

Practical know-wh¹

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Abstract: The central and paradigmatic cases of knowledge discussed in philosophy involve the possession of truth. Is there in addition a distinct type of practical knowledge, which does not aim at the truth? This question is often approached through asking whether states attributed by “know-how” locutions are distinct from states attributed by “know-that”. This paper argues that the question of practical knowledge can be raised not only about some cases of “know-how” attributions, but also about some cases of so-called “know-wh” attributions; and that certain features of this practical knowledge-wh put pressure on the standard analysis of know-wh.

Keywords: know-wh, know-how, practical knowledge, propositional knowledge

1. Introduction

In attributing knowledge to someone, we recognize a cognitive achievement or at least a positive cognitive status. In the central and paradigmatic cases studied by epistemology, this achievement or status is a certain kind of possession of truth – for example, a truth held with justification, or gained through a reliable method, or achieved by exercising an intellectual virtue, and so on. But is truth always the object of knowledge? Or, assuming further that truths are propositions, or expressed by propositions, is all knowledge propositional?

One influential negative answer comes from Gilbert Ryle (Ryle 1949). Ryle held that certain forms of practical knowledge do not involve grasping true propositions; for example, knowing how to tell jokes does not consist of knowing certain propositions, but rather of an ability or disposition to tell jokes. Ryle formulated the issue in terms of the linguistic expression of knowledge attributions, by famously arguing that “know how” is distinct from “know that”. Many participants in the debate have adopted this way of putting things, witness the following by Paul Snowdon:

1 [□]Ideas included in this paper were presented at talks at the universities of Lingnan, of Madison, Wisconsin, CalState LA, the Bled Conference on the Intersection of Epistemology and Philosophy of Mind, and the Moral Sciences Club in Cambridge. I am very grateful to the audiences for their comments. An anonymous referee for *Noûs* provided very useful suggestions which led to several improvements of the paper.

[the idea is] ... that there are at least two types of knowledge (or put it in a slightly different way, two types of states ascribed by knowledge ascriptions) *identified*, on the one hand, as the knowledge (or state) which is expressed in the 'knowing that' construction (sometimes called, for fairly obvious reasons, 'propositional' or 'factual' knowledge) and, on the other, as the knowledge (or state) which is ascribed in the 'knowing how' construction (sometimes called 'practical' knowledge). (Snowdon 2003, p. 2, emphasis added)

Snowdon is actually critical of the idea: he thinks that all knowledge is propositional. Nonetheless, he seems to agree with Ryle that the issue of whether there is a distinct type of non-propositional practical knowledge is to be approached through asking whether states attributed by the “know how” locution are distinct from states attributed by “know that”.

Snowdon himself points out that the relevant locution is more precisely “know how to do”, rather than simply “know how”. Ephraim Glick (2011) further argued that it is only “a certain subcategory of know-how, not (...) know-how *per se*” which motivates the idea of a distinct practical knowledge (Glick 2011 p. 426, see also Poston 2015). In this paper, I offer a different reason to think that the issue of practical knowledge is not simply “know that” vs. “know how”. I will try to show that a certain group of so-called “know-wh” attributions offer as good a motivation for positing a distinct type of practical knowledge as cases of know-how do. This “practical know-wh” puts a pressure on the standard analysis of know-wh.

In Section 2, I introduce „know-wh” attributions and present their standard analysis, on which the core of know-wh is knowledge of (or appropriate access to) propositions that answer the question embedded in the wh-clause. Section 3 presents some examples of practical know-wh, and argues that these give a *prima facie* motivation for assuming a distinct kind of practical knowledge just as much as cases of know-how do. In Section 4-8, I try to see whether the standard analysis of

know-wh is applicable to these cases, through searching for a known proposition that answers the question embedded in the wh-clause of practical know-wh attributions. In Section 4, I argue that in some cases, the most plausible answer contains an indexical reference to some feature of the situation: e.g. “this much” or “this far”. Section 5 and 6 identify two features of the content of these answers: first, in some cases the content varies from occasion to occasion, second, it sometimes involves a sensory mode of presentation. I argue in Sections 7 and 8 that these two features imply that the content of the answer is not available to a subject every time when we attribute know-wh to her, and that this puts a pressure on the standard analysis. In Section 9 and 10, I sketch two different directions of relieving this pressure. In Section 9, I offer the brief outlines of an account that analyses practical know-wh in terms of an ability to succeed in action. In Section 10, I present a possible modification of the standard propositional account: the core of know-wh is not simply knowing an answer, but rather an ability to activate knowledge of answers on occasions when the question arises. The proposals presented in Sections 9 and 10 are far from complete: a fully developed theory of practical knowledge will have to say much more on each. The main purpose of this paper is to persuade the reader that any such theory will need to take into account cases of practical know-wh.

2. Know-wh and knowing answers

One common way of attributing knowledge is to use a so-called “know-wh” construction. Know-wh attributions contain the verb “know” attributed to a subject (or subjects), followed by an embedded question, rather than a clause expressing a proposition. For example, I know when I started to write this paper. Most examples of know-wh we find in epistemological discussions contain embedded questions starting with “where”, “when”, “who”, “whether”, “why”, but the range of know-wh attributions is much broader, and can include other interrogatives which are equally suitable to form questions, like “how often”, “how far”, “how cheap”, and so on, as in the following sentence: Jane

knows how often Paula eats in Mario's Italian restaurant, how far the restaurant is from her place, and how cheap their pizza is. To be clear, even though these sentences contain the word „how”, they are not the kind of „know how” that interested Ryle. (In a number of other languages, they are not even expressed with the equivalent of the English word „how”.)

According to the standard analysis of knowledge-wh, someone knows-wh only if she knows a proposition that is the answer (or *an* answer) to the question implicit in the wh-clause. For example, Jane knows how often Paula eats in Mario's only if she knows that Paula eats in Mario's once a week, and this is indeed the answer (or an answer) to the question of how often Paula eats in Mario's. Some philosophers have argued that this condition, though necessary, is not sufficient in itself, and further necessary conditions are needed (eg. Stout 2010, Schaffer 2007). Recently, I argued that in certain cases, knowledge of the proposition that answers the question in the wh-clause is not even necessary for knowledge-wh: it is sufficient if someone has appropriate access to the information that answers the question (Farkas 2016). There is also a disagreement about the details of the semantic analysis of the content of know-wh attributions. For example, at least one proposal denies that the content of the attribution explicitly references a proposition (Masto 2010). But all analyses known to me (including Masto's) agree that knowledge of (or appropriate access to) a proposition is *a necessary condition for know-wh*, with some possible further conditions on this knowledge (Stanley and Williamson 2001, Snowdon 2003, Brogaard 2009, Kallestrup 2009, Masto 2010). So on the standard and widely accepted account, the core of know-wh is knowledge of a truth.

The one case of know-wh that is not covered by this general consensus and remains controversial is the class of attributions of the form “S knows how to *G*”, where *G* is a verb-phrase. In their surface format, know-how sentences in English do seem to belong to know-wh attributions: knowing how to do something is analogous in structure to knowing where, when, or why to do something. But as I mentioned above, at least since Ryle's influential discussion (Ryle 1949), many

philosophers have been convinced that know-how is not a kind of propositional knowledge, but instead a sort of ability or disposition. This position is now often called “anti-intellectualism” about know-how.

Defenders of the distinctness of practical knowledge usually assume that it's only know-how that is special: in contrast, other types of know-wh are to be classified with know-that. This is the strategy followed for example by Ted Poston, who argues that know-how is distinct, because unlike know-that and the rest of know-wh, it resists a certain kind of transmission (Poston 2015). Adam Carter and Duncan Pritchard claim that know-how is special because unlike know-that and the rest of know-wh, it is not vulnerable to a certain type of epistemic luck (Carter and Pritchard 2015). The aim of this paper is to argue that some cases of know-wh *other than* know-how are just as good candidates for a special practical knowledge as cases of know-how are.

The connection between answering questions and know-wh alerts us to a special way in which know-wh attributions are context-sensitive. As Ted Parent notes, this is not the frequently discussed context-sensitivity of knowledge-attributions with respect to evidential standards. (Although know-wh attributions may be context-sensitive also with respect to evidential standards). Rather, “the context-sensitivity of knowing-wh concerns the information needed to settle the embedded question” (Parent 2014, p. 88). According to a further plausible proposal, the nature of the information needed to settle the question is (at least partly) determined by the inquisitor's goals or purposes (Parent 2014, p. 88).

Here is an example. In one context, when we are wondering about how various companies were doing in 2014, knowing that Apple had a quarterly profit of around \$8.5 billion in the fourth fiscal quarter of 2014 is enough for *knowing how much profit Apple has made* in the relevant period. However, for Apple's accountants, for the purpose of preparing a tax statement, knowing the same proposition – even though it is a correct answer to the question – is clearly not sufficient for knowing how much Apple has made; what they need to know is a proposition that contains a much

more specific number. This kind of context-dependence, concerning the information needed to settle a question, is going to be important in the examples I'll discuss in the rest of the paper.

3. Examples of practical know-wh

In a video posted on ceramicartsdaily.org on 26 December 2014, Sarah Jaeger, a studio potter based in Helena, Montana, demonstrates how to attach a knob to the lid of a ceramic soup tureen by using a pottery wheel. Apparently, one thing the potter has to get right for this task is the thickness of the part of the lid where the knob is attached – it should be thick enough to support the knob and withstand pressure as the potter is working on the knob, but not too thick so that it cracks when dries or is too heavy to be fired. As we watch the pottery wheel turning around, Jaeger shaves off pieces of clay, frequently touching, knocking on the top of the lid in an attempt to get a sense about its thickness. When she is satisfied, she moves on to forming the knob from a piece of clay and attaching to the lid.

Jaeger's case is a typical example of exercising practical knowledge-how: knowing how to attach a thrown knob to a lid. When we look closely at her performance, it involves a variety of more specific skills: she knows *where* to place the knob, *how dry* the lid should be to start to attach the knob, she knows *how thick* the lid should be, *how much pressure* to apply to the wall of the knob as she pulls up the sides on the wheel, *how wet* the clay should be while she is working on the knob, and so on. As it was explained above, these are different cases of know-wh attributions.

In a video published by the Royal Yachting Association (2013), Shirley Robertson, a double Olympic gold medal winning sailor demonstrates gybing (or jibing) on a single-handed dinghy. Gybing is a manoeuvre that involves changing the direction of a sailboat by moving the stern of the boat across the wind, while the sail passes above the sailor's head to the opposite side, and the sailor, ducking under the boom, moves in the opposite direction to the new windward side. Robertson offers instructions that require some knowledge of sailing terminology; for example,

when I watched the video for the first time, I did not know that to “bear away” is to steer the boat away from the direction of the wind, and a “sheet” is a line which is used to control the setting of a sail. Part of learning gybing from the video consists in learning what the terms used by Robertson mean. But while watching Robertson's acrobatic skills of deftly manoeuvring the boat, there is no doubt in the viewer's mind that there is more to this than learning the terms and then memorizing the sequence “Bear away smoothly and sheet in; flick the mainsheet, roll the boat; duck under the boom; sit, steer and then swap”. Robertson here exercises knowing how to gybe, which involves, again, a variety of distinct knowledge-wh: she 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.

Before we start analyzing these examples, let me note that they make a prima facie case for practical knowledge that seems just as convincing as the one made by the usual examples of know-how. First, knowledge can be regarded as practical when it is intimately connected to skilled action and involves active abilities, and this holds for the above examples. Second, it's often noted that knowledge-how resists straightforward acquisition through verbal instruction, and even skilled practitioners find it difficult to account for know-how in verbal description. One cannot learn from a book how to ride a bike, and people's attempt to describe how they ride a bike often fail. The same can be said of know-wh involved in pottery and sailing.

Glick (2011) suggests that one way to formulate the motivation for a broadly Rylean, anti-intellectualist position is to start with two groups of examples. One includes people who learnt to ski or knit without instructions or forgot the instructions, and they are contrasted for example with an aspiring golfer who has watched a lot of instructional videos but never played golf. People in the first group, Glick says, seem to share a sort of know-how that is related to practice in an important way, and not shared by people in the second group. Now contrast an experienced sailor with me: I

have watched a lot of sailing videos, but never sailed in my life. It seems that anti-intellectualism could be motivated by pointing out all the practical know-wh the sailor has, but I lack.

The examples listed here involve practical know-wh connected to bodily actions. Ryle's original discussion of know-how extended much further, to include phenomena like knowing how to tell jokes. These also plausibly involve characteristic know-wh: for example, an essential element in effective joke-telling is knowing *when* to tell a joke, *when* to deliver the punchline, *which* audience is right for which joke, and so on. While these cases also raise interesting issues, the focus of this paper will be primarily practical know-wh related to bodily actions.

4. An indexical element in the known answer

On the standard analysis, know-wh (at least know-wh other than know-how) is knowledge of propositions that answer the question in the wh-clause (plus possible additional necessary conditions – this will be understood implicitly from now on). On the basis of this, anti-intellectualists often classify know-wh together with know-that, and in contrast with know-how. We saw in the previous section that some cases of know-wh have a striking resemblance to cases of practical know-how. In the following sections, I will try to see whether this puts a pressure on the standard analysis of know-wh. The plan is to try our best to apply the standard analysis to practical know-how, and see whether it succeeds.

The potter's knowledge of how to attach a knob to a lid involves *knowing how thick the lid should be*. If the standard analysis of know-wh is correct, then the potter knows a proposition that answers the question “How thick should the lid be?”. Let us try to identify this proposition. One answer is already mentioned above: the lid should be thick enough to support the knob and withstand the pressure as the potter is working on the knob, but not too thick so that it cracks when dries or is too heavy to be fired. Recall the context-relativity of answering questions: for some purposes, this is a perfectly good way of answering the question, and hence knowledge of this

proposition qualifies one as knowing how thick the lid should be in those contexts.

However, knowing this proposition cannot exhaust the experienced potter's relevant knowledge-wh. Consider the fact that *I* now know this proposition, and consequently, for some purpose – for example, answering questions at an exam – I know how thick the lid should be. However, I clearly lack some additional knowledge that the potter has, the knowledge that is manifest in her performance, and whose lack would be obvious if I had attempted to make a lid. I do not know how thick the lid should be for the purpose of actually getting the lid to the right thickness.

Is there another proposition whose knowledge could help me in such a situation? We could probably work out a mathematical formula for the acceptable thickness for the lid, depending on the size of the lid, the size of the knob, the quality of the clay, and taking into account the pressure exerted on the lid, the temperature of the firing furnace, the physical properties of the clay, and so on. Something like this must take place for example when airplanes are designed: a calculation, based on possible exposure to a certain range of temperature and pressure, the physical properties of the constituting material and the like, delivers a measure for the acceptable thickness of a window or a wall. If I knew this formula for the lid, then I would know how thick the lid should be for the purpose of making a lid (provided that I also had a measuring device).

But is knowledge of this proposition necessary for the same purpose? In other words, does know-wh in this case always consist of knowing something like the formula? Surely not, because the potter presumably does not know this proposition. If knowledge-wh is connected to knowing some answer, then there must be another answer that the potter knows. The natural candidate is this: as she looks at the lid, knocks it, listens to the sound the knock makes and attends to the felt resistance in the knock, she knows that the lid should be *this thick*. (This holds, of course, when the lid is the right thickness. Before that, what she knows is that the lid should be *thinner than this*.) She may or may not be prepared to verbalize this knowledge, so she may or may not actually give

the answer in these words, if asked. Nonetheless it's plausible both that she knows this proposition, and that this is the best answer available for someone in her situation to the question of how thick the lid should be, for the relevant purpose, that is, for getting the particular lid to the right thickness.

Similar considerations apply to some of the other cases of practical know-wh. The potter knows how much pressure to exert on the knob when she is pulling up the sides (this is part of basic know-wh for throwing pottery). Imagine someone who learns to throw pots only through trial and error, or who forgets the instructions, and isn't very good in articulating the rules she follows. In her case, plausibly, the best answer she knows to the question of how much pressure to apply is simply "*this much*", while she is applying pressure.

To continue with our examples: the experienced but not especially reflective sailor would know that *now* is the time to start the manoeuvre, she has to sheet in *this much*, *now* is the time to duck under the boom, *here* is where she needs to place her foot, she can lean out of the boat *this much*, and so on. She may of course know further, or different propositions that also answer questions for these, or for other purposes. In the sailing case, it's less plausible than in the pottery case that knowing a formula would help – not because there could be no such formula, but because calculating and implementing the results would be extremely impractical in the middle of a 15 second maneuver. Nonetheless, maybe a fancy case could be constructed where knowing a general formula worked for the purpose of acting. In arguments for the distinct nature of practical knowledge in the know-how debate, it is sometimes claimed that no propositional knowledge is *sufficient* for practical knowledge (Fridland 2012, Glick 2015). I do not want to claim that knowing a formula is never sufficient for the kind of practical know-wh discussed here. The point is that the formula is often not necessary: someone's knowledge-wh, manifested in a performance, can consist in knowing the above kind of answers to the relevant questions, that is, answers that indexically refer to elements of the particular situation.

5. Sometimes no general answer is given by the demonstrative

I have been pursuing the proposal that the core of knowing-wh is knowing answers to the question embedded in the wh-clause. Knowledge of an answer is relative to the interests of the knower. In the case of practical know-wh, we often need to know answers for the purpose of performing some action – eg. for the purpose of establishing the right thickness of a lid, or for the purpose of finding balance when leaning out of a boat during a sailing manoeuvre. In some of these cases of practical know-wh, the best candidate for the known answer involves a demonstrative: “this thick” or “this much”. I will now look at the content of this knowledge.

It is usually assumed that the content of knowledge expressed by a “know that” ascription is a proposition. There are different views on the nature of propositions, and I would like to remain as neutral as possible on this issue. I will, however, accept one commitment. We can think about all sorts of things which fall into various ontological categories: objects, events, properties, and so on. What we think about is presented to us in some way – for example through descriptions, or demonstrations, or other means of presentations. I am committed to the following: the way things are presented makes a difference to the content of knowledge and to what we know. We may have knowledge about a thing when it is presented in one way, but not when it is presented in another way.²

Suppose we have the mathematical formula mentioned earlier which gives the right thickness (expressed as a measurement say, in centimeters or inches) for a particular lid depending on the size of the lid, the knob, the quality of the clay and other factors. The result of the formula, and hence the thickness of the lid can vary from case to case, depending at least on the overall size of the lid and the knob. Still, the content of the answer is the same on each occasion: a general

2 [One way to accommodate this observation is to assume that modes of presentations are parts of propositions. However, on some theories of propositions, the way certain things are presented is not part of a proposition. Since I accept that the way things are presented is part of the *content* of knowledge, if I accepted such a view, I would say that the content of knowledge involves more than a proposition. Then everything I say about known *propositions* would be modified to statements about known *contents*. Contents, so conceived, are similar to propositions in that they are bearers of truth and falsity.

formula which yields a particular number through the satisfaction of a description, a description which could yield a different number when applied to other lids.

Now compare this with the case when the answer is given in the form “the lid should be this thick”. The referent of “this thick” is a perceptually presented physical distance (more on the perceptual element in the next section). This distance varies from lid to lid. But in contrast to the case with the general mathematical formula, I propose that the *content, and not merely the referent*, of the demonstrative presentation varies when a different physical distance appears perceptually. If the potter says, in a particular situation, that the lid should be *this* thick, the very same answer (with the same content) would be wrong in another case where the lid should have a different thickness.

This means, in turn, that “the lid should be this thick”, as uttered on a particular occasion, cannot be a general answer to the question of how thick the lid should be. For a much bigger lid or for a much smaller lid, it's not true that the lid should be *this* thick (meaning the thickness of the lid shown in the video). Part of the potter's practical know-wh consists in being able to establish the right thickness for lids of different sizes. This is what we summarized in saying that knowing how to attach a thrown knob to a lid involves knowing how thick “the lid” should be. A similar point applies to many other cases of practical knowledge-wh. Pottery on a wheel is made by varying the pressure on a piece of clay. The potter's practical expertise requires knowing how one needs to vary the pressure to form the desired shape. So “one has to apply *this* much pressure” is very far from a general answer to the question of how much pressure one needs to apply. Same for the sailing questions: no general answers are yielded by “now is the moment to start the manoeuvre”, “you can lean out this far” or “this is where you need to place your foot”.

Note that this isn't the phenomenon of someone knowing several answers to a question in a single context – for example, in knowing where to buy an Italian newspaper, someone may know of several locations that it is a place to buy an Italian newspaper. These answers are not incompatible, and knowing one of them would already be sufficient to have the relevant knowledge-wh. The

potter's case is different. What she knows in one context when knowing that *this* much pressure needs to be applied, is not a correct answer in another context, where the pressure has to be quite different. The same applies to the sailor.

These examples of know-wh exploit the feature that wh-clauses do not specify a single proposition, hence we can indicate that someone knows propositions that answer the same question arising in a series of contexts, even if the propositions are different.³ It is important to note that the series of contexts is open ended: the potter has not only known so far, on various occasions, how thick the lid had to be, but she will also know how thick it should be on future occasions, even in novel situations that she hasn't experienced before. Hence we could not do justice to the potter's knowledge for example by forming a conjunction of the propositions she has known in the past as answers to the question of how thick the lid should be; this would leave out the fact that she will have the knowledge in yet different future contexts as well.⁴

6. Sensory modes of presentation

I have looked at cases I called “practical know-wh”, where knowing propositions that answer a question in the context of some action most plausibly consisted of knowing different demonstratively presented contents on different occasions. The next important observation is that many (though by no means all) of these answers involve presenting objects through, or with the aid of, *a complex sensory experience*.⁵ As the potter is knocking on the lid, she listens to the sound, and attends to the resistance felt in the tactile experience. In knowing that “the lid should be this thick”,

3 In Farkas (2016) I offer another example that illustrates this feature, where knowledge is attributed over a changing subject matter.

4 An anonymous referee helpfully pointed out that the range of novel situations the potter needs to be able to handle in order to earn knowledge-wh will plausibly depend on certain further factors: it may be different for an amateur potter or a very experienced professional. As the referee noted, this is similar to the context sensitivity of tasks discussed in Hawley 2003 and Stanley 2011, pp. 119ff.

5 Thanks to Farid Masrour for calling my attention to the importance of sensory modes of presentations.

the lid is presented through these experiences. If the thickness of the lid was presented under a different mode (for example: “2 centimeters”), the potter may not know that this is the right thickness, or if she did, that piece of knowledge would be independent of the particular knowledge-wh we are interested in.

The other cases are similar. The potter knows that she needs to exert *this much* pressure by feeling the pressure in her fingers. The sailor presents the location where she needs to put her foot through vision and proprioception. When she knows that she can lean out of the boat *this far*, the presentation is again primarily proprioceptive.

One may worry here that we paint a too demanding picture of the sailor's state of mind: as she constantly changes her position, she would need to entertain new propositions all the time, with the content that one can lean out *this much*. There is a genuine issue here, but not one raised especially by practical know-wh. Suppose you follow the flight of a javelin with your eyes through the course, so for the whole time, you know where the javelin is. According to the standard analysis, this means that you knew all the different propositions that expressed the javelin's discernible positions over the course. The issue here – just like in the case of the sailor – is how a temporally extended perceptual experience of rapid change gives rise to knowledge: do we know about a hundred different propositions, with the content “the javelin is there”, “there”, “there”, etc?. I have no space here to address the issue of perceptual knowledge here, so I will assume that whatever theory of perceptual knowledge accounts for this phenomenon is also applicable to the sailor's case.

It is possible for a subject to convert, say, a primarily proprioceptive presentation to a verbal or visual mode of presentation, and this may be required, for example, for the purpose of teaching others. But these conversions are far from trivial in either direction. Someone may know *where* her limbs should be when she is doing a yoga pose herself (when the limbs are presented proprioceptively), but unable to tell by looking whether someone else is doing it in the right way, or verbally describe the pose. Another person may be very good in telling if someone else is

performing the pose correctly (hence giving evidence of knowing where one's limbs should be, under a visual, third person mode of presentation), because she watched many yoga videos and learned to identify the right execution visually. But she still does not know where her own limbs should be while she herself tries to perform the pose. These observations are in accordance with the earlier assumption that the way things are presented to us makes a difference to the content of knowledge. A particular piece of knowledge I have could essentially involve a visual mode of presentation, and if the same thing were presented non-visually, I may not have the corresponding knowledge.

As I said above, when the sailor knows that she can lean out this far, the content involves a proprioceptive presentation. If I pointed at her and said “one can lean out that much”, I would not manifest the relevant knowledge-wh, because the content of my knowledge would involve a visual, third person, rather than a proprioceptive presentation. It seems very likely that the ability to perform the maneuver, at least in some cases, requires a proprioceptive presentation. If so, then my knowledge may be sufficient for some purpose, but would not be sufficient for the purpose of performing the manoeuvre. The reason is that the extent one can lean out would not be presented to me under the right mode of presentation.

I argued that some of the knowledge-wh involved in action-related practical matters, such as making pottery on a wheel, sailing or doing yoga, involve answers to questions which present their objects at least partly through, or based on, sensory experiences. In some cases, one may have knowledge-wh for one purpose (e.g. for executing an action herself), but lack it for another (e.g. for instruction, or for testing others); or the other way around. In accordance with the point made towards the end of Section 2, in these different contexts, different informational content is needed to settle the question (similarly to the different information needed to settle the question of Apple's profit). I propose that the difference in informational content sometimes has to do with how objects are presented; it could be the difference between a verbal presentation, as opposed to a visual

presentation, as opposed to a proprioceptive presentation.

7. The availability of the content of the known answer

A subject can have knowledge with a certain content only when the content is available to her to entertain. For example, a subject cannot have knowledge whose content involves a concept that she lacks. If the content of some knowledge essentially involves, or relies on, a certain sensory mode of presentation, then the content is available only when this mode of presentation is available, that is, when someone has an experience with the relevant sensory features. To be clear, this phenomenon is not restricted to knowledge involved in practical matters. There can be all sorts of knowledge that require that the subject matter is perceptually presented. What makes this issue relevant to practical knowledge is that some sensory features are plausibly present only when some action is being performed.⁶

The cases of practical know-wh we considered required the presence of sensory features. The most straightforward such case is when the subject is having an appropriate perceptual or proprioceptive experience: the potter is having the experience of pressing her finger on the clay, the sailor is leaning out of the boat, the yoga teacher (who has know-wh for the purpose of instruction) is seeing the student holding a certain pose.⁷

Further possibilities include memory and imagination: for example, remembering or imagining the feeling of pressure in one's finger. However, these possibilities are limited. In some cases where a visual mode of presentation is required, imagining or remembering a scene may enable one to provide the appropriate answer to the question. But especially in the case of tactile and proprioceptive modes of presentation, it seems extremely unlikely that someone could have a

⁶ □Thanks to an anonymous referee for pressing this point.

⁷ This point would require further discussion, but I am inclined to allow that the perceptual experience can be hallucinatory, rather than veridical, provided it has the same phenomenal character. Or they can be provided by a simulator that is realistic enough, even if they don't involve deception.

memory or image that was sufficiently vivid and precise to involve the specific information contained in “one needs to apply this much pressure” or “one can lean out this much” that properly answers the question embedded in the wh-clause of the know-wh attribution. In other words, the proper answer to these questions in the form of the perceptual or proprioceptive demonstrative is sometimes available *only when the agent is actually performing the action*. Only in that situation is she in the position to entertain the content that presents its object under the appropriate sensory mode of presentation.

8. Knowing-wh when the proposition is not available

I have examined some cases of know-wh with the assumption that the standard analysis of Know-wh is correct, and hence knowledge-wh is connected to knowing propositions that answer the question in the wh-clause. I found that sometimes the best candidates for a known answer are distinct propositions on different occasions, which involve, or are based on, presenting objects under sensory modes of presentations that are typically available during the execution of some action. These features give some explanation of the special practical nature of the instances of knowledge-wh we've discussed. They have a special connection to action because answers often become available only during the performance of some action. They resist verbal description because the key information is not given by one proposition, and moreover, the relevant propositions involve a special mode of presentation that requires being engaged in some activity.

As I am writing these lines, Shirley Robertson is probably not sailing a boat. Yet it is true of her, at this moment, that she knows how to gybe, and that she has the range of knowledge-wh required for this: among other things, she knows, for the purpose of executing the action, how far she can lean out to balance the boat during a sailing manoeuvre. We normally attribute practical knowledge to people even if they are not engaged in the actions connected to the knowledge. *But her knowledge cannot consist of knowing, at this moment, the propositions that answer the question*

embedded in the wh-clause. This is for two reasons: one is that the appropriate sensory mode of presentation is not available to her; the other is that her relevant knowledge partly consists of knowing propositions with an indexical component in novel circumstances. Since memory of proprioceptive events lacks the specificity of the actual experience, she could not simply store in her memory the right extent of leaning out, and refer to it as “*that* is how much one can lean out”. But even if she could, there might be a boat she has never sailed before, weather conditions she hasn’t experienced before, which mandate that she can lean out of the boat less than in any other previous case she sailed. Yet she would manifest her know-wh in adjusting her practice to the requirements of the situation: she would then know that she can lean out “this much”, as she is performing the manoeuvre. She would have to be in that situation to be able to know the relevant proposition: neither her imagining the situation, nor her imagining the response could be specific enough to produce the content that is required to answer the question.

The two conditions – an open ended series of answers, and the sensory modes of presentation – are independent, and there may be cases where only one or the other is present. For example, knowing when to tell a certain joke requires knowing “now is the time to tell that joke” in an open-ended series of contexts, but does not seem to require a specific sensory mode of presentation. In contrast, knowing how thick the dough should be when making bread has a uniform answer, but arguably requires a visual mode of presentation. If either of the two conditions is present, the relevant knowledge-wh cannot consist straightforwardly of knowing some propositions (plus additional necessary conditions) whenever the knowledge is attributed. If there is a sensory mode of presentation, then the proposition may not be available at the time of attribution. If there is an open-ended series of answers, then the subject does not know some of the relevant propositions at the time of the attribution.

Assuming that the standard analysis of know-wh is correct, know-wh always entails knowing propositions that answer the question in the wh-clause. Starting in Section 4, I have tried

my best to find out what these propositions are in the case of practical know-wh. I found that in some cases, there is no such proposition whenever the relevant knowledge is attributed: for example, even though it's true *now* that Sarah Jaeger knows how much pressure to exert on the clay when throwing pottery, if she is not throwing pottery at the moment, then there is no proposition she *now* knows that constitutes her know-wh. This means that something of the traditional analysis must go. I do not have the space here to provide a complete resolution of this problem, but in the next sections, I sketch two possible directions to try to address this challenge.

9. The ability to do something at the right time

In Section 3, I noted that cases of practical know-wh seem similar to the typical instances of practical know-how that motivate the anti-intellectualist position about knowing how. Given that these cases challenge the standard propositional account of know-wh, one might want to explore the idea that practical knowledge-wh is *an ability to successfully perform a relevant action*.

First, let us recall that know-wh is relative to (possibly among other factors) the interests and goals of the knowing subject. Knowing a mathematical formula for the amount of pressure to be applied on a structure when throwing pottery could qualify a subject for the relevant know-wh in certain contexts, but it probably does not enable them to apply the right amount of pressure in ordinary circumstances of making pots. So the ability analysis is likely to apply only to cases where know-wh is for the purpose of doing the relevant action. In such a context, we could suggest for example that a potter knows how much pressure she needs to apply on the structure just in case she would succeed when she tried to apply the right amount of pressure (compare Hawley 2003). This analysis can be generalized to each case of wh-to-do-something (for the right purpose) separately. Knowing when or where to do something would be the ability do that thing at the right time and at the right place (for the right reason, and so on). The generalization is less straightforward for cases that do not have the “wh-to-do” format, and hence don't explicitly mention an activity. Since it is

not my aim to provide a complete version of an ability account of practical know-wh, I will not pursue this issue further. It is even possible that the lastly mentioned cases will not be usefully classified with practical know-wh at the end.

The ability account has definite attractions for the cases where the knowledge involved seems more like a bodily skill or competence than a series of knowing propositions. A challenge for this account will be to explain what is common to practical know-wh on the one hand, and know-wh that is plausibly understood as knowledge of propositions on the other. Just as simple possession of truth is not enough for truth-oriented knowledge, so it seems that success in action should not be enough for practical knowledge. So the account will need to explain what, in addition to succeeding in an action, is required for practical knowledge-wh.

10. A modified propositional account

The other direction to address the challenge posed by cases of practical know-wh is to try to modify the standard account while still keeping the idea that knowledge of truths is central to know-wh. Here is one suggestion: someone knows-wh not simply when she knows an answer, but when she *can activate knowledge of an answer in an appropriate context where the question arises*. The phrase “she can activate knowledge” is meant in a similar sense as in the definition of discriminability offered by Timothy Williamson (1990). On Williamson's proposal, *a* and *b* are discriminable for a subject just in case she can activate knowledge that *a* and *b* are distinct (Williamson 1990, p. 8). “Activate” in this context is meant to cover both acquisition and employment of knowledge. For example, the colors of a blue and red color sample that I have never seen are perceptually discriminable for me, because I can activate (that is, acquire) knowledge that they are distinct when they are perceptually presented to me. Feynman and Gell-Mann, two famous physicists, are discriminable for me, because I can activate (that is, employ), my existing knowledge that they are distinct.

Let us see how the proposed modified definition applies to know-wh. Sarah Jaeger knows, for the purpose of making a lid with a knob on a pottery wheel, how thick the lid should be. The context where this question arises for the relevant knowledge-wh is the actual making of the lid. In that context, Jaeger can activate (acquire) knowledge through the then-available perceptual mode of presentation, referring to then-present thickness: “the lid has to be this thick”. On the basis of her having this ability, we can attribute her knowledge-wh even when she strictly speaking does not know the relevant propositions.

The skillful joke-teller knows when it is the right moment to tell a certain risqué joke. The context where this question arises is provided by social situations where jokes may be told, and the joke-teller can activate (acquire) knowledge that “this isn't the right time”, or that “this *is* the right time”. The same answer would be right only for a qualitatively completely indistinguishable situation. The basis of attributing know-wh to the joke-teller is her ability to produce this kind of knowledge on appropriate occasions.

The analysis covers the more ordinary cases of knowledge-wh, where the purpose of the agent, and the contexts where the question arises, are less specific. In these cases, the same proposition will answer the question on repeated occasions of asking, and grasping proposition will not need a special perceptual mode of presentation. The standing state of knowing the relevant proposition will entail the ability to activate (that is, employ) the knowledge of the answer when the question arises. I know how old one has to be in order to vote in Argentina, because I know that one has to be 16 to be able to vote in Argentina. Consequently, I can activate (employ) knowledge of the relevant answer in the contexts where this question arises.

Much of knowledge-wh related to actions will be similar in having a uniform answer and not requiring special modes of presentation. For example, I know how much salt I have to add to my dishwasher: I need to keep adding salt until the light indicating the lack of salt goes off. This is the same proposition in repeated contexts of asking the question, since it does not rigidly refer to the

quantity of the salt on a given occasion, but rather gives a description (much like the formula for the thickness of the lid we considered above). And entertaining the proposition does not require a special sensory situatedness. So this will be one of the cases where the standing state of knowing a proposition that answers the question will entail an ability to activate knowledge of a proposition that answers the question.

On the modified account, being directed at truths is still a central feature of knowledge. Hence this proposal has the advantage that it can explain what is common to different varieties of know-wh, and of knowledge in general. A further question is whether the account is plausible for the usual cases of practical know-wh that motivate anti-intellectualism. One might hope that certain features we discovered about practical know-wh will help to explain the practical nature of know-how as well. For example, the relativity of knowledge to the goals of subjects that may be specifically related to an action; or the fact that some answers become available only in the context of performing an action. However, these issues will have to be clarified elsewhere.

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