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Assessing Professional Know-How

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Assessing Professional Know-How

Introduction.

Questions concerning the assessment of professional know-how are closely related to concerns about how we can confidently attribute know-how to individuals and form part of epistemological debates concerning know-how and its relationship to knowledge that, as well as to practical questions relating to how professional know-how is assessed.

Whether, when and to what degree we are entitled to attribute professional know-how to an individual raises its own special issues which are nevertheless relevant to these epistemological debates as well as having an obvious bearing on professional education and practice. These issues relate both to the rigour and the formality of the assessment of professional know-how, which do not often apply to more informal assessments of know-how in non-professional situations. I will be particularly concerned with assessment in technical occupations, that is, where a body of systematic knowledge has to be applied to for professional action to be successful.¹

It is worth saying briefly why these special issues arise. Professional action typically involves the making of judgements in situations of complexity, variability and unpredictability. Professional action typically requires the application of knowledge to practice, situational awareness, higher-order forms of know-how beyond skill and, at

the same time, the ability to be consistent in giving performances of high quality, themselves subject to complex and sophisticated forms of evaluation.

Crucially such judgements should be *justifiable*; an agent needs to be able to give a *rationale* for what s/he is going to do, is doing or has done. Very often this involves an account of what procedure was followed or a defence of why a certain procedure rather than another was or should be adopted. It is not enough to attribute knowledge of what a certain procedure is to an agent by observing him/her, it is necessary that the agent themselves be able to say why and how such a procedure was adopted, should the need arise. Thus the implicit question ‘How is *F* done?’ should not only be answered propositionally in a ‘practical mode of presentation’ (Stanley and Williamson, 2001), by carrying out a procedure which realises *F*, but needs on occasion, for example as part of an assessment or a *post facto* inquiry, a first person account by the agent as to how they carried out that procedure, why they chose that procedure rather than another or why they decided to act at all.

Much of the mainstream epistemological literature on know-how has focused on skill-based examples like bicycle riding and performing stunts on ice or snow (eg. Stanley and Williamson 2001; Bengson and Moffett 2007, 2011a). On the other hand, professional know-how is very often highly complex and can require: the application of knowledge to practice, situational awareness, higher-order forms of know-how beyond skill which are a subspecies of what Ryle (1979) calls ‘adverbial verbs’ or what in German are called ‘Fähigkeiten’, responsiveness to complexity and unpredictability and, at the same time, the ability to be consistent in giving

performances of high quality, themselves subject to complex and sophisticated forms of evaluation.

When awarding a professional qualification we offer a guarantee that the candidate has the know-how to practice the occupation. This implies that the individual concerned is able to practice the occupation. On some accounts of know-how it is not necessarily the case that the attribution of know-how entails the attribution of the corresponding ability (Bengson and Moffett 2011b). But since we do want to know that someone is able to practice the occupation when awarding them a professional qualification, if this is right it seems to imply that we are not primarily assessing their know-how.² In such a case we are interested in their behaviour only insofar as it answered to certain descriptions.³ This epistemological claim appears to undermine the practice in most occupations of attributing know-how only when the corresponding ability can be demonstrated by the candidate. In this article I will defend the dominant professional practice against the epistemological claims of some forms of intellectualism.

But we are also usually interested, when attributing professional know-how to someone, not in a single performance under test conditions, but in a guarantee that the candidate can perform consistently and under varying conditions (c.f. Hornsby op.cit. p.92), that s/he understands and can explain or justify actions and, very often, that s/he is capable of achieving excellent levels of performance. It is hard to see how the one-off assessment of behaviours could satisfy these demands. If this is so, the conclusion that in assessing professional capability we are assessing professional know-how

which, *inter alia*, involves being able to practice the occupation under variable, complex and unpredictable conditions, seems compelling.

Two senses of 'know how'?

At first sight, English seems to entertain an ambiguity in the use of 'to know how'.

The first sense is where 'to know how to do something' means that someone is able to do that thing. Being able to do something, need not, of course, imply that one knows how to do that thing (Snowdon, 2003, 2011). The second meaning is that 'someone knows how to give an account of how that thing is done'. Some argue that there is only one sense of 'to know how to do something' which is satisfied by the second sense (e.g. Bengson and Moffett, 2007, 2011a). In other words, there is a logical priority of 'know how' in the sense of being able to give an account and usages which seems to suggest the contrary need to be disambiguated. This can be done by giving an account of the ability to perform distinct to that which the attribution of know-how seems to imply. Although linguistic evidence cannot be decisive in philosophical argumentation, the presence of linguistic distinctions that appear to mark conceptual ones in another language is a point in favour of those native speakers who claim that there is such a conceptual distinction, even though there is no linguistic distinction in their own language. This is the case in both German and French for example, where know-how as ability to give an account of how to *F* is marked by *wissen wie* and *savoir comment faire* respectively and know-how as ability to *F* is marked by *können* and *savoir faire* respectively.⁴

This is not a promising way of clarifying our understanding of know-how. First it makes the case for a univocal sense for 'know-how' by way of issuing a promissory

note for an account of ability, distinct from know-how, which cannot be redeemed. This account cannot be redeemed by pointing to instances of ability that do not require know-how, like breathing or digesting, because we are concerned here with those that do come under the heading of know-how. Nor can it be redeemed by pointing to instances of know-how which do not require ability, for reasons that will shortly become clear (see Snowdon (2003) for an extended discussion of such cases). More generally, detaching know-how from ability makes it look as if there is a causal relationship between know-how and ability which suggests that it treats actions ‘as the effects of intellectual operations’, rather than as ‘directly displaying qualities of mind’ (Hornsby 2011, p.98), an approach which Ryle attacked in his lengthy critique of intellectualism (Ryle 1949, Ch.2).

The second problem is that to give an account of what it is to know how to do something in terms of being able to give an account of how that thing is done points to the fundamental difficulty. To be able to give an account of how something is done, is to know how something is done. Being able to give an account is the kind of ability that is apt for attributions of know-how. Account-giving is normative, procedural and evaluable – all attributes of intentional and voluntary rather than nonintentional and nonvoluntary activity (Bennett and Hacker, 2003, pp.148-151). If the account of know-how in terms of ability to give an account is to be plausible, then it has to account for what such an ability consists in, which neither falsely depicts it as non-voluntary or non-intentional activity nor circularly as a form of know-how.⁵

A variant on this theme is the claim that to know how to do something is to know an answer to an embedded question (Braun 2011). So ‘A knows how to change a lightbulb’ can be analysed as:

A knows a correct answer to the question ‘How do you change a lightbulb?’

This is unconvincing. First, because one could know a correct answer to the question without being able to change a lightbulb. Here again, one needs a distinct account of the ability in question. Second, because once one tries to understand what it is to know the answer to a question, it is difficult to avoid the conclusion that one needs to be able to answer the question, and such an ability is of the same kind as the ability to offer an account of how something is done.

This difficulty is a problem for one form of intellectualism. It is not a problem for the best known variety of intellectualism about know-how, namely that associated with Stanley and Williamson (2011) and Stanley (2011), who are committed to the view that know-how is a form of know-that in a ‘practical mode of presentation’, not as an ability to give an account. They do however also treat know-how statements as a form of embedded question. Hornsby (2011) has however argued that the Stanley and Williamson (SW) account has serious problems with the concept of a practical mode of presentation.

On the SW account, if *A knows how to F*, then the proper explanation of what this means is that *A knows that w is a way to F in a practical mode of presentation*, which is instantiated in the act of say riding a bicycle, if the corresponding attribution of

know-how is, for example, 'A knows how to ride a bicycle'. In such a case the way *w* of riding a bicycle is a property of a particular action, namely A's riding of that bicycle at that time. However, the attribution of know-how to an individual does not relate to individual actions that appear to be instances of that type of know-how, but to a class of actions that are covered by an attribution of know-how such as riding bicycles (Hornsby *op.cit.* pp.91-92). Citing one instance of an action that could be an example of know-how is not sufficient to attribute know-how to the individual performing the action. The way *w* through which F is done is a property of that particular action, not necessarily a property of the know-how that is manifested in that action. Not only may the way *w* vary in important ways between different actions of that type which exhibit an agent's know-how, but there may well be occasions in which *w* is not the appropriate way to carry out an action falling under the know-how description. This is particularly true of second-order 'adverbial' forms of know-how of the kind to be found in professional action such as the know-how underlying planning, communicating, co-ordinating and evaluating, where multiple manifestations of the agent's know-how are possible and even sometimes necessary. The 'practical mode of presentation' thus applies to the wrong category for an account of know-how. It applies to singular actions, rather than to the underlying property which makes actions of a certain type possible.

This is so if 'way' refers to this particular action. Thus any subsequent actions of the same type would not be the same way. However, 'way' can also mean 'technique' and in this case Hornsby's criticism does not hold, as techniques apply to action types as well as to individual actions. But as already pointed out there can often be more than one technique for performing an action-type, depending on context and

circumstances. It would not follow therefore in such a case that A 's knowing that w is a way to F (in context c) entails that A knows how to F *tout court*, so the SW account is vulnerable on this score as well. A may know that w is a way to F in context c , but not know that w is not a way to F in context d . It may also be the case that A may know how to F without knowing *any* way w to do so (see below for an example).

We can therefore conclude that SW's account of A 's knowing how to F as knowing that w is a way to F in a practical mode of presentation does not permit an inference to the agent's knowing how to perform that type of action. There are also, as we shall see, problems with moving from 3rd person attributions of propositional knowledge to conclusions concerning full possession of that knowledge to the agent, problems that are particularly acute in relation to professional knowledge.

Two Senses of Know-How are needed for the Assessment of Professional Knowledge.

If the above arguments are correct, then the assessment of know-how is going to involve the assessment of ability to carry out actions of a certain type or types.

Suppose that we are assessing whether someone knows how to F . Then satisfying ourselves about their ability to F is going to be critical to any such assessment. We are not going to attach as much importance to their ability to give an account of how to F , as this is a distinct ability, just as ability to answer a question Q about how to do something is different from the ability to actually do it. ⁶ If F and G are distinct forms of know-how, then it seems inappropriate to answer the question as to whether someone knows how to F with a demonstration that they know how to G , where F is not identical with G . However, for many kinds of professional knowledge, the answer

is not quite so straightforward. It is true that, almost invariably, one cannot assess A 's knowing how to F without a demonstration that A is actually able to F on some appropriate occasions. But when F is a complex kind of know-how such as is often to be found in professional contexts, then we may need to resort to further forms of assessment.

It is appropriate for very simple kinds of know-how, those that involve performing much the same action, using the same technique in a very limited range of circumstances, but for more complex forms, which require more complex actions, or a series of phases of action, then we may need different ways of assessing the relevant know-how. Suppose that F is a form of know-how involving the ability to carry through a project of a certain kind (such as rewiring a house) in a variety of different circumstances. Such project management ability will involve, not only specific skills connected with installation, but the ability to plan, co-ordinate, control and evaluate a complex of actions, each varying according to the particularities of the project being undertaken. In practical terms it will be impossible to sample the ability across the full range of relevant circumstances, so some way needs to be found to allow a sound inference from a performance which is a small aspect of the totality of what is involved in F to the conclusion that A knows how to F (see Prais op.cit.).

One way is to enquire about what A *would* do in order to demonstrate ability to F in a range of hypothetical circumstances. How could one do this? A feasible approach would be to question the candidate about what they would do in certain hypothetical circumstances or how they would conduct the whole of part of the project. A convincing answer, together with the ability to perform actions of the appropriate

type⁷, would provide a sound inferential base for the conclusion that *A* knows how to *F*.⁸ In cases of the assessment of complex forms of know-how then, the candidate's ability to give an account of how to perform an aspect of *F*, even though the ability to give that account need not itself be an aspect of *F*, will be important evidence in inferring *A*'s knowing how to *F*.

As already noted, one can *F* without knowing how to *F* (see the discussion in Snowdon 2003). This is true of such bodily functions as digesting. It is also true of others such as breathing, although in this case aspects of breathing are voluntary, such as holding or controlling one's breathing. Such abilities are also part of the repertoire of certain occupations, such as pearl fishing or opera singing. What distinguishes abilities that utilise know-how as opposed to those that do not? Some features relevant to professional action and judgement are shared by both. These include:

Repeatability: the ability, to be called such, must be capable of repeated manifestation in appropriate circumstances.⁹ Professional action requires consistency of performance.

Stability: although performance will vary according to circumstances it will do so within a certain range which our grasp of the concept of the ability in question will normally recognise. Professional action requires repetition at a consistent standard.

Variability: performance will vary as appropriate within the range understood to be part of the concept of the ability in question. Professional action requires that the agent vary his/her action taking into account the circumstances.

Other features seem to pick out features of know-how relevant to professional action specifically. Abilities which do not require know-how lack these features:

Intentionality: the ability is exercised for a purpose, even if it is a sub-purpose of a larger one. The action embodying the ability may be automatic, in that it does not require conscious formulation but will nevertheless be purposive. It will of course be voluntary.¹⁰ It requires knowledge of how to do something that is a possible means of *F*-ing (Hornsby op.cit. fn. p.97). Assessing the agent's know-how may therefore involve enquiry into either or both 'why did you *F*, rather than *G*?'

Explicability: there will be a possible explanation of why the action embodying the ability is or should be performed. Such an explanation will at least be capable of including the *technique* (if any)¹¹ employed and any elements of *variability* which the situation required for successful performance.¹² Assessing the agent's know-how may therefore involve enquiry into why *w* rather than *x* was done in order to *F*, or why a variation in a technique was required in certain circumstances.

Evaluability: Action requiring know-how is almost always¹³ appraisable according to norms relating to the quality of a performance for which the agent may be held responsible, as well as those stipulative of what is to count as a performance manifesting relevant know-how.¹⁴ Assessment of professional know-how often involves determining the degree of expertise involved.

Agents as well as commentators will need to understand and be able to use such evaluative norms. Since the norms relate to human practices they will involve grasp of the relevant concepts, itself an ability of the know-how kind. (see Geach's 1957 account of concepts as abilities exercised in judgement). Evaluation is usually connected with what are deemed to be inadequate, adequate, good or excellent performances. Immersion in a practice such as an occupation invariably involves acquaintance with this vocabulary of evaluation, together with an understanding of

what it means in practice. Conceptual fields for evaluation will include technical, moral and aesthetic aspects of know-how to be appraised. Ryle's concept of an *intelligence epithet* captures this element of our talk of know-how.¹⁵ An important element in the assessment of professional know-how will often therefore consist in qualitative appraisal. Any account of know-how that is able to make sense of professional activity will, therefore, need to make sense of this.

Together, these latter three attributes mark ability requiring know-how from ability that does not. They should not be treated as a set of absolute criteria admitting of no exceptions.¹⁶ The criteria are reliable rather than infallible. It is worth dwelling on the *evaluability* criterion as this has given intellectualists (broadly speaking, those who consider know-how to be a mental rather than a physical matter) some trouble.¹⁷ It is not clear, for example, that propositional intellectualists can give an adequate account.¹⁸ Non-propositional intellectualists might claim that their account does. If to know how to do something is to be acquainted with a way of doing that thing (to have a reasonable conceptual mastery of the technique) then the quality of one's acquaintance could be the matter of appraisal. Thus, to the question 'How do you get to the Nag's Head?' the answer 'I know how to get to the Nag's Head via way *w*' means 'I am acquainted with *w*, a way of getting to the Nag's Head', this acquaintance could be strong or weak, thorough or vague, detailed or sketchy etc. as demonstrated through a practical mode of presentation.

There is however a serious problem with this, which bears heavily on the issue of the assessment of know-how. Let us suppose that to know how to *F* is to be acquainted with a way *w* of *F*-ing.¹⁹ Let us further suppose that *A* knows how to *F* elegantly. Is *A* acquainted with an elegant way (*w*¹) of *F*-ing? Then it would appear that what *A*

knows how to do is different from what was originally supposed, as *F*-ing elegantly involves a different way from simply *F*-ing. If, on the other hand, *F*-ing elegantly is to be acquainted with the way *w* in a certain manner in order that *F* is done elegantly, then the account needs to be supplemented to show how one can be acquainted with something in a certain manner, which is not simply a redescription of what it is to *F* elegantly. Critical here is the fact that we rely at least in part on someone's ability to perform the relevant action or actions in order to assess their know-how, not on their conceptual mastery of what is involved in the action, although conceptual mastery is undoubtedly a key element in the know-how.²⁰ The assessment of conceptual mastery, particularly for complex forms of know-how, may will need to be supplemented by an evaluation of the candidate's ability to give an account of their understanding of theoretical considerations underlying the know-how or on an evaluation of their likely performance in hypothetical situations.

Different Ways of Assessing Know-How.

So far, we have established that know-how involves ability, even if it is not always just the evidenced ability to perform particular actions. However this does not leave us clearer as to *which* abilities we should assess and *how*.

In order to assess whether someone knows how to do something, we need a demonstration that they can do what they are supposed to know how to do.

Unfortunately, as we saw above, this may not, within the practical conditions of professional assessment, be sufficient. Professional know-how, as we saw, involves *variability* as well as *stability*, two contrary attributes in tension with each other.

Where there is a great deal of stability but very little variability, as in the case where

know-how involves the performance of repetitive tasks under invariant conditions, assessment of a single or several instances of performance is likely to have a relatively high degree of validity in determining an agent's know-how. But where the same action or a range of different possible actions²¹ is to be performed in a wide variety of circumstances in order to evidence relevant know-how, we cannot rest satisfied with a single performance as it will have low validity for the type of know-how. We need to be satisfied that the variability of the circumstances is taken account of in the assessment instruments used.

As argued above, we may well not have the time and the resources to assess ability to *F* in each relevant circumstance so will need to sample a range of relevant hypothetical circumstances in order to arrive at the conclusion that *A* knows how to do *F* as the best possible explanation for the fact that *A* is able to perform in the range of relevant circumstances. We ask *A* what s/he would do; which instrument he would use; which factors he would take into account; how he would modify his plans should unexpected circumstances intervene, and so on. Oral questioning, an in-tray exercise or pen and paper test might all be used. *A*'s ability to do a number of other things, like answer a question correctly, select the right tool, give a persuasive account, could all count as evidence that *A* knows how to *F*.

This approach will also allow us to eliminate two possibilities that would tell against whether someone knows how to *F*. The first is the case of *fake* know-how, where someone is able to perform on one occasion but unable on subsequent ones. In this case, giving an account together with successful action helps us to eliminate the possibility that the performance assessed was nothing more than a fluke. We invoke

the *intentionality and explicability* criteria at this point. The second case is connected with *variability*. We want to be able to say that someone can act successfully in the range of relevant circumstances. We do not want their performance to be *frozen* in repeat actions that are virtually identical on different occasions. We need to know that the candidate can respond to circumstances and the ability to give an account of how may be crucial to our justification for saying that this is so.²²

But there is another reason not to rely on performance of the action-type alone. This is closely connected with *intentionality*. The action or explanation which manifests the agent's know-how must be rational. *A* should be able to explain *why w* was adopted as a way of doing *F*²³ and why circumstances at the time determined that *w* was the best way to *F*. Such an account might be needed to form a view as to whether *A* knew what s/he was doing or to understand why he thought that this way of *F*-ing was the best way, or why he thought that *F*-ing in these circumstances was the most appropriate thing to do. This is necessary for more complex skills such as those involved, for example, in fitting and joining, where variations in material and type of joint or connection require different materials, instruments or variations in procedure. It is even more necessary relevant in those circumstances in which the know-how assessed involves a series of articulated sequences, with possible alternatives at different stages in the sequencing, such as executing a complex project such as building a house structure, one of the assessment items for a French bricklayer (*maçon*).

The above is an example where second-order forms of know-how such as planning or evaluation are articulated into a more complex sequence. In these cases, as Ryle

points out, there is no specific kind of action that characterises the activity of say planning or evaluation (Ryle, 1979, Ch.2). Planning, for example, even within a specific occupational field such as bricklaying, can be manifested through different actions which, in context, will count as planning. Even if planning were to be reduced to a 'planning skill' which would be mistaken, its exercise might need to be examined in different hypothetical circumstances, by for example, asking for different flow charts for different processes. But not only need the ability to plan not be tied to a specific technique, like making flowcharts, but the mere exercise of that technique will not be sufficient for it to be appropriate to say that A knows how to plan (in the context of, say, bricklaying). We need to know, not merely that someone is appearing to plan, but that they are actually planning. The drawing of flowcharts will not, by itself, show this, although an *explanation* of why and how they are used will often be helpful. Furthermore, planning different kinds of sequences or projects might require different techniques according to circumstance. Importantly, the actions taken need an appropriate degree of attention and seriousness as well as success, if we are to be sure that it is not an example of fake or frozen know-how. It is difficult to see, therefore, in these cases that one could attribute the know-how without proof of the ability to plan, which will probably involve evidence that the plan is being put into effect, together maybe with an explanation of what the agent thinks he is doing.

This is why the assessment of project management is a good way to proceed in such cases, since a whole cycle can then be assessed, from planning through co-ordination, control, communication, to evaluation. See, for example, the French CAP bricklaying qualification, where assessment requires that the candidate qualified in bricklaying is capable of building a structure or part of a structure two storeys high, including

bricklaying and masonry, reinforced concrete structures, necessary fittings, cladding, piping and ventilation shafts . . .'.²⁴ In assessing these forms of know-how we will wish to combine practical assessment, responses to hypothetical situations and *post hoc* explanations. In such situations, to know how to explain or justify what has been done or what ought to be done in certain circumstances is vital, as well as demonstrable ability to act in an appropriate way for one task or project. We conclude that know-how, both as ability to act appropriately and as ability to give an account of how one should act appropriately, is important in the assessment of know-how in relation to complex activities. We should also recognise that, as well as consistency in performance we may expect considerable variation according to the circumstances in which different projects are carried out.

Know- How and Tacit Knowledge.

Although we are often able to give an account of what we know how to do, it does not follow that for everything, or every aspect of everything that we know how to do, we must be able to give an account. This may seem odd, given the immediately preceding discussion, but is not. We very often require that individuals being assessed on their know-how are able to explain what they are doing or what they would do in hypothetical circumstances. We do not usually however require them to explain every last detail of how they do what they do.²⁵ Our ability to do things invariably outruns our ability to give an account. This in itself is another reason for keeping separate the senses of know-how as an account of how to *F* and know-how as ability to *F*, for there is almost always no complete match between the two.

This has an important consequence for the ways in which we assess know-how. While on the one hand we sometimes need to supplement demonstration of ability with an account in order to evaluate an action, including its variability, an account of how to *F* cannot be comprehensive in the sense that, however detailed and accurate it is, implementing that account cannot ensure the agent's performing it and thus making it his/her know-how. And as we saw, actually being able to and doing *F* is a necessary condition for ascribing knowledge of how to *F* to an agent. Giving an account of how one *F*s is no substitute for being able to *F*, since unless *F* is itself identical to giving an account of how to *F*, it will omit certain elements.²⁶ This implies that the ability of *A* to give an account of how to *F* can almost never be sufficient to attribute knowing how to *F* to *A*; we will also need a demonstration of *A*'s *F*-ing in order to capture the tacit elements of knowing how to *F*. Furthermore, we will also need to be very clear about what these tacit elements are to satisfy the variability criterion, since if they are peculiar to a particular performance of *F*, they will not be reproduced in other instances in different situations, or at least not in quite the same way, depending on the context. Furthermore, being able to *F* in a way that is apt for positive *evaluation* (elegantly, accurately, subtly, sensitively etc.) may also contain a tacit element specific to the knower. This will need to be taken account of in assessments of know-how that involve such evaluation.

Is it possible to argue that tacit knowledge is in some way propositional?²⁷ Not in any obvious sense, since *ex hypothesi*, *A* is unable to give a complete account of how to *F* which would, if understood, enable *B* to *F*. It is, of course, possible that another person *C* could, but this would not satisfy us that *A* knows that such and such are the tacit elements in *A*'s own performance. It is difficult to avoid the conclusion that the

tacit element in know-how requires an authentic performance in order to satisfy ourselves that *A* really does know how to *F*.

Consider the contrary: there is some knowledge which is in principle codifiable but the codifiability works in a context-dependent way, that is, part of the codification involves *in situ* ostension or demonstration.²⁸ The difference between tacit and explicit knowledge on this view is that while the latter can be fully set out so that it can be understood without contextual supplementation, this is not true of the former. Thus non-tacit know-how can be explained completely through context-independent propositions, while tacit know-how requires some context-dependent procedural description. Rendering knowing how to *F* into an account of how *F* is done is, of course, to give an account of *F* in the way already described. Ability to give an account of how *F* is done is not, as we have seen, the same ability as the ability to *F*. We will examine this further.

B&M's ski instructor case. Can one know how to do something without being able to do it at all?

Bengson and Moffett (2011a) use the example of Pat the ski instructor to argue that *A*'s knowing how to *F* does not require that *A* is in fact able to *F*. Pat can successfully instruct her pupils how to perform ski stunts. She does so by giving an account of how these are done. Pat has never been able to do the stunts. She is not like someone who once could but has now lost the ability through injury or advancing years. We must assume that this account is, in some respects, enactive and demonstrative, but this is a quite proper aspect of what we are prepared to describe as giving an account.²⁹ Pat

can give a very good account of how to *F*. Her pupils can, as a result of her instruction, *F*. But Pat cannot. Nevertheless, she knows how to *F*. What are we to make of this situation? BM contrast Pat with someone else, not a ski instructor, who is able to give a theoretical account of how to *F*. He cannot successfully instruct pupils to perform *F*. He does not know how to *F*.³⁰ BM thus claim that Pat's knowing how to *F* implies that someone *B* knows how to *F* in the sense that *B* can actually *F*, and, furthermore *B* does know how to *F* in the same sense that Pat does, while apparently *C*, who only has a theoretical grasp of *F*-ing, does not.³¹

It is possible to flesh out this example by stipulating that part of what makes Pat such a successful ski instructor is that she is able to enrich her account of how to do stunts with ostension and demonstration of elements *in situ*. Her account, one might say, gestures at some of the tacit knowledge involved in successfully performing particular ski stunts. But as we have noted, she cannot do the stunts.³² Since she cannot do the stunts it follows that she does not possess the tacit knowledge (the beyond both codifiable and articulable elements of know-how) needed to do them successfully. But she can give very useful context-dependent accounts of how they are done. It follows that tacit knowledge involved in knowing how to do something cannot be the same as a context-dependent account of how that thing is done. Tacit knowledge cannot then in most cases be codified context-dependent propositional knowledge. The only cases where it seems that it can are those where the enactive giving of an account of how to *F* is tantamount to actually *F*-ing and hence in knowing how to *F*. These are cases where authentic performance of *F* can actually also pass muster as an account of how to *F*; it is, if you like, *F*-ing in an instructional manner. An individual able to do this

knows how to and is able to, through the same sequence of actions both *F* and give an account of how to *F*.

Although some commentators have claimed that BM's example is a convincing example of know-how, others disagree. Noë (2011) for example writes:

“Nothing about the way the case is described entails that the ski instructor knows how to perform the stunt. What she knows is how the stunt is done, but to know how the stunt is done is not (necessarily) to know how to do it.” (Noë, p.208):

Pat can give a good account of how the stunt is done, sufficient to allow others to perform it. She does not know how to do the stunt itself. There is no good reason to think that the conceptual distinction between the two kinds of knowing how outlined at the beginning of this paper, although they are not explicitly marked in English, are not available to any competent native English speaker.³³

We can agree with BM however that Pat has a reasonable conceptual mastery of how to do the stunt and that reasonable conceptual mastery is a necessary condition of knowing how to *F* as opposed to merely being able to *F*. The *explicability* (*A* can explain how she *F*s) and *evaluability* (others can assess the quality of the performance possibly through questioning of the agent) criteria for knowing how to do something require this. It simply does not follow however that reasonable conceptual mastery of how to *F* is sufficient for knowing how to *F* except in the sense that *A* can give an account of how to *F* by *F*-ing. We could

usefully distinguish between instructional and non-instructional accounts of *F*. After all, it is likely that one would wish to give different accounts of how to *F* depending on one's purposes. A theoretical account might be useful for example in a physiological treatise on what the human body is capable of. An account such as Pat's would be more suited to instructional contexts. We should not be surprised that Pat knows how to successfully instruct individuals how to perform ski stunts. Pat is a ski instructor and should be able to do precisely that.

The case of professional know-how brings out the problems with BM's example very starkly. We would not award professional certification to someone who knows how to give an account of how elements of professional activity are done without being able to do them him/herself. The criterion for professional know-how has to be firmly rooted in ability to perform the range of actions that fall within the scope of the occupation, even if we cannot assess every last one of them.

Gettier cases and Know-how.

What is the relevance of Gettier cases to questions of the assessment of know-how? One of the more discussed examples concerns *A*, who is able to fly a plane. He was given faulty instructions but they were accidentally scrambled on a computer so that they turned out to be correct and thus allowed *A* to fly a plane.³⁴ Cath and others have argued that the dubious provenance of instruction does not defeat the claim that *A* knows how to fly a plane, whereas in genuine Gettier cases dubious provenance of

putative justification defeats the justification condition for knowing that. Since there is an asymmetry here, knowing how cannot be knowing that.

The instructions for flying a plane are an account of how it is done. Either the account is appropriate for instructing someone how to fly a plane or it is not. In this case therefore, we should accept that *A* knows how to fly a plane as a result of following the instructions. However, it would be an error to suppose that we should be indifferent to the provenance of such accounts when we assess someone's *professional* know-how. We know that *A*'s ability to fly a plane is not a fluke, since he can do it repeatedly and has a good rationale for doing it the way that he does. His ability to fly a plane is, however, a second-order fluke, since the justification for his procedure has arisen through a fluke. The issue is of some importance for professional knowledge, since for reasons that we have already explored and because of the need for theoretical justification for some judgements, the accounts of what we should do or the reasons that we have for our actions need to be well-founded. If they are not then the rationale for much of our professional action is undermined. In particular if an individual knows how to *F* and the justification for *F*-ing is *p* and *p* is not itself justifiable then the justification for *F*-ing is undermined. This in turn has a negative effect on the *explicability* element of know-how as the dubious provenance of an explanation for how (and why) something is done renders that explanation less credible.

We have argued that a significant element of the assessment of more complex forms of know-how is that they be susceptible to explanation and justification in hypothetical circumstances where repeated action is not possible. While it is not

possible or desirable to ask a candidate to justify all the elements of such an account it is in most cases reasonable to probe his grasp of the underlying rationale for the account. If we were to probe more deeply however, beyond the procedural knowledge set out in the manual, then the provenance of the account may well matter. It is a somewhat different story if the pilot is an ‘executive technician’ whose ability depends to a large extent on the ability to follow flying recipes and on nothing else. Without the recipe he is helpless. Furthermore, he is not in a position to assess the quality of the recipe. He remains vulnerable to the kind of fraud perpetrated in the example and, in this sense, his knowledge of how to fly a plane is compromised, even though he knows how to fly a plane.

How do we assess evaluability? Some preliminary thoughts.

We have not yet considered the evaluability criterion for know-how. Most forms of know-how can be assessed for their quality and appropriateness. How? A key although not perhaps the only element in such an assessment is the ability to carry out the activity associated with the know-how. This is the point of examinations and competitions which are held to determine excellence in an activity. The standards of excellence are largely internal to the activity and performances need to be judged by experts who can judge according to these internal standards. This is not to say that in some circumstances giving an account may not be an appropriate supplement to performance, but it cannot be the central part of the assessment, since the criterion for knowing how to do something excellently has to be, at least in large part, excellent performance. Even if we were to grant Pat the know-how for ski stunts, it is hard to see how we could appraise Pat’s know-how in terms of its excellence or otherwise in

the face of her inability to do the stunts. It cannot be the case that because her pupils perform the stunts excellently Pat knows how to perform them excellently.

Conclusion: Know-how and Professional Assessment.

In coming to a judgement about a candidate's professional know-how, we will need to assess its different aspects. Performance to a certain standard will be necessary. A hospital doctor should be able to successfully perform diagnoses and appropriate medical procedures in order to demonstrate that they know how to do so. On the other hand, the variety and complexity of the conditions of patients and situations in which s/he finds herself, together with the body of professional knowledge that needs to be drawn upon, make reliance upon the candidate's medical performance alone practically impossible. We need to know that the doctor's theoretical knowledge is adequate to provide the material for sound decision-making and we need to gain an insight into the quality of the decisions made and procedures adopted in a variety of circumstances, even if the most that we can do is to sample both the knowledge and the circumstances. We will thus rely on the candidate's being able: to demonstrate subject expertise through a familiarity with the academic disciplines that underpin critical aspects of professional judgement, to explain why and how certain procedures would be the best to be adopted in certain professionally relevant hypothetical circumstances and how the doctor would plan a more complex and drawn out sequence of activity such as a care and recovery plan.

Approaches based on mainstream intellectualism are inadequate for these requirements as they either pay insufficient attention to the details of performance in a

practical mode of presentation (including the need to evaluate the quality of performances), or they rely excessively on acquaintance with technique, when technique may not be required (a way w needs to be found rather than followed), or when practice of technique is not sufficient due to the exigencies of professional operational conditions, where qualities of character and experience as well as of skill may come to the fore. On the other hand, ability to articulate how and why certain courses of action may be taken (ability to give an appropriate account) is vital, as is grasp of knowledge in a complex and abstract area of professionally relevant knowledge.³⁵

We considered the claim that there is only one kind of know-how. Knowing how to give an account of F is different from knowing how to F . The former is itself ability-dependent, so in one sense the differences between the two kinds of know-how are less than they might appear to be. Both are ultimately dependent on the ability to perform, in one case to perform F and in the other case to perform G (give an account of how F is performed). For complex activities performance of F must be accompanied by G -like performances in order to satisfy ourselves that the key criteria for know-how are satisfied within the constraints of a viable assessment procedure. Complex forms of know-how, such as are to be found in professional contexts, require complex forms of assessment, in which successful performance plays a significant, but not the only role.

We considered arguments such as that of BM which suggest that A 's giving an account of how to F should suffice for attributing to A knowledge of how to F . The arguments failed to make the necessary distinction between the two kinds of know-

how. The issue of the assessment of tacit knowledge was then addressed. It was concluded that there is no context-dependent codifiable or articulable propositional knowledge of how to F which could be substituted for being able to F and that therefore tacit knowledge can only be assessed in performance. We considered the parallel with Gettier cases and concluded that the provenance of accounts of and justifications for the attribution of know-how were not matters of indifference to its assessment, particularly in professional contexts. Finally, we considered the question of evaluability or what Ryle (see 1949 pp.45-51) would have called the applicability of intelligence epithets. Once again, it was concluded that excellent performance is necessary to attribute excellence in know-how. For reasons mentioned above, however, we cannot rely on performance of the relevant actions alone, except for the simplest kinds of professional know-how.

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¹ ‘Professional’ is always taken to refer both to activities carried out in the legally recognised professions and also in occupations more generally. It carries no connotation of a hierarchy of occupations in this context.

² We definitely do seem to be doing so with, for example the NVQ qualification. But it could be objected that this approach only works here because of the quite elementary nature of the operations which an NVQ holder (at levels 1 and 2) is supposed to perform. See Prais (1991) for further discussion.

³ See Hornsby, (2011), p.98 for the claim that intellectualism treats actions as ‘effects of intellectual operations’, that is, as caused behaviours.

⁴ See Rumfitt (2003) and XXXX (2010) for a discussion of BM’s (2007) attempt to undermine this distinction.

⁵ See XXXX 2010b, p.555 for the circularity of attempts to explain know how as an ability to give an account of how to.

⁶ These two senses of ‘know how’ are easily understood by native English speakers, although they do not have separate verbs to mark them as in German or French. It is, therefore, odd to see the claim in Bengson and Moffett (2011a) that because one can distinguish between more than one sense of what the Germans call ‘wissen wie’ (to know how to give an account of how to do something) that comparative linguistic data has little philosophical interest (fn.22, p.169). The fact that there is more than one sense of *wissen wie* hardly undermines the *wissen wie/können* distinction. In English, the appropriate sense is marked by context.

⁷ This formulation, of course, illustrates a significant problem for the assessment of professional knowledge, since it is necessary to be clear about the extent of the type whose hypothetical instances are to be probed.

⁸ We would not expect this to be a deductive inference. There would, therefore, be the possibility of true premises (assessment items are satisfactorily answered and relevant actions carried out) and a false conclusion: A knows how to F. But ‘inferential hazard’ of this kind has to be accepted as coming with the territory (see Dearden, 1984). We would however expect not merely that inference from the performance of the assessment items to the know-how conclusion would be a sound inductive argument but that the structure of the argument would constitute the best explanation for why A knew how to F (Lipton, 2004). If performance of the relevant actions and correct answering of the relevant questions cannot constitute the basis for an explanation that because A can do these things then he does in fact know how to F, then the assessment items employed are of little use. This brings into sharp focus the relevance and representativeness of the items of assessment themselves.

⁹ See Hornsby op.cit.pp.92-95 who emphasises that know-how cannot be completely specified through an instance, but is generic. Repeatability and variability are key features of know-how, even though they are also requirements for other kinds of ability.

¹⁰ Intentionality is not the same as voluntariness, since the latter can occur without the presence of intention.

¹¹ Contrary to much of philosophical literature on know-how, not all attributions of know-how involve attributions of ability to exercise a technique (SW 2001; BM 2011a). I may, for example, know how to solve a particular type of mathematical problem without knowing a technique for doing so. My ability may in fact rest on my ability to devise or select an appropriate technique. I owe this example to Robert Solomon. Within the philosophical literature it is often said that to know how to F is to a] know that *w* is a way to F – the propositional intellectualist account of SW or b] to be acquainted with a way *w* of F-ing – the nonpropositionalist intellectualist account of BM (2011a).

¹² These are reason-type explanations rather than causal ones, but no less explanations for that. Contrast Lipton's (2004) treatment of explanation. See also Hasselberger (2014) for more on reason-type explanations.

¹³ There may be basic actions which are not apt for evaluation. Ryle, (1949) for example, does not exclude such simple forms of know-how.

¹⁴ Some nonvoluntary abilities that do not require know-how are also appraisable, but we do not ascribe praise or blame to the individual on the basis of such an appraisal. I can breathe shallowly without necessarily being held responsible for doing so, even though my breathing shallowly is appraisable as breathing. It need not however be a manifestation of know-how (see above).

¹⁵ See Ryle 1949. This element of Ryle's discussion is usually neglected, but White (1982), Chapter 2; Rosefeldt (2004), XXXX (2010a, b) for commentary.

¹⁶ Some care is needed here. Ability to avow a proposition to oneself, for example, is clearly not an ability like digesting or breathing. On the other hand, it is odd to say that someone knows how to avow a proposition to themselves. It is possible to maintain, however that such abilities bear strong affinities to know-how because they are dependent on, for example, knowing how to assert a proposition in public circumstances, which is a clearer example of know-how. For more, see Geach's account of judgment on the analogy with assertion (op.cit.).

¹⁷ See Bengson and Moffett (2011a) for a nuanced discussion of what this might mean.

¹⁸ See the discussion in XXXX (2010a).

¹⁹ This is a reasonable interpretation of 'A knows a way *w* to F' if it is unpacked neither as 'A knows that *w* is a way to F' nor as 'A knows how to *w* in order to F'. To be acquainted with *w* is an odd gloss on knowing how to do F. It is often possible to infer acquaintance from action which evidences know-how, but it would be mistaken to identify the knowing how with the acquaintance with the way *w* through which that action was performed.

²⁰ The propositionalist intellectualists such as SW face similar problems which involve committing themselves to basic actions in order to avoid a vicious regress. See XXXX (2010b, pp.556-7) for an account.

²¹ When we assess whether someone knows how to do something in the ability sense, we are not usually interested in a one-off performance, but rather in whether the agent can perform the relevant action or a range of relevant actions. The types of action are fixed by some public measure such as the specifications in a curriculum document. This does not mean that they cannot change over time. They do, and the corresponding qualification, which is a social guarantee that A knows how to F will have to change as well.

²² I owe the distinction and the terminology to Bennett, (1964).

²³ In those cases where there is a way *w* to do F, It might also involve explaining why *w* was chosen as a way of F-ing from possible alternatives.

²⁴ This is summary of the official description of the aims of the CAP Maçon, available, for example, on: <http://www.cfbtp-lemans.com/product/certificat-aptitude-professionnelle-maconnerie/>. See also Hasselberger op.cit. p. 153.

²⁵ I am not here referring to physiological events which are the accompaniments of action, but of subcomponents of action.

²⁶ In the next section we will discuss an apparent counter-example to this claim, that of Pat the ski instructor.

²⁷ 'Tacit Knowledge' is here being used to describe know-how that outruns our ability to describe it.

This use of ‘tacit knowledge’ should be distinguished from that of Chomsky, who holds that we *cognise* innate grammatical and semantic structures which are beyond the range of conscious awareness (eg. Chomsky 1988).

²⁸ What Gascoigne and Thornton call ‘articulability’ rather than ‘codifiability’, see Gascoigne and Thornton, pp.5-7.

²⁹ There is an important ‘limit case’ to giving an account of how to do something enactively. This is when one is able to practise the relevant technique in controlled (but not ‘contextually relevant’ to use SW’s phrase) conditions. Here one has the semblance of know-how, but inability to perform in relevant operational conditions. This example also undermines the idea that knowing how to do something is simply a matter of knowing that w is a way to F , or being acquainted with w , a way to F . See XXXX (2010a) for more on this. Even if this ‘limit case’ is extended to operational conditions, because of the *variability* criterion for knowing how to F , this cannot capture know-how as ability – see Hornsby 2011.

³⁰ As BM acknowledge, both Pat and his theoretically minded friend know how in the sense of *wissen wie*, but they do not acknowledge that *wissen wie* is a different sense of know-how from *können* which implies agent ability. The fact that this distinction exists and is only implicit but understood by native English speakers, undermines their case.

³¹ BM’s formulation does, however, leave some ambiguity. A would be in a state σ which makes it possible for B’s exercise of σ to underlie or explain B’s successfully, intentionally F -ing (op.cit.p.177). It is not clear whether, on this formulation being in state σ is the same as exercising σ . Indeed it is not clear how an agent could exercise a state, as opposed to being in one.

³² She might be able to perform elements of them, or simpler versions (see BM 2007).

³³ We might add that Pat cannot have tacit knowledge of how to do the stunt either.

³⁴ See Cath in Bengson and Moffett (2011b), pp.113-135, for a discussion of this and like cases.

³⁵ Demonstration of subject expertise may also require know-how, namely that involved in finding one’s way around a subject by means of material and formal inference.