



Knowledge-how and false belief

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Abstract

According to a prominent account of knowledge-how, knowledge-how is a species of propositional knowledge. A related view has it that to know how to perform an action is for it to seem to one that a way to perform that action is in fact a way to do so. According to a further view, knowledge-how is a species of objectual knowledge. Each of these *intellectualist* views has significant virtues including, notably, the ability to account for the seemingly epistemic dimensions of knowledge-how. However, while intellectualist views can account for the seemingly epistemic dimensions of knowledge-how, such views have difficulty accounting for the practical dimensions of knowledge-how. The objection I level against existing intellectualist views here seizes on this deficiency. I argue that, in virtue of the practical dimensions of knowledge-how, propositional knowledge under a practical mode of presentation is not sufficient for knowledge-how. Even when the sufficiency conditions for knowledge-how set out by extant intellectualist views are met, one may fail to know how to perform an action in virtue of a disposition to act on a false belief about a way for one to perform that action. Thus, whereas critics of intellectualist views often allege that such views place overly demanding conditions on knowledge-how, the objection developed here suggests that existing intellectualist views place insufficiently demanding conditions on knowledge-how.

Keywords Epistemology · Intellectualism · Knowledge-how · Knowledge-wh

1 Introduction

According to a prominent account of knowledge-how, defended by Jason Stanley and Timothy Williamson, knowledge-how is a species of propositional knowledge (Stanley and Williamson 2001; Stanley 2011a, b). Cath (2011) argues for a related view, according to which to know how to perform an action is for it to seem to one that a way to perform that action is in fact a way to do so. John Bengson and Marc

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A. Moffett defend the alternative claim that knowledge-how is a species of objectual knowledge (2011b). Each of these *intellectualist* views has significant virtues including, notably, the ability to account for the seemingly epistemic dimensions of knowledge-how.

However, while intellectualist views can account for the seemingly epistemic dimensions of knowledge-how, such views have difficulty accounting for the practical dimensions of knowledge-how. The objection I level against existing intellectualist views here seizes on this deficiency. I argue that, in virtue of the practical dimensions of knowledge-how, propositional knowledge under a practical mode of presentation is not sufficient for knowledge-how. Even when the sufficiency conditions for knowledge-how set out by extant intellectualist views are met, one may fail to know how to perform an action in virtue of a disposition to act on a false belief about a way for one to perform that action. Thus, whereas critics of intellectualist views often allege that such views place overly demanding conditions on knowledge-how, the objection developed here suggests that existing intellectualist views place insufficiently demanding conditions on knowledge-how.

2 Varieties of intellectualism

Bengson and Moffett (2011b) distinguish between two debates concerning knowledge-how. The first debate concerns the states in virtue of which one knows how to perform an action. Intellectualists maintain that, when one knows how to φ , the states in virtue of¹ which one knows how to φ are propositional attitudes related to ways of φ -ing (2011b, p. 162). Anti-intellectualists hold that knowledge-how is instead had in virtue of some disposition or ability, rather than a propositional attitude. That knowledge-how is grounded in propositional attitudes explains why knowledge-how differs from mere knacks—practical abilities had in the absence of knowledge (Annas 2011; Bengson and Moffett 2011a). That knowledge-how involves propositional attitudes also helps to explain why knowledge-how is opaque (Stanley and Williamson 2001, p. 438; Williams 2008). Moreover, at least in some cases, it seems clear that my knowing how to perform a given action is closely connected to my knowing some facts about that action and perhaps about myself. In some cases, when I read a recipe, it seems that I not only come to know that following the set of instructions provided is a way for me to cook the food in question, I also come to know how to cook it. Intellectualism easily accounts for each of these considerations.

A second debate concerns the relation that one stands in when one knows how to φ and the second relatum in this relation (Bengson and Moffett 2011b, p. 163). Typically, accounts of knowledge-how fall into one of the following two categories:

¹ Following Bengson and Moffett (2011b, fn. 3) I take “in virtue of” to denote full or partial grounding.

Propositionalism

S's knowledge how to φ is a propositional attitude relation, and the second relatum is a proposition concerning a way for S to φ .

Dispositionalism

S's knowledge how to φ is a behavioral-disposition relation, and the second relatum is φ -ing or some other non-propositional item.

Propositionalism and dispositionalism do not exhaust the possibilities. A further alternative is the following:

Objectualism

S's knowledge how to φ is a non-propositional, non-behavioral-dispositional objectual attitude relation, and the relatum is a way of φ -ing, or some other non-propositional item.

Intellectualist views tend toward propositionalism, and anti-intellectualist views tend toward dispositionalism.

The most prominent version of intellectualism is defended by Stanley and Williamson (2001) and has been developed by Stanley (2011a, b). Theirs is a propositional intellectualist view, according to which S knows how to φ only if S knows of some way, w , that w is a way for S to φ (Stanley 2011a, p. 209). On Stanley and Williamson's view, knowledge-how also requires that propositional knowledge of this sort be had under a practical mode of presentation.

In general, the introduction of modes of presentation helps to explain certain otherwise puzzling phenomena. For instance, it is intuitively possible that, as I unknowingly watch myself on a live security feed, I come to believe that the man on the screen is about to have his pocket picked, even though I fail to believe that I am about to have my pocket picked.² Similarly, it seems that one can know, at 9:00 AM, that the meeting is at 9:00 AM without knowing that the meeting is now. Although the Russellian proposition believed or known, respectively, has the same content in each case, in neither case does the first member of the pair entail the latter. In each case, the divergence between pairs suggests that the Russellian propositions believed or known therein are known under distinct modes of presentation. In the first case, for instance, I believe a given Russellian proposition under a demonstrative mode of presentation but fail to believe that same proposition under a first-personal mode of presentation.

Stanley and Williamson maintain that similar considerations to those that motivate the introduction of first-personal and other familiar modes of presentation likewise motivate the introduction of practical modes of presentation. Characteristic of the practical mode of presentation is, according to Stanley and Williamson, a set of complex dispositions (2001, p. 429). So, just as my behavior in the case above will differ depending on whether I understand the man on the screen as myself or as *that man*, the dispositions associated with knowing of

² For a classic discussion of such cases, see Perry (1979).

some way that it is a way for one to φ will depend on whether that proposition is known under a practical mode of presentation.

We may now state Stanley and Williamson's (2001) view:

Knowledge Propositional Intellectualism (Knowledge PI)

S knows how to φ if and only if S knows of some way, w , that w is a way for S to φ , under a practical mode of presentation.

In addition to its explanatory power with respect to the epistemic dimensions of knowledge-how, Knowledge PI derives support from the *prima facie* plausible pair of claims that knowledge-who, knowledge-when, knowledge-where and other forms of knowledge-wh are species of propositional knowledge and that knowledge-how and knowledge-wh are subject to a uniform analysis.

Despite these strengths, Knowledge PI has been subjected to sustained criticism. Several critics of Knowledge PI allege that it places implausibly strict requirements on knowledge-how. For instance, Poston (2009), Cath (2011), and Carter and Pritchard (2015) contend that knowledge-how is consistent with epistemic luck in a way that knowledge-that is not. Cath contends that knowledge how to φ is not only compatible with one's belief about a way for her to φ being luckily true, but also with one's belief being unjustified and even with one lacking a belief about a way for her to φ . The thrust of these criticisms is that knowledge-that is not required for knowledge-how. One response to such criticisms is to weaken the relation that one takes to hold between oneself and a proposition about a way for one to φ , when one knows how to φ . Cath adopts this strategy, suggesting the following view:

Seeming Propositional Intellectualism (Seeming PI)

S knows how to φ if and only if there is some way to φ , w , such that it seems to S that w is a way for S to φ , under a practical mode of presentation.

Seeming PI avoids the objections Cath describes while retaining commitments to propositionalism and intellectualism.

Intellectualists need not endorse propositionalism. Bengson and Moffett (2011b, p. 189), endorse the following view:

Objectualist Intellectualism

To know how to φ is to stand in an objectual understanding relation to a way, w , of φ -ing.

On Bengson and Moffett's view, one's possession of an objectual understanding of a way is grounded in, but not reducible to, one's propositional attitudes (2011b, p. 188). Thus, while their view retains the intellectualist commitment to knowledge-how being grounded in propositional attitudes, the view rejects the commitment that knowledge-how *is* a propositional attitude relation in favor of an objectualist account of the relation.

In what follows, I argue that every intellectualist account of knowledge-how described above is false. Whereas objections to intellectualism most commonly allege that intellectualist views place excessively high demands on knowledge-how,

the objection I develop here suggests that the forms of intellectualism discussed above place inadequate sufficiency conditions on knowledge-how. The objections developed here are explicitly directed at Knowledge PI. Because one knows that p only if it seems to one that p , any argument that shows that the conditions specified by Knowledge PI are not sufficient for knowledge-how likewise shows that the conditions specified by Seeming PI are not sufficient. While the objections raised here are not explicitly directed against objectualist intellectualism, it will be clear that parallel objections apply to that view.

The upshot of the argument developed here is not that intellectualism is false. Rather, the counterexamples developed here highlight the substantive connection that holds between knowledge-how and action—a connection that is not adequately captured by non-dispositionalist accounts of the knowledge-how relation. Because intellectualist views tend to reject dispositionalism, many intellectualist views succumb to the argument developed here. Intellectualism is in principle consistent with dispositionalism,³ however, and so it is consistent with the argument developed here that some intellectualist account of knowledge-how is true.⁴

3 A direct argument against knowledge PI

Propositional knowledge under a practical mode of presentation is not sufficient for knowledge-how. To illustrate, consider the following case:

Avalanche⁵

Lisa watches a television program about surviving disasters and comes to believe, truly, that making swimming motions is a way for her to survive an avalanche. She has subsequently utilized this method on multiple occasions to survive avalanches.

³ Just as one might stand in an objectual understanding relation in virtue of one's propositional attitudes, without that relation being a propositional attitude relation, one might stand in a behavioral-disposition relation—a disposition to succeed in φ -ing when one tries, for instance—without that relation being a propositional attitude relation.

⁴ To my knowledge, no philosopher has explicitly endorsed a dispositionalist intellectualist account of knowledge-how. Markie (2015) comes the closest, noting that, at least on the construal of intellectualism utilized in this paper, his *Special Ability View* of knowledge-how is both intellectualist and dispositionalist (fn. 3). While inconsistent use of terminology precludes straightforward classification of views about knowledge-how, several other philosophers have recently made remarks at least suggestive of a dispositionalist intellectualist view. For instance, Löwenstein (2017) explicitly rejects intellectualism, but his own *Rylean Responsibility View* has it that knowledge-how is an ability that depends, in some way, on the subject's propositional knowledge. Waights Hickman (2018) suggests the plausibility of such a view. Likewise, Habgood-Coote's (2018) *Interrogative Capacity View* identifies knowledge-how with the capacity to answer questions—a capacity grounded in propositional knowledge. Habgood-Coote's view thus appears to be a sort of dispositionalist intellectualism, as presently construed. Finally, Constantin's (2018) *Dispositional Theory of Practical Knowledge* treats knowledge-how as a disposition to have an ability that is realized in seeming states of the sort emphasized by Cath (2011). Thus, while Constantin explicitly rejects intellectualism as he understands it, Constantin's view appears to be a sort of dispositional intellectualism, as this position is understood here.

⁵ This case is modified from one offered by Hawley (2003).

Even if Lisa did not know that making swimming motions is a way for her to survive an avalanche immediately after watching the television program, it is difficult to deny her this knowledge once she has successfully utilized this method on multiple occasions. Moreover, her successful application of the method seems to indicate that she knows the relevant proposition under a practical mode of presentation.

The facts of the case, as they have been presented thus far, are not sufficient to guarantee that Lisa knows how to survive an avalanche. Consider the following expansion on the case:

Misinformed Avalanche

Lisa's situation is as described in *Avalanche*. Having heard about Lisa's repeated avalanche-related mishaps, a well-intentioned but misinformed friend tells Lisa about what she believes to be a better way to survive an avalanche. Lisa comes to believe, on her friend's advice, that curling into a ball and remaining in that position until the avalanche ends is a way for her to survive an avalanche. Moreover, as her friend assures her that this new method will result in less fatigue and fewer injuries than making swimming motions, Lisa decides that, if she ever finds herself in another avalanche, she will curl into a ball and remain that way until the avalanche ends.

Because Lisa believes that this way of surviving an avalanche requires that she remain curled in a ball for the duration of the avalanche, she will not alter her strategy mid-avalanche to begin making swimming motions. Thus, if Lisa again finds herself in an avalanche, she will not survive. Having taken on her friend's advice, Lisa intuitively no longer knows how to survive an avalanche. Here it is worth noting that Lisa's lack of knowledge-how is not simply due to the lack of a disposition to survive an avalanche, when she tries. Intellectualists typically maintain, plausibly enough, that knowledge-how is compatible with the absence of a disposition to succeed in the circumstances that obtain. An amputee former cyclist may know how to ride a bicycle and a handless former pianist may know how to play the piano (Stanley and Williamson 2001). Like the former pianist and the former cyclist, Lisa will not succeed if she tries to perform the action in question. But, unlike the former pianist and the former cyclist, her lack of a disposition to succeed is not attributable to some unfavorable external circumstances.

Although Lisa fails to know how to survive an avalanche, she continues to know that making swimming motions is a way for her to survive an avalanche, and she continues to know this under a practical mode of presentation. Hence, knowledge that some way, w , is a way for one to φ , under a practical mode of presentation, is not sufficient for knowledge-how to φ .

The argument presented thus far hangs on the intuitive judgment that, once she has formed the false belief and is disposed to act on it, Lisa no longer knows how to survive an avalanche. Let us suppose that this judgment is not entirely clear. Suppose, for instance, that one takes it to be intuitive that Lisa knows how to survive an avalanche but is simply not inclined to act on her propositional knowledge.⁶ As a

⁶ Thanks to an anonymous reviewer for pressing me on this possibility.

first step toward defending the argument presented thus far, it is worth acknowledging that cases can arise where a subject knows how to perform an action but is not inclined to act on the propositional knowledge on which her know-how is grounded. An accomplished baseball pitcher may, for instance, decide to try a new grip for throwing curveballs, without thereby losing his knowledge of how to throw curveballs. Similarly, a yoga instructor may decide to illustrate for her students how not to do a particular pose, while persisting in knowing-how to perform that pose.⁷ Yet, in the case above, Lisa is not merely planning to test out an alternative method of surviving an avalanche. Nor is she illustrating a method she knows to be faulty. Lisa believes that curling into a ball is a way of surviving an avalanche in the same way she believes that making swimming motions is a way of doing so. Indeed, we may suppose that she believes both propositions equally strongly. Thus, we can deny knowledge-how to Lisa without denying knowledge-how to individuals merely disposed to try out or illustrate faulty methods for performing actions that they know under a practical mode of presentation they can perform in other ways. Second, we may reimagine the case with an altered order of events. Suppose Lisa starts with the false belief that curling into a ball is a way for her to survive an avalanche, and without any true beliefs about ways for her to do so. Even if she comes to know, under a practical mode of presentation, that making swimming motions is a way for her to survive an avalanche, she will not thereby come to know how to survive an avalanche so long as she is disposed to employ the faulty method. Finally, we may multiply the number of false beliefs that Lisa has about ways of surviving an avalanche. As the number of false beliefs increases, it becomes increasingly clear that Lisa does not know how to survive an avalanche. So long as these false beliefs are consistent with Lisa continuing to know, of some way, that it is a way for her to survive an avalanche, this is enough to show that intellectualism does not provide adequate sufficiency conditions on knowledge-how. At a minimum, I take it that the preceding considerations lend some support to the initial intuition that Lisa fails to know how to survive an avalanche. Those that remain unconvinced should note that I do not take the case against extant versions of intellectualism to stand or fall solely on the intuition about Lisa. In Sect. 4, I supplement the direct argument against these views with an appeal to the insufficiency of propositional knowledge for some varieties of knowledge-wh and parity between knowledge-how and knowledge-wh. For the present, I proceed on the assumption that Lisa intuitively fails to know how to survive an avalanche.

Misinformed Avalanche illustrates that Knowledge PI places inadequate sufficiency conditions on knowledge-how. Here I wish to consider some initial objections to this direct argument against Knowledge PI. First, there are cases in which knowledge-how persists despite the addition of false beliefs. Consider the following:

⁷ As Fridland (2014, p. 2742) emphasizes, the ability to voluntarily commit errors in a performative domain is a mark of skill in that domain.

Curveball

Leonard knows, of way w , that w is a way for him to throw a curveball and, when trying to throw curveballs, he consistently does so by way of w . He also falsely believes, of way w^* , that w^* is a way for him to throw a curveball.

Intuitively, Leonard's false belief does not deprive him of knowledge as to how to throw a curveball. The compatibility of Leonard's know-how with his false belief is, however, consistent with what has been said about *Misinformed Avalanche*. What *Misinformed Avalanche* illustrates is that, while knowledge-that is contingently connected to action, knowledge-how bears a tighter connection to action. In *Curveball*, Leonard's propositional knowledge-retains its contingent connection to action, and so Leonard's false belief seems consistent with his knowing how to throw a curveball. Indeed, a dispositionalist anti-intellectualist view would predict that Leonard, but not Lisa, possesses the knowledge-how in question. So, although Leonard plausibly knows how to throw a curveball, this is of little comfort to the proponent of Knowledge PI.

To better bring out the point illustrated by *Misinformed Avalanche* and *Curveball*, it may prove useful to consider these cases in relation to a type of case considered by Brownstein and Michaelson (2016).⁸ Brownstein and Michaelson present an apparent challenge to Knowledge PI based on cases involving agents who, according to the authors, lack a true belief about a way for them to perform an action, while nonetheless clearly knowing how to perform that action. The most compelling cases discussed by Brownstein and Michaelson involve athletes who endorse apparently faulty methods for performing actions that they plainly know how to perform. For instance, it is commonplace for baseball players to be taught to “watch the ball” or “keep their eyes on the ball” when batting. There is little reason to suppose that players ever abandon their commitment to this advice. However, because of the speed at which balls are pitched in professional baseball, visually tracking the ball from its point of release by the pitcher to the point at which the ball contacts the bat is, from the visual perspective of a batter, impossible (Brownstein and Michaelson 2016, p. 2822). Thus, professional baseball players, who cannot plausibly be denied knowledge how to bat, seem to have false beliefs about how to do so. Brownstein and Michaelson take the argument a step further, arguing that players' explicit endorsement of a false belief about how to bat, coupled with the likelihood that players would explicitly deny that they bat the way they actually do, indicates the absence of a true belief about how to bat (2016, p. 2824). If Brownstein and Michaelson are correct, then knowing how to φ does not require that one know, of some way, that it is a way for one to φ and Knowledge PI is therefore false.

⁸ My thanks to an anonymous reviewer for recommending that I consider Brownstein and Michaelson's discussion of these cases.

I am skeptical that Brownstein and Michaelson's cases successfully illustrate that knowledge-how does not require belief.⁹ Still, the cases they present seem to illustrate that knowledge how to φ is at least sometimes consistent with having a false belief as to how to do so, provided that one does not act on the false belief. This aspect of the case underscores the point illustrated by *Curveball*, namely that false beliefs only seem to undermine knowledge-how when subjects are disposed to act on them.

The cases considered thus far may seem to indicate that false beliefs about ways to φ are inconsistent with knowledge-how when and only when the agent is disposed to act on them. Yet this is not quite right. Consider:

Shortcut

Greg knows that taking route x is a way for him to get to work. He comes to believe, falsely, that taking route y is a faster way for him to get to work. In the interest of time, Greg resolves to take route y to work from now on. In fact, taking route y is not a way for him to get to work at all.

It is highly plausible that Greg continues to know how to get to work, despite the addition of a false belief about route y , and despite his disposition to take route y .

But there is a deep distinction between Lisa and Greg. Once Greg sets off on route y and discovers that the route will not, after all, take him to work, Greg can correct his course, returning to his starting point and instead taking x .¹⁰ Lisa, it is

⁹ To start, the success of the argument depends on the assumption that players interpret the advice to “watch the ball” or “keep their eyes on the ball” to mean they should visually track the ball from its release to the point where it contacts the bat. That players interpret the advice in this way is not obvious, however, and Brownstein and Michaelson offer only anecdotal evidence to suggest the advice is interpreted in this way (2016, fn. 18). Second, Brownstein and Michaelson only speculate that players would deny that they hit balls the way they do—that is, by watching the ball long enough to assess its trajectory, then making “an anticipatory saccade” to the point at which they expect it to reach the plate (2016, p. 2822). Third, even if players do explicitly deny batting the way they do, this may simply be because players fail to recognize some descriptions—those involving the term “anticipatory saccade,” for instance—of the way they bat. Finally, it is not clear that Brownstein and Michaelson present adequate reason to deny that batters have implicit propositional knowledge regarding ways for them to bat. Because it is possible that the players’ knowledge-how might be grounded in implicit propositional knowledge, the authors present their conclusion only speculatively, albeit while expressing skepticism as to the availability of an account of implicit belief of the right sort to defend Knowledge PI.

Some of these difficulties are absent from Brownstein and Michaelson’s discussion of knowledge-how to catch a ball. The authors present evidence from Reed et al. (2010) that individuals that clearly know how to catch a ball both endorse faulty ways of doing so and explicitly deny that they utilize the way in which they in fact catch (Brownstein and Michaelson 2016, p. 2823). In short, even individuals with skill and experience misdescribe the way in which they catch balls. It is difficult to interpret these individuals’ testimony as anything other than the endorsement of a false belief about how to catch fly balls. Moreover, given the relative simplicity of the true and false explanations of how they catch, there is little reason to suppose that the subjects’ denial of the true explanation is merely due to unfamiliarity with the description of the actual way of catching. Still, the possibility that the individuals have implicit knowledge of a way to catch is enough to ensure that the case of knowledge-how to catch is not decisive evidence against Knowledge PI.

¹⁰ If Greg for some reason lacks this capacity, it is far less clear that Greg knows how to get to work. Knowledge-how seems to involve some degree of flexibility in the face of novel circumstances (Habgood-Coote 2018, p. 9; Stanley 2011b, p. 181).

natural to suppose, cannot correct her course. Thus, in *Shortcut*, but not in *Misinforming Avalanche*, the agent's knowledge-that persists in explaining why the agent would enjoy practical success in some relevant counter-factual scenario, even if their attempt initially fails.

Taken together, the cases presented in this section suggest that a false belief about a way for one to φ stands in the way of one's knowledge how just when the agent is disposed to act on that false belief and doing so will prevent the agent's successful action. Yet an agent can have a false belief of this sort even while knowing, of some way, that it is a way for the agent to perform that relevant action. Thus, knowledge that some way is a way for one to φ is not sufficient for one to know how to φ . Hence, Knowledge PI, and *a fortiori* Seeming PI, do not specify adequate sufficiency conditions for knowledge-how. While I will not develop the point in detail, the case may be re-described to pose a direct challenge to objectualist intellectualism.

4 Knowledge-how and knowledge-wh

Knowledge PI is motivated in part by the uniformity of knowledge-how and knowledge-wh (Stanley and Williamson 2001; Stanley 2011a, b, ch. 2). Even those that reject Knowledge PI accept this *uniformity thesis* as a datum. Bengson and Moffett, for instance, utilize the uniformity thesis, coupled with an alternative analysis of knowledge-wh, to argue for objectualist intellectualism (Bengson and Moffett 2011b). Defenders of Knowledge PI maintain that propositional knowledge about places, persons, times and so on are necessary and sufficient for the corresponding sorts of knowledge-wh. If this view of knowledge-wh is correct, then one cost of the objection developed above is a denial of the uniformity thesis. In this section, I argue that this apparent cost is illusory. Propositional knowledge is not sufficient for knowledge-wh. Consequently, the uniformity thesis militates *against* Knowledge PI.

Before turning to the evidence for an alternative account of knowledge-wh, it is first worth asking why one might think uniformity holds both within varieties of knowledge-wh and between knowledge-wh and knowledge-how. One motivation comes from the common syntactic structure of knowledge-wh and knowledge-how attributions (Stanley and Williamson 2001). Additional sources of motivation are the following sorts of sentences, which appropriately combine various sorts of knowledge-wh and knowledge-how:

- (a) Lane knows where and when the movie plays.
- (b) Derek knows how and why to vote.

The evidential significance of coordination across conjunction is disputed, as apparent attributions of propositional knowledge may be appropriately conjoined to attributions of non-propositional knowledge (Bengson and Moffett 2011b). Consider:

- (c) Ellen knows Lyle, and where he came from.

Here, it seems that an attribution of objectual knowledge is appropriately conjoined to an attribution of propositional knowledge.

Although the evidential weight of coordination between the various sorts of knowledge-wh is limited, there is further reason, independent of any analysis of knowledge-wh, to think that the various sorts of knowledge-wh are susceptible to the same sort of analysis. Consider the following sentences:

- (d) Lane knows when the movie plays, but he doesn't know what time the movie plays.
- (e) Derek knows why to vote, but he doesn't know what reasons he has to vote.
- (f) Miranda knows who her senators are, but she doesn't know which senators are her senators.

It is difficult to make sense of sentences d-f, and one highly plausible explanation for this is that the second clause of each sentence contradicts the first. That the sentences are contradictory indicates that the varieties of knowledge-wh are susceptible to uniform analysis.

The preceding considerations are neutral with respect to what sort of analysis knowledge-wh ought to receive, propositional or otherwise. Some prominent defenders of Knowledge PI insist that to attribute knowledge-wh to an agent is to attribute propositional knowledge to that agent. Stanley and Williamson, for instance, maintain that "John knows where to find an Italian newspaper" is equivalent to "John knows, of some place p , that p is a place to find an Italian newspaper." It is plausible that, when one possesses an item of knowledge-wh, one does so in virtue of possessing propositional knowledge. Yet it is not plausible that knowledge-wh is a species of propositional knowledge.¹¹

To see this, let us consider a possible case of knowledge-where:

Voting

Bethany intends to leave work at 6:00 PM to vote in the election for the local chapter of her organization. Bethany knows that polls close at 7:00 PM. She also knows that she can vote at the high school near her home.

From the information provided thus far, it is tempting to conclude that Bethany knows where to vote. But suppose, in addition to knowing that she can vote at the high school near her home, Bethany also believes, falsely, that she can vote at the primary school near her work. Because the latter is closer, she intends to vote at the primary school. Suppose that, if Bethany attempts to vote at the primary school, she will not have time to reach the high school where she can vote before the polls close. Bethany's false belief seems to stand in the way of her prospective

¹¹ George (2013) likewise argues that knowledge-wh is inconsistent with relevant false beliefs. George's argument for this point differs from the one offered here, insofar as George does not emphasize the practical element of knowledge-wh.

knowledge-where.¹² Hence, we have an apparent counterexample to the view that relevant propositional knowledge concerning a place is sufficient for knowledge-where. I now turn to an explanation of why propositional knowledge is not sufficient for knowledge-where, or knowledge-wh more generally, as a step toward undermining the uniformity argument for Knowledge PI.

As I noted above, and as others have emphasized (Bengson and Moffett 2011b, p. 165), knowledge-how is intimately connected to action. It is less commonly observed that knowledge-wh often bears a close connection to action. Farkas's (2017) discussion of 'practical knowledge-wh' is a notable exception.¹³ Farkas argues convincingly that the connection between knowledge-wh and action can be every bit as close as the connection between knowledge-how and action. Consider the range of knowledge-wh Farkas attributes to a professional sailor:

[S]he knows *how close* to the wind she can sail, *when* to start the manoeuvre, *how much* to sheet in, *how hard* to tug on the rope to flick the mainsheet, *when* and *how low* to duck under the boom, *how far* she can lean out to balance the boat, *where* to put her feet to find a good balance, and so on. (2016, p. 859)

The knowledge-wh Farkas attributes to the sailor in this passage seems to be distinctly practical. This is evidenced by the fact that such knowledge-wh would be difficult to transmit or attain strictly by instruction (Farkas 2017, p. 859). In short, it seems that at least some knowledge-wh is closely connected to action.

That knowledge-wh sometimes bears a close connection to action neatly explains why Bethany fails to know where to vote. Bethany lacks this knowledge-where despite knowing, of some place, that it is a place where she can vote. The connection between knowledge-wh and action, and its implications for the sufficiency of propositional knowledge for knowledge-wh, holds more generally. If, for instance, a sailor is disposed to act on a false belief about when to duck under the boom or where to put her feet to balance well, and acting on these beliefs precludes acting on the knowledge of a correct time to duck under the boom or a place to put her feet, such a sailor will lack the knowledge-wh Farkas attributes to the sailor in the passage above.

In some cases, possessing the relevant propositional knowledge may well be sufficient for possessing knowledge-wh. Knowing that Donald Trump is the President of the United States, for instance, is plausibly sufficient for knowing who the President of the United States is. Yet, even if propositional knowledge is sometimes sufficient for knowledge-wh, this is not enough to secure the uniformity argument for Knowledge PI. The main upshot of this section is that knowledge-wh at least sometimes bears a close connection to action. When it does, propositional knowledge is not

¹² To be clear, I take it that, prior to realizing that she cannot vote at the primary school, Bethany does not know where to vote. Arguably, she gains this knowledge-where once she realizes that she cannot vote at the primary school. At that point, Bethany is arguably in a position similar to that of an amputee former cyclist or a handless former pianist—she possesses knowledge-where despite the inability—due to unfavorable external circumstances—to put it into action.

¹³ Thanks to an anonymous reviewer for drawing my attention to Farkas' discussion of the practical aspects of knowledge-wh.

sufficient for knowledge-wh. Knowledge-how always bears an intimate connection to action. So, if knowledge-that is not sufficient for knowledge-wh when knowledge-wh is closely connected to action, and uniformity holds between knowledge-wh and knowledge-how, then propositional knowledge is not sufficient for knowledge-how. Hence, rather than supporting Knowledge PI, the uniformity thesis suggests that Knowledge PI is false. *A fortiori*, this indirect argument suggests that Seeming PI is false. Moreover, while I will not develop the argument in detail here, a parallel argument can be directed against objectualist intellectualism. This is because objectual knowledge of places, persons, times and so on is not sufficient to secure the practical dimensions of knowledge-wh. We thus have two arguments, one direct and one indirect, suggesting that every intellectualist view considered above is false.

5 Objections and replies

The objection to Knowledge PI developed here relies on the claim that knowledge-how and knowledge-wh can be absent in cases where the propositional knowledge that proponents of Knowledge PI take to underlie it is present. But, according to a first objection, the purported counterexample I have developed against Knowledge PI fails because, in that case, the propositional knowledge supposed to underlie the knowledge-how in question is defeated. An objection of this sort might proceed as follows. Suppose that Danny knows that Donald Trump is the current US President. It seems *prima facie* plausible that she knows, on this basis, who is the current US President. But now suppose Danny also believes that Gary Johnson is the current US President. If so, she does not know who the current US President is, and this is plausibly because she does not, after all, know that Donald Trump is the current US President. Danny cannot know that Donald Trump is the current US President while falsely believing that Gary Johnson is the current US President.¹⁴ Her belief in the latter claim defeats the propositional knowledge in question. One might contend, along similar lines, that the counterexamples I have presented above fail to illustrate cases of knowledge-that absent knowledge-how or knowledge-wh. In those purported counterexamples, the subject lacks knowledge-how or knowledge-wh, but so too does the subject lack the relevant propositional knowledge. Or so a proponent of Knowledge PI might respond.

But such a strategy fails to undermine the case against Knowledge PI developed above. If Danny's belief that Gary Johnson is the current US President undermines her justification for believing that Donald Trump is the current US President, this is precisely because the two propositions are inconsistent. The inconsistency of the two propositions is, however, an anomalous feature of the case. In the cases of knowledge-how and knowledge-wh considered above, the propositions each subject falsely believes are not inconsistent with the proposition the subject knows to be true, and this is because there may well be multiple ways for one to perform an

¹⁴ One way of explaining why is as follows. Danny ought to know that if Gary Johnson is president, then Donald Trump is not president. There is thus a normative defeater for her propositional knowledge.

action, multiple places to vote, and so on. The subjects' false beliefs do not undermine their propositional knowledge in this straightforward sense.

Perhaps there is a subtler sense in which the subjects' possession of false beliefs suggests that they lack propositional knowledge in the purported counterexamples to Knowledge PI and the sufficiency of propositional knowledge for knowledge-wh presented above. One might think, for instance, that each subject's possession of false beliefs indicates that their belief-forming processes are unreliable, and that the subjects therefore lack the relevant propositional knowledge. Such an objection might succeed if we had reason to believe that a subject's beliefs of a certain type—beliefs about ways to perform an action, about places, and so on—are likely to be formed by the same process. But there is no reason to think this is the case. In *Mis-informed Avalanche*, for instance, I have stipulated that Lisa learned that making swimming motions is a way for her to survive an avalanche by watching a television program on surviving disasters. Alternatively, if one is skeptical about the transmission of knowledge—and especially knowledge under a practical mode of presentation—through testimony,¹⁵ we may allow that Lisa's belief did not become knowledge until she successfully survived an avalanche by making swimming motions. We may also stipulate, as I have above, that Lisa's false belief concerning another way for her to survive an avalanche was derived from an entirely distinct source. With this stipulation, it remains clear that Lisa possesses the relevant propositional knowledge, but lacks the know-how in question.

Despite what I have said thus far, there are circumstances under which a subject's potential knowledge that w is a way for her to φ might plausibly be inconsistent with her having false beliefs that various other ways are ways for her to φ .¹⁶ We may suppose again, for instance, that Lisa believes truly that making swimming motions is a way for her to survive an avalanche. Let us also suppose, however, that she falsely believes of hundreds of other bodily motions that making those motions are ways for her to survive an avalanche. This level of error would seem to suggest a degree of conceptual confusion about ways to survive avalanches that is inconsistent with Lisa knowing, of any way, that it is a way for her to survive an avalanche. Consequently, a case of this sort would not serve as a counterexample to Knowledge PI. Nor would parallel cases show that propositional knowledge is not sufficient for knowledge-wh.

However, the counterexample I offered in Sect. 3 is not a case of this sort. Lisa's lack of knowledge-how does not require that she be massively mistaken in the manner imagined in the previous paragraph. Provided she is disposed to act on it, and provided that doing so will preclude her from acting on her true belief, a single false

¹⁵ Cath (2017), for instance, offers reason to be skeptical that the sort of propositional knowledge that defenders of Knowledge PI take to underlie knowledge-how can be transmitted via testimony. Cath's point is that speakers will often fail to know, of any way, that that way is a way for the hearer to perform a certain action. Consequently, speakers will often be unable to transmit the relevant sort of propositional knowledge via testimony. I concur with Cath's point as far as it goes, but it bears noting that speakers will sometimes have the relevant knowledge. Moreover, as I indicate here, the objection I raise against existing intellectualist views would go through even if the relevant sort of propositional knowledge could never be transmitted via testimony.

¹⁶ I would like to thank an anonymous reviewer for raising this concern.

belief seems to be enough to preclude knowledge-how. Lisa's having some false beliefs of this sort is entirely consistent with her possession of the relevant conceptual competency to know that a certain way is a way for her to survive an avalanche. Even if one misapplies concepts in certain cases, it does not follow that one lacks the conceptual competence required to have propositional knowledge involving those concepts.

According to another line of objection, the counterexample considered here fails to undermine Knowledge PI because it fails to appreciate the significance of Stanley and Williamson's appeal to practical modes of presentation. In *Misinformed Avalanche*, Lisa persists in knowing that making swimming motions is a way for her to survive an avalanche, despite the addition of false beliefs, but she ceases to know this *under a practical mode of presentation*, or so the objection might go. One might argue, for instance, that knowing that w is a way for one to φ under a practical mode of presentation requires that one be disposed to employ w when attempting to φ . If this were the case, then cases like *Misinformed Avalanche* could not arise. There are several reasons to be skeptical about the attempt to defend Knowledge PI by appeal to practical modes of presentation.

First, it is not clear that Stanley and Williamson have offered sufficient grounds for positing the existence of practical modes of presentation. The proof they offer, which parallels proofs of the existence of alternative modes of presentation, is arguably only compelling to those that already accept that knowledge-how is a species of knowledge-that (Noë 2005, pp. 287–288). Glick (2015) and Pavese (2015) contest the claim that appeal to practical modes of presentation is undermotivated, and so I do not rest my case on that claim here.

Even if we grant that Stanley and Williamson provide sufficient reason to accept the existence of practical modes of presentation, the appeal to such things cannot block the present objection. Knowing that w is a way for one to φ under a practical mode of presentation cannot plausibly require that one be disposed to use w when attempting to φ . After all, experts in φ -ing may know, of many distinct ways, that these are ways of φ -ing. If knowing that w is a way for one to φ under a practical mode of presentation requires that one be disposed to employ w when attempting to φ , then such experts know of only one such way that it is a way for the expert to φ under a practical mode of presentation at a time. On this account, every time an expert alternated between two distinct methods of φ -ing, the expert would go from knowing that w is a way to φ under a practical mode of presentation to not knowing this under a practical mode of presentation. I take this account to be implausible or, at the very least, to require a more developed account of practical modes of presentation.

Finally, an appeal to modes of presentation will not block the counterexamples to the propositionalist analyses of knowledge-wh developed in Sect. 4. If Bethany fails to know where to vote, it is presumably not because she fails to know that the high school is a place for her to vote *under a practical mode of presentation*. To the extent that preserving parity between knowledge-how and knowledge-wh is theoretically desirable, blocking the counterexamples described above by appeal to modes of presentation would be a costly move for the proponent of Knowledge PI, potentially requiring the abandonment of the uniformity thesis as a motivation for the

view. For the reasons given here, I am skeptical that an appeal to the practical mode of presentation will save Knowledge PI. If there is such a strategy available, the burden of demonstrating this falls to its proponents.

6 Concluding remarks

Intellectualist approaches to knowledge-how account well for the apparently epistemic features of knowledge-how, but extant intellectualist views sever the intuitive tie between knowledge-how and action. Consequently, existing intellectualist approaches are committed to the existence of knowledge-how where there is none. The lesson to be taken from such cases need not be that intellectualism is false. It is consistent with the arguments against Knowledge PI presented here that knowledge-how is grounded in one's propositional knowledge, but is itself a dispositional relation.

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