowledge in question must be known under what Stanley calls a practical mode of presentation. Here is Stanley:

“Relative to a context in which the domain is the set of normal ways of doing things with which John is acquainted, a sentence like “John knows how to swim,” is true at a world *w* if and only if John knows at *w* a proposition true in a world *w*’ if and only if there is some way in which John could swim in *w*’ with which John is acquainted, and the way is also a way John is acquainted with by means of which John could swim in *w*.” [Stanley 2011*b*: 122]

²⁴ Consider, though, that we can envision a reduction in the *other* direction—*viz.*, that knowledge-that reduces to knowledge-how. Hetherington [e.g., 2006; 2010; Hetherington & Lai 2012] has in recent work defended such a position under the description of *practicalism*, according to which propositional knowledge always involves knowing one or more aspects or constituents of how it is that *p*. We want to be clear that our challenge to reductive intellectualism is not one that we take to extend, *mutatis mutandis*, to a practicalist reduction. Principally, this is because, whereas Stanley’s reduction in the other direction takes tokens of knowledge-how to map 1-to-1 to equivalent corresponding tokens of knowledge-that, Hetherington’s reduction in the practicalist direction is not committed to such a claim. While we have some reservations about Hetherington’s practicalism, we do not think the view can be dismissed on the basis that it succumbs to the value-driven argument as we’ve presented it here. Thanks to an anonymous referee for suggesting this clarification.

²⁵ As Stanley [2011*a*: 315] grants, ‘[i]f knowing-how is a species of knowing that, the properties of knowing-that should be properties of knowing-how.’

diagnosed) in §1 do *not* materialize, or materialize very differently, for knowledge-how than with regard to knowledge-that, then this counts as a serious strike against reductive intellectualism.

In the rest of the paper, we will be suggesting that the problems raised for the value of knowledge in §1 do not arise with regard to knowledge-how, and using this claim to argue against reductive intellectualism. In particular, we will claim that while knowledge-that and cognitive achievement come apart in cases of positive and negative epistemic dependence, the same is not true of knowledge-how. Indeed, we will be arguing that this is because knowledge-how is a form of cognitive achievement. Accordingly, although knowledge-that does not inherit the special value of achievements, knowledge-how *does* inherit this value. A path is thus opened to defend the distinctive value of knowledge-how, albeit in such a fashion that won't apply to knowledge-that. Such a claim obviously constitutes a strong strike against reductive intellectualism, since it suggests important differences in the properties of knowledge-that and knowledge-how.

3. Knowledge-How, Negative Epistemic Dependence and Epistemic Value

In §1 we saw that although cognitive achievements are (as such) distinctively valuable, cases featuring positive and negative epistemic dependence revealed that knowledge-that and cognitive achievement come apart. With regard to *negative* epistemic dependence in particular, we saw that epistemic twin earth cases highlighted an important distinction between knowledge-that and cognitive achievement with regard to their respective *fragility*—*viz.*, one can very easily fail to manifest ability but manifest it nonetheless, whilst it's not the case that one counts as having knowledge-that when one very easily could be wrong. The moral is that while knowledge-that can depend on extra-agential factors in one's specifically *modal* environment, the same does not apply to one's manifestations of cognitive agency, which can at most be dependent on features of one's *actual* and *normal* environment. It is this point that allows epistemic twin earth cases (featuring negative epistemic dependence) to drive a wedge between knowledge-that and (distinctively valuable) cognitive achievement.

Of course, if the reductive intellectualist is right, epistemic twin earth cases should reveal that knowledge-how *does not* line up with distinctively valuable cognitive achievement but rather with knowledge-that. To test this, it will be useful to run an epistemic twin earth case of the kind considered in §1, but where knowledge-how takes centre stage. To construct such a case, we shall run a kind of ‘twin-earth twist’ on the ‘salchow’ example offered by John Bengson and Marc Moffett. [Bengson & Moffett 2011a; 2001b]

Imagine that Sally is on earth and Sally’s counterpart—Sally*—is on twin earth. Suppose Sally and Sally* are microphysical duplicates with identical causal histories, each attempting to perform a ‘salchow’ at time t , where a salchow is an ice-skating jump where one ‘takes off from the back inside edge of one skate and lands on the back outside edge of the opposite skate after one or more rotations’.²⁶ Each agent, we can suppose, believes that the particular way just specified—call it way w —is the way in which to successfully perform a salchow at t .²⁷

Now, let’s be specific about the further details of the case: Sally and Sally* inhabit identical physical environments in terms of their *local* environment (i.e., the environment they are currently causally interacting with) *and* in terms of their *global* environment (i.e., the environment which they would be normally be causally interacting with, where this could be different from their local environment). Importantly, the *only* difference between Sally’s and Sally*’s circumstances concerns their *modal* environment, in that there is a close possibility of error that’s applicable on twin earth, for Sally*, which isn’t applicable on earth, for Sally. Specifically, for Sally* (but *not* for Sally), there is a close possible world where taking off from the back inside edge of one skate will cause a fracture in the ice, preventing her from landing

²⁶ See Bengson & Moffett [2011b] for the full presentation of the case. Note that while we are using the illustrative example of a salchow, we are *not* importing the further details of the case as presented by Bengson & Moffett—*viz.*, that Irina has a neurological abnormality. Bengson & Moffett originally used the case to attempt to show that Irina’s neurological abnormality caused confusion in her beliefs about how to do a salchow even though she was reliably able to do a salchow. They took the case to be a purported counterexample to the ‘sufficiency’ thesis advanced by the anti-intellectualist—*viz.*, that one knows how to ϕ if one is reliably able to ϕ . Again, our twist on the case is importing none of these further details.

²⁷ Hereafter, we will have the ‘at t ’ stipulation in mind, even where, for ease of presentation, we don’t make this explicit. It’s important that we keep ‘at t ’ in mind as part of the story, because (for instance) the relevant item of propositional knowledge that is undermined for Sally* but not Sally (given their respective modal environments) is not the more general proposition to the effect that way w is a way for one in any circumstance to do a salchow. Rather, it is the more specific belief that w is a way for her to do a salchow on that particular occasion, at t .

properly on the back outside edge of the other skate (and thus preventing her from completing the salchow successfully).²⁸

Now, given that Sally and Sally* both believe that way w is a way for each to successfully perform a salchow at t , one clear upshot of this difference in Sally and Sally*'s respective modal environments is the following: that Sally knows that way w will successfully lead to a salchow at t , but Sally* *does not know this*. This is because, for Sally*, doing way w could easily *not* have led to a successful salchow, as performing the first element of w , for Sally*, could easily cause the ice to break, thereby thwarting the salchow. The same is not true of Sally. This is just a particular instance of the more general point, outlined in §1, that a true belief which is common to duplicate subjects on earth and twin earth can nonetheless differ in terms of whether it is subject to knowledge-undermining epistemic luck.

Notice, however, that it looks far less plausible that this fact about Sally's and Sally*'s respective modal environments would undermine either of their knowledge-how to do a salchow. After all, on twin earth, Sally* takes off from the back inside edge of one skate and lands on the back outside edge of the opposite skate after a rotation—which is exactly the way for Sally* to successfully complete the salchow on twin earth. Indeed, in terms of their manifestations of agency, Sally and Sally* are identical, in virtue of being duplicate subjects in identical local and global environments. Accordingly, it's hard to see why Sally*'s success on twin-earth would be any less creditable to her agency than Sally's identical success on earth.

It is worth emphasizing at this point that we are not relying on the simple observation that Sally* successfully lands the salchow and reasoning from this that she, *ipso facto*, must count as knowing how to do the salchow. Such a diagnosis, after all, would *presuppose* an anti-intellectualist account of knowledge-how (and, in particular, that ability is sufficient for knowledge-how). Rather, we are appealing to the (non-questionbegging) observation that, plausibly, it would seem counterintuitive to attribute know-how to Sally, but not to Sally*. With this datum in hand, we point out that if the intellectualist is right, then we must (implausibly) judge Sally, though *not* Sally*, as knowing-how to do the jump. After all, the difference in Sally

²⁸ One might attempt to object here on the grounds that the ice must have all the same properties in the case of Sally and Sally*. In reply, we emphasise that part of what it is to allow the cases to differ *vis-à-vis* their modal environment is that the cases differ *vis-à-vis* the objects and properties with which the agent might easily have been causally connected. While the ice is part of the local environment in both the case of Sally and Sally*, the *fragility* of the ice is what differs across cases. Sally* could so easily have been causally connected with the *hole* in the ice, though did not, whereas that fact about her modal environment is not shared across both cases. See Kallestrup & Pritchard [2011: 4-6] for further discussion of this point.

and Sally*'s epistemic positions *vis-à-vis* the target proposition w , in light of the divergence in their respective modal environments, is such that Sally*, but not Sally, could easily be mistaken with regard to w . But, by contrast, the difference in their modal environments does not plausibly impact upon the extent to which we should attribute manifestation of agency, which looks to be held constant across the difference in modal environments that renders Sally, but not Sally*, knowledgeable of w . The upshot is that our inclination to attribute knowledge-how in this case seems to be tracking attributions of manifestations of agency rather than propositional knowledge.

Now, granted, had Sally* taken off from the back inside edge of one skate and then a helpful (and very capable) dog grabbed the skate in its mouth and deftly spun, causing her to land on the back outside edge of the opposite skate, we would not be inclined to credit the successful salchow to Sally. But no such intervening 'funny business' is going on for Sally* any more than it is in the case of Sally.

Here we can helpfully compare the case of Sally*'s successful performance of the salchow on twin earth with the kind of 'diabetic pianist' case we considered in §1. For example, suppose that Chopin is playing the Minute Waltz in a circumstance where (given his modal environment) he could *so very easily* (given low blood-sugar levels) be in a state of diabetic shock (but isn't) thirty seconds into the Minute Waltz, after which his ordinary technique would be hopeless. In this situation we aren't inclined to say that Chopin manifests a 'special kind of piano playing ability', but, rather, that he is manifesting his ordinary ability to play the Minute Waltz in conditions under which his manifestation of that ability is *fragile*—i.e., he could very easily fail to successfully complete the Minute Waltz.

Likewise, it seems as though Sally*'s manifestation of her ability, just like Chopin's manifestation of his ability, is rendered *fragile* by the modal environment, though not (as knowledge-that would be) *undermined* by it. A more general point underlying this comparison is that manifestations of cognitive agency can be relative to features of one's actual and normal environment, but are not relative to one's modal environment. That's why both Sally and Sally* exhibit knowledge-how, in that they do not differ in terms of the manifestation of their ability to perform a salchow successfully at t . And this is so even though we are inclined to say that Sally knows that w is a way for her to perform a salchow at t , even while Sally* does not, which reflects the fact that knowledge-that *can* be undermined by features of one's modal environment.

Putting this in a wider context, we can see that epistemic twin earth cases reveal knowledge-that and knowledge-how come apart in exactly the *same way* that knowledge-that and cognitive achievement came apart.

4. Knowledge-How, Negative Epistemic Dependence and Epistemic Value

§3 illustrated an important point about *negative* epistemic dependence: sometimes a high level of cognitive agency will not suffice for knowledge-that, even in cases where, by contrast, cognitive achievement and knowledge-how persist. Recall from §1 that a clear kind of case featuring *positive* epistemic dependence of knowledge-that on extra-agential factors concerns testimonial knowledge involving a high degree of trust. In such cases, the suggestion was that, given the minimal level of ability exhibited, it looks as though the cognitive success in question isn't because of the recipient's exercise of cognitive agency, but rather (if anyone's) her informant's. Hence, it doesn't count as a cognitive achievement. And yet, as we saw, this fact was not enough to lead us to withhold attributing propositional knowledge. Accordingly, the phenomenon of positive epistemic dependence regarding propositional knowledge revealed how knowledge-that and cognitive achievement come apart.

In this section, we'll turn our attention to the phenomenon of positive epistemic dependence again, this time giving knowledge-how centre stage. To make the example clean, let's consider a particular example of testimony in an epistemically friendly environment. Suppose that Roger wants to learn to play on stage a difficult and nuanced guitar riff that David is easily able to play. Fortunately for Roger, David is not only the world's supreme expert on the topic of his own signature riff, but also reliably trustworthy (and generous): so David decides to tell Roger exactly how he does it. David recites twelve complex fingering movements as well as an explicit description of the precise way to utilise the mechanical vibrato (i.e., the 'whammy bar') to produce the distinctive sound of David's signature riff. Roger repeats aloud (having committed to memory what he just heard) the series of instructions—for short, way *w*—and (naturally) feels a bit overwhelmed.

Now, in conditions like the one described, Roger finds himself in ideal conditions to receive testimonial knowledge; his informant is a reliable expert, and Roger has no reason to

think he is being deceived. Reductivists and non-reductivists in the epistemology of testimony alike can both agree that Roger can know *that way w* is the way to play David's signature riff in these circumstances, even though Roger's being right on the matter is largely a matter of just trusting David's testimony—indeed, Roger has obviously exercised very little cognitive ability of his own in acquiring this item of propositional knowledge.

Does Roger *know how* to play David's signature riff? We suggest not. For one thing, we agree with Bengson & Moffett's [2001*b*: 165] point that although knowledge-how has a cognitive dimension, it is also practical in the sense that it bears a 'substantive connection to action'. In Roger's case, what he acquires from trusting David's testimony and committing the sequence of notes to memory does not seem, for one thing, to bear any substantive connection to action (for Roger). After all, it is hardly the case that, in virtue of trusting David's testimony, Roger thereby has the tricky riff down cold. It's thus counterintuitive to say that what Roger has acquired, by manifesting the little cognitive ability he did in trusting David, was *knowledge-how* to play the tricky riff.

Furthermore, notice that the kind of achievement we credit to David when he performs the riff in a way that manifests his competence is surely *valuable* in a way that the propositional knowledge David passes on to Roger is not. After all, while Roger is better off, with respect to the aim of playing the riff, than he was before he gained this testimonial knowledge, he'd likewise be better off yet if he, like David, had the lick down cold. Cases where propositional knowledge features positive epistemic dependence thus provide a powerful kind of reason to think that knowing how to do something is valuable in a way that the corresponding (epistemically dependent) propositional knowledge is not.

This said, we want to raise two anticipated objections and then cut each off at the pass. The first anticipated objection proceeds as follows: a reductive intellectualist such as Stanley might submit that Roger could potentially know how to play the riff—in a way that is just as valuable as David's knowledge how to play the riff—*provided* that he knows the relevant proposition under a practical mode of presentation.²⁹ According to this line of response, our reasoning above supposes that knowing a proposition under a practical mode of presentation has

²⁹ Note that taking this line—and thus, invoking practical modes—is one that, while *available* to the intellectualist, is not one that intellectualists are (as such) committed to embracing. Thus it is consistent with intellectualism, *per se*, if it turns out that not all knowledge-how requires a practical mode. Thanks to an anonymous referee for raising this point.

less epistemic value than knowing how to do something. But by making use of this supposition we are achieving a critical point over the intellectualist by theft rather than toil.

There is, however, a simple and straightforward way to put this worry to rest. To do so, let's consider more carefully the (somewhat elusive) notion of a practical mode of presentation.³⁰ Consider the following remarks:

“Thinking of a person as oneself entails being disposed to behave in certain ways, or form certain beliefs, given relevant input from that person. Similarly, thinking of a place as here entails being disposed to behave in certain ways, or form certain beliefs, given relevant input from that place. Analogously, thinking of a way under a practical mode of presentation undoubtedly entails the possession of certain complex dispositions. It is for this reason that there are intricate connections between knowing-how and dispositional states.” [Stanley & Williamson 2001: 429]

While this doesn't tell us very much about what a practical mode of presentation is, it does at least tell us that they entail distinctive dispositions. With this in mind, we submit the following simple response to the anticipated objection.

A hallmark of propositional knowledge is that it can be transmitted from speaker to hearer. Moreover, when the informant is reliable the epistemic demands on the hearer are minimal, to the extent that for the most part merely understanding the speaker and trusting what she says can sometimes be sufficient to acquire testimonial knowledge.³¹ After the testimonial exchange between David and Roger, it's apparent that what Roger acquires from this testimonial exchange is of less epistemic value than what David has (even if Roger now has something of greater epistemic value than he did before).

Now, either acquisition of propositional knowledge under a practical mode of presentation (and the acquisition of the corresponding entailed distinctive dispositions) is something that can be acquired via testimony or it is not. If it can, then we have reason to think that what David has, in virtue of knowing how to play the riff, is more epistemically valuable

³⁰ As Glick [2013] has remarked, Stanley, though he draws close analogies from Evans, does not provide a positive account of what it is to employ a practical way of thinking about a way of doing something. For some expressions of this criticism—particularly that practical modes of presentation are left mysterious—see Schiffer [2002] and Noë [2005].

³¹ Note that, while a hallmark of propositional knowledge is that it can be transmitted from speaker to hearer, this insight should not be read as the strong (and implausible) claim that for any speaker-hearer pair (S, H) that any proposition p that S knows is one that H can know provided S testifies that p to H . What makes this strong claim implausible is that H can come to know p by testimony *only if* H counts as understanding the *meaning* of p , as asserted by S . And this will require at least some mastery of the relevant concepts that feature in the content of S 's assertion that p . Note that in the case of Roger and David, we are stipulating that Roger counts as competent with the concepts that feature in the content of the testimony transmitted by Roger to David. Thanks to an anonymous referee for requesting clarification on this point.

than the propositional knowledge under a practical mode of presentation that Roger has acquired, and we thus have reason to think that knowledge-how is not simply propositional knowledge under a practical mode of presentation. If, by contrast, propositional knowledge under a practical mode of presentation *cannot* be transferred via testimony (e.g., because the entailed distinctive dispositions cannot be transferred via testimony), then it is something *other* than what Stanley [2011: 188] claims it is when insisting that knowledge-how is ‘garden variety’ propositional knowledge. Garden variety propositional knowledge, after all, can be transmitted via testimony.³²

Let us turn now to the second anticipated objection, which we’ll engage with in a bit more detail. Paul Snowdon [2004], in the service of arguing *against* the anti-intellectualist, has advanced the line that a skilled chef who has lost his arms still knows how to prepare his famous dish, despite not being able to reliably do so. And what this much suggests, Snowdon thinks, is that the anti-intellectualist is wrong to take the possession of the relevant ability to ϕ to be *necessary* for knowing how to ϕ .³³ Now, with reference to Snowdon’s line of thinking, one might be tempted to reason as follows: just as the chef can know how to do something while at the same time lacking the ability to reliably do it, we might as well think Roger could count as knowing how to play the riff without being able to reliably do so. The claimed upshot would thus be that that the chef case provides a precedent for thinking that simply lacking an ability to reliably do something isn’t going to be sufficient for explaining why one fails to know how to do something. Therefore, to conclude the objection, our verdict that Roger doesn’t know how to play the riff doesn’t hold water. (Or so the thought goes).

We have two lines of response to this objection. On the one hand, we want to make a kind of qualified concession that there is something very close to knowledge-how that Roger

³² Regarding the thesis that ‘garden variety’ propositional knowledge can be transmitted, note that this is true even in cases of knowledge of indexical expressions, where the asserted proposition (e.g., I am in the store) encodes features of the context of use. For example, “I am at the store” when uttered by Jim, expresses the proposition that the utterer, *Jim*, is at the store. This proposition, which Jim knows, can also be known by Jim’s wife (when he tells her this on the phone) even though, for Jim’s wife, the indexical ‘I’ does not refer to her. The striking difference between transmission of knowledge where the target proposition has an indexical, and (would-be) transmission of knowledge of p under a practical mode of presentation, can now be put simply. Jim and his wife (after the transmission) *know the same thing* (i.e., *that Jim is at the store*). In contrast, Roger and David, after an analogous testimonial exchange, do not. David’s intellectual position is stronger than Roger’s (even though they both know, of the target proposition, *that* it is true). This is, after all, why the epistemic value of what David has outstrips the epistemic value of what he has transferred, via testimony, to Roger.

³³ Of course, it is a separate matter whether anti-intellectualists must allow reliable ability possession to be sufficient for knowledge-how. See Carter & Pritchard [2013; 2014] for an argument for a version of intellectualism that parts ways with this simple formulation of the sufficiency condition.

does attain in the circumstances described. Here it is helpful to distinguish ‘knowing how *to do* something’ from ‘knowing how *one* does something.’³⁴ To bring this distinction into sharp relief, consider—following Bengson & Moffett [2011*a*; 2011*b*]—the case of a complicated ski jump, and compare the positions of (i) an Olympic skier who can reliably execute the jump; and (ii) a (non-skiing) scientist who knows the ins and outs of human physiology which make such a jump possible. Whereas the Olympian knows how *to* do the jump, the scientist merely knows how *one* does the jump, or so the thought goes.

Now it is very plausible to say that in virtue of the propositional knowledge Roger has acquired from David, Roger knows how *one* plays the tricky riff, even if he doesn’t know how *to* play the tricky riff. To the extent that this is right, we have a further basis to deny that Roger knows how to play the riff *even if* he has acquired from David some positive standing (i.e., knowledge of how *one* does the riff) which he previously lacked.

Now, that said, it’s worth noting further that while neither Snowdon’s chef nor Roger reliably *can* successfully perform the action in question, Snowdon’s chef is in many ways in a better position than Roger, with reference to which we could allow that Snowdon’s chef might well know how to φ even if Roger doesn’t (even though neither *can* reliably do the thing in question). Here it will be helpful to compare Snowdon’s chef, and then Roger, with two distinct kinds of cases and see how they line up: firstly, compare Snowdon’s chef with the scientist who knows about the relevant physiology of skiing (and who we said *merely* knows how *one* φ s). Secondly, compare Snowdon’s chef with a skilled pianist unluckily in diabetic shock, who can reliably play in normal environments, but not in the local environment (in which Snowdon’s chef is experiencing extreme fatigue and lightheadedness).³⁵

There is a strong temptation to say that Snowdon’s chef aligns more closely with the diabetic pianist than he does with the scientist who merely knows the relevant physiology but who has never performed a jump. Interestingly, in the case of the diabetic pianist, we don’t say that (for instance) Chopin *loses his knowledge how to play the Minute Waltz* just because he is in an unfortunate position that prevents him from manifesting the ability (as would be the case even if Chopin were relegated to a state of extreme fatigue and lightheadedness permanently!). Likewise, there’s a natural explanation for aligning Snowdon’s chef with a case where a high

³⁴ See Bengson & Moffett [2011*b*] for a helpful discussion of this distinction.

³⁵ Thanks to an anonymous referee for suggestions leading to an improved presentation of this case.

degree of ability is present. (Consider further that the closest worlds in which Snowdon's chef successfully makes the dish—e.g., worlds where his arms are reattached—we credit the success to his impressive ability, and not to luck).

The same does not apply, however, to Roger. Despite his propositional knowledge, given how the case is described the nearest world where he plays the riff correctly *will* be down to luck (e.g., to a fortuitous blast of lightening, which coincidentally stimulates his muscles to play the riff to perfection). Hence, unlike Snowdon's chef, Roger is more akin to the scientist who merely knows how *one* does something (but not how *to* do the thing) than he is like someone who knows how to do something while (like the diabetic pianist and Snowdon's chef) not in a position to manifest this ability. Reference to cases like Snowdon's chef thus ultimately provide no compelling basis to retract our initial point that cases of *positive* epistemic dependence motivate the thought that knowledge-how has a distinctive kind of epistemic value that propositional knowledge lacks, and that the two are not equivalent.

5. Concluding Remarks

The upshot of the foregoing is that knowledge-how aligns with cognitive achievement, and not with corresponding instances of knowledge-that (which itself comes apart from cognitive achievement). We have also seen that knowledge-how, like cognitive achievement, comes apart from knowledge-that in just the same kind of cases of positive and epistemic dependence that we witnessed in §1. Moreover, we have further noted that this is not a coincidence, since it reflects the fact that knowledge-how is a kind of cognitive achievement—*viz.*, a cognitive success which is because of cognitive ability. This means that a route is now open to argue that knowledge-how has a distinctive value that knowledge-that lacks. That is, we can extend the revisionism about the value of knowledge-that which we set out above—such that it is cognitive achievements which are distinctively valuable, and not propositional knowledge—and apply it to the question of the distinctive value of knowledge-how. In doing so, we have further reinforced the case

against reductive intellectualism, since we have shown that knowledge-how and knowledge-that exhibit significantly different properties.³⁶

³⁶ Thanks to Emma C. Gordon, Stephen Hetherington and two anonymous referees at *Australasian Journal of Philosophy* for helpful comments.

References

- Baumann, Peter 2014. No Luck with Knowledge? On a Dogma of Epistemology', *Philosophy and Phenomenological Research* 89: 523-51.
- Bengson, John and Marc Moffett 2007. Know-How and Concept Possession', *Philosophical Studies* 136: 31-57.
- Bengson, John and Marc Moffett 2011a. Non-Propositional Intellectualism, in *Knowing How: Essays on Knowledge, Mind, and Action*, eds. John Bengson and Marc Moffett, Oxford: Oxford University Press: 161-90.
- Bengson, John and Marc Moffett 2011b. Two Conceptions of Mind and Action: Knowing How and the Philosophical Theory of Intelligence, in *Knowing How: Essays on Knowledge, Mind, and Action*, eds. John Bengson and Marc Moffett, Oxford: Oxford University Press: 3-58,
- Brogaard, Berit 2008a. Attitude Reports: Do you Mind the Gap?, *Philosophy Compass* 3: 93-118.
- Brogaard, Berit 2008b. Knowledge-The and Propositional Attitude Ascriptions, *Grazer Philosophische Studien* 77: 147-90.
- Brogaard, Berit 2009. What Mary Did Yesterday: Reflections on Knowledge-wh', *Philosophy and Phenomenological Research* 78: 439-67.
- Brogaard, Berit 2011. Knowledge-How: A Unified Account, in *Knowing How: Essays on Knowledge, Mind, and Action*, eds. John Bengson Bengson and M. Moffett, 136-60, Oxford University Press, Oxford.
- Carter, J. Adam and Benjamin Jarvis 2012. Against Swamping, *Analysis* 72/4: 690-699.
- Carter, J. Adam, Benjamin Jarvis and Katherine Rubin. 2013a. Knowledge: Value on the Cheap, *Australasian Journal of Philosophy* 91/2: 249-263.
- Carter, J. Adam, Benjamin Jarvis and Katherine Rubin. 2013b. Knowledge and the Value of Cognitive Ability, *Synthese* 190/17: 3715-3729.
- Carter, J. Adam and Duncan Pritchard 2013. Knowledge-How and Epistemic Luck, *Noûs* (Online First: DOI: 10.1111/nous.12054).
- Carter, J. Adam and Duncan Pritchard 2014. Knowledge-How and Cognitive Achievement, *Philosophy and Phenomenological Research* (Online First: DOI: 10.1111/phpr.12094).
- Cath, Yuri 2011. Knowing How Without Knowing That, *Knowing How: Essays on Knowledge, Mind and Action*, eds. John Bengson and Marc Moffett, Oxford: Oxford University Press: 113-35.
- Cath, Yuri 2013. Regarding a Regress, *Pacific Philosophical Quarterly* 94: 358-388.
- Cath, Yuri 2014. Revisionary Intellectualism and Gettier, *Philosophical Studies* (Online First, DOI: <http://dx.doi.org/10.1007/s11098-013-0263-y>).
- Chisholm, Roderick 1977. *Theory of Knowledge* (2nd Ed.), Englewood Cliffs, New Jersey: Prentice-Hall.
- Fine, Kit 2012. Guide to Ground, in *Metaphysical Grounding: Understanding the Structure of Reality*, eds. Fabrice Correia and Benjamin Schnieder, Cambridge: Cambridge University Press: 37-80.
- Goldman, Alvin and Erik J. Olsson 2009. Reliabilism and the Value of Knowledge, in *Epistemic Value*, eds. Adrian Haddock, Alan Millar and Duncan Pritchard, Oxford: Oxford University Press: 19-41.

- Glick, Ephraim 2013. Practical Modes of Presentation, *Noûs*, (Online First, DOI: 10.1111/nous.12052).
- Greco, John 2003. Knowledge as Credit for True Belief, in *Intellectual Virtue: Perspectives from Ethics and Epistemology*, eds. Michael DePaul and Linda Zagzebski, Oxford: Oxford University Press: 111-34.
- Greco, John 2007. The Nature of Ability and the Purpose of Knowledge, *Philosophical Issues* 17: 57-69.
- Greco, John 2008. What's Wrong With Contextualism?, *Philosophical Quarterly* 58: 416-36.
- Greco, John 2009a. *Achieving Knowledge*, Cambridge: Cambridge University Press.
- Greco, John 2009b. The Value Problem, in *Epistemic Value*, eds. Adrian Haddock, Alan Millar and Duncan Pritchard, Oxford: Oxford University Press: 313-21.
- Greco, John 2009c. Knowledge and Success From Ability, *Philosophical Studies* 142: 17-26.
- Greco, John 2012. A (Different) Virtue Epistemology, *Philosophy and Phenomenological Research* 85: 1-26.
- Greco, John *Forthcoming*. Testimonial Knowledge and the Flow of Information, in *Epistemic Evaluation: Point and Purpose in Epistemology*, eds. John Greco and David Henderson, Oxford: Oxford University Press.
- Hetherington, Stephen 2006. How to Know (that Knowledge-That is Knowledge-How), in *Epistemology Futures*, ed. Stephen Hetherington, Oxford: Oxford University Press: 71-94.
- Hetherington, Stephen 2010. *How to Know: A Practicalist Conception of Knowledge*, Oxford: Wiley-Blackwell.
- Hetherington, Stephen 2013. There Can Be Lucky Knowledge, in *Contemporary Debates in Epistemology* (2nd Edn.), eds. Matthias Steup, John Turri and Ernest Sosa, Oxford: Wiley-Blackwell: §7.
- Hetherington, Stephen and Karyn Lai 2012. Practicing to Know: Practicalism and Confucian Philosophy, *Philosophy* 87: 375-93.
- Hornsby, Jennifer 2011. Ryle's Knowing How and Knowing How to Act, in *Knowing How: Essays on Knowledge, Mind, and Action*, eds. John Bengson and Marc Moffett, Oxford: Oxford University Press: 80-100.
- Kallestrup, Jesper and Duncan Pritchard 2011. Virtue Epistemology and Epistemic Twin Earth, *European Journal of Philosophy* (Online First, DOI: 10.1111/j.1468-0378.2011.00495.x).
- Kallestrup, Jesper and Duncan Pritchard 2012. Robust Virtue Epistemology and Epistemic Anti-Individualism, *Pacific Philosophical Quarterly* 93: 84–103.
- Kallestrup, Jesper and Duncan Pritchard 2013. Robust Virtue Epistemology and Epistemic Dependence, in *Knowledge, Virtue and Action: Putting Epistemic Virtues to Work*, eds. Tim Henning and David Schweikard, Routledge: London: ch. 11.
- Kvanvig, Jonathan 2003. *The Value of Knowledge and the Pursuit of Understanding*, Cambridge: Cambridge University Press.
- Kvanvig, Jonathan 2010. The Swamping Problem Redux: Pith and Gist, in *Social Epistemology*, eds. Adrian Haddock, Alan Millar and Duncan Pritchard, Oxford: Oxford University Press: 89-111.
- Lackey, Jennifer 2007. Why We Don't Deserve Credit for Everything We Know, *Synthese* 158: 345-61.
- Lackey, Jennifer 2008. *Learning from Words: Testimony as a Source of Knowledge*, Oxford: Oxford University Press.

- Noë, Alva 2005. Against Intellectualism, *Analysis* 65: 278-90.
- Poston, Ted 2009. Know-How to be Gettiered?, *Philosophy and Phenomenological Research* 79: 743-47.
- Pritchard, Duncan 2005. *Epistemic Luck*, Oxford: Oxford University Press.
- Pritchard, Duncan 2007. Anti-Luck Epistemology, *Synthese* 158: 277–97.
- Pritchard, Duncan 2009a. Apt Performance and Epistemic Value, *Philosophical Studies* 143: 407–16.
- Pritchard, Duncan 2009b. *Knowledge*, Palgrave Macmillan.
- Pritchard, Duncan 2009c. Knowledge, Understanding and Epistemic Value, in *Epistemology (Royal Institute of Philosophy Lectures)*, ed. Anthony O’ Hear, Cambridge: Cambridge University Press: 19–43.
- Pritchard, Duncan 2011. What is the Swamping Problem?, in *Reasons for Belief*, eds. Andrew Reisner and Asbjorn Steglich-Petersen, Cambridge: Cambridge University Press: 244-59.
- Pritchard, Duncan 2012a. Anti-Luck Virtue Epistemology, *The Journal of Philosophy* 109: 247–79.
- Pritchard, Duncan 2012b. In Defence of Modest Anti-Luck Epistemology, in *The Sensitivity Principle in Epistemology*, eds. Tim Black and Kelly Becker, Cambridge: Cambridge University Press: 173–92.
- Pritchard, Duncan 2013. There Cannot be Lucky Knowledge, in *Contemporary Debates in Epistemology* (2nd Edn.), eds. Matthias Steup and John Turri, Oxford: Wiley-Blackwell: §7.
- Pritchard, Duncan *Forthcoming*. Anti-Luck Epistemology and the Gettier Problem, *Philosophical Studies*.
- Pritchard, Duncan, Alan Millar and Adrian Haddock 2010. *The Nature and Value of Knowledge: Three Investigations*, Oxford: Oxford University Press.
- Ryle, Gilbert 1971/1946. Knowing How and Knowing That, reprinted in his *Gilbert Ryle: Collected Papers, Vol. 2*, New York: Barnes & Noble: 212-25.
- Ryle, Gilbert 1949. *The Concept of Mind*, Chicago: Chicago University Press.
- Schiffer, Stephen 2002. Amazing Knowledge, *Journal of Philosophy* 99: 200-02.
- Snowdon, Paul 2004. Knowing How and Knowing That: A Distinction Reconsidered, *Proceedings of the Aristotelian Society* 104/1: 1-29.
- Sosa, Ernest 1988. Beyond Skepticism, to the Best of Our Knowledge, *Mind* 97: 153-89.
- Sosa, Ernest 1991. *Knowledge in Perspective: Selected Essays in Epistemology*, Cambridge: Cambridge University Press.
- Sosa, Ernest 2007. *A Virtue Epistemology: Apt Belief and Reflective Knowledge*, Oxford: Oxford University Press.
- Sosa, Ernest 2009. *Reflective Knowledge: Apt Belief and Reflective Knowledge*, Oxford: Oxford University Press.
- Stanley, Jason 2011a. ‘Knowing (How)’ , *Noûs* 45: 207-38.
- Stanley, Jason 2011b. *Know How*, Oxford: Oxford University Press.
- Stanley, Jason and Timothy Williamson 2001. Knowing How, *Journal of Philosophy* 98: 411-44.
- Zagzebski, Linda 1996. *Virtues of the Mind: An Inquiry into the Nature of Virtue and the Ethical Foundations of Knowledge*, Cambridge: Cambridge University Press.
- Zagzebski, Linda 1999. What is Knowledge?, in *The Blackwell Guide to Epistemology*, eds. John Greco and Ernest Sosa, Oxford: Blackwell: 92-116.