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Knowledge-How, Abilities, and Questions

Joshua Habgood-Coote

University of Bristol

ABSTRACT

The debate about the nature of knowledge-how is standardly thought to be divided between intellectualist views, which take knowledge-how to be a kind of propositional knowledge, and anti-intellectualist views, which take knowledge-how to be a kind of ability. In this paper, I explore a compromise position—the *interrogative capacity* view—which claims that knowing how to do something is a certain kind of ability to generate answers to the question of how to do it. This view combines the intellectualist thesis that knowledge-how is a relation to a set of propositions with the anti-intellectualist thesis that knowledge-how is a kind of ability. I argue that this view combines the positive features of both intellectualism and anti-intellectualism.

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1. Introduction

Knowing-how seems to be a distinctively *practical* kind of knowledge. Yet, according to the standard semantics for knowledge-how ascriptions, to be truly said to know how to do something requires standing in a relation to a proposition about how to do it. *Intellectualists* about knowledge-how typically take their lead from the semantics of knowledge-how ascriptions, claiming that knowledge-how is a kind of propositional knowledge. As a consequence, they have trouble explaining the practical properties of knowledge-how. By contrast, *anti-intellectualists* typically give priority to the practical properties of knowledge-how, claiming that knowledge how is a kind of ability. Since abilities are typically relations to activities rather than to propositions, anti-intellectualists have the parallel problem of making their view compatible with linguistic theory.

In this paper, I explore a novel compromise position: the *interrogative capacity* view. According to this view, knowledge how to do something is a certain kind of ability to generate answers to the question of how to do it. I argue that combining a propositional object with an abilitative relation makes the view uniquely well-placed to defuse the tension between semantic theory and the practicality of knowledge-how, and allows it to illuminate the relation between knowledge-how, propositional knowledge, and abilities.

2. Logical Space

In thinking about logical space in the knowledge-how debate, we need to carefully distinguish claims about the *object* of knowledge-how from claims about the nature of the knowledge-how *relation*.

Glick [2011: 407–11] points out that the claim that knowledge-how is a species of propositional knowledge can be understood in two ways:

> *Weak Intellectualism*. Know-how is knowledge that has a proposition as a *relatum*.
>
> *Strong Intellectualism*. Know-how is knowledge that has a proposition as a *relatum*, and involves the theoretical knowledge relation.

Weak intellectualism just claims that the object of knowledge-how is a proposition. By contrast, Strong intellectualism involves the claim that the object of knowledge-how is a proposition, and the claim that the relation is the same theoretical knowledge relation found in knowing that *p*.[1] Although strong intellectualism entails weak intellectualism, the converse entailment does not hold [ibid.: 412–15].

Intellectualism is generally motivated by appealing to the semantics for interrogative complements (like 'how to swim') which claim that an interrogative complement expresses a *question,* which is identified with a set of possible answering propositions [Stanley and Williamson 2001; Stanley 2011a, 2011b; Glick 2011: 402–5].[2] This means that the default weak intellectualist view is that knowledge how to V is a relation to a proposition that answers the question *how to V?*

Weak intellectualism is compatible with views that claim that the knowledge-how relation is something other than theoretical knowledge, although presumably it must be a knowledge-constituting relation. For example, one might think that knowledge-how is a distinctively practical knowledge relation to the question *how to V?* [Glick 2011; Cath 2015].

The anti-intellectualist claim that knowledge-how is *not* a species of propositional knowledge can also be understood in two ways:

> *Weak Anti-Intellectualism*. Know-how involves a relation other than theoretical knowledge.
>
> *Strong Anti-Intellectualism*. Know-how involves a relation other than theoretical knowledge, and has a non-propositional *relatum*.

Weak anti-intellectualism is the claim that the knowledge-how relation is something other than theoretical knowledge. Strong anti-intellectualism endorses both the claim that the relation is a non-theoretical one, and the claim that the object is something other than a proposition. As with intellectualism, strong anti-intellectualism entails weak anti-intellectualism, but the converse entailment does not hold.

Anti-intellectualist positions encompass various non-propositional objects and non-theoretical relations. For example, Bengson and Moffett's Objectualist view is strongly anti-intellectualist, claiming that knowing how involves bearing the understanding

[1] There is considerable disagreement about what these properties are; but, to fix the idea, one can think of theoretical knowledge as JTB+. Complicating things, arguments for intellectualism might motivate a revisionary account of theoretical knowledge [Stalnaker 2012].

[2] Interrogatives are a kind of sentence or clause (on par with declaratives), and questions are the things expressed by interrogatives (on par with propositions). I will put quotes around interrogatives and I will italicize questions. In the main text, I will not distinguish between the object of knowledge-how being a proposition or a question (see note 17).

relation to a way of acting [2011b].[3] However, the most common view is that knowing how is an ability. The simplest version of this view identifies knowing how to V with the ability to V, but there are alternatives. Craig [1990: 150–61]suggests identifying knowledge-how with the ability to teach others; Setiya [2008, 2011] identifies it with the ability to enact intentions; Löwenstein [2017] identifies it with the ability to do well guided by understanding; and Ryle [2009: 30–3] identifies it with an ability to act *intelligently* (see Hornsby [2011: 81–2]).[4] All of these views are strongly anti-intellectualist, identifying knowledge-how with an ability that relates to something non-propositional. With that said, by itself the claim that knowledge-how is a species of ability concerns only the knowledge-how relation, yielding weak anti-intellectualism.

Putting together the strong and weak versions of each view gives us the following space of views:

Table 1: Logical space in the knowledge-how debate

		Object	
		Propositional	*Non-Propositional*
Relation	*Theoretical knowledge*	Strong intellectualism	—[5]
	Something other than theoretical knowledge	Weak intellectualism; weak anti-intellectualism	Strong anti-intellectualism

My goal in this paper is to explore a view that combines the weak anti-intellectualist claim that knowledge-how is a kind of ability with the weak intellectualist claim that knowledge-how is a relation to a set of propositions that answer the question *how to V?* According to the *interrogative capacity view*, knowing how to *V* is one's standing in a certain kind of ability-to-answer relation to the question *how to V?* This view is not completely novel: Masto [2010] and Farkas [2016a, 2016b] defend related views of knowledge-*wh*, Michaelis [2011: 278] suggests this view of knowledge-how in passing, and Dickie [2012] and Stanley and Williamson [2016] develop related views of skill (see section 5.3.). However, to my knowledge, no one has worked out this view of knowledge-how in detail.

3. The Interrogative Capacity View

Knowledge-how is not identical with just any ability to answer a how-to question. Someone who has read a book on skiing is *in a sense* able to answer the question of how to ski, but we don't want to say that they thereby know how to ski (at least in the practical sense). Just as the simple ability view faces the challenge of isolating the kind of ability to V that is relevant to knowledge-how and a strongly intellectualist view needs to isolate the relevant kind of propositional knowledge, the interrogative capacity view faces the challenge of isolating the relevant kind of ability to answer the question

[3] Bengson and Moffett have an alternative taxonomy that focuses on the grounds of intelligence [2011a: 6–7, 14–15]. Although their view of knowledge-how is strongly anti-intellectualist in my terms, they claim that it remains intellectualist on the grounds of knowledge-how [2011b 162–3]. There is no simple mapping from views about the nature of knowledge-how to views about the grounds of intelligence: Intellectualist views can claim that knowledge-how is a species of propositional knowledge that depends on ability (see section 5.3.), and anti-intellectualist views can claim that knowledge-how involves a non-propositional relation that relies on propositional knowledge [Wiggins 2012; Kremer 2017; Löwenstein 2017].

[4] On Ryle's positive view, see Elzinga [2016], Kremer [2017], and Löwenstein [2017: 13–46].

[5] Can knowledge-how involve a theoretical knowledge relation, but a non-propositional object? The closest thing to this kind of view is Brogaard [2011], which understands knowledge-how as a relation to a property, involving a relation with JTB-type properties.

how to V? I will use the notion of an ability to answer questions *on the fly* to pick out the kind of ability that I identify with knowledge-how. To unpack this idea, I will give accounts of (i) how to understand *answering*, (ii) relevant how-to questions, (iii) the kinds of situations that are relevant to the ability, and (iv) the distinctive way in which answers are produced.

3.1 Answers

There are various senses of 'answer'. In a weak sense, one answers a question if one produces a *possible* answer, even if that answer is not correct. We can set this notion aside, focusing on *correct* answers. We can also set *partial* answers to one side (see Pavese [2017]). In another sense—what we might call the 'quiz show' sense—producing a correct answer suffices for answering, regardless of method. In this sense, one can answer a question with a correct guess. We can also set this to one side, focusing on the kind of answering that involves getting to the correct answer in the epistemically right way. I will gloss this as the ability *to know* answers, since knowing an answer entails having got to the correct answer in the epistemically right (non-Gettiered, non-lucky) way.[6]

Although in many cases an ability to know will be an ability to *gain* knowledge, I want to allow that an ability to know might involve repeated exercise of a piece of standing propositional knowledge. I might be able to answer the question *what are the 4^{th} roots of 16?* in virtue of being able to follow an algorithm for finding n^{th} roots. But I might also have this ability in virtue of having standing knowledge that the 4^{th} roots of 16 are 2, −2, 2i, and −2i. To cover both cases, we can understand an ability to know as an ability to *activate* knowledge [Williamson 1990: 5–10], where activating knowledge covers both learning a proposition, and exercising standing knowledge.

Being able to answer is an ability to be in a certain mental state, not an ability to engage in a speech act. There are many cases of agents who know how to do something but cannot verbally articulate answers to the question of how to do it. I want to say that such agents *can* answer the question—in the sense relevant for the interrogative capacity view—but cannot express their answers in speech. There are various reasons for this inexpressibility. A climber who has learnt to scale a difficult wall might be unable to activate this knowledge without having the holds in front of her as a prompt. Even in relevant situations, an agent might only be able to express their knowledge using a demonstrative [Stanley and Williamson 2001: 428–9; Luntley 2009; Löwenstein 2017: 115–21]. I might only be able to express and communicate my knowledge of how to tie a Cat's paw knot by making one and saying '*this* is the way to tie it.'

There are also cases in which knowledge-how is accompanied by a disposition to assert incorrect answers [Wallis 2008; Brownstein and Michaelson 2016]. For example, skilled cricket players typically produce mistaken answers to the question *how do you catch a ball?* when asked [Brownstein and Michaelson 2016: 2821–3], plausibly expressing false beliefs about the answer. Anticipating some of the ideas in section 3.4, I want to say that in such cases agents have an ability to activate knowledge of answers to the question of how to catch a cricket ball *in catching a cricket ball,* despite being disposed to express incorrect answers in speech. Such cases involve conflict between the

[6] On abilities to know, see Millar [2009], Miracchi [2015], and Kelp [2017].

dispositions associated with knowledge-how and belief, but the disposition to assert false answers does not undermine the ability to answer questions on the fly (for a similar idea, see Löwenstein [2017: 187]).

3.2 Questions

Knowledge how concerns infinitival how-to questions, of the kind expressed by a clause like 'how to swim?' Although these interrogatives seem simple, they are variously ambiguous [Stanley and Williamson 2001: 419–30], with the sense relevant for practical knowledge being something like 'what is a way in which I could swim?' Answers also come at different levels of granularity [Fridland 2013; Habgood-Coote forthcoming], ranging from coarse-grained propositions like *I can swim by splashing about in the water* to fine-grained propositions that specify an exact technique for swimming in a particular situation. To respect the connection between knowledge-how and a capacity to react intelligently, I take an ability to answer on the fly to involve activating knowledge of extremely fine-grained answers specifying a method for a particular situation. These fine-grained questions will often have many different answers in different situations (consider *how to dress fashionably?*), but other questions may receive very similar or even identical fine-grained answers (consider *how to unlock your phone?).*

3.3 Situations

Since knowledge-how is a kind of practical knowledge, I take an ability to answer *on the fly* to involve the ability to activate answers in a set of practical situations supplied by context. I take a practical situation to be one in which the activity in question is a real option. I introduce the element of context-sensitivity to explain the shiftiness of knows-how ascriptions [Hawley 2003: 22]. For example, in a US context in which *only* driving an automatic car is salient, someone who only knows how to drive an automatic car will count as knowing how to drive, whereas in a UK context in which *both* driving a manual and driving an automatic are conversationally salient, only people who know how to drive both will count as knowing how to drive. I take the context-sensitivity of 'knows how' ascriptions to stem from context-sensitivity in the interrogative phrase 'how to *V*?' This interrogative phrase includes a covert situation variable filled in by context, meaning that its underlying structure is 'how to *V* in {*F1*, *F2* …}?' In the above example, the US context provides a smaller set of situations than the UK context does, meaning that in the US knowing how to drive requires being able to generate answers in fewer practical situations than is required in the UK.

Appealing to context-sensitivity allows us to deal with cases of agents who are able to answer a question without knowing-how [Hawley 2003: 26; Riley 2017: 351; Habgood-Coote forthcoming]. Someone who is good at figuring things out might be in a position to work out how to fix a dishwasher just by exercising their general engineering know-how. Do they know how to fix a dishwasher? The contextualist can say: *it depends*. If the salient set of practical situations allows sufficient time to work out how to fix a dishwasher, someone who has general engineering know-how will count as knowing how, because they are able to answer the question in salient situations. However, if the salient situations are time-restricted, someone with general know-how will

not be able to answer the question in the relevant situations, meaning that they will not count as knowing how.

3.4 Answering by Doing

There are various ways in which one can answer a question, such as by looking it up on the internet, by thinking about it, or by asking someone else. I want to appeal to a distinctively action-oriented kind of answering: answering the question *how to V?* in the process of V-ing.

Consider the way in which one might solve a difficult mathematics problem. Although it might be possible in some cases to just 'see' the method for solving a problem, the more usual way is to work out how to solve it in the process of solving that very problem, either by splitting the problem into a series of sub-problems, and solving those in turn, or by trying out different techniques to see what sticks. I suggest that we should think of both seeing the answer and working through the problem as involving the exercise of an ability to answer the question *how can I solve this problem?* In the former case, one engages in a mental action in order to generate an answer, and then applies that knowledge in solving the problem, meaning that it is easy to distinguish between the phases of answering and of doing. In the latter case, one answers the question by getting going on with solving the puzzle, meaning that one may not have knowledge of how to solve the puzzle until one has almost solved it. In this case, it is difficult to distinguish between the processes of doing and of working out, meaning that it may be more appropriate to think of both as intertwined aspects of the same process. This kind of answering is discussed by Ryle, who says [2009: 30] that a skilled mountaineer walking in difficult conditions 'is concomitantly walking and teaching himself how to walk', and stresses [1971] the importance of *self-teaching* to intelligent activity.

The appeal to answering by doing means that an ability to answer a question on the fly is both an ability to activate knowledge and an ability to do, producing both a successful action and an answer to a question (at least in good cases). The ability to answer the question *how to V?* on the fly is at the same time an ability to answer the question *how to V?* by doing V, and an adverbial ability to V by answering the question *how to V?* (on adverbial abilities, see Hyman [1999]).

In cases where the question has a range of fine-grained answers, answering in doing will involve learning new propositions through self-teaching. However, in the cases where knowledge-how is constituted by standing knowledge, one may be able to answer a question by doing in virtue of having a piece of standing knowledge together with the ability to apply that proposition to action. One might know how to open a safe in virtue of having standing knowledge that the code is 1234, and being able to apply that knowledge in opening the safe. It is important to stress that, in this case, the ability to answer the question of how to open the safe on the fly is the *combination* of the ability to mentally activate knowledge of an answer *and* the ability to apply that answer to action. Merely being able to think an answer to a question is not enough for knowing-how (excepting cases of mental action where thinking the answer suffices for performing the activity).[7]

[7] It is possible to exercise knowledge-how in imagining, or instructing others, but I take these cases to be non-standard.

3.5 Formulating the View

Putting together the different parts of the view, an ability to answer questions on the fly is an ability to activate fine-grained knowledge of the answers to a question in a contextually supplied set of practical situations, where one activates this knowledge by doing the relevant kind of activity. Identifying knowledge-how with an ability to answer on the fly gives us the following account:

> *The Interrogative Capacity View*. For any context c, subject S, and activity V, an utterance of 'S knows how to V' (in its practical-knowledge ascribing sense) is true in c iff c has associated with it a set of practically relevant situations {F1, F2, ...}, and, for all (or at least most) F*i* that are members of {F1, F2, ...}, S has the capacity to activate knowledge of a fine-grained answer to the question, how to V in F*i*?, in the process of V-ing.

These conditions are formulated as an account of the truth conditions of '*S* knows how to *V*', to allow us to introduce the element of context-sensitivity. It is important to bear in mind that we are *only* interested in the practical-knowledge ascribing sense of '*S* knows how to *V*', and these conditions are not intended to cover examples in which sentences of the form '*S* knows how to *V*' simply ascribe theoretical propositional knowledge [Glick 2011: 426–9].

This view is both weakly intellectualist—because it claims that knowledge-how is a relation to the set of propositions that answer *how to V?*—and weakly anti-intellectualist—because it claims that the knowledge-how relation is an abilitative one. This means that it occupies the compromise position on the bottom left of the table in section 2.

It is easiest to get a grip on the ability to answer questions on the fly in the complicated cases, like knowing how to solve a mathematics problem or knowing how to dress fashionably. These cases typically involve (i) generating new knowledge to meet the situation, (ii) a fine-grained question with many different answers, (iii) an ascription made relative to a wide range of situations, (iv) and an intertwined process of learning and of doing. However, I have stressed that this capacity can also be manifested in simpler cases, such as knowing how to open a safe or knowing how to find out what 2+2 is, which might involve (i) exercising standing knowledge, (ii) fine-grained questions with the same answers, (iii) ascriptions made relative to a narrow range of situations, and (iv) relatively distinct processes of activating and of applying knowledge. In these cases, knowledge-how will consist in standing propositional knowledge of the answer to a question, together with the ability to apply that answer in action [Lewis 1999: 288–9; Snowdon 2004: 9, 12; Glick 2011: 427]. This means that strong intellectualism is along the right lines for the simple cases, although, according to the interrogative capacity view, knowledge-how requires both the possession of propositional knowledge, *and* the ability to apply that knowledge in action.[8] My suspicion is that the majority of the interesting cases will involve complex characteristics, but I want to leave the door open for simple cases.

[8] The fact that this account appeals to standing propositional knowledge in simple cases does not make it covertly intellectualist. Even strong anti-intellectualist accounts can appeal to knowledge-that [Hornsby 2005: 113–18; Wiggins 2012: 108–16; Tsai 2014; Weatherson 2017: 380].

4. Benefits of the Interrogative Capacity View

The interrogative capacity view has two key philosophical benefits: it illuminates the connections between knowing how, propositional knowledge, and the ability to do, and it resolves the tension between linguistic evidence and the idea that knowledge-how is a distinctively practical kind of knowledge.

4.1 Knowing-How, Knowing-That, and Ability

Although there is disagreement about the connections between knowing how to V, propositional knowledge about how to V, and the ability to V, there is an emerging consensus between intellectualists and anti-intellectualists that knowledge-how is associated with both propositional knowledge and the ability to do. The interrogative capacity predicts both connections.

According to this view, knowing how produces—and in some cases requires—propositional knowledge. When someone who knows how to swim exercises their ability to generate answers to the question *how to swim?*, the result will be a piece of propositional knowledge about how to swim. This propositional knowledge may be transient, demonstrative, and never consciously articulated, but at least some of the time it will make its way into an agent's standing knowledge. Also, since in the simple cases standing propositional knowledge is a part of knowing-how, this view predicts that in some cases knowledge-that will be a precondition for knowing-how.

Identifying knowledge-how with an ability to answer a question on the fly also predicts the connection between knowing how to *V* and being able to *V*. The ability to answer on the fly is an action-oriented ability that is exercised in both answering and doing. I observed above that one way to think of the ability to answer on the fly is as an adverbial ability to V *by answering the question of how to V*. Because V-ing by answering the question of how to V entails V-ing, the ability to V by answering the question entails the simple ability to V (so long as the meaning of 'can' does not shift: see section 5.1), meaning that this view predicts that knowledge-how entails ability.

4.2 The Tension between Linguistics and Practicality

The most important positive feature of the interrogative capacity view is its ability to resolve the tension between linguistic evidence and the practicality of knowledge-how. Most participants in the knowledge-how debate accept both of these claims:

> *Semantic Implementability*. An adequate account of the nature of knowledge-how must be compatible with a linguistically plausible account of the semantics of sentences of the form 'S knows how to V.'
>
> *Practicality*. An adequate account of the nature of knowledge-how must vindicate the sense in which knowledge-how is a distinctively practical kind of knowledge.

The claim that an account of knowledge-how ought to be semantically implementable is motivated by the idea that an account of the nature of knowledge-how ought to be answerable to the best account of the semantics of 'knows how' ascriptions provided by linguists. If an account identifies knowledge-how with a state that is not plausibly

picked out by these sentences, then it has changed the subject and is no longer talking about knowledge-how [Stanley 2011b: 130–49].

The idea that knowledge-how is distinctively practical is based on the intuition that knowledge-how has distinctive properties that set it apart from other kinds of knowledge. Knowledge-how appears to have the following properties:

> *Directness:* knowing-how is exercised *directly* in intentional action, not via some intermediate act of mental contemplation;
>
> *Flexibility:* knowing-how involves an ability to react intelligently to a wide range of situations;
>
> *Necessity:* knowledge-how is a necessary condition for intentional action.[9]

There is a good deal of support for these properties, on both sides of the debate.[10] To explain the practicality of knowledge-how, an account of knowledge-how ought to be able to explain why knowledge-how has these properties.

Given these two constraints, the challenge is to give an account of knowledge-how that is both semantically implementable and can explain the practicality of knowledge-how.

Intellectualists typically motivate their view by appealing to linguistics, appealing to the fact that the standard semantic treatment for an interrogative complement like 'how to *V*' treats it as expressing a *question,* which is understood as a set of possible answering propositions.[11] This semantics is compatible with the strong intellectualist view that knowledge-how is theoretical knowledge of a proposition that answers the question *how to V?* However, strong intellectualism faces a challenge in explaining the practicality of knowledge-how. In general, propositional knowledge does not seem to be practical in the way that knowledge-how is, meaning that the burden of proof is on intellectualists to explain how a species of theoretical knowledge could realise *directness, flexibility*, and *necessity*.[12] Stanley and Williamson claim that knowledge-how involves a distinctively practical first-person mode of presentation, relying on the thought that, in general, first-person thought has a distinctive connection with action [Stanley and Williamson 2001: 429–30; Stanley 2011b: 109–10, 182–3]. However, critics of intellectualism contend that the notion of a practical way of thinking is obscure [Glick 2015], and the debate about the legitimacy of practical modes of presentation is on-going.[13]

Anti-intellectualists typically motivate their view by appealing to one or more of the practical features of knowledge-how, the idea being that abilities have the right kind of

[9] There is controversy about how to formulate the necessity claim [Setiya 2008, 2012; Stanley 2011b: 188–90], and about whether it applies to basic action (see Löwenstein [2017: 29–34]).

[10] On directness, see Ryle [2009: 17–20] and Stanley [2011b: 1–35]; on flexibility, see Ryle [1976], Hornsby [2011: 89–95], Stanley [2011b: 181–5], Wiggins [2012: 97–106], and Fridland [2013]; and, on necessity, see Setiya [2008, 2012], Stanley and Williamson [2001: 415–16, 432–3], Stanley [2011b: 188–90], and Hornsby [2016: 8–10].

[11] At least on Groenendijk and Stokhof's account [1984] and for Stanley [2011a: 36–69]. Stanley and Williamson [2001] appeal to a Karttunen-style treatment that identifies questions with *true* answers. For simplicity, I stay with the former account.

[12] To be fair, intellectualists might be able to explain *directness,* by arguing that all knowledge is exercised directly in action [Stanley 2011b: 1–35].

[13] I think that Pavese's [2015] version of strong intellectualism is best positioned to take on the challenge of explaining *Practicality*. However, her view is complex, and reasons of space prevent me from discussing it here.

properties to explain the practicality of knowledge-how.[14] However, the simple ability theory faces a serious challenge in explaining the linguistic data. The strong anti-intellectualist view that knowing how to *V* is identical to the ability to *V* claims that the object of knowledge-how is an activity, meaning that they need a semantics for 'knows how' ascriptions that treats the complement as an activity-expressing infinitival phrase. It is true that 'knows how' ascriptions involve an infinitival phrase, but the only way to get this phrase as the complement of 'knows' is by claiming that 'knows-how' forms a constituent—giving the structure (S [knows how] [to V])—which is implausible on syntactic grounds [Stanley and Williamson 2001: 417–18].[15]

I cannot hope to show that all extant views of knowledge-how fall into one of these two traps.[16] My aim is to show that the tension between these two kinds of evidence animates the debate, and that the two best-known views fail to resolve it. Each view gets something right, but faces an important problem.

The interrogative capacity view does better by combining the element of intellectualism that makes it semantically implementable with the element of anti-intellectualism that explains the practicality of knowledge-how. As Glick [2011] points out, the linguistic evidence to which intellectualists appeal concerns only the semantics of the 'how to' complement, meaning that it only gets us to the weak intellectualist claim that the object of knowledge-how is a proposition. This means that any view that identifies the object of knowledge-how with the set of propositions that answer a how-to question can be implemented using the standard semantics for interrogative complements. Since the interrogative capacity view makes just such a commitment, it can be semantically implemented.[17] The interrogative capacity view can treat a sentence like 'Jane knows how to swim' by claiming that the interrogative 'how to swim' expresses a question, and combining this with the claim that in this case the verb 'knows' expresses a distinctively practical relation—the ability to answer on the fly.[18]

The basic idea behind the anti-intellectualist strategy for explaining the practical character of knowledge-how is to identify knowledge-how with a species of ability. Standardly, this strategy appeals to the strong anti-intellectualist view that knowledge how to V is the ability to V. However, the claim that knowledge-how is a species of ability only really gets us to the weak anti-intellectualist claim that the knowledge-how

[14] See Ryle [1945, 2009] for an appeal to *directness*; Ryle [1976], Hornsby [2011], Wiggins [2012], and Fridland [2013] for appeals to *flexibility*; and Setiya [2008, 2012] for an appeal to *necessity*.

[15] An important caveat. Some languages—such as French and Russian—employ a simple infinitival construction to ascribe knowledge-how. One way in which the simple ability-theorist could try to implement her view is by advancing a revisionary semantics for English based on French and Russian. This move reverses Stanley's strategy for dealing with French [2011b: 135–43].

[16] Objectualist views might be thought to escape this dilemma; but see Habgood-Coote [2017] for an argument that objectualism is not semantically implementable.

[17] Whereas some attitudes—like wondering and inquiring—might be thought to be attitudes to questions, but not to their answering propositions [Friedman 2013], on the interrogative capacity view, knowledge-how involves *both* a relation to a question (the ability to answer relation) and a relation to a true answering proposition (the ability to know relation).

[18] An alternative way to implement this view would be to appeal to genericity. Some knowledge-how ascriptions appear to be *habituals* [Pavese 2016: 656–7]. Consider the sentence 'Elsa knows how to calm people down', which seems to express the generalization that, in most situations in which some person needs to be calmed down, Elsa knows how to calm down that person. If the habitual reading expresses an ability to know, then this reading could also be used to implement the view that knowledge-how is an ability to know. However, I find the claim that all practical knowledge-ascribing sentences have a habitual reading linguistically implausible (see Waights Hickman [manuscript]). With that said, the interrogative capacity view is in a good position to explain the cases in which the habitual reading is available.

relation is something other than theoretical knowledge, and identifying knowledge-how with the ability to answer questions on the fly does a pretty good job of explaining *directness, flexibility,* and *necessity*.

The idea that knowledge-how is exercised directly in action is explained by the fact that answering a question on the fly involves answering a question by engaging in the relevant activity. On this view, if I know how to dance, then I can exercise directly, in dancing, the capacity to answer questions about how to dance.

We can also explain the flexibility of knowledge-how by appealing to the fact that, in complex cases, a capacity to answer questions on the fly will produce different answers to meet the needs of the situation. Whereas intellectualists identify knowing how to do something with a fixed body of propositional knowledge, on the interrogative capacity view knowledge-how is identified with an ability to generate an expanding set of situation-specific propositional knowledge. Following Ryle, someone who exercises her knowledge-how to answer a question is very often *both* doing and learning.

The interrogative capacity view also explains the connection between knowledge-how and intentional action. It is natural to think that *forming* an intention involves answering a question—a question about what to do. I think that it is plausible that, in virtue of answering a question about what to do, the act of forming an intention also *raises* various other questions. For example, if I form the intention to go for a run today, thereby resolving the question of what to do today, I will raise the further questions of *where to run* and *what time to start*.[19] Among the questions raised in forming the intention to *V* is the question of *how to V?* I want to suggest that we think of intentionally *V*-ing as involving answering the question of *how to V*. This would seem a little strange if we thought that answering a question involved a speech act, or conscious consideration, but one of the lessons of section 3 is that we can stretch the notion of answering, allowing it to cover various practical relations. If intentional action involves answering a how-to question, then it is natural to think that the standard case of intentional action involves exercising an ability to answer, since answering a question involves the ability to answer (just as acting involves the ability to act).

By combining the weak intellectualist claim that knowledge-how is a relation to a question with the weak anti-intellectualist claim that knowledge-how is a kind of ability, the interrogative capacity view is in a good position to offer an account that is semantically implementable *and* that explains the practicality of knowledge-how. This gives it an advantage over both strong intellectualism and strong anti-intellectualism.

5. Criticism and Responses

5.1 Being Able to Do, and Being Able to Answer on the Fly

Views that identify knowing how with an ability to answer a question face a dilemma. Either the ability to answer a question entails the ability to do, or it does not. If it does, counterexamples to the claim that knowledge-how entails ability will challenge whether the ability to answer is necessary for knowing-how. If the entailment does not hold, then one might worry that there will be cases of agents who are able to answer the question of how to V but not able to employ those answers in action [Weatherson 2017], raising the concern that having the ability to answer a question is not sufficient for

[19] This idea is closely related to Bratman's claim [1987: 29–30] that intentions are partial plans. For an account of partial plans in terms of questions, see Snedegar [manuscript].

knowing how. Since the ability to answer a question *on the fly* entails the ability to act, the interrogative capacity view takes the first horn of the dilemma, meaning that it is incumbent on a support of this view to offer a response to putative cases of knowledge-how without ability.

My preferred response to these cases appeals to the context-sensitivity of ability ascriptions. According to the interrogative capacity view, knowing how to V is identical to an ability to generate answers to the question of how to V in all (or at least most) of a contextually salient set of practical situations. This means that the truth of 'knows how' ascriptions depends on the salient set of situations. It is independently plausible that ability ascriptions such as 'S can V' are context-sensitive, roughly making a claim like *in one/most/all of the contextually supplied set of worlds, S Vs* [Glick 2012]. This means that, according to the interrogative capacity view, the claim that know-how entails ability links two context-sensitive expressions. To assess this conditional, we need to be careful to hold context fixed to avoid apparent counterexamples that are due to context-shifts.[20] I want to suggest that putative counterexamples of knowledge-how without ability involve context shifts, and that, when we hold context fixed, the entailment does go through.

Consider a standard example of someone who putatively knows how without being able to do. Juliet is an experienced cyclist who has just had a serious accident that causes her to lose both of her legs. In this case, it would be natural to assert both (1) and (2):

(1) Juliet knows how to cycle.
(2) Juliet cannot cycle.

My suggestion is that our acceptance of this pair of claims stems from a shift in the set of worlds under consideration, and that, once we hold this fixed, know-how and ability claims stand or fall together. Following Hawley [2003], I suggest that the default set of worlds associated with a knowledge-how ascription like (1) is the set of 'normal' worlds, in which Juliet has both of her legs. Since Juliet is an experienced cyclist, she could generate knowledge of answers to the question of how to cycle in these situations, meaning that, relative to this set of worlds, it is true to say that she knows how to cycle. However, the default set of worlds associated with an ability ascription (2) is plausibly something like *worlds that are like the actual world.* When we are interested in whether someone can do something, we want to know whether they are in a position to do something in the actual world. Relative to the actual world, Juliet will not succeed in cycling, because she has not yet learnt how to cycle with prostheses. When someone utters a sentence like (2), it is natural to accommodate and consider the set of worlds that make that sentence come out true; so, even when claims (1) and (2) occur in the same sentence, it will be natural to shift the context mid-sentence, so that both come out true.

What happens when we hold context fixed? Here's a fairly clunky tool to make the context explicit: adding a parenthetical phrase specifying the salient worlds. Consider know how and ability claims made relative to 'normal' situations:

(3) Juliet knows how to cycle *in normal situations where she has legs*.
(4) Juliet cannot cycle *in normal situations where she has legs*.

[20] The same point holds true for the entailment from the ability to answer to the ability to act.

Intuitively, we judge that sentence (3) is true, and (4) is false, meaning that both the know-how ascription and the ability claim come out true: in normal situations, Juliet will produce answers to the question of how to cycle, and will cycle.

If we switch to consider worlds like the supposed actual situation, our judgments switch. Consider these:

(5) Juliet knows how to cycle *in non-legged situations*.
(6) Juliet cannot cycle *in non-legged situations*.

Sentence (5) is false, and (6) is true, meaning that Juliet neither knows how nor is able. In the actual world, she will produce neither answers to the question of how to cycle nor successful events of cycling. If this sounds strange, consider a situation in which we are seeking someone to compete in a para-cycling race tomorrow. In this situation, our focus is on the actual world, and the salient way of cycling is *by using prosthetics*. With this conversational background in place, it would be completely natural to assert both 'Juliet doesn't know how to cycle' and 'Juliet cannot cycle.'

5.2 Interrogative Capacities and Intellectualism

One can imagine an intellectualist who agrees with much of what I said in section 2 about the importance of capacities to answer question, but who maintains that knowledge-how is a species of propositional knowledge. Yes, they say, capacities to answer questions matter to intelligent action, but these capacities are to be explained in terms of the possession of general propositional knowledge (see Stanley [2011b: 181–4]). In general, one might think that the interesting disagreements between intellectualism, anti-intellectualism, and the interrogative capacity view are not about whether knowledge-how entails propositional knowledge, the ability to do, or the ability to answer, but are about the order of explanation that connects these states [Bengson and Moffett 2011a].

Although I am sympathetic to this picture of the core disagreements in the know-how debate, I am sceptical about whether intellectualists can explain in a satisfying way the connection between know-how and capacities to answer on the fly. The most obvious way for an intellectualist to connect propositional knowledge to the capacity to answer questions would be to claim that among the dispositions associated with the practical mode of presentation is the disposition to gain situation-specific knowledge. This view faces two challenges. First, the idea of a practical mode of presentation is pretty mysterious [Glick 2015], and it is not clear that we can get a satisfying explanation of anything out of it. Second, this view would need to claim that knowledge-how involves knowledge of a general method for V-ing that allows the knower to come to know specific methods. However, at present there is no satisfactory account of general methods to which the intellectualist can appeal [Hornsby 2011; Fridland 2013; Habgood-Coote forthcoming].

5.3 Knowledge-How and Skill

Intellectualists might instead opt to reverse the order of explanation, claiming that knowledge-how is the kind of propositional knowledge that is produced by the ability to answer a question. Dickie [2012] and Stanley and Williamson [2016] endorse this kind of view, claiming that skill involves the capacity to generate propositional

knowledge. Although at first sight, this view looks like a relabelling of the interrogative capacity view, I think that the views are distinct and that skill-based intellectualism faces some important problems.

Both Dickie [2012] and Stanley and Williamson [2016] claim (i) that skill is a capacity that produces knowledge, (ii) that the knowledge produced by this capacity is knowledge-how, and (iii) that the content of this knowledge is situation-specific. They also have a couple of important points of difference. Dickie's works within a virtue-theoretic framework on which skill is a capacity to V, and the possession of knowledge of answers to the question *how to V?* is to be explained in terms of the exercise of this capacity. By contrast, Stanley and Williamson operate within a knowledge-first framework, on which a skill is a disposition to *know* answers. The two views also give different roles to the propositional knowledge produced by skill. On Dickie's view, the intelligence of action is completely explained in terms of skill, and knowledge-how is a mere by-product of skilled action. Stanley and Williamson give knowledge-how a more substantial role, claiming that the situation-specific knowledge produced by skill guides action and explains its intelligence.

These skill-based intellectualist views face two problems.

The first problem concerns the role of knowledge-how in explaining intelligent action. Dickie's view makes knowledge-how into an epiphenomenal by-product of skill, with no role to play in explaining intelligence. This view makes it difficult to see why we should care about knowledge-how. Stanley and Williamson's account gives know-how an explanatory role, but their model appeals to the controversial idea that the exercise of knowledge-how always involves guidance by a propositional state. By identifying knowledge-how with a capacity to answer questions—rather than with the product of that capacity—and allowing a range of cases—what I above called the simple and complex cases—the interrogative capacity view secures the explanatory value of knowledge-how, whilst leaving open a range of roles for propositional knowledge. In simple cases like knowing how to open a safe, knowledge of the answer to the question may be activated at the start of action, guiding action as it unfolds. In complex cases like knowing how to solve a complex mathematics problem, the capacity to answer the question is exercised in solving the problem, and knowledge of the complete answer to the question might not arise until the problem is solved.

The second problem concerns the temporal profile of knowledge-how. The following claims ought to be common ground between skill-based intellectualism and the interrogative capacity view: (i) that a capacity to answer a question is a standing epistemic state, which an agent possesses even when it is not being exercised, and (ii) that situation-specific propositional knowledge is often a transient state that an agent possesses when she is in the relevant situation, but perhaps only for a little while afterwards. If this is right, identifying knowledge-how with situation-specific propositional knowledge means that an agent only possesses knowledge-how when she is in a practical situation, but not when her skill is not being exercised. This is absurd: a skilled swimmer still knows how to swim when she is lying on the sofa, recovering from a tough morning session.[21] By identifying knowledge-how with the underlying capacity to answer questions, the interrogative capacity gives the correct result: that knowledge-

[21] Stanley and Williamson might bite the bullet on the transience of knowledge-how by claiming that all knowledge-how ascriptions are habituals. Although some know-how ascriptions are habituals, it is implausible that all are (see note 18).

how is a standing epistemic state that is possessed even when the agent is not engaged in the relevant kind of action.[22]

5.4 Is 'On the Fly' Mysterious?

To pick out the kind of ability to answer a question that is plausibly identified with knowledge-how, I appealed to the idea of an ability to answer a question *on the fly*. One might think that this puts the interrogative capacity view in the same boat as the intellectualist who appeals to practical modes of presentation: both appeal to some mysterious notion to pick out a practical species of a genus that is not intrinsically practical.

The charge would be appropriate if I had just appealed to some vague idea of answering a question 'on the fly' to pick out the relevant kind of ability to answer a question. This would leave 'on the fly' as an unexplained placeholder for the interesting practical properties of knowledge-how. However, this is not the situation that we are in. In section 3, I spelled out what is distinctive about a capacity to answer a question on the fly, claiming that it is an ability to know, and giving accounts of the kinds of questions, situations, and answering process involved. I have done better than Stanley and Williamson, who claim that skill is a kind of disposition to know, without offering an account of what kind of disposition skill is [Pavese 2016: 657; Riley 2017]. It might be that I haven't picked out the right kind of ability to answer a question, but this is an issue of detail, rather than an issue of mystery.

5.5. Is the Interrogative Capacity View Linguistically Implementable?

So far, the discussion of the linguistic evidence has focused on the semantics of the complement in knows-how ascriptions. However, the interrogative capacity view is also committed to the view that 'knows' can sometimes pick out a certain kind of abilitative relation. One might worry about the linguistic plausibility of this claim, either on the ground that the linguistic uniformity of 'knows how' and 'knows wh' ascriptions demonstrates that 'knows' picks out the same relation across both constructions [Stanley 2011b: 208; Bengson and Moffett 2011b: 178–80], or on the ground that this claim requires an ambiguity theory on which 'knows' has both a theoretical and practical sense [Stanley and Williamson 2001: 436–7; Bengson, Moffett, and Wright 2009: 393–4].

To get an intellectualist conclusion out of the uniformity argument, we need to rely on the claim that 'knows wh' and 'knows that' ascriptions ascribe a theoretical state, rather than an ability. This claim may be contested. One might think that knowledge-wh consists in the ability to answer the question expressed by the interrogative clauses [Masto 2010; Farkas 2016a, 2016b]. There are also various accounts of knowledge-that in terms of ability [Kenny 1989: 108; Hyman 1999, 2015; Hetherington 2011], and one might even think that knowledge is in general the ability to answer a question [White 1982: 29, 115–21].

With that said, I don't find arguments from linguistic uniformity convincing: it is easy to find examples of linguistically uniform constructions picking out different states [Michaelis 2011: 262], and linguistic uniformity seems at best to be a *ceteris paribus*

[22] For further worries about Stanley and Williamson's view, see Löwenstein [2017: 261–6].

consideration that will be outweighed by the substantial differences between knowledge-how and knowledge-wh. Highlighting these views does demonstrate that it is possible for the interrogative capacity view to offer a unifying account of knowledge by endorsing a general account of knowledge in terms of ability, giving anti-intellectualism a theoretical virtue that many have thought is unique to intellectualism.

The argument from ambiguity alleges that the metaphysical claim that knowledge-that and knowledge-how consist in different relations entails the linguistic claim that 'knows' is ambiguous. This ambiguity thesis is implausible: standard tests for ambiguity do not detect two readings of 'S knows how to V' [Bengson, Moffett, and Wright 2009: 393–4]. The ambiguity thesis also faces a problem in explaining the fact that we can combine how-to clauses and that-clauses within the scope of one verb. Consider this:

(7) Vide knows how to swim and that it is good for him.

Since this sentence has a reading that ascribes both knowledge-how and knowledge-that, and involves only one instance of 'knows', it must be possible to pick out both kinds of knowledge by employing only one sense of 'knows'.

On the assumption that knowledge-that is a non-abilitative relation, this argument poses a challenge for the Interrogative capacity view. I concede that the ambiguity thesis is implausible, but I contest whether the interrogative capacity view (or any anti-intellectualist view) needs to be committed to it. As Glick points out [2011: 431–2], someone who thinks that knowledge-how and knowledge-that involve different relations need only be committed to the claim that there are different kinds of knowledge. 'Knows' might have a uniform semantic value that nonetheless picks out different kinds of states. By analogy, someone who thinks that there are two kinds of memory—episodic and semantic, say—might think that 'remembers' is univocal, but that there are different kinds of remembering. According to the interrogative capacity view, a sentence like (7) expresses the proposition that Vide stands in the knowing relation to both *how to swim?* and *that swimming is good for him*. The key claim is that these two tokens of the knowledge relation are realised by different kinds of states: one by a doxastic relation, and the other by an abilitative relation.

5.6. Does the Interrogative Capacity View Over-Intellectualise?

Knowledge-how is widespread phenomenon. People know how to read and to walk, dogs know how to catch balls, and we might even think that AlphaGo knows how to play Go. It is a common complaint that intellectualism over-intellectualises knowledge-how, belying the fact that skilled agents can know how without having a sophisticated grasp of the activity, and denying non-human animals know-how. One might worry that, by associating knowledge-how with propositional knowledge, the interrogative capacity view falls into the same trap.

I think that this worry is misplaced. Much of the worry about over-intellectualisation arises from the idea that propositional knowledge is associated with various epistemic properties that knowledge-how does not possess, such as conscious access, linguistic expressibility, and an associated true belief [Stanley 2011b: 150–74]. The capacity to answer questions on the fly is an ability to answer through action, meaning that it does not require conscious access or linguistic expressibility. Although a capacity to answer on the fly does produce propositional knowledge, this knowledge will

typically be transient and implicit, meaning that it will not have the properties that are often associated with knowledge-that, such as conscious access or linguistic expressibility. Above, I argued that a capacity to answer a how-to question is even compatible with false occurrent beliefs about the answer to that question. I think that this view can also offer a plausible line on non-human know-how. I think that the idea of an ability to answer a question on the fly picks out a pretty basic feature of agency that is closely tied to the ability to form and enact plans. In so far as non-human animals and computer programs can possess these basic features of agency, there is no barrier to their possessing knowledge-how.

6. Conclusion

In this paper, I have tried to enrich the space of options in the debate about the nature of knowledge-how, opening up the possibility that knowledge-how might be an ability to answer a question. I have defended a version of this view—the interrogative capacity view—that identifies knowledge how to V with the ability to answer questions on the fly, and argued that this view has positive features that make it preferable to standard versions of both intellectualism and anti-intellectualism. Along the way, I hope to have made the case that the ability to answer practical questions on the fly has an important role in the mental economy.[23]

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ORCID

Joshua Habgood-Coote http://orcid.org/0000-0003-3427-3325

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