

DRAFT. Comments welcome.

Doing Without Believing

Skill, Intellectualism, and Knowledge-How

Abstract

The debate between Intellectualists and Anti-Intellectualists on the nature of ‘knowledge-how’ has thus far centered on arguments from the syntax or semantics of natural languages, surveys of folk judgments, and appeals to intuitions about hypothetical cases. We propose a new approach, focusing on real-world cases found in the empirical psychology literature. Our argument is simple: while the hypothetical cases found in the philosophical literature are underspecified in crucial respects, an analogous set of real-world cases are not so underspecified. These cases speak strongly against Intellectualism, or the position that knowledge-how is a species of knowledge-that.

Keywords

Intellectualism, Anti-Intellectualism, Knowledge-How, Skill, Implicit Belief

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Introduction

Philosophy has seen a recent resurgence of interest in the nature of knowledge-how, and in particular regarding whether such knowledge is ultimately reducible to a sort of knowledge-that or propositional knowledge. The terms of this debate have remained relatively stable since Stanley & Williamson (2001) revived interest in the knowledge-how/knowledge-that distinction. Work on this debate has centered on three kinds of arguments: (1) attempts to show that one or another theory is incompatible with either the syntax or semantics of English or other natural languages;¹ (2) surveys

¹ Stanley & Williamson, 2001; Rumfitt, 2003; Stanley, 2011b; [reference removed].

of folk judgments;² and (3) appeals to intuitions about hypothetical cases.³ While there is no doubt much to be learned from each of these kinds of arguments, we propose a new approach, focusing on real-world cases found in the empirical psychology literature. Our argument is simple: while the hypothetical cases found in the literature are underspecified in crucial respects, an analogous set of real-world cases are not underspecified in these respects. And these cases speak strongly against Intellectualism, or the position that knowledge-how is a species of knowledge-that.

Background: Intellectualism and Anti-Intellectualism

Ryle (1949) famously argued in favor of the claim that knowledge-how is irreducible to knowledge-that. Ryle's main argument takes the form of a *reductio ad absurdum*: knowing how to φ cannot be explained in terms of contemplating P_1 , because contemplating P_1 is itself an act that can be done intelligently or not. Thus, intelligently contemplating P_1 requires knowing how to contemplate P_1 . If knowledge-how reduces to knowledge-that, then intelligently contemplating P_1 requires knowing how to contemplate P_1 , which itself requires contemplating P_2 , and so on. While not all contemporary Anti-Intellectualists are motivated by Ryle's regress, they are united in claiming that knowledge-how is irreducible to knowledge-that.⁴

In opposition to Anti-Intellectualism stands Intellectualism itself.⁵ Most Intellectualists deny the force of Ryle's regress, thus rejecting what was long taken to be the most powerful argument against Intellectualism.⁶ Several versions of Intellectualism have been developed in the space opened by this denial of Ryle's *reductio*. One central claim that runs throughout these different

² Bengson *et al.*, 2009.

³ Bengson & Moffett, 2007; Cath, 2011.

⁴ Hartland Swan, 1956; Roland, 1958; Koethe, 2002; Shiffer, 2002; Noë, 2005; Cath, 2011; Fridland, 2013, forthcoming; and [reference removed].

⁵ Stanley & Williamson, 2001; Snowden, 2003; Bengson & Moffett, 2007; Brogaard, 2008, 2009, 2011; Stanley, 2011a, 2011, b; Pavese, ms.

⁶ For arguments against the force of Ryle's regress, see Stanley & Williamson (2001) and Cath (2011). For critical responses, see Noë (2005) and Fridland (2013).

versions of Intellectualism, and the one with which we will be primarily concerned in this essay, is that knowing how to φ *just is* knowing that some w is a way for one to φ . It is this core claim of Intellectualism, we contend, that is incompatible with evidence from recent empirical psychology.⁷

Knowledge-How and Epistemic Luck

One common charge against Intellectualism has been that knowledge-how, in contrast to knowledge-that, is unthreatened by epistemic luck. In particular, some have claimed that one cannot generate Gettier cases for knowledge-how, in contrast to knowledge-that.⁸ This is unexpected on the Intellectualist picture. Stanley & Williamson (2001) and Stanley (2011a) have responded by offering cases of purportedly ‘Gettierized’ knowledge-how, for example, in the ‘Flight Simulator’ case.

FLIGHT SIMULATOR: Bob wants to learn how to fly in a flight simulator. He is instructed by Henry. Unknown to Bob, Henry is a malicious imposter who has inserted a randomizing device in the simulator's controls and intends to give all kinds of incorrect advice. Fortunately, by sheer chance the randomizing device causes exactly the same results in the simulator as would have occurred without it, and by incompetence Henry gives exactly the same advice as a proper instructor would have done. Bob passes the course with flying colors. He has still not flown a real plane. Bob has a justified true belief about how to fly. But there is a good sense in which he does not know how to fly. (2001, 435)

⁷ Bengson & Moffett (2011) have argued that two independent debates ought to be distinguished: one regarding what grounds the truth of knowledge-how claims and another regarding the nature of knowledge-how. We disagree with their claim that the best way to understand the extant literature is as focused on the grounding question rather than the nature question, although we do not pursue this issue here. Below, we invite those who are so inclined to understand our use of ‘Intellectualist’ as referring to the more specific class of so-called ‘Reductive Intellectualists,’ who claim that knowledge-how is reducible to knowledge-that.

⁸ Cath, 2011; Carter & Pritchard, 2013.

The point of this example, for Intellectualists, is to elicit the intuition that Bob does not know how to fly. This seems to follow from the fact that Bob fails to know that w , the way to fly taught to him by Henry, is a way of flying (since this is a Gettier case). Bob's ability to successfully fly is simply lucky on the Intellectualist interpretation.

Others have hesitated to draw Stanley & Williamson's prescribed intuition in this and similar hypothetical cases. For example, Poston (2009) argues that Bob *does* know how to fly on the basis of the fact that Bob can in fact fly in a wide range of situations and can even successfully explain to others how to do so. Cath (2011) agrees in the context of analogous cases.

We follow Hawley (2003) in thinking that judgments on these sorts of cases depend in part on the counterfactual robustness of the capacities in question. For Intellectualists, this amounts to the *safety* of the relevant knowledge-how. Intellectualists argue that Bob's true belief about the way to fly could have easily been wrong. While this is true, it is nevertheless unclear whether Bob's knowing how to fly could have easily been wrong. This depends jointly on *which* counterfactuals are at issue here and on certain unspecified details, like how long Bob spent in the simulator and what range of situations he encountered there. Given the importance of these typically underspecified details, we are not sanguine about the prospects for forward progress by simply piling on cases.⁹

We propose instead to turn our attention to some structurally similar cases drawn from recent work in empirical psychology. Crucially, these are not Gettier cases. The agents involved *do* know how to φ for the relevant φ . Rather, these cases serve to highlight certain commitments Intellectualists must take on regarding the relationship between knowledge-how and belief, commitments that we hold to be implausible.

⁹ See, however, Carter & Pritchard (2013) for a welcome attempt to flesh out these cases in more detail. An additional worry about hypothetical thought experiments, in particular *recherché* ones like those found in this literature, is that our intuitions about them are pervasively affected by minor changes in wording, moral valence, context, and other psychological factors. For thoughtful discussion, see Gendler (2007).

False Beliefs in Skilled Motor Action

In many ball sports, athletes are taught to ‘watch the ball’ or ‘keep your eye on the ball.’ This instruction serves several purposes. In sports like baseball, tennis, and cricket, focusing on the ball can help players to pick up nuances in the angle and spin of the incoming serve or pitch; it can help players to keep their head still, which is particularly important in sports like tennis, where one has to meet the ball with one’s racquet at a precise angle while one’s body is in full motion; and it can help players avoid distractions. One thing that ‘watching the ball’ does *not* do, however, is cause players to actually watch the ball, at least not in the way that most players think.

Bahill and LaRitz (1984) show that in sports such as baseball, tennis, and cricket, where the velocity of the ball can exceed 100 mph, it is physically impossible for players to track the movement of the ball when it is closer than 5 feet from them. In baseball, for example, as the ball approaches the batter, the horizontal angle of the ball—defined as the angle between the line of sight from the batter’s eye to centerfield and the line of sight from the batter’s eye to the ball—increases at a speed far faster than a human being’s maximum possible gaze velocity (defined as smooth-pursuit eye tracking plus head movement). At 5.5 feet from the plate, the retinal image of a baseball traveling 60 mph is changing at $1,100^\circ/\text{sec}$, yet gaze velocity in a professional baseball player does not exceed $150^\circ/\text{second}$. Rather than track the movement of the ball until and through the point of contact with the bat, it seems that batters watch the ball for some time, then predict where it will be when it crosses the plate, and then make an anticipatory saccade and let the ball catch up to their eye.

Thus there seem to be two relevant beliefs that a batter who intends to ‘watch the ball’ might have: (1) a true belief that she predicts when the ball will cross the plate and then makes an anticipatory saccade to that spot; (2) a false belief that she tracks the ball from the pitcher’s point of release until and through the point of contact with the bat. Most batters, we presume, hold the

latter false belief. (See Reed and colleagues (2010), discussed below; we also presume that most kids are taught to watch the ball until and through the point of contact, as we were.) It is important to note that this false belief fails to intrude at the level of action. Intending to watch the ball helps one succeed as a batter regardless whether one is watching the ball in the way that one thinks one is. Furthermore, one watches the ball intentionally. Watching the ball is an intentional action which is itself a component of a more complex action (i.e., batting).

Similar, and perhaps even more vivid, results obtain with regard to catching balls. For example, Reed and colleagues (2010) have shown that fielders in various ball sports believe that when they are catching a ball their gaze rises and then falls as the ball falls. These fielders not only believe that this is what their gaze is doing, but they also report experiencing their gaze rising and falling. But in fact, unless the ball is caught below eye-level, the fielder's gaze goes up continuously and does not fall.¹⁰ Reed and colleagues report that most participants in controlled studies appear to be unaware of any discrepancy between their reports and their behaviour. 'Conscious perceptual judgments,' they write, 'were not simply incomplete: They were often confidently wrong' (Reed *et al.* 2010, 73).

In both these sorts of cases, and in contrast to the hypothetical case considered above, the verdict seems clear: these agents know how to φ for the relevant φ . Nor are athletes the only relevant source of real-world cases. Marcel's (2003) 'vibro-tactile illusion,' which causes participants to feel as if their arm is in a location where it is not, presents a case in which agents know how to move their arm from point A to point B yet explicitly disavow that the way that they have just moved their arm from A to B is a way for them to do so.¹¹ Likewise, in Bechara and colleagues'

¹⁰ See also Deanes & McLeod (1993) and Jeannerod (2006).

¹¹ The illusion is created by vibratory stimulation of the biceps or triceps, which causes flexion (in the case of vibration of the biceps) or extension (in the case of vibration of the triceps) of the arm. If one's arm is restrained during vibratory stimulation, one typically feels as if one's arm is in the location where the reflex would cause it to be were the arm not restrained (Lackner & Taublieb, 1983). Marcel occluded participants' view of their

(1997) ‘Iowa Gambling Task,’ most participants know how to pick cards from rewarding decks long before they report having any beliefs about the decks or preferences between them.¹² What each of these cases has in common is an agent who knows how to φ , but who apparently fails to believe that the way she actually φ 's is a way for her to φ .

Entailments for Intellectualism

Supposing that the above cases are indeed cases of knowledge-how, what they indicate is that one can know how to φ but fail to *explicitly* believe of any appropriate w that it is a way for one to φ . *Prima facie*, we take it that an agent's explicitly believing that $w1$ is a way for her to φ is some evidence against that agent's also believing that $w2$ is a way for her to φ , so long as $w1$ and $w2$ are incompatible ways of φ -ing. What's more, that an agent's disposition to explicitly disclaim that $w2$ is a way for one to φ is further evidence towards this conclusion. Thus, we have at least some evidence in favor of the claim that agents in the above cases *fail to believe* that the way in which they actually φ is a way for them to φ . But, if that's right, and if knowledge also entails belief, then these agents cannot *know* what the Intellectualist claims that they know: namely, that w is a way for them to φ , where that w is the way in which they actually φ .

We can see two ways for the Intellectualist to escape this dilemma. One is to deny that

immobilized arm and covered the occluding surface in lights that traced the possible arc in which the occluded hand could move. The experiment reveals a fascinating series of events: (1) almost all participants draw the arc of the movement of their occluded hand in the direction that it would make given its felt, but not actual, location; (2) upon being released, their occluded hand moves correctly to the position of the illuminated light; and (3) most participants then draw the movement that their hand just made in the opposite direction that it in fact moved!

¹² Participants are presented with four decks of cards and \$2000 in pretend gambling money. They must choose facedown cards, one at a time, from any of the decks. Two of the decks are ‘good’ in the sense that choosing from them offers an overall pattern of reward, despite only small rewards offered by the cards at the top of the deck. Two of the decks are ‘bad’ in the sense that picking from them gives the participant a net loss, despite large initial gains. It takes subjects on average about 80 card-turns before they can say why they prefer to pick from the good decks. But after about 50 turns, most participants can say that they prefer the good decks, even if they aren't sure why. And after about only 20 turns, while most participants do not report having any reason for distinguishing between the decks (i.e., they don't feel differently about them and say that they don't see any difference between them), most participants have higher anticipatory skin conductance responses before picking from the bad decks.

batters and outfielders really know how to watch and catch baseballs. The other is to show that the agents in these cases really do believe what we have claimed they do not believe. We take the first option to be unpalatable. Athletes know how to watch and catch balls; indeed, they are experts at doing so. We focus, therefore, on the second option. While these agents might lack any introspectively accessible belief that some ψ that accurately describes how they φ is a way for them to φ , perhaps they nonetheless possess some kind of ‘implicit’ beliefs. These might be non-luminous beliefs (Williamson, 1996, 2000)—that is, beliefs that in principle they cannot introspectively recognize themselves to have. Alternatively, these implicit beliefs might contradict other beliefs the agent holds. These contradictory beliefs would presumably be presented under different modes of presentation, with only one of them being introspectively accessible. Since Intellectualists like Stanley & Williamson (2001) and Stanley (2011a, b) already accept that knowledge-how is a type of knowledge presented under a ‘practical mode of presentation,’ perhaps they would be willing to posit a practical mode of belief as well.

We do not wish to dispute the general claim that some mental states are non-luminous or that agents can have contradictory beliefs. What we want to suggest is that the plausibility of Intellectualism turns out to hinge on whether it is acceptable to posit that the agents in *these particular cases* have non-luminous, contradictory, or otherwise implicit beliefs. This puts an additional explanatory burden on defenders of Intellectualism. First, the Intellectualist must defend a particular theory of non-luminous or contradictory belief. Second, the Intellectualist must show that the agents in the cases we have discussed do in fact have non-luminous or contradictory beliefs.¹³ Anti-Intellectualists face neither of these burdens because they aren’t committed to knowledge-how corresponding to any sort of knowledge-that state at all. Knowledge-how, for Anti-Intellectualists, simply doesn’t entail belief.

¹³ Williamson (ms) has recently argued that non-luminosity is in fact a pervasive feature of our mental lives. If this is right, it might help Intellectualism to meet the first challenge, though it does not necessarily speak to the second.

In addition to what the agents themselves avow, we think there are further reasons to suspect that actions in cases like these are unlikely to be adequately explained by contradictory or non-luminous beliefs. One reason is that agents' relevant psychological states in these cases are not likely to behave like beliefs. States of belief—whether introspectively available or not—are thought to be paradigmatically sensitive to changes in what an agent takes to be all-things-considered evidence. When the milk carton in the fridge turns out to weigh next to nothing, a normal agent will revise her belief that there is milk in the fridge. But the same does not hold of the beliefs relevant to knowledge-how. Consider that, recently, the best hitters in Major League Baseball (Albert Pujols, Barry Bonds, and Alex Rodriguez) all failed spectacularly to even make contact with softballs pitched to them by Jennie Finch, Team USA's star softball pitcher—even though Finch throws much more slowly than MLB pitchers and softballs are larger than baseball (Epstein, 2013). This is because the MLB batters can't predict where the ball will be when it is pitched in a novel way (for them). Convincing these batters that the way to watch the softball is to predict where it will be and to focus on that point is likely to do embarrassingly little for them by way of more successfully watching (and hitting) the ball. In these cases it appears that the agents' relevant beliefs fail to update in the face of evidence that they themselves would acknowledge as definitive.

Still, suppose that the Intellectualist is right about the nature of knowledge-how, and suppose further that the sort of knowledge-that to which knowledge-how reduces is often non-luminous, and thus entails only non-luminous belief. Now, it seems that the near-Moore's paradox 'I know how to watch the ball, but I don't believe that looking ahead to where I predict the ball will be is a way for me to watch the ball' should be false when stated by a professional baseball player. More specifically, the second conjunct should be false in virtue of the baseball player's posited belief that *looking ahead to where I predict the ball will be* is a way of hitting the ball. But, in fact, it seems to us that baseball players can utter this sentence truly. Furthermore, if the Intellectualist claims that one

can only truly make this sort of paradoxical statement for ‘knows how’ attributions, then she loses what was distinctive of Intellectualism. In other words, it would be suspect for the Intellectualist to hold that the particular kind of knowledge-that to which knowledge-how putatively reduces does not entail belief while simultaneously accepting that, in general, knowledge-that does entail belief. The Intellectualist thus looks forced either to claim that the knowledge-that to which knowledge-how reduces is a special type of knowledge-that with strikingly different properties than ordinary knowledge-that, or else to claim that knowledge-that, in general, doesn't entail belief. While we remain open to the latter possibility, we note that this is quite a radical claim. Should the Intellectualist decide to adopt this latter position, we once more find the plausibility of Intellectualism hinging on the veracity of a highly controversial thesis elsewhere in epistemology.¹⁴

Conclusion

We have argued that the hypothetical cases found in the knowledge-how debate are underspecified in a crucial way, making it unlikely that we will obtain clear, consistent judgments regarding these cases. We suggested, however, that there are clearer cases to be found in the empirical psychological literature, cases in which agents appear to know how to φ without believing that ψ , the way that those agents actually φ , is a way for them to φ . These cases offer Intellectualists a dilemma: deny that agents in what appear to be paradigm cases of knowledge-how really know how to do what they do, or claim that these agents really do believe what they explicitly disclaim believing. At a minimum, each of these options places a significant explanatory burden on Intellectualists, one which Anti-Intellectualists, in contrast, need not carry.

¹⁴ The thesis that knowledge entails belief has been endorsed in Cohen (1966), Armstrong (1969, 1973), Sorenson (1982), Dartnall (1986), Ichikawa & Steup (2014), and Rose & Schaffer (2012). For critique, see Radford (1966) and Myers-Schulz & Schwitzgebel (2013).

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