



Testimony and knowing how

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ARTICLE INFO

Keywords:
 Knowledge how
 Practical knowledge
 Tacit knowledge
 Testimony
 Skills
 Assertion

ABSTRACT

Much of what we learn from talking and listening does not qualify as testimonial knowledge: we can learn a great deal from other people without simply accepting what they say as being true. In this article, I examine the ways in which we acquire skills or knowledge how from our interactions with other people, and I discuss whether there is a useful notion of testimonial knowledge how.

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When citing this paper, please use the full journal title *Studies in History and Philosophy of Science*

“Another topic in the epistemology of testimony that particularly interests us concerns the acquisition of non-propositional knowledge, skill or know-how. How does this form of learning differ from the standard cases considered in the literature on testimony?” (Kusch and Lipton, 2002, p. 211).

Sometimes you can figure out for yourself how to do something, but sometimes you rely upon the kindness of others. To this extent learning *how* resembles learning *that*: sometimes you can see the truth for yourself, but sometimes you need to ‘phone a friend’. Do the similarities end there? When we are tempted to think that knowing how differs significantly from knowing that, this is perhaps because knowing how seems often to be taught and learned in distinctive ways. Practical knowledge can’t always be obtained from books or lectures, since it often requires hands-on experience, while those who know how can’t always teach, and sometimes those who can’t do something can nevertheless teach others how to do it.

Separately, both testimony and knowledge how have been widely discussed in recent epistemology, but little attention has been paid to the role of testimony in the acquisition of knowledge how. I attempt to bring these debates together in what follows, looking first at what constitutes testimonial as opposed to nontestimonial knowledge of propositions, then discussing how and whether this distinction applies to knowledge how.

1. What is testimonial knowledge?

Epistemologists care about testimony because it can be a source of knowledge. In the paradigmatic case a speaker who knows some proposition *p* tells a listener that *p*, and the listener thereby acquires testimonial knowledge that *p*. Some epistemologists think that a listener can also acquire testimonial knowledge from a speaker who says that *p*, but does not know that *p*, either because the speaker does not believe that *p*, or because (s)he has misleading evidence against *p* (Lackey, 1999). Testimony can of course involve writing, sign language or gestures as well as speech, and gestures or demonstrations may be especially important for transmitting knowledge how. For now, however, I will follow others in focusing on speakers and listeners.

Central to the literature on testimony is a debate about what conditions speakers and listeners must satisfy if knowledge is to be acquired via this process. Must the listener have positive evidence of the reliability of this speaker, or of testifiers in general? Anti-reductionists argue that testimony is a basic source of knowledge or justification, on a par with sense perception, reason and, perhaps, memory; reductionists argue that testimonial justification must ultimately reduce to justification provided by these other means. (Perhaps, as Peter Lipton argued (2007), such justification will crucially involve inference to the best explanation.) Roughly speaking, this is a debate about what it takes to acquire knowledge or justification, as opposed to mere true belief, from testimony.

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I will sidestep this debate about reductionism, in order to focus on a different question: given that *S* knows that *p*, what is required for *S*'s knowledge to be testimonial rather than nontestimonial? Fortunately, we can address this question without having already settled the issue relating to reductionism, just as we can ask what makes a phenomenon mental rather than non-mental without having already settled whether the mental aspect is reducible to the physical. Testimonial knowledge may be a distinctive kind of knowledge, even if it is ultimately reducible to nontestimonial knowledge, just as mental phenomena form a distinctive type of physical phenomena (Goldberg (2006) makes a similar point).

So, what makes propositional knowledge testimonial rather than nontestimonial? If *S*'s knowledge that *p* is testimonial knowledge, that knowledge must at least have been acquired (or now be sustained) on the basis of testimony. More precisely, it should *qualify* as knowledge by virtue of its having been acquired or sustained on the basis of testimony. This raises two further questions. What is testimony? And what is the required basing relation between the testimony and the resulting belief? These questions are usually handled as minor preliminaries to more substantive debates about testimony, but they will be my main focus here; I consider each in turn.

1.1. What is testimony?

In the epistemologists' sense, testimony is not restricted to the courtroom. Nevertheless, not everything we say counts as testimony: even the most generous accounts of what testimony constitutes restrict it to assertions, declarative statements or communications of information, as opposed to genuine questions and imperatives, for example. Jonathan Adler begins his *Stanford Encyclopedia of Philosophy* article on 'Epistemological problems of testimony' thus: 'Testimony is the assertion of a declarative sentence by a speaker to a hearer or to an audience' (2006, p. 2). Elizabeth Fricker writes of 'tellings generally' (1995, p. 396), while Robert Audi identifies testimony with '*telling that—propositional telling*' (2006, p. 25, Audi's italics). Jennifer Lackey specifies that testimony that *p* occurs only when '[the speaker] reasonably intends to convey the information that *p*', or is reasonably interpreted as having such an intention (2006, p. 3). Other authors propose further variations and qualifications, and Adler provides references to these.

Matters are complicated by the fact that we often intentionally communicate information without using declarative sentences. At the railway ticket office, I asked whether I could get a ticket to Cambridge; the response was 'yes, of course'. At a literal level, I asked for information about possibilities, and was provided with that information. But it was already mutual knowledge between us that I could get a ticket to Cambridge: I was asking not for information but for a ticket. I then asked when the next train to Cambridge was; the response was 'hop on that one, get off at Bishop's Stortford, cross to platform 1, and get on the 10.17'. I asked for information; I didn't receive the information I requested (I didn't find out when the next train to Cambridge was), but nevertheless the ticket seller conveyed more useful information (about the quickest way of getting to Cambridge by train) and did so in the form of imperative instructions. Such complications seem to be captured by Lackey's broad 'intends to convey information' formulation, if not by Adler's 'declarative sentence' formulation, and for the purposes of this paper I will adopt Lackey's inclusive attitude.

Despite their differences, all the cited authors have two things in common. First, they aim to cast the net widely: testimony can be true or false, sincere or dishonest, weighty or trivial. This ensures that there is a substantive philosophical question relating to the conditions under which testimony can give rise to knowledge: those conditions are not built into the very notion of testi-

mony. Second, on even the most generous of these definitions, much of what we say to one another will not qualify as testimony.

In contrast, Audi writes that 'In this wide sense, "testimony" applies to nearly everything we say to others' (2006, p. 25). It is of course an empirical question as to how much of what we say to each other takes the form of assertions, even implicitly, as in the case whereby the ticket seller gave me information by giving me imperative instructions. Moreover, this is something that will vary between conversational contexts and between speakers (for example, one might wonder whether gender makes a difference). But consider the following situations: social conversations amongst old friends or new acquaintances, academic seminars, shopping or ordering drinks at a bar, strategy meetings, religious ceremonies, therapy sessions, classroom teaching, and political speeches. It is at least *prima facie* plausible that scattered amongst the explicit and implicit assertions in such situations are a large number of questions, suggestions, requests, demands, invitations, jokes, speculations and so on. Propositional telling is not the only way to win friends and influence people, and nor is it always the best.

1.2. Which beliefs are appropriately based on testimony?

Plenty of what we say to one another does not qualify as testimony, but as (for example) speculation, request, joke or genuine question. Setting this point aside for the moment, I turn to my second question: what relation must exist between testimony and knowledge if the latter is to qualify as testimonial knowledge?

In some cases, we learn from the form rather than the content of what others say. Suppose you stand right next to me and yell 'my name is Fiona!'. You communicate with me, and I learn that you can shout loudly. But you did not tell me or testify to me that you can shout loudly, and my new knowledge that you can shout loudly is not testimonial: it is straightforwardly perceptual. This is the case even if your main intention was to teach me that you can shout loudly, and perhaps even if I recognise your intention to communicate this. What if instead you yell 'I can shout loudly!?' Again, I learn that you can shout loudly, but typically the grounds of my new knowledge are neither different nor better than in the case in which you shout 'my name is Fiona!'. (An atypical case would be one in which, for example, I had wondered whether you were wearing a microphone—then, perhaps, my recognition of your intention to communicate is crucial to my acquiring knowledge, and so my knowledge appears testimonial.) Similarly, I learn that someone is speaking from hearing you speak, and I learn that you can speak English from hearing you do so.

In setting out preliminaries to debate about testimony, Lackey writes 'What is of import for justification or knowledge that is distinctively testimonial is that a hearer form a given belief on the basis of the content of the speaker's testimony' (2006, p. 3). Lackey's focus here is on the content as opposed to the form of the speaker's testimony; she is reacting to the sort of cases I have just described, in which a listener acquires a belief on the basis of how loud the testimony is, for example, or the emotional tone of the speaker's voice. But it is not enough to specify content rather than form: we also need to look at the way in which the resulting belief is based upon (understanding) the content of the testimony.

Suppose that, as a result of listening to you speak, I formulate a new thought—perhaps even one that I could not have formulated before. Maybe something you say provides me with a concept I did not previously possess, or prompts me to think more closely about propositions I already know, evidence I already possess. As a result, I come to know a proposition I did not previously know. In some such cases, the content of what you say is insignificant: perhaps your tone is simply so soothing that I drift off into a creative daydream. But in other cases, the content is significant: you say something which gives me a new perspective, enables me to

see things in a new light. My epistemic achievement in acquiring new knowledge causally depends upon the identity of the content you express, and upon my understanding that content: matters might have been quite different had you said something different, or spoken in an unfamiliar language.

Yet in some such cases my newly-acquired knowledge is not *testimonial*. Why not? First, in some such cases, the epistemic status of my new knowledge—the fact that for me it is knowledge as opposed to mere true belief—does not depend upon whether you asserted the relevant content, asked whether it was true, expressed it within the context of fiction, or even denied it. What is significant is that you somehow raised a proposition to my attention in a striking way, and that I recognised the truth of that proposition.

We cannot assume that, in such cases, my new knowledge is testimonial if and only if you raised the content to my attention by asserting it. There are ways in which we can learn from understanding other people's questions, speculations, poetry, and so on, and we can sometimes learn in just the same 'nontestimonial' way from others' assertions even when they do intend to convey information. Suppose that we are discussing someone who is a dear friend of mine and a slight acquaintance of yours; we are puzzling over her strange behaviour. You assert that my friend is depressed, and I see, with a sense of revelation, that this is true. I do not base my conclusion on the fact that you *asserted* that my friend is depressed; after all, you hardly know her. My new knowledge would have been just as secure if you had merely asked me whether my friend might be depressed, or, indeed, told me that some other acquaintance was depressed.

Second, in such cases the epistemic status of my knowledge does not depend in any way upon whether you are honest, well intentioned, or in general a reliable source as regards these matters. Nor does it depend upon my own beliefs about your honesty and reliability, nor upon the beliefs I ought reasonably to hold about your honesty and reliability. This is, of course, related to the first point, that the epistemic status of my belief does not depend upon whether or not you *asserted* the relevant content (explicitly or implicitly). You do not always need to be honest, reliable or well informed in order to ask an interesting question, and I do not need to hold you in high epistemic esteem in order to find your question or suggestion thought-provoking.

Third, even in the event that you do make an assertion which leads to my acquiring new knowledge, this is not always because I accept what you say 'on your say-so', or on the grounds that you 'vouch' for it. Your assertion can be causally relevant to my acquiring my new knowledge, without playing a justificatory or warranting role, as in the case of the depressed friend. Again, this is related to the two previous points: it is because I do not take your word for it that the epistemic status of my knowledge is independent of both your qualifications and my entitlement to borrow your qualifications; and it's because I do not *take* your word for it that it does not matter whether you *give* your word by asserting, or merely bring a proposition to my attention. (Moran (2005) provides a lovely exploration of the significance of 'vouching'.)

Finally, in cases like these it seems irrelevant whether the proposition I now know is a proposition you articulated (as assertion, question or speculation), or merely a related proposition you prompted me to consider. Suppose you express your envy of a friend's recent success, and this prompts me to realise that I too am envious of her achievement. My new self-knowledge is just as secure as it would have been if you had directly suggested to me that I might be envious; indeed, it may be easier for me to accept that I am envious if you allow me to work this out for myself. Standard discussions restrict testimonial knowledge to the content of testimony, excluding further knowledge which the listener may be able to infer on this basis; in the cases I am considering, how-

ever, even knowledge that *p*—acquired when someone asserts that *p*—need not count as testimonial knowledge.

Sanford Goldberg offers the following characterisation of testimonial knowledge, intending it as a neutral starting point for debate about (anti-)reductionism:

A has testimonial knowledge that *p* if and only if

- (A) A knows that *p*;
- (B) There is a speaker *S* whom A observed to offer testimony on occasion *O*, such that the proposition that *p* was understood by A to be presented-as-true in *S*'s testimony on *O*; and
- (C) A's knowledge that *p* depends for its status as knowledge on both (i) the reliability of *S*'s testimony on *O*, as well as (ii) A's epistemic right to rely on that testimony.

(Goldberg, 2006, p. 128)

In the kinds of case I have been discussing—where I am somehow prompted to new but nontestimonial knowledge by understanding what you say—condition (C) is not satisfied, and in some such cases condition (B) is not satisfied either. Goldberg argues persuasively that testimonial knowledge is distinctive insofar as it involves 'epistemic buck-passing'—legitimate reliance upon the epistemic authority of others; no such buck-passing is involved in the cases I have been discussing.

As this passage from Goldberg illustrates, I am not the first to notice that knowledge caused by testimony need not be testimonial knowledge. Indeed, Audi reminds us that:

It is not only in the case of testimony that a mere causal relation between a source of knowledge and a belief based on that source is not sufficient to render that belief knowledge of the kind distinctive of the cognitive products of that source. (2006, p. 26)

Causal theories of perception and of memory must struggle to prevent 'deviant' causal connections between object and belief from erroneously qualifying as genuine perception or memory.

I have dwelt upon this issue for two main reasons: the sheer extent of nontestimonial learning from others, and its relevance to knowledge how. First, recall that much of what we say to each other is not testimony—we question, speculate, demand and so on. And yet we can learn a great deal from this nontestimonial exchange, in a way which matches the way in which we sometimes can acquire nontestimonial knowledge from engaging with one another's assertions. Indeed, I hereby speculate that plenty of formal teaching results in nontestimonial knowledge, as does much therapy that results in self-knowledge, much discussion and debate that results in academic knowledge, much engagement with literature and other art forms, and so on.

Contrary to the impression one can gain from the literature on testimony, these sorts of exchanges are not peripheral cases, parasitic upon the normal functions of communication—rather, they are among the central cases of learning through intellectual interaction, mutual understanding and linguistic communication. To provide people with knowledge, it is sometimes necessary just to tell them things, but it's often more useful to persuade them, or to put them in a position to see for themselves.

Although he draws on somewhat different considerations, including the nature of performatives, Martin Kusch (2002, Ch. 2) also points out that mainstream contemporary debate about testimony is narrowly focused, in that it ignores much of our 'epistemic interdependence'; that is, 'the fact that as knowers, we are dependent upon others in a plethora of ways' (p. 14). Kusch argues that this renders standard theories of testimony almost useless as a tool for helping us understand the communal production of scientific knowledge in particular.

Despite Kusch's concerns, and despite my own emphasis above, the narrow concept of testimony is valuable: it directs our attention to one distinctive way in which we learn from others—a way

which may be epistemically significant. When we acquire testimonial knowledge—as we often do—our knowledge depends not just causally but for its epistemic status upon the epistemic qualifications of others, and upon our being in a position to benefit from those qualifications. The extensiveness of nontestimonial learning does not drain all philosophical interest from the distinction between testimonial and nontestimonial knowledge.

The second reason for which I have dwelt upon nontestimonial learning via communication is that it raises issues relating to knowledge how. Is there distinctively testimonial knowledge how? It is clear that we often obtain knowledge how through interacting with other people, by engaging with what they say and watching what they do. I have explored the varied ways in which we can obtain propositional knowledge from engaging with other people, and have shown, along with Goldberg and others, that only in some such cases does our resulting knowledge depend upon the epistemic authority of others. This work helps us to frame some questions relating to the transmission of knowledge how, especially if—as some believe—such knowledge is nonpropositional. In what sense can someone possess or transmit epistemic authority regarding the practical? Can the distinction between asserting that *p* and merely raising *p* for consideration be extended beyond the propositional? How do we learn how from one another?

2. What is knowledge how?

I know how to swim, a fact which raises some questions for epistemologists (and some different ones for sociologists of knowledge, for example Collins and Evans (2007)). First, is my knowledge how to swim entirely constituted by my knowledge of some proposition(s)? Second, what is the relationship between my knowing how to swim and my being able to swim? Philosophical accounts of knowledge how can be taxonomised according to their answers to these two questions, and a number of accounts are available. One view is that knowledge how is a form of propositional knowledge, and that being able to do something is neither a necessary nor a sufficient condition for knowing how to do it. A contrary view is that knowledge how is not in general constituted by knowledge of propositions, and that being able to do something is both a necessary and a sufficient condition for knowing how to do it. (Fantl (2007) provides a more sophisticated taxonomy of views about knowing how.)

There is a clear practical difference between knowing how to swim and knowing a list of theoretical propositions about swimming—your reading about swimming won't by itself result in your knowing how to swim—and this may suggest that knowledge how is nonpropositional knowledge, as Gilbert Ryle (1949, Ch. 2, 1971) famously argued on various grounds. But Jason Stanley and Timothy Williamson (2001) made a novel case for the claim that knowledge how is propositional knowledge, by making a novel suggestion regarding the form of the propositions known. According to Stanley and Williamson, B knows how to X if there is some *w* such that B knows that *w* is a way for B to X and B entertains this proposition under a practical mode of presentation.

Stanley and Williamson do not attempt a reductive account of what it is to entertain a proposition under a practical mode of presentation, although they offer an analogy with first-person modes of presentation (2001, p. 428). But we can grasp what practical modes of presentation are supposed to be by understanding the role that they play in Stanley and Williamson's theory. Without the 'practical mode of presentation' clause, the account would be open to counterexamples of the following kind: I see that Bella is riding a bicycle and, since I know that we are of similar build, strength and agility, I rightly conclude that what Bella is doing is a way for me to ride a bicycle. Thus there is a *w* such that I know

that *w* is a way for me to ride a bicycle. Nevertheless, I do not yet know how to ride a bicycle—watching Bella may give me some clues, but I will need to practise if I am to know how. By Stanley and Williamson's account, I do not yet know how to ride a bicycle because although I know that what Bella is doing is a way for me to ride a bicycle, I do not yet entertain that proposition under a practical mode of presentation.

Although they assimilate knowledge how to propositional knowledge, Stanley and Williamson can nevertheless account for the fact that there is a clear practical difference between knowing how to swim and knowing a list of theoretical propositions about swimming. The swimming textbook provides me with substantial propositional knowledge about how to swim, and it may even teach me, for some *w*, that *w* is a way for me to swim. Yet it does not enable me to entertain this proposition under a practical mode of presentation; for that, I need to practise. In other cases, I can acquire knowledge how without practising: once I have studied the map of Cambridge, I know how to get from the Department of History and Philosophy of Science to the Eagle pub, even if I never use this knowledge.

I will not attempt to establish whether knowledge how is knowledge of propositions, and nor will I attempt to determine the connection between knowing how to do something and being able to do it. Instead, I will investigate the epistemology of learning how, especially learning how from other people. It turns out that this epistemology is often distinctive, regardless of whether knowledge how is fundamentally different from propositional knowledge; the philosophically fruitful questions about knowledge how are not exhausted by the issue of its reducibility to knowledge that.

3. Learning how

Here are a number of ways in which B can learn from A how to X:

- A describes to B how to X
- A gives B imperative instructions how to X ('do this, do that')
- A describes to B how A does X (or something like X)
- B overhears A talking to someone else about how to X (or about how A does X)
- A intentionally shows B how to X, and B imitates A
- B observes A X-ing and imitates A
- B observes A trying and failing to X, and thereby works out how to X (maybe A intends this, maybe not; maybe A thinks she knows how to X, maybe not)
- Intentionally or not, A forces or encourages B to come to know how to X (to use trial and error, to practise, to pay for lessons?)

(Some caveats: this list is not exhaustive; much learning how will depend upon a combination of these methods, and perhaps as we move down the list it becomes more strained to describe the process as 'B learning how from A'.)

In each of these cases, A plays a significant causal role in B's coming to know how to X. But the cases differ from one another in a number of respects. Some involve explicit assertions, others imperative instructions. Some involve words, some involve actions, and some involve both of these. In some cases, A intends that B come to know how to X, in other cases A has no such intention. In some cases A knows how to X, in other cases this is not so. Which of these differences have epistemic significance? That is, which have consequences for the nature of B's resulting knowledge how?

The distinction between indicatives and imperatives doesn't seem significant. If B asks A how to balance on one foot without wobbling, nothing rests on whether A responds 'you should put

your finger on your nose' or just 'put your finger on your nose'. Either way, B now knows what (s)he did not know before, namely, how to balance on one foot without wobbling. Either way, A deserves some credit for B's achievement, and would have deserved censure if she had knowingly given bad advice about how to balance on one foot without wobbling. Recall that I adopted Lackey's account of testimony in terms of intentionally conveying information, rather than the narrower terms of declarative or indicative sentences: the same idea applies here.

For similar reasons, the distinction between words and gestures (or diagrams) doesn't seem epistemically significant. Suppose A says: 'to tie a sheepshank knot, you put this through here, grab that end with your other hand, flick your thumb round like this, then pull tight'. Through a combination of verbal description (or direction) and demonstrative gestures, A has told B how to tie a sheepshank knot. It is contentious exactly how demonstratives function, but function they do, and there seems to be nothing more problematic here than in cases such as 'that woman [points] is the new principal of the university'. B can learn how to tie a sheepshank knot through this process, A deserves some credit for B's achievement, and A would have deserved censure had (s)he deliberately made misleading gestures.

What about the following exchange?

B: 'How do you tie a sheepshank knot?' or 'Will you show me how to tie a sheepshank knot?'

A: 'Watch!' or 'Copy me!' (or perhaps A just ties a knot, clearly and slowly).

In such a context, responding to B's question, there is a clear sense in which A intentionally communicates to B information about how to tie a sheepshank knot, and it is through acquiring this information that B comes to know how to tie a sheepshank knot. Whether this is a matter of semantics or pragmatics, it would be at best misleading for A knowingly to tie a different knot in this situation, or to guess at some random loops.

It's very unlikely that there is a sharp line to be drawn between skills which can be transmitted through purely verbal methods, and those which require some practical demonstration: the vocabulary, resourcefulness and background knowledge of both speaker and listener will be relevant to determining what's feasible in specific cases, as will the amount of time available. Moreover, the distinction between purely verbal or written communication and communication involving demonstration or diagrams does not appear to be epistemically significant; that's to say, it does not affect the epistemic status of the resulting knowledge how.

So, there are lots of different ways in which a teacher may intentionally communicate knowledge how to a learner. There are also different ways of learning. In particular, there is a distinction between cases in which the successful communication of information—visually or verbally—immediately brings about knowledge how in the learner, and cases in which it is necessary for the learner to practise first. For example, if you tell me how to find a cash machine from here ('go round that corner and it's directly on your right'), I immediately know how to find a cash machine from here. Similarly, if you show me how to make the British Sign Language sign for the letter 'A' (by touching your right forefinger to your left thumb), then I immediately know how to make that sign, even before I make it for the first time myself. In both these cases, practice may fix the knowledge better in my memory, but practice is not a prerequisite of acquiring the knowledge in the first place.

Other knowledge how (and here the term 'skill' may be appropriate) cannot be acquired without plenty of practice: the standard know-how examples of swimming, cycling and driving fit this pattern, as do skills of teaching, childcare, experimental science, philosophy, mathematics and so on. Again, although there are clear

cases at each extreme, it's unlikely that there is a sharp or universal distinction between knowledge how which does and that which does not require practice on the part of the learner before it is acquired: once more, the vocabulary, resourcefulness and background knowledge of both speaker and listener will be relevant to determining what's feasible in specific cases. Some people only need to be shown once, while others never quite get the hang of things.

In this section, I have argued that, while cases of learning how can differ from one another along various dimensions—assertion/instruction, verbal/nonverbal, instant/requiring practice—these differences do not seem relevant to the epistemic status of the knowledge acquired. So, none of these differences is likely to line up with the epistemic distinction between testimonial and nontestimonial knowledge how; this latter distinction rests on whether a given item of knowledge does or does not depend for its epistemic status upon the epistemic qualifications of the teacher and the learner's entitlement to rely upon those qualifications. In order to explore whether there is an interesting distinction between testimonial and nontestimonial knowledge how, I turn first to Stanley and Williamson's account of knowledge how, before considering alternatives.

4. Learning how as acquiring propositional knowledge

Recall that, according to Stanley and Williamson, B knows how to X if there is some *w* such that B knows that *w* is a way for B to X, and B entertains this proposition under a practical mode of presentation. According to this picture, there are two aspects to acquiring knowledge how: coming to entertain a proposition under a certain mode of presentation, and coming to know that the proposition is true. We might expect that these tasks could be completed together, or in either order. For example, when I see that what you are doing is a way for me to ride a bicycle, but I do not yet know how to ride a bicycle, then I achieve knowledge of the relevant proposition before I come to entertain it under a practical mode of presentation.

It is difficult to find an uncontentious case in which I come to entertain a relevant proposition under a practical mode of presentation before I know it to be true. But the following sort of case is a good candidate: suppose I devise—then master—a sequence of moves on my skateboard, and I wonder whether showing this off will impress the kids at the local skate park. As it happens, they will be very impressed if they see me perform this sequence. Do I know how to impress the kids at the local skate park? I certainly don't know *that* I know how to impress the kids, and it is unclear whether we should say that nevertheless I do know how to impress them.

In the context of Stanley and Williamson's account, we might say the following: I entertain the proposition that performing my routine is a way for me to impress the kids, and I entertain this proposition under a practical mode of presentation (that is, differently from the way in which a non-skating spectator would entertain this thought), but I do not know whether the proposition is true, and so I don't know how to impress the kids at the skate park. The appeal of this verdict is that it simultaneously acknowledges both my shortcomings (I don't know how to impress the kids) and my achievements (I can now entertain the relevant proposition under a practical mode of presentation, a feat which has required hours of practice and acres of bruising).

Here's a more contentious version of the scenario. Suppose that, unbeknownst to me, the sequence I have devised is standardly known as a 'triple inverse flick-flack'. Do I know how to perform a triple inverse flick-flack, though I don't recognise the sequence under this name? Here, it's more tempting to attribute knowledge

how to me, perhaps because it seems odd to allow my ignorance of jargon to undermine my practical skateboarding know-how. These are the sorts of intuitions which point away from an account of knowledge how as propositional, and towards some sort of ability-based account; after all, it's clear that I am able to perform a triple inverse flick-flack, though I can't do it on request if you frame your request in those terms.

What could Stanley and Williamson say in response to this? One option is to insist that I *do* know that performing my devised sequence is a way for me to perform an triple inverse flick-flack, even though I could not express my knowledge in those terms (the issues here look like those concerning Kripke's puzzling Pierre (1979); see also Carr (1979)). Then I do know how to perform a triple inverse flick-flack, even if I don't know that I do. The other option is to deny that I know how, on the grounds that I do not know that performing my sequence is a way for me to perform a triple inverse flick-flack; if this account of knowledge how enjoys enough success elsewhere, perhaps we should allow it to overturn intuitions in difficult cases. My goal here is not to assess the merits of Stanley and Williamson's proposal, so I leave this unattractive dilemma for the reader to resolve.

Whatever we make of these matters, Stanley and Williamson's bipartite account gives us a nice way of handling central cases in the acquisition of knowledge how. We ask how the learner comes to entertain the relevant proposition under a practical mode of presentation; how the learner comes to know that the proposition is true; and which, if either, of these achievements depends upon the testimony of others.

I argued in Section 1 that there are many cases in which nontestimonial propositional knowledge is acquired via communication: through questions, speculation, assertion or otherwise, a speaker may prompt a hearer to formulate a new thought, or consider existing evidence differently. In such cases it is immaterial whether the speaker intends to convey information, and neither the speaker's sincerity and reliability, nor the listener's entitlement to rely upon the speaker are significant to the epistemic status of the listener's resulting beliefs.

Much the same can be said for many cases in which knowledge how is acquired via communication. Suppose I ask you to teach me how to carve tomatoes into fancy rose shapes, so that I can impress my dinner guests. You respond with a combination of words and demonstration, telling and showing me what size tomato to choose, at which angle to hold the knife, and so on. At the end of the brief lesson, we contemplate the perfect tomato rose you have just made, and I now know how to carve tomato roses (it turns out to be surprisingly simple, and I don't need to practise first).

What if you were trying to mislead me, trying to do a bad job of teaching, but doing a good job despite yourself? What if you have no idea how to carve a tomato rose and just chopped away at random, luckily coming up with the goods? What if you misheard my request, and did your poor best to carve a tomato nose? None of this seems to matter, so long as I understand your instructions, get a good view of what you're doing, and of the resulting tomato rose, and am capable of copying your actions. Your reliability and sincerity don't seem to make a difference to whether I come to know how to carve a tomato rose as a result of your communicating with me. Moreover, my epistemic status would seem just as good if I secretly watched you carving tomato roses until I got the knack of it myself. Here there is no intentional communication, *a fortiori* no testimony, and the resulting knowledge is not testimonially based. Indeed, my epistemic status could be just as good if I watched you doing it even while you asserted that this is *not* a way to carve tomato roses; once you had completed the job, I would know that you had lied or were mistaken, and I could learn from you anyway.

Stanley and Williamson can explain all this nicely. Because I can recognise a tomato rose when I see one, I do not need to rely upon your telling me that what you are doing is a way to carve a tomato rose. Once I have watched you do it, I can see what you have done, and because I know that I am about as dextrous as you, I know that what you have just done is a way for me to carve a tomato rose. My resulting knowledge is not testimonial. So why did I need to listen to you carefully and watch you do it? Your input was crucial to my being able to entertain the relevant proposition under a practical mode of presentation. This is very like the case in which what you say gives me a new concept, enabling me to entertain a thought I had not previously formulated, and thus prompts me to new knowledge. The interlocutor's contribution is causally crucial, but nevertheless the resulting knowledge is nontestimonial.

Such cases contrast with ones in which I must rely upon your word in order to know what it is you are teaching me. Suppose I do not know what a sheepshank knot is supposed to look like, but I ask you to teach me how to tie one. Here, regardless of whether you communicate with words, gestures, or a combination of the two, I must rely upon your explicit or implicit assurance that what you are showing me is indeed a way to tie a sheepshank knot. If I secretly observe you, I will not know that you are tying a sheepshank knot (unless some third person tells me that this is so), and when you teach me how to tie a sheepshank knot my resulting knowledge does seem to depend upon your sincerity and reliability.

Again, this fits nicely into Stanley and Williamson's framework: it is through my interaction with you that I become able to entertain under a practical mode of presentation the proposition that what you have done is a way for me to tie a sheepshank knot, *and* it is on your say-so that I come to know that that proposition is true. Here, my knowledge how is testimonial, in that it is knowledge only by virtue of your epistemic qualifications and my entitlement to rely upon those qualifications.

You might wonder whether my knowledge how here really depends upon these twin features—couldn't I come to know how to tie a sheepshank knot this way even if you are merely guessing, or incompetently trying to mislead me? This brings us back to a similar scenario to that of the triple inverse flick-flack. If you are dishonest or unreliable, yet through you I acquire the ability to carry out a sequence of moves which results in a sheepshank knot, I may fail to know *that* this is a sheepshank knot, and fail to know *that* I know how to tie a sheepshank knot. But does this undermine my knowledge *how* to tie a sheepshank knot? Intuitions may reasonably differ here.

Testimonial knowledge how can also be acquired when results are eventually obvious but not immediately apparent. Suppose I ask you how to prune my apple tree in a way which will increase next year's crop. You show and/or tell me what to do: if you are a good informant and I am a good learner, I now know how to prune apple trees in a way which will increase the following year's crop. But I must rely upon your word that you have shown me a good method, at least until next year when I can check the size of the crop for myself. Through my interaction with you I come to know, for a particular *w*, that *w* is a way for me to prune my apple tree so that it will produce more apples, and I entertain that proposition under a practical mode of presentation. Initially, my knowledge how is testimonial; later I have perceptual evidence for the truth of this proposition. Similarly, you may tell me that the shops will close early next Wednesday, thereby giving me testimonial knowledge which I can convert to perceptual knowledge on Wednesday.

I have examined learning how against the backdrop of Stanley and Williamson's account of knowledge how, and a few points are worth emphasising. First, by their account the acquisition of knowledge how requires two achievements—coming to entertain a relevant proposition in the appropriate way, and coming to know

its truth—either or both of these could be acquired through interaction with other people, through informal or formal teaching. Second, when learning how from others takes effort and practice, this is typically because coming to entertain a relevant proposition under a practical mode of presentation takes effort and practice; the challenge in such cases is not epistemic. An epistemic challenge typically arises only where the learner must discover a method for him/herself, working out through trial and error the truth of a relevant proposition. Third, and relatedly, knowledge how is strictly testimonial only so long as the learner relies upon someone's testimony regarding what is being taught and acquired, that is, only so long as the learner is unable to recognise for him/herself that the method is a successful one.

There is also a more general conclusion to draw here relating to the 'knowing how debate'. Stanley and Williamson make a powerful case that attributions of knowledge how have the same form as attributions of propositional knowledge. This is a highly significant contribution to the debate about whether knowledge how is reducible to propositional knowledge. But the interesting philosophical questions relating to knowledge how are by no means exhausted by this debate about reducibility. What are practical modes of presentation, which propositions can be presented under such modes, and how do we come to entertain such propositions under such modes? What does it take for someone to know that *w* is a way to *X*, and how must the subject think of *X*-ing for this to be true? Can I know how to perform a triple inverse flick-flack even if I've never heard it called that? Is knowledge how typically less likely to be testimonial than 'standard' propositional knowledge, even where it has been acquired from interaction with other people? Are there other domains of knowledge in which coming to entertain the relevant proposition in the right way can be as challenging as coming to know its truth? Accepting Stanley and Williamson's account does not shut down debate about knowledge how: instead, it provides us with ways of asking more interesting questions both about knowledge how and about knowledge that is obviously propositional.

5. Learning how as acquiring nonpropositional knowledge

What about those who argue, contra Stanley and Williamson, that knowledge how is *not* a matter of knowing some proposition(s)? Can they distinguish between testimonial and nontestimonial knowledge how? It is difficult to generalise, since there are various ways of developing the basic thought that knowledge how is nonpropositional. Typically, nonpropositional knowledge how is identified with some special type of ability—intelligent, flexible, reliable, self-conscious or articulable ability. (Fantl (2007) discusses and provides references to a number of different accounts.) But thinking of knowledge how in terms of ability is neither necessary nor sufficient for thinking of it as nonpropositional. It is not necessary, because one might think of knowing how to *X* as a *suu* *generis* relation between a subject and a type of intentional action. It is also not sufficient because one might suspect that the notion of a practical mode of presentation could be spelt out in terms of ability, though Stanley and Williamson would resist this analysis.

But whatever the role of ability in knowledge how, there are a couple of obstacles to any attempt to develop an account of testimonial nonpropositional knowledge. First, as I discussed earlier, testimony is itself a propositional notion—to testify is to assert, or intentionally to convey information at least, and the most natural way to understand this is in terms of presenting-as-true, and thus in terms of truth bearers (recall Audi's 'propositional telling' (2006, p. 25)).

Second, and more seriously, the distinction between testimonial and nontestimonial knowledge presupposes that knowledge in-

volves something like justification, entitlement or warrant. It is this element that can be attributed (or not) to testimony, in order to classify the knowledge itself as testimonial (or nontestimonial). As we saw, to qualify as testimonial knowledge, it is not enough that an item of knowledge be caused by testimony. Rather, it must depend for its epistemic status upon the fact that it arose out of testimony. Similarly, perceptual knowledge is knowledge which depends for its epistemic status upon the fact that it arose out of perception. At least the most obvious way to understand this talk of 'epistemic status' is to think of it as a special status possessed by some, but not all, true beliefs. This is compatible with the idea that knowledge is a more basic notion than that of true belief, and certainly compatible with the idea that there is no informative analysis to be gleaned from the difference between knowledge and mere true belief (Williamson (2000) offers a landmark discussion of such ideas).

If knowledge how is nonpropositional, however, there is no obvious candidate to play the role analogous to true belief; therefore no obvious way to ask what makes the difference between this lesser state and full knowledge how; therefore no obvious way to ask whether this difference-maker is testimonial. The same difficulty would beset attempts to distinguish perceptual from nonperceptual nonpropositional knowledge, *a priori* from *a posteriori* nonpropositional knowledge, and so on.

Is this a problem for advocates of nonpropositional knowledge? It rather depends upon whether we should expect there to be a distinction between testimonial and nontestimonial knowledge how; a distinction within the broader category of knowledge how causally transmitted through interaction with others. In Section 4, I highlighted the difference between cases in which a learner can recognise successful performance and cases in which (s)he must rely upon the teacher's testimony about what's being done. Those who believe that knowledge how is nonpropositional can account for the difference between such cases without having to distinguish testimonial from nontestimonial knowledge how: we may distinguish the learner's new knowledge how from his/her knowledge *that* (s)he now knows how, and classify the latter as either testimonial or nontestimonial. In other words, those who believe that knowledge how is nonpropositional can account for the differences between the tomato rose and sheepshank knot cases by reference to the transmission of propositional knowledge, which is associated only contingently with knowledge how.

So, those who believe that knowledge how is nonpropositional can perhaps manage without a distinction between testimonial and nontestimonial knowledge how. Yet I think it would be worth trying to develop a distinction between testimonial and nontestimonial nonpropositional knowledge, despite the twin obstacles I have just outlined. In my article 'Success and knowing how' (2003), I explored a number of ways in which we might develop a notion of 'warrant' appropriate to knowledge how, and proposed a qualified notion of successful counterfactual action which was supposed to relate to knowledge how in the same way that true belief relates to propositional knowledge. (This analysis was intended to be compatible with the claim that knowledge how is propositional.) My approach faces certain difficulties—borrowing a joke from Peter Lipton, I prefer the word 'challenges' (Lipton, 1998, p. 27)—not least because there are apparent counterexamples to the claim that knowledge how requires any kind of ability or successful action, even counterfactually.

Nevertheless, if knowledge how is a form of knowledge—and it surely is—then to know how to do something is to be in a state which is incompatible with certain kinds of luck or mere guesswork—which is valuable in its own right, not just for its practical benefits—and which is a legitimate basis for certain kinds of action (acting or speaking ignorantly is often culpable). Even if knowledge

how is distinct from propositional knowledge, both fall under the broader category of *knowledge*, and can be expected therefore to have some common features.

Recall Goldberg's point that the distinctiveness of testimonial knowledge lies in its connection with epistemic buck-passing: crudely, epistemic support for an item of testimonial knowledge remains with the testifier (or in turn with his/her source), rather than with the listener, and yet the listener can qualify as a knower on this basis. Even if knowledge how is nonpropositional, we should expect a distinction between cases of knowing how in which the subject's freedom from luck, the value of his/her state, and the legitimacy of his/her using it as a basis for action are attributable to the subject alone, and cases in which responsibility for these is spread more widely, remaining at least in part with his/her teachers or informants. The challenge is to distinguish mere causal responsibility from distinctively epistemic responsibility for a state, but if we can do this, then we can identify a distinction between testimonial and nontestimonial knowledge, even where that knowledge is nonpropositional.

6. Summary

In this paper I have tried to make the following points.

First, there are many cases in which we acquire propositional knowledge from hearing what other people say; the content of what is said is crucial, and yet the resulting knowledge is not testimonial. Moreover, I speculate that epistemologists typically underestimate how much of the knowledge we gain through intellectual interaction, and mutual communication is nontestimonial in this sense.

Second, these cases provide a helpful model for many situations in which we acquire knowledge how from other people, whether or not they intentionally teach us. Whether teaching how involves words or gestures, and whether or not it requires practice on the part of the learner, it often results in nontestimonial knowledge how. Gaining knowledge how from others is often more like expanding one's conceptual repertoire than it is coming to know the truth of a proposition one could already entertain. This point fits happily with Stanley and Williamson's account of knowledge how.

Third, those who think that knowledge how is nonpropositional knowledge are not compelled to distinguish testimonial from nontestimonial knowledge how, and indeed they face significant difficulties in doing so. Nevertheless, since knowledge how is a form of knowledge, there is good reason for thinking of it in terms of epistemic achievement, and for trying to understand the ways in which this achievement can be individual or shared.

Acknowledgements

Peter Lipton was my Ph.D. supervisor. He was charged with helping me to acquire philosophical skill and know-how, and he discharged those duties with grace and humour. I hope to pay tribute to Peter by exploring this process in the context of the epistemology of testimony, one of his enduring interests (Lipton, 1998, 2007).

I presented earlier versions of this paper at the Universities of Aberdeen, Stockholm and St Andrews, and at the Peter Lipton Memorial Conference at the University of Cambridge; I benefited a great deal from questions and suggestions on all those occasions. In addition, I am grateful to Anjan Chakravartty, Jeremy Fantl, Martin Kusch, and Mark Sprevak for comments which raised more issues than I could deal with here.

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