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ARTICLE



Epistemic Actions, Abilities and Knowing-How: A Non-Reductive Account

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ABSTRACT

The aim is to provide a synoptic view of the epistemic landscape in respect of epistemic actions, abilities and knowing how. The resulting view consists of the following propositions: (1) knowledge-by-acquaintance cannot be reduced to propositional knowledge or to knowing-how or some combination of these; the same point holds for propositional knowledge in relation to knowledge-by-acquaintance and knowing-how, and to knowing-how in relation to knowledge-by-acquaintance and propositional knowledge; (2) These categories of knowledge are, nevertheless, interdependent in a number of senses; (3) Abilities are not the same thing as know-how; (4) Epistemic actions need to be distinguished from behavioral actions; (5) Judgements are epistemic actions which, if successful, result in knowledge and, therefore, the sharp contrast drawn between, on the one hand, comings to believe and, in particular, judgments and, on the other hand, actions – with respect to being freely chosen – is not sustainable; (6) Judgements manifest both abilities and know-how.

KEYWORDS

Epistemic action; knowing-how; abilities; propositional knowledge; knowledge-by-acquaintance

In this article the concern is with the nature of epistemic actions (e.g., judgements that result in propositional knowledge) and the relationships between epistemic actions, abilities (e.g., the ability to hear and see things), and knowing-how, (e.g., knowing-how to solve a crime). The aim is to provide a synoptic view of the conceptual landscape in this area, albeit it is *a* view rather than the only view.¹ Accordingly, a stand is taken on a number of contested issues without taking the time to provide a comprehensive discussion of all the arguments for and against each of the standpoints adopted. Rather the intention is to provide sufficient argumentation to render each of these adopted standpoints plausible and the resulting overall map of the conceptual landscape illuminating. In doing so, in relation to some issues, influential standpoints within the philosophical tradition are invoked without providing much detail, while on other less well-worn issues novel arguments are elaborated. The motivation for offering this synoptic view is twofold. Firstly, synoptic views of conceptual landscapes, as opposed to detailed, piecemeal analyses of individual concepts, are an important aspect of philosophical work, although as aspect sometimes neglected in favor of simply focusing on individual trees rather than the wood (so to speak). Secondly, in the light of recent very detailed work on knowing-how and knowledge-by-acquaintance – in addition to the vast literature on propositional knowledge – it is timely to offer such a synoptic view.

The resulting map depicts a conceptual landscape which has the following key features: (1) knowledge-by-acquaintance cannot be reduced to propositional knowledge or to knowing-how or some combination of these; the same point holds for propositional knowledge in relation to knowledge-by-acquaintance and knowing-how, and to knowing-how in relation to knowledge-by-

acquaintance and propositional knowledge; (2) These categories of knowledge are, nevertheless, *interdependent* in a number of senses, (e.g., a knower) could not have only one of these categories of knowledge without possessing the other two; (3) Abilities are not the same thing as know-how, although know-how is a necessary condition of the ability to perform non-basic actions; (4) Epistemic actions need to be distinguished from behavioral actions and there is a corresponding distinction between epistemic knowing-how and behavioral knowing-how; (5) Judgements are epistemic actions which, if successful, result in knowledge (i.e., a certain kind of state) and, therefore, the sharp contrast drawn between, on the one hand, comings to believe and, in particular, judgments and, on the other hand, actions – with respect to being freely chosen – is not sustainable; (6) Judgements manifest both abilities and know-how.

Accordingly, what emerges is in large part (but not wholly) a non-reductive picture of this conceptual landscape but one in which these irreducible components are, nevertheless, interdependent. Moreover, it is a landscape in which epistemic action has a central place since, as it turns out, judgements are a species of action, and both knowledge-by-acquaintance and propositional knowledge are the constitutive ends of epistemic action (albeit, knowledge-by-acquaintance and propositional knowledge can also be generated automatically rather than as the result of epistemic action).

Note, firstly, that the concern in this article is only with knowledge possessed by human agents (either singly or jointly). The article does not directly address the view that a collective per se might possess knowledge, (although some of the claims made have implications for individualist versus collectivist debates, e.g., that knowledge-by-acquaintance involves consciousness).

Note, secondly, that it is assumed in this article that knowledge is a normative notion, at least in the weak sense that it involves evaluative notions, such as real/illusory, true/false and/or successful/unsuccessful. These evaluative notions are applied to states,² actions³ and/or abilities⁴ in contexts in which it is definitive of reality, truth and success that they *ought* to be aimed and, therefore, their polar opposites (illusion, falsity and failure, respectively) eschewed. Accordingly, for something to count as knowledge, whether it be knowledge-by-acquaintance, propositional knowledge or knowing-how, it has to satisfy some weak normativity requirement.

Note, thirdly, that in relation to accounts of knowledge-by-acquaintance and of knowing-how in particular, there is the potential for excessive permissiveness. Consider, for example, an account of knowledge-by-acquaintance according to which all instances of awareness of objects are instances of knowledge. However, unconscious awareness of external objects, inchoate feelings and images of non-existent objects (even if the objects are not believed to be existent) are surely not per se instances of *knowledge*; and not instances of knowledge-by-acquaintance, in particular. Again, all instances of abilities to perform actions, irrespective of the kinds of action, (e.g., basic, non-basic, epistemic, non-epistemic, voluntary, involuntary) are surely not instances of *knowledge*; and not instances of knowledge-how, in particular.

1. Knowledge-by-Acquaintance, Propositional Knowledge and Knowing-How

My starting point is the invocation of a familiar threefold distinction made in respect of knowledge. First, there is *knowledge-by-acquaintance*: knowing someone or something. This notion was initially made famous by Bertrand Russell in the early 20th century⁵ and a 100 years on the philosophical literature on knowledge-by-acquaintance is very large and its definition controversial.⁶ However, as Thomas Raleigh says, 'Rather than deploying concepts to form a mental state that is (merely) *about* something, when we are acquainted with something we are, in some sense, supposed to consciously confront that very thing itself' (Raleigh 2019, 2). Accordingly, knowledge-by-acquaintance is a genuine relation; the knower is conscious of some existent. Thus, knowledge-by-acquaintance does not consist in a truly believed proposition (justified or otherwise), but rather in the direct experience of an object,⁷ (e.g., A sees a tree or holds a smooth stone in his hand (perhaps while blindfolded) or experiences a toothache).⁸ Moreover, according Russell: 'knowledge

concerning what is known by description is ultimately reducible to knowledge concerning what is known by acquaintance' (Russell 1912, 58). Whether or not this is so, it is plausible that, as Russell claims, a subject cannot make a judgment about something unless he or she knows which object their judgment is about and, arguably, this ultimately implies knowledge-by-acquaintance on pain of a regress. Accordingly, let us assume that a being possessed of propositional knowledge would need also to be possessed of knowledge-by-acquaintance. In and of itself this does not commit us to some form of foundationalism⁹ but only to propositional knowledge being dependent on knowledge-by-acquaintance. Note that, as Gareth Evans states, 'the subject must have a capacity to distinguish the object of his judgment from all other things' (Evans 1982, 89). However, this is not to say that knowledge-by-acquaintance of an object entails a *complete* knowledge of that object. Nor is it to claim that knowledge-by-acquaintance is not defeasible.

Notice that knowledge-by-acquaintance of external objects should not be confused with knowledge-by-acquaintance of the visual image (or other percept) which represents those objects. However, if the perceptions in question are to count as knowledge (as opposed to, for instance, mere instances of the kind of perceptions a dog or cat might possess), then the perceiver must be a self-conscious being and, therefore, (potentially at least) not only aware of the object perceived but aware of him or herself as being aware of the object. Such a being would necessarily have concepts and, therefore, be capable of propositional knowledge. Accordingly, knowledge-by-acquaintance depends on propositional knowledge, or so it could plausibly be argued (Nes 2019).

What else can we assume about the relationship between propositional knowledge and knowledge-by-acquaintance? Evidently propositional knowledge, (e.g., perceptual beliefs), can be based on knowledge-by-acquaintance. However, if so, it would not be derived from knowledge-by-acquaintance in the manner that one proposition is inferred from another proposition. Indeed, some instances of propositional knowledge might even be, or share, a component of knowledge-by-acquaintance,¹⁰ (e.g., if knowledge-by-acquaintance has some conceptual content).¹¹ However, it would not follow from this that knowledge-by-acquaintance was reducible to propositional knowledge (Farkas 2019).

Knowledge-by-acquaintance might be the result of an intentional *action* of attentively, for instance, looking more closely at the tree (e.g., at its branches in relation to its trunk) or handling the stone (e.g., sensing all parts of its surface). However, arguably, the constitutive (proximate) end of such attentive action is knowledge-by-acquaintance; the agent wants to, so speak, know the object or know it better. So knowledge-by-acquaintance can be of complex objects and can be incomplete knowledge of those objects, (e.g., as in the case of the above-mentioned tree).¹² Moreover, and relatedly, *prima facie* knowledge-by-acquaintance is defeasible, especially in the case of complex objects; again, as in the case of the tree which might have turned out to be a fake tree.

Accordingly, let us assume that knowledge-by-acquaintance often (but not always) results from the performance of intentional epistemic actions the constitutive end of which is to acquire knowledge-by-acquaintance of some object or person, (e.g., in intentionally looking at object O) in his visual field A comes to see his old friend, B. Naturally, knowledge-by-acquaintance does not necessarily result from intentional actions; it can be the consequence of more or less automatic experiential or cognitive processes, (e.g., A's knowledge-by-acquaintance of his toothache) or A's knowledge-by-acquaintance of a large, dog barking at A is, let us assume, automatically acquired when the dog presents itself to A at the center of A's immediate visual field and well within A's earshot.¹³ Further, as these examples which do not involve intentional actions illustrate, and as is argued below with respect to those intentional actions that consist in coming to have, or result in, knowledge-by-acquaintance, although they are exercises of an ability (e.g., an ability to see and hear), they are not necessarily manifestations of (epistemic) know-how, since they do not necessarily involve the application of a learned technique or procedure. Here it is assumed that the notion of a process of learning involves at least some intentional and conscious activity, even if it has subconscious elements. Thus, a process that is entirely subconscious is not a process of learning on this account.¹⁴

The picture that has emerged of knowledge-by-acquaintance is somewhat pluralist in complexion; it consists of conscious awareness of an existent, but the existents in question can be of multiple types and they can be simple or complex. Moreover, knowledge-by-acquaintance is frequently defeasible (but some instances might not be) and might be the result of an intentional action or simply the consequence of an automatic process. Further knowledge-by-acquaintance brings with it propositional knowledge; indeed, the two categories are necessarily interdependent (as well as being means/end interdependent).

Second, and closely related to knowledge-by-acquaintance, is *propositional knowledge*: knowledge of the truth of some proposition.¹⁵ This is knowledge that, for example, some state of affairs obtains. Propositional knowledge, it is here assumed, is expressible in a public language by utterances of sentences with a subject and a predicate. Consider a detective who knows that the fingerprints found on a knife at a particular crime scene were those of the suspect. Here there is trace material found at the crime-scene, namely, the fingerprints on the knife, and this trace has been caused by the suspect handling said knife. The detective has propositional knowledge of this state of affairs if he or she knows it to be the case and has expressed this knowledge in a sentence(s) of a public language.

While propositional knowledge is different from, and not reducible to, knowledge-by-acquaintance, (e.g., by virtue) of being about something but not necessarily involving acquaintance with something, it may involve knowledge-by-acquaintance as in the above-mentioned detective who, let us assume, picks up the knife. Indeed, as was suggested above, propositional knowledge is dependent on knowledge-by-acquaintance, at least in so far as propositional knowledge is knowledge of existents which knowers consciously and directly confront, (e.g., perceptual objects).

Note that whereas propositional knowledge is expressible in a public language, it is not necessarily communicated to others; it might remain in the realm of inner thought. Thus the detective might know that Jones is the murderer and express this thought to himself in a sentence of a public language, but the detective does not necessarily utter this sentence for others to hear it; he does not necessarily assert out loud or make a written statement expressing his propositional knowledge.

As is the case with knowledge-by-acquaintance, the definition of propositional knowledge is controversial and there is a vast philosophical literature on this topic. Hence, we must content ourselves with a brief sketch of one view and its relation to some salient alternative views. Some theorists, notably Timothy Williamson (Williamson 2000), argue that knowledge is *sui generis* (specifically, in his view, a *sui generis* mental state). However, the philosophical tradition tends to the view that propositional knowledge is analyzable, at least in the first instance,¹⁶ as justified true belief (on some rendering of that formulation).¹⁷ However, arguably, we should accept that propositional knowledge is at least true belief but thereafter be pluralist and assume a kind of Wittgensteinian 'family resemblance' conception of what is typically referred to in common parlance as propositional knowledge, according to which conception, firstly, there are multiple related notions and, secondly, the boundaries of the concept of knowledge (or concepts, if you like) are somewhat vague. Some notions of knowledge are weaker than others, (e.g., true belief) as opposed to *justified* true belief¹⁸ and some justifications are stronger than other justifications. On this pluralist conception while many Gettier-style examples will be taken to display the conceptual complexity in the area, and perhaps the need for a knowledge taxonomy of sorts, they will in many cases not be taken to be counterexamples. On the other hand, some Gettier-style and related examples can still be taken to be counterexamples and, therefore, there will be a need to invoke excluder clauses.¹⁹ For instance, a true perceptual belief which is inconsistent with one's other immediately relevant beliefs and is inserted into one's mind by an evil demon for a brief period during which one's relevant perceptual apparatus was not working (e.g., one was temporarily blinded) is presumably not knowledge.

Moreover, arguably, there are epistemically respectable externalist definitions of knowledge as well as internalist ones and that epistemic respectability is to some extent relative to purpose and context. Although the distinction is not entirely clear-cut, roughly speaking, internalists claim that the justification has to be internal to the knower, (e.g., consist in a belief of the knower),²⁰ if the state

is to count as knowledge. Externalists deny this and hold that the justification might be external, (e.g., consist in a reliable causal relationship) between the true belief that *p* and the external fact that *p* (Goldman 1967). In this connection, consider the example of a machine learning algorithm based on big data concerning high volume crimes that reliably predicts crime patterns but which is a so-called 'black-box' and, as such, is not justification-accessible to police or, indeed, anyone else. Arguably, the police have knowledge of future crime patterns, notwithstanding that the justification is opaque to them. Of course, the police have a justification of sorts, (i.e., inductive evidence) of the reliability of the workings of the 'black box'. Nevertheless, it is inferior knowledge by virtue of their lack of understanding of the contents of the 'black box'; a point that can be made from an internalist standpoint. However, it also seems that the quality of their knowledge could go up or down purely depending on the reliability of the processes in the 'black box', (i.e., processes) to which the police do not have access. Perhaps the workings of the 'black box' are entirely based on past correlations which might be disrupted at any time by intervening causal factors (first scenario); but perhaps there are no potential intervening causal factors at least in the short to medium term (second scenario). The knowledge of the police in the second scenario is superior to knowledge of the police in the first scenario; a point that can be made from an externalist standpoint.

At any rate, let us assume that a person, *A*, has knowledge that *p* only if *A* has a true belief that *p*. Moreover, let us assume that in stronger grades of knowledge if *A* knows that *p* then *A* has some justification for believing that *p*²¹ or there is some reliable process that resulted in *A* acquiring the belief that *p*. Further to this, let us assume that in many instances of knowledge, as Ernest Sosa has argued, (Sosa 2015) the knower's true belief has been acquired because of the competent use of a reliable method. As will become clear shortly, the notion of a method that can be competently used, at least if the method in question needs to be learned, implies knowing-how. However, the requirement of the competent use of a learned method excludes some species of propositional knowledge, such as basic perceptual knowledge and basic knowledge of bodily sensations. My knowledge of my toothache, for instance, does not necessarily involve the competent use of a learned method; my tooth just hurts and I know that it hurts. On the other hand, while basic perceptual knowledge and basic knowledge of bodily sensations do not involve competent use of a learned method and, therefore, do not presuppose knowing-how (see below), they do presuppose abilities (e.g., the ability to see and the ability to feel sensations).

Third, and finally, there is *knowing-how*²² (i.e., knowing-how to do something) (e.g., knowing-how to ride a bike, knowing-how to read an x-ray film). A more detailed treatment of knowing-how is provided in the following section. Here the contrast between knowing-how, on the one hand, and knowledge-by-acquaintance and propositional-knowledge, on the other, is drawn. The latter are cognitive states whereas knowing-how is essentially practical in character and, as such, more closely aligned with conative rather than cognitive states.

Evidently, we need to have all three sorts of knowledge. We need to verify certain claims by direct observation (knowledge-by-acquaintance). We also must have, and be able to obtain and communicate, propositional knowledge. In addition, we need to know how to do various things, (e.g., drive a car, read a map).

Moreover, these three different categories of knowledge are *interdependent*.²³ We have already seen that knowledge-by-acquaintance and propositional knowledge in the relatively strong sense that a being could not have the one without the other. What of knowing-how? Naturally, the performance of actions, including epistemic actions, presupposes abilities; and, of course, an ability is the potential to perform an action. Moreover, as we have seen, epistemic actions have knowledge-by-acquaintance and propositional knowledge as (at least, among) their constitutive ends. So in so far as knowledge-by-acquaintance and propositional knowledge are the result of epistemic actions, they are conceptually interdependent with abilities; the abilities are exercised in epistemic actions. As will be argued in the next section, knowing-how is a necessary condition for knowledge, other than its most basic forms; and necessary, also, for non-basic (non-epistemic) actions.

Know-how, (e.g., knowing-how to drive a car) typically depends, in a looser non-conceptual sense, on knowledge-by-acquaintance (e.g., seeing and grasping the steering wheel). And the methods of acquiring new propositional-knowledge often depend on knowledge-by-acquaintance (e.g., observation), and know-how, (e.g., how to use scientific equipment such as microscopes), as do the latter two types on propositional-knowledge (e.g., a written manual describing scientific equipment and how to use it). In short, knowledge-how is interdependent with knowledge-by-acquaintance and propositional knowledge, at least in this weaker non-conceptual sense, (i.e., means/end sense).

Although we have distinguished propositional-knowledge, knowledge-by-acquaintance and know-how (and, in particular, essentially epistemic know-how, of which more below), and maintain (again, see below) that none of these is reducible to any of the others (or a combination thereof), it is important to stress that instances of each of these three categories of knowledge frequently stand in means/end relations to instances of one or other or both of the other two categories. Thus knowing-how to use a microscope might not only be the means to coming to possess knowledge-by-acquaintance of some pathogen, but this knowledge-by-acquaintance might be in turn a means to one's coming to possess propositional-knowledge with respect to this pathogen and, ultimately, know-how in relation to the development of a vaccine for it.

Notwithstanding, what has just been claimed, it might be argued that whereas knowledge-by-acquaintance cannot be reduced to propositional knowledge (Ryle 1949; Stanley and Williamson 2001; Stanley 2011) or vice-versa, nevertheless, knowing-how can be reduced to propositional knowledge (in particular) or, alternatively, that propositional knowledge can be reduced to knowing-how.

The view that propositional knowledge can be reduced to knowing-how has recently been argued in detail by Stephen Hetherington (Hetherington 2011, 2017). According to Hetherington propositional knowledge is a kind of knowledge-how (Hetherington 2011, ch. 2). Evidently, there are actions that are exercises of abilities that cannot be regarded as instances of propositional knowledge, (e.g., the ability to raise one's arm) is surely not an instance of propositional knowledge. Indeed, as argued in the next section, it may not even be an instance of knowing-how. However, Hetherington is arguing that propositional knowledge is only a *kind* of knowledge-how; he is not making the implausible claim that *all* knowledge-how is propositional knowledge. Rather only the abilities or knowledge-how that are cognitive and, as such, are part of a proposition's 'epistemic diaspora' count as propositional knowledge (Hetherington 2011, 47).

This raises the question as to how the kind of knowledge-how that is, according to Hetherington, propositional knowledge is to be differentiated from the kind of knowledge-how that is not. The notion of *cognitive* abilities is not helpful; it merely leads to the further question as to how the cognitive is to be differentiated from the non-cognitive. A natural way to thus differentiate is in terms of truth/falsity; knowledge-how that is exercised in actions, or manifested in states, that are true or false is propositional knowledge. Hetherington offers a wider, but related, notion, and one that qualifies actions rather than states, namely accuracy (and its opposite, inaccuracy) (Hetherington 2011, 34–37). In one respect, this move is somewhat attractive, (e.g., a map) is accurate or inaccurate and those who follow it can reasonably be said to be possessed of knowledge (including propositional knowledge) or possessed of falsehood in the case of it being inaccurate. Moreover, the mapmaker can reasonably be said to have drawn the map accurately or inaccurately. However, it is implausible to claim that the mapmaker's activity constitutes *propositional* knowledge, let alone that the knowledge-how manifest in that activity is itself *propositional* knowledge.

Nevertheless, let us bracket these two implausible claims for the moment. It remains the case that there is a threefold distinction between the underlying knowledge-how to make maps, the activity of making a map and the resulting map. Likewise, there is a threefold distinction between knowing-how to solve a crime, the activity of solving the crime, (e.g., following a suspect), and arriving at the solution, (e.g., knowing that Sutcliffe is the Yorkshire Ripper – something not known initially despite the presence of knowledge-how to solve the crime). Hetherington can (idiosyncratically) rename the ability to make maps and the ability to solve crimes knowledge and, in particular, propositional

knowledge, if he so wishes. Moreover, he can likewise (somewhat less implausibly) rename the activity of making maps and that of interviewing witnesses, propositional knowledge. However, in each example the threefold distinction remains. Most of the rest of us will continue to refer to the map as accurate and the knowledge that Sutcliffe is the Yorkshire Ripper as propositional knowledge. More importantly, all of us, including Hetherington, should not conflate knowing-how to make maps with the maps made or knowing-how to solve crimes with the solutions to crimes. Accordingly, it seems that Hetherington's attempt to reduce propositional knowledge to a kind of knowing-how fails; in the end it seems simply to involve a conflation in relation to this threefold distinction.

It might be responded to this that knowledge of the map or knowledge that Sutcliffe is the Yorkshire Ripper does not necessarily consist in a belief; and Hetherington has, at least, shown this. Perhaps so. But in our example the assumption is that it is in fact a belief; a true justified belief. Accordingly, what Hetherington has failed to demonstrate is that *this* knowledge, (e.g., the knowledge that Sutcliffe is the Yorkshire Ripper), is a kind of knowing-how. Of course, once one has discovered that Sutcliffe is the Yorkshire Ripper one can bring this to consciousness at will, and this ability might be claimed to be a kind of knowing-how. However, even if the ability underlying this more or less automatic process is an instance of knowing-how (which is implausible – see next section), it does not constitute either the actual process of bringing the 'thing' in question to consciousness, let alone the 'thing' thus brought to consciousness – the 'thing' in question being what most of us refer to as a belief. Again, to so claim would be to conflate elements of the threefold distinction between the ability, the process/action that is an exercise of that ability, and the result of this process/action.

And there is this further objection to the view that propositional knowledge can be reduced to knowledge-how.²⁴ Consider Hetherington's example of knowledge that $58 + 68 = 126$ (Hetherington 2011). This particular addition is obviously not the same addition as, for instance, $17 + 43 = 50$, and is not the same addition by virtue of the fact that in this second example of an addition different numbers are being added. Therefore, $58 + 68 = 126$ (or, for that matter, $17 + 43 = 50$ or any other addition) is surely not an ability or a knowing-how per se (e.g., a knowing-how to perform additions) on pain of multiplying, indeed proliferating, abilities or knowings-how. There is no such ability as the putative highly specific ability to add 58 to 68 to get 126 (or the different but highly specific ability to add 17 to 43 to get 50 etc). Likewise, there is no such highly specific knowing-how. Rather there is a single *general* ability, or single *general* knowing-how, to add whole numbers; and this single general ability underlies both of these above propositions (additions); this more general ability or general knowing-how is exercised in the various and extremely numerous acts of adding whole numbers. But the specific knowledge that $58 + 68 = 126$ is not equivalent to that general ability or the knowing-how to add whole numbers, and there is not one ability or knowing-how for each and every possible addition, (i.e., for each and every proposition) resulting from an act of addition.

Moreover, this argument against the reduction of propositional knowledge to abilities or knowings-how is available as a counterargument to the view that abilities to know and, at least some version of, the view knowings-how to know are reducible to propositional knowledge. The problem is essentially that, as argued above, an ability or a knowing-how stands in a one to many relationship to the various different contents of the items of propositional knowledge that result from the exercise of that ability or know-how. Thus, one and the same ability or knowing-how, (e.g., the ability or know-how) to add whole numbers delivers, when exercised, multiple items of propositional knowledge with entirely different contents from one another, (e.g., $17 + 43 = 126$ versus $58 + 68 = 126$), etc, (i.e., the same ability or knowing how), but different items of propositional knowledge on different occasions of the exercise of that ability or knowing-how. Accordingly, the propositional knowledge that $17 + 43 = 126$ is not equivalent to the ability or know-how to perform additions of whole numbers. Nor is the propositional knowledge that $58 + 43 = 126$ equivalent to this ability or know-how. Nor is propositional knowledge of each of the infinite possible additions of whole numbers equivalent to this ability or know-how since, if so, someone who did not have this infinite knowledge would not have the ability or know-how to perform additions of whole numbers.

The above argument, if it succeeds, succeeds against attempts to reduce abilities or knowings-how to acquire propositional knowledge to the propositional knowledge thus acquired. However, it does not necessarily succeed against attempts to reduce knowing-how to propositional knowledge other than the propositional knowledge thus acquired; nor against attempts to reduce knowing-how to perform non-epistemic actions, (e.g., knowing-how to ride a bike), to propositional knowledge. Or, at least, it does not necessarily succeed against these latter two attempts if knowings-how are not simply abilities.²⁵ Accordingly, another argument is required.

Regarding the claim that knowing-how or, for that matter, knowledge-by-acquaintance, can be reduced to propositional knowledge, the following (indirect) counterargument can be made. Propositional ignorance (in a certain sense) and, therefore, propositional knowledge has a property that the two other categories of knowledge evidently lack.

The notion that most obviously contrasts with knowledge is ignorance. Here we need to note a distinction made with respect to ignorance between what will here be referred to as doxastic and non-doxastic ignorance.²⁶ The doxastic ignorance of person A with respect to the proposition p (where p might be either true or false) obtains only if A suspends judgment with respect to p. Typically in such cases, A *believes* that he does not know whether or not p; indeed, in many instances A knows that he does *not* know whether or not p. By contrast, non-doxastic ignorance of A with respect to p obtains only if A does *not* have any beliefs (or related doxastic attitudes) with respect to p (including higher order beliefs, such as the belief that he does not know whether p). Typically, in such cases, A has never contemplated whether or not p.

Importantly, doxastic ignorance has no clear analogues in cases of knowledge-by-acquaintance or cases of knowing-how (Miller 2017). Accordingly, it is unlikely that knowledge-by-acquaintance or that knowing-how can be reduced to propositional knowledge. There can, of course, be doxastic ignorance in the sense of a *belief* (or other doxastic state) that one is not aware of object O1 or a *belief* (or other doxastic state) that one does not know how to x. But it is doubtful that one could be *aware* of one's unawareness of O1 since, arguably, one cannot be *aware* of 'something' that is a mere absence (i.e., one's unawareness of O1). Of course, one can be aware of another object, O2, (e.g., a blue patch) in a part of one's visual field, which is inconsistent with being aware of O1, (e.g., a red patch), in the same part of one's visual field and, therefore, form the belief that one is not aware of O1. But this is a different matter. Likewise, as just mentioned, there can be doxastic ignorance in the sense of a *belief* (or other doxastic state) that one does not know how to x (e.g., a belief that one does not know how to ride a bike), but the idea of A *knowing-how* to not know how to x seems to make little sense. For such higher order know-how seems to presuppose the lower order know-how that supposedly one knows how not to have.²⁷ Thus the idea that one knows how *not* to know how to ride a bike – and do so without knowing-how to ride a bike – seems to make little sense. Of course, a bike-rider could get on a bike and deliberately lose her balance resulting in her failure to ride the bike. But this would not demonstrate that she knew how not to know how to ride a bike since, ex hypothesi, she does know how to ride a bike. Now suppose someone who has never ridden a bike and does not know how to ride a bike, nevertheless, tries to ride a bike but despite his best efforts loses his balance resulting in his failure to ride the bike; notwithstanding his efforts, he still does not know how to ride a bike although he does have the propositional knowledge that he does not know how to ride a bike. However, he has not, thereby, demonstrated that he knows how not to know how to ride a bike. More specifically, he has not demonstrated that he knows how not to know how to keep his balance on a bike; rather he just doesn't know how to keep his balance on a bike. After all, if he repeats his attempts to ride a bike it is likely he will eventually ride a bike and, therefore, know how to ride a bike. The significance in this context of the apparent incoherence of these postulated non-propositional, higher order forms of ignorance is that it gives weight to the claim that neither knowledge-by-acquaintance nor knowing-how can be reduced to propositional knowledge.²⁸

Knowing-how to x defined in terms of knowing (under a practical mode of presentation) a way to x (Stanley 2011) might be invoked by way of reply to the above argument that the idea that one knows how *not* to know how to ride a bike – and do so without knowing-how to ride a bike – makes little sense and that therefore knowing-how is not a species of propositional knowledge. Here it is assumed that knowing under a practical mode of presentation is a species of propositional knowledge.

Let us replace knowing-how with knowing under a practical mode of presentation in our above bike example. We might be thought now to have the following formulation (Miller 2020): Person A knowing (under a practical mode of presentation) w is a way for A to not know (under a practical mode of presentation) w^* is a way to ride a bike. Arguably, this makes little sense and so knowing-how understood as knowing under a practical mode of presentation survives the test and, therefore, the argument that knowing-how is not a species of propositional knowledge fails. However, this formulation is not quite right since if one does not know how to ride a bike then one does not know any way to ride a bike; it is not simply that one does not know a particular way, say w^* , of riding a bike. Accordingly, we need the following formulation: Person A knows (under a practical mode of presentation) w is a way for A to not know (under a practical mode of presentation) any way to ride a bike. Does this make sense? Consider our above-described scenario in which A makes repeated attempts to ride a bike but fails, although he eventually succeeds. During the period of his repeated failures to ride the bike he has the requisite motive, opportunity and an operational bike, and he knows that one rides a bike by sitting on the seat, and steering by means of one's hands on the handle bars while using one's legs to push the pedals. But during the period that A is trying and failing to ride the bike he does not know how to ride a bike. Moreover, he knows that he does not know how to ride a bike, (i.e., he has propositional knowledge) that he does not know how to ride a bike. However, as assumed for the purposes of the counterargument made on behalf of the knowing under a practical mode of presentation view, it makes little sense to say that he knows how not to know how to ride a bike. The question now to be asked is: Does A know (under a practical mode of presentation) a way, w , for A to not know how to ride a bike. Surely A does; A's knowledge of his repeated trying and failing is a way for him to know he does not know how to ride a bike. Moreover, this is knowledge under a practical mode of presentation, namely, his repeated failed actions.²⁹ Accordingly, the formulation does make sense. Therefore, replacing knowing-how with knowing under a practical mode of presentation in our above bike example yields a different result; it makes sense in the latter but not the former. Therefore, we should conclude that the view that knowing-how to x can be understood in terms of knowing (under a practical mode of presentation) a way, w , to x is incorrect.

Thus far, it has been argued that: (1) We ought to maintain the traditional threefold distinction between knowledge-by-acquaintance, propositional knowledge and knowing-how; (2) None of these categories of knowledge is reducible to the others (singly or in combination), but each is interdependent with each of the others, at least in the sense of being the means to an end, and in the case of knowledge-by-acquaintance and propositional knowledge, conceptually; (3) We ought to hold somewhat pluralist views of knowledge-by-acquaintance and of propositional knowledge (respectively) and, in the latter case, a family resemblance view in particular. Let us now turn to knowing-how and its relation to ability.

2. Knowing-How and Ability

The notion of know-how is closely related to that of ability (Miller 2020; Glick 2012). There are different philosophical accounts of abilities, including some in terms of powers or dispositions, some offering conditional versus categorical analyses, and so on. In addition, distinctions have been made between general and specific abilities and (relatedly) arguments over whether or not one can be said to have an ability to x if one has never in fact x -ed. Whatever stand one takes on these issues, it seems

clear that initially (at least) we must distinguish, firstly, between an ability and an action that is an exercise of that ability, and, secondly, between an ability and the means or method by which it is exercised. Consider Vladimir who has the ability to lift up to 100 kilos. The exercise of this ability might consist in the action of him lifting a barbell weighing 100 kilos. The means by which he lifts the barbell, let us suppose, is his own body – as opposed to, for example, a piece of machinery such as a forklift. Again, consider Rene who has the ability to add whole numbers. The exercise of this ability might consist in him multiplying 47 by 41 to get 1,927. The means by which he arrives at 1,927 might be by adding 47 to 47 to get 94 and then adding another 47 to 94 and so on. An alternative method might be to multiply 47 by 10 to get 470 then multiply 470 by 4 to get 1,880 and then add 47 to get 1,927.

Moreover, it also seems clear that on any acceptable theory of the concept of an ability we need to avoid unnecessarily proliferating abilities. Consider again our weightlifter, Vladimir, who can lift up to 100 kilos. We don't want to say of Vladimir that, therefore, he has 100 abilities (at least), (i.e., the ability to lift one kilo), a second ability to lift two kilos, and so on. Now consider Rene's ability to multiply whole numbers. As discussed in the last section, we don't want to say of Rene that he has thousands of abilities to multiply, one ability for each different act of multiplying whole numbers that he performs.³⁰

Further, some abilities are defined in terms of ends alone rather than means (or means and ends, e.g., the ability to win wars). The ability to win wars might be manifest in a wide range of unspecified means, (e.g., by defeating the enemy in battle), by assassination of the enemy leadership, by bombing civilian areas etc. Accordingly, one and the same ability might utilize different means; consequently, the actions that consist in an exercise of that ability might be quite diverse.

The notion of an ability might be thought to be identical to that of knowledge-how. However, arguably, this is not the case. On pain of knowing-how ceasing to be a form of *knowledge* and simply collapsing into an ability, (i.e., the ability to perform an action), any action, then knowing-how must have some property above and beyond whatever properties are sufficient for something being an ability. Arguably, the required property is that of being a learned technique or procedure. It might be responded to this that it is possible that a technique or procedure is such that while some beings might have to learn it in others it might be innate, (e.g., the ability to swim).³¹ Accordingly, we need to invoke the notion of basic abilities and non-basic abilities; non-basic abilities presuppose basic abilities but basic abilities do not presuppose either basic or non-basic abilities. Moreover, non-basic abilities involve a technique or procedure which is typically learned and which, therefore, presupposes possession of one or more basic abilities. However, it might be suggested that such a learned technique or procedure might be innate in the case of some beings.³² If so, these beings also possess innately the basic abilities presupposed by the possession of the technique or procedure in question. However, here it needs to be noted that some, perhaps all, innate so-called *non-basic* 'abilities' are really capacities that require some process of learning prior to becoming abilities. For instance, an infant has an innate capacity to learn a language, to perform additions, to walk but, nevertheless, has to undergo *some* process of learning (including, potentially, self-learning) prior to having the ability to do so. Similarly, for a being who has an innate capacity to swim (assuming swimming is non-basic); the being might, nevertheless, need to undergo a process of learning to swim (e.g., learning freestyle or backstroke) in order to possess the ability (as opposed to the capacity) to swim.

Let us now consider basic abilities. Evidently, as we saw above, basic abilities can exist in the absence of know-how, (e.g., the ability to see red objects or, at least, red aspects of objects or, if you like, things that look red or images of redness), the ability to experience a toothache or the ability to raise one's arm.

Evidently knowledge-how is not applicable to basic actions because it is conceptually superfluous; it has no role to play in relation to the performance of basic actions. This argument that basic abilities can exist in the absence of knowledge-how relies on the simplicity of such actions. That is,

merely intentionally raising one's arm, for instance, evidently wholly consists of an intention and a bodily movement (and, presumably, a causal relation between the intention and the bodily movement) and, since it is an action, it entails the existence of a basic ability which the action is an exercise of. Here it is assumed that the ability is fully manifest in the action. For instance, in merely intentionally raising one's arm for no reason one is not intending to raise one's arm as part of a more complex action such as intentionally voting; voting is a non-basic action. The argument at this point is essentially this: ascribing knowledge-how adds nothing to this conceptual breakdown of basic actions and corresponding basic abilities.³³ Moreover, it would be odd to say that I know how to raise my arm (unless, of course, my arm has been immobilized or is otherwise not under my control and I have devised a special technique for raising it). This oddity arises, evidently, because raising one's arm and other basic bodily movements, including intentional ones, do not involve the use of a learned technique. Moreover, some simple inferential abilities appear to be basic, such as the ability to deduce that a patch is not green when one sees that it is red.

Secondly, there are cases where subjects apparently know how to *x* without having an ability to *x*, e.g., piano player who has his fingers cut off evidently loses the ability to play the piano while retaining his knowledge-how to play the piano. An influential response to these kinds of examples is to have recourse to counterfactual circumstances. The idea relied on here to explain away such cases is evidently that knowing-how to *x* entails that one would reliably succeed in *x*-ing but only in relevant counterfactual circumstances (Hawley 2003). On the view adopted here, knowing-how is a necessary but not a sufficient condition for ability (in the case of the relevant kinds of non-basic action). Accordingly, there are not going to be any circumstances in which the agent has the (non-basic) ability but not the knowledge-how. However, there might be circumstances in which the agent has the knowledge-how but not the ability. Yet in these circumstances the agent will not reliably succeed in *x*-ing since the agent does not have the ability to do so in these circumstances. So while there are circumstances in which the agent has knowledge-how, but not ability, these are not circumstances in which the agents will reliably *x*.³⁴ Accordingly, *this* recourse to counterfactual circumstances does not demonstrate that the view adopted here is incorrect, let alone that there is not a distinction to be made between abilities and knowledge-how (Miller 2020, 2015).

Having distinguished between abilities and knowledge-how, we should also distinguish between epistemic and non-epistemic abilities. Consider abilities which are uncontroversially epistemic abilities, such as the ability to see things or the ability to deduce conclusions from premises. Arguably, these epistemic abilities should be distinguished from non-epistemic abilities, such as the ability to use a screwdriver or ride a bike. The notion of know-how cuts across these distinctions. Some epistemic abilities and some non-epistemic abilities involve know-how; some do not. Moreover, the know-how involved in (non-basic) epistemic abilities is different in kind from the know-how involved in (non-basic) non-epistemic abilities. In the former case know-how involves a learned epistemic method (e.g., an intellectual procedure), in the latter a learned behavioral method (e.g., a physical skill). The former have a constitutive epistemic end; the latter a constitutive behavioral end. We return to this issue below. However, it is here noted that both the exercise of a non-basic epistemic ability (by means of a learned epistemic method) and the exercise of a non-basic non-epistemic (i.e., behavioral ability) (by means of a learned behavioral method) can be done well or badly, intelligently or unintelligently,³⁵ and so on.

By contrast with propositional knowledge, in particular, knowing-how is not the result of the exercise of an ability.³⁶ Rather knowing-how relates to the means by which an ability is exercised. Knowing-how is practical knowledge of the learned technique or method deployed in the exercise of the ability. This knowledge is practical in that it is manifest in the action itself and in the use of the technique or method, in particular; it is not *qua* knowing-how simply propositional knowledge of the action or its means, although such propositional knowledge may be necessary to the process of acquiring knowing-how. Consider the ability to ride a bike. The exercise of this ability consists in the use of a learned technique of simultaneously steering

(by means of gripping and turning the handlebars), peddling (by means of using one's feet/legs to push down on the pedals in a rotational movement) and balancing (using one's body position). However, the action of riding a two-wheeler push bike is not *wholly* constituted by the use of this learned technique; rather the use of this technique is a *way* of riding a bike. An alternative technique might be to steer hands-free and rely on shifting one's body position. Moreover, possession of the ability to ride a bike is not wholly constituted by knowing-how to ride it; the exercise of the former is an action constituted in part by the cyclist-agent located on the bike in motion, while the application of the latter is the use of a technique, (i.e., a way of performing the action). Accordingly, one might know-how to ride a bike without having the ability to do so because, for instance, one had broken one's leg.

In relation to knowing-how there are a number of distinctions to be made. As mentioned above, the exercise of the ability to perform basic actions,³⁷ such as raising one's arm or seeing a red patch in one's visual field, typically does not involve the application of a learned technique or method and, therefore, does not involve know-how. However, the exercise of an ability to perform a non-basic action, such as riding a bike, using a microscope or performing a task constitutive of an institutional role, (e.g., interviewing a suspect), typically involves the application of a learned technique or method and, therefore, the application of know-how. Moreover, some kinds of knowing-how are essentially epistemic since their constitutive ends are epistemic, (e.g., knowing-how to use a microscope) (a device, let us assume, that enables acquaintance knowledge of very small objects not otherwise able to be seen). Other kinds of know-how are not essentially epistemic since their constitutive ends are not epistemic, (e.g., knowing-how to drive a car).

Note that know-how that is not essentially epistemic may involve a sub-task the performance of which requires essentially epistemic know-how, (e.g., knowing-how to play Bach on the organ) may require knowing-how to read music. Note also the above argued claim that none of these three categories is reducible to one of, or a combination of, the other categories.³⁸ For instance, know-how does not simply consist in propositional knowledge.

Regarding epistemic know-how, consider the epistemic action of using a microscope having as an end acquaintance knowledge of the very small object magnified by the microscope. This epistemic action is an exercise of an epistemic ability but is also the application of a learned technique; accordingly, it is the application of epistemic know-how. Here we need to keep in mind the distinction between performing a token action primarily in order to realize the constitutive end of actions of the type in question and performing that token action primarily in order to realize some other end. Consider an epistemic action the end of which is primarily to exercise the agent's epistemic ability rather than primarily to come to have acquaintance knowledge of some object, (e.g., using a microscope) in a training program. It might be claimed that such token actions are not essentially epistemic. However, in the cases of interest to us here they are (at least) derivative from action (types) and abilities that are essentially epistemic. Thus, using a microscope in a training exercise derives its end or purpose from the more fundamental activity of using a microscope in order to come to possess acquaintance knowledge. Indeed, in realistic training programs the trainee will acquire acquaintance knowledge of the object magnified by the microscope, even if the trainee's coming to have this knowledge is not the primary purpose of the exercise.

In this section it has been argued that knowing-how is to be distinguished from ability and that knowing-how is a feature of non-basic actions (but not basic actions). In addition, epistemic actions have been distinguished from behavioral actions, and it has been suggested that there is a corresponding distinction between epistemic and behavioral knowledge-how. Let us now turn to epistemic actions. It is important to establish the nature and existence of epistemic actions since epistemic actions are often ignored or downplayed. For instance, the central category of epistemic (mental) actions, namely judgements, is ignored in most functionalist theories of mind.³⁹

3. Epistemic Action

We can distinguish between an action, the ability to perform the action and the constitutive end of the action, (i.e., the state achieved) if the action is successful. Thus, a marksman has the ability to fire his gun at, and hit, the target, he fires his gun at the target and, if this action is successful, then he or she hits the target. Here the state of having hit the target is the (successful) completion of the act of shooting at the target. Moreover, the ability in question involves knowledge-how to (successfully) fire a gun at a target. Likewise, epistemic action presupposes an ability (and, at least in many cases, knowledge-how). Again, likewise, epistemic actions can be successful or unsuccessful. In the case of judgements, success consists (at least in part) in the proposition judged to be true,⁴⁰ being in fact true (and failure in this proposition being false (or, at least, otherwise not true). Accordingly, truth and falsity apply to the content of the judgment, as opposed to the act of judging per se, (i.e., in its entirety).

By parity of reasoning, epistemic actions in which the constitutive end is conscious awareness of an object, (i.e., epistemic actions resulting in knowledge-by-acquaintance), presuppose an ability (and, at least in many cases, knowledge-how). Moreover, such epistemic actions are successful, if their constitutive end is realised, (i.e., the state of conscious awareness of the object results), and in doing so completes the action. In the case of this category of epistemic actions success consists (at least in part) in the agent grasping reality, so to speak, (and failure in the agent suffering an illusion or otherwise failing to grasp reality).⁴¹

It might be claimed that truth/falsity are properties not of the action, or even of the content of the action qua content of the action, but of propositions and/or of the beliefs that typically result from acts of judgment and/or of the statements which express judgments. However, arguably, truth/falsity attaches to the content of judgments, but *also* to beliefs, propositions (supposing there are such abstract objects) and statements.

In addition, it might be claimed that truth/falsity are but one set of evaluative terms in a spectrum of which they are only one element, (e.g., an evaluative spectrum) more adequately characterised as that of accurate/inaccurate epistemic actions (Hetherington 2011, 34–37). Again, this may well be correct; however, it does not demonstrate that truth/falsity are not appropriate, indeed fundamental, evaluative notions; merely that they are not the only ones.

Roughly speaking, as stated above, epistemic actions are actions the constitutive end of which is to acquire knowledge (in some sense of knowledge). The contrast here is with behavioral actions, (i.e., actions) the constitutive end of which is not epistemic, (e.g., intentional kicking a football).⁴² Naturally, there are behavioral actions, (e.g., collecting a blood sample from a crime scene), which have an epistemic end as their ultimate end, (e.g., knowing the perpetrator of the crime). However, that epistemic end is *not constitutive* of the behavioral action qua behavioral action. Rather the constitutive end of the behavioral action of collecting the blood sample (to return to our example) is the state of affairs consisting of the gauze pad used to absorb the blood having been placed in a container. Our concern here is principally with epistemic action directed at the acquisition of propositional knowledge. Of course, there are epistemic actions directed at the acquisition of knowledge-by-acquaintance, (e.g., intentional acts of looking at an object). However, many of the 'actions' that result in acquisition of knowledge-by-acquaintance are not intentional and, therefore, not actions in the full-blooded sense of interest to us here, (i.e., they are not full-blooded epistemic actions). Moreover, those that are intentional are permeated by propositional attitudes (notably and most obviously, intentions). What of actions directed at the acquisition of knowledge-how? Actions directed at the acquisition of knowing-how (at least if directed at acquiring *epistemic* knowing-how) are epistemic actions in some sense. However, such actions either consist in actions directed at the acquisition of propositional knowledge (or knowledge-by-acquaintance), albeit in the ultimate service of the acquisition of knowing-how, or they are behavioral rather than epistemic actions, albeit behavioral actions in the ultimate service of the acquisition of knowing-how. An example of the former would be reading a manual on how to fly fish for salmon. An

example of the latter would be repeatedly casting one's fly in the manner described in the fly-fishing manual.⁴³ In short, knowing-how to the extent that it relies on intentional action, relies either on epistemic action consisting of action having propositional knowledge as its constitutive end (or action having knowledge-by-acquaintance as its constitutive end) or on behavioral action.

To reiterate, epistemic actions are actions the constitutive end of which is to acquire knowledge, and in the case of propositional-knowledge, epistemic actions are actions the constitutive end of which is to acquire propositional-knowledge, (e.g., justified true belief).⁴⁴ Thus, A asks himself whether or not that p and, in pursuit of the answer to this question, sets in train the following (simplified) process (assuming all goes well): (i) A seeks evidence in relation to the question as to whether p or not p; (ii) On the basis of this evidence, A judges (let us assume) that p; (iii) As a result of making this judgment, A comes to have the (justified) true belief that p.

The methods of acquiring propositional knowledge are manifold; for example, in the case of scientific knowledge they include observation, calculation and testimony. Moreover, the acquisition of these methods is very often the acquisition of knowledge-how, (e.g., how to calculate), how to use a microscope, how to 'read' an x-ray chart.

Naturally, there are justified true beliefs that are not the result of judgment but rather of more or less automatic cognitive processes, (e.g., true beliefs) about the objects in one's immediate visual field. I note that such epistemic actions while they are exercises of an ability, they do not necessarily involve knowing-how, since they may well not consist in the application of a learned technique. However, our concern here is with justified true beliefs that are the result of evidence-based judgements. Such judgements involve the application of a learned (epistemic) method, (e.g., a learned intellectual procedure), and are, therefore, typically (but not necessarily⁴⁵) instance of the application of know-how and, in particular, essentially epistemic know-how. It is important here to stress that judgment in the required sense is an action (Sosa 2015). Specifically, judgment is an act of coming to truly believe something (the proposition that p, let us assume) on the basis of evidence.

As stated above, we need to distinguish between epistemic action and behavioural action; the latter does not have a constitutive epistemic end. Moreover, but not mentioned above, behavioural action is action involving bodily action of some sort. The contrast with behavioural action is mental actions and, especially mental actions that have constitutive epistemic ends, (e.g., judgments) made on the basis of defeasible processes of inference-making. Naturally, epistemic action can involve behavioural action however, evidently this is not necessarily the case; whereas, epistemic action necessarily involves mental actions (specifically, mental actions directed at truth, knowledge, understanding or some other epistemic end). One important form of epistemic action which does involve behavioural action is assertion; in particular, assertions typically involve the production of sounds (e.g., in speech) or marks (e.g., in writing). Naturally, some assertions, (e.g., lies), do not aim at truth, knowledge or understanding. However, the point is that normatively speaking, they do, (i.e., they *ought* to so aim).⁴⁶

With respect to action, both behavioral and epistemic, there is a distinction to be made between the intentional action considered independently of any external (i.e., non-constitutive) end it might have (the core action) and the action taken as an action directed to that external end (the expanded action). Thus, agent A might intentionally fire the gun having as an (external) end to kill agent B. A has, if he succeeds, performed two actions, firing the gun (core) and killing B (expanded), the former being a means to the latter. Notice that most epistemic actions, considered independently of any external end, are mental actions and, in particular, acts of judgment. In the case of judgments, the constitutive end is truth. However, truth is not the constitutive end of judgements in the trivial sense that, for instance, raising one's arm is the constitutive end of the intentional (behavioral) action of raising one's arm or testing the temperature of the water is the constitutive end of the intentional (epistemic) action of testing the temperature of the water. Rather truth is the constitutive end of *all* judgements and this is necessarily the case. One cannot not aim at truth and yet be making a judgment; one cannot in making a judgment be aiming at falsity.⁴⁷ Let us say that truth is the *internal* end of judgements.

The justification of a true belief involves a process of reflection that provides good and decisive reasons for the believer to truly believe the content of the belief in question. Moreover, this reasoning is in large part theoretical, as opposed to practical, reasoning. For it is reasoning that terminates in a belief (or structure of beliefs), as opposed to an action. So justification is of two sorts; justification in relation to actions, and justification in relation to beliefs.

An important difference is that actions can often be done at will, (e.g., I can raise my right arm now), whereas apparently this is not so for belief acquisition, (e.g., if I believe that the world is round I cannot simply decide to believe that it is flat).

However, this contrast between actions and beliefs should not be overstated.⁴⁸ First, one can certainly in many instances freely choose to have neither the belief that *p* nor the belief that not *p*; one can do so by refraining from inquiring or otherwise investigating whether or not it is the case that *p*. And, of course, in such cases typically one can freely choose to investigate whether or not that *p*, in which case one is in effect choosing to come to have either the belief that *p* or the belief that not *p*, depending on the outcome of the investigation. In short, one can often freely choose between an absence of belief and the presence of belief with respect to some matter. For many beliefs are, and can only be, acquired after a process of investigation, (e.g., the belief) that Sutcliffe is the Yorkshire Ripper (or that he is not) could not have been acquired if detectives had not decided to investigate the murders of Yorkshire prostitutes. That is, without this act of will – to conduct an investigation – the detectives would simply not have had a belief as to the identity of the Yorkshire Ripper; they would have remained in a state of ignorance.

So much for choosing whether to remain in ignorance (and hence have no belief with respect to the matter in question) or come to have knowledge (and, therefore, belief) with respect to the matter. However, what of cases in which one can freely choose between having the belief that *p* and having the belief that not *p*? As long as the notion of freely choosing is understood broadly, then it seems that there are many such cases.

Unlike beliefs, judgments are episodic acts and not merely dispositions.⁴⁹ However, beliefs are often the result of an act of judgment. Moreover, evidence-based acts of judgment are typically freely performed. For example, an examinee comes to believe on the basis of a series of calculations that the answer to a complex mathematical problem is zero; the examinee is not absolutely certain, after all she could have made a mistake, but after checking she is fully confident of her own judgment. As it turns out the examinee gave the right answer based on valid mathematical reasoning. Surely the inference-based judgment that terminated in her belief that the answer was zero was freely performed. By this it is not simply meant that she freely chose to try to answer the mathematical problem, although this is also true; rather it is meant that in being ‘compelled’ by logic her act of judgment was, nevertheless, freely performed.

Now consider a second example. The belief that Sutcliffe was the Yorkshire Ripper was formed as a result of the detectives’ judgment that on the basis of the evidence gathered he was the Yorkshire Ripper. Naturally, their judgment was not freely made in the sense that they could make any old judgment that they felt like making, including a judgment that was completely inconsistent with the evidence. But freely performed judgements are not to be identified with capricious or irrational judgements.

In this respect judgements are akin to actions in general; an action that is ‘compelled’ by reason does not thereby cease to be a freely chosen action. Suppose A desires to go home immediately after work to relax and have dinner, and A has also promised A’s spouse that A will do so; suppose further that A has no other competing desires or obligations, and the only available means is to take the bus. Therefore, A takes the bus home. A has good and decisive reasons for taking the bus home, and A has no reasons to perform any competing action. So A’s taking the bus home is ‘compelled’ by reason; but it is no less a freely performed action for being so. Naturally, A could have chosen to do otherwise than take the bus home, albeit this might have been somewhat psychologically difficult for A given A is a rational being.

So the sharp contrast drawn between, on the one hand, comings to believe and, in particular, judgments and, on the other, actions – with respect to being freely chosen – does not hold up. More generally, the sharp distinction, with respect to being freely chosen, between epistemic actions and behavioral (and other non-epistemic) actions does not hold up.

In this section epistemic actions have been distinguished from behavioral actions, and it has been argued that epistemic actions, such as judgments, are indeed a species of action, albeit a species of action which has knowledge as its constitutive end. Moreover, as is the case with behavioral actions, some epistemic actions are basic, and some are non-basic. The latter involve knowing-how and, specifically, epistemic know-how, (e.g., learned intellectual procedures).

4. Conclusion: A Non-Reductive Account of Knowledge

In this article the concern has been with the nature of epistemic actions and the relationships between epistemic actions, abilities and know-how. The aim has been to provide a synoptic view of the conceptual landscape in this area. In order to achieve this, various interconnected propositions have been argued for in relation to the key conceptual elements in this landscape. Naturally, each of these arguments needs to be able to stand on its own merits. Nevertheless, whether the picture of this conceptual landscape that has emerged ought to be accepted depends to a considerable extent on how well the conceptual elements in this picture fit together and, therefore, how inherently compelling this synoptic view is.

The interconnected propositions argued for are: (1) Knowledge-by-acquaintance cannot be reduced to propositional knowledge or to knowing-how or some combination of these; the same point holds for propositional knowledge in relation to knowledge-by-acquaintance and knowing-how, and to knowing-how in relation to knowledge-by-acquaintance and propositional knowledge; (2) Knowledge-by-acquaintance and propositional knowledge are pluralist notions and, more specifically, propositional knowledge, is best thought of as a family resemblance concept; (3) These categories of knowledge are, nevertheless, *interdependent* in a number of senses, (e.g., a knower) could not have only one of these categories of knowledge without possessing the other two; (4) Abilities are not the same thing as know-how, although know-how is a necessary condition of the ability to perform non-basic actions; (5) Know-how is a learned means (e.g., a technique for riding a bike, a method for solving a crime) by which an ability is exercised and an action performed; (6) Epistemic actions need to be distinguished from behavioral actions and there is a corresponding distinction between epistemic knowing-how and behavioral knowing-how; (7) Judgments are epistemic actions which, if successful, result in knowledge (i.e., a certain kind of state) and, therefore, the sharp contrast drawn between, on the one hand, comings to believe and, in particular, judgments and, on the other hand, actions – with respect to being freely chosen – is not sustainable; (8) Judgments manifest both abilities and know-how.

Accordingly, what has emerged is in large part (but not wholly) a non-reductive picture of the conceptual landscape in question but one in which these irreducible components are, nevertheless, interdependent. Moreover, it is a landscape in which epistemic action has a central place since, as it turns out, judgments are a species of action, and both knowledge-by-acquaintance and propositional knowledge are the constitutive ends of epistemic action (albeit, knowledge-by-acquaintance and propositional knowledge can also be generated automatically rather than as the result of epistemic action).

Notes

1. So this is not a survey article on relevant literature or an overview of possible perspectives, much less both.
2. Typically, belief states in the case of propositional knowledge and states of awareness in the case of knowledge-by-acquaintance.
3. See, for instance, Campbell (2011, ch. 4).

4. (Hetherington 2011, ch. 2).
5. See Russell (1910). For a survey article on knowledge-by-acquaintance see Hasan and Fumerton (2020). Knowles and Raleigh (2019) is a recent set of articles providing a good overview of the issues.
6. Although the term, 'definition' is used throughout this article there is no intention to imply that a formal definition, (e.g., in terms of necessary and sufficient conditions), is called for. Accordingly, only key properties of terms and illustrative instances are provided; and some existing definitions are discussed, (e.g., justified true belief).
7. Including perhaps another person, (i.e., a knowing subject), strictly speaking.
8. In speaking of direct experience I do not mean to imply a commitment to direct realism, as opposed to indirect realism in relation to external objects. Russell himself, at times, advocated a form of indirect realism according to which we only have direct experience of our sense data but not of external objects (although at times he argued for a view of external objects as constructed out of sense data).
9. See Moser (1989) for a moderate foundationalist perspective. See also Fumerton (2019).
10. Or, at least, of some forms of knowledge-by-acquaintance.
11. (Byrne 2005). Or, relatedly, if knowledge-by-acquaintance provides the representational content of the beliefs in question, Pollock and Oved (2005, 326).
12. Arguably, knowledge-by-acquaintance of the famous speckled hen is of this kind, albeit not in the service of knowledge-by-acquaintance as certain (Chisholm 1942; Fumerton 2005).
13. Such knowledge-by-acquaintance is a manifestation of a perceptual ability to receive and process visual data. At any rate, exercises of this ability are, therefore, not necessarily intentional actions.
14. Thanks to an anonymous referee for raising this issue.
15. For a recent survey article on propositional knowledge see Ichikawa and Steup (2018). For a useful introduction see Lehrer (1990) and for relevant articles see Moser (2002).
16. Since it is taken that there are Gettier-style counterexamples to this definition as it stands.
17. Interestingly, Williamson's reductionist account (Williamson 2000) still seems to maintain that belief, truth and reliability are necessary conditions for knowledge. Perhaps, therefore, my pluralist account could be recast by an adherent of a non-reductive account of knowledge.
18. See Hawthorne (2002).
19. See, for instance, Moser (1989).
20. Albeit, arguably some beliefs are not themselves entirely internal since they are linguistically expressible and such beliefs often involve referring terms the meaning of which is determined at least in part by external objects. See Williamson (2000).
21. Famously, this definition does not rule out so-called Gettier counterexamples. According to Paul Moser (1989), for instance, there is therefore a need for a further condition, in his case that this justification does not rely on some other false belief. This condition rules out some but not all Gettier cases, (e.g., not fake barn examples). See Sosa (2015, 78–80) for an influential attempt to deal with fake barn examples.
22. For recent survey articles see Pavese (2021) and Cath (2019). For a useful collection of essays on knowing-how see Bengson and Moffett (2011). For works in which knowing how plays a central role see, for example, Polanyi (1967) and Hetherington (2011).
23. This is not to say that every instance of one of these sorts of knowledge *directly* depends on instances of one or other, or both, of the other sorts of knowledge.
24. This objection is, as far as I am aware, not made in the philosophical literature.
25. As, for instance, Stanley (2011) argues.
26. Here I utilize to some extent the work of Peels (2010).
27. Of course, A might know-how to bring it about that A (or, indeed, B, C etc.) does not know-how to x, (e.g., by destroying the relevant part of his brain) that enables him to know how to x. But this is a different matter.
28. Note also that on this dualistic (doxastic/non-doxastic) account of ignorance, if A falsely believes that p then A is not ignorant of p, although A is wrong about p. Note further that on this account if A does not have any justification for A's true belief that p then A is not ignorant, albeit one might want to hold that A does not have *knowledge* of p in some stronger sense than true belief that p (since A lacks any justification for his belief that p).
29. It might be argued that A does know a way to ride a bike, (i.e., by sitting on the seat), steering with his hands and peddling with this feet. True enough. But such knowledge does not count as knowing-how since ex hypothesi he can have this knowledge and not know how to ride a bike. One could add that this knowledge has to be under a mode of practical presentation to counts as knowing-how according to the view in question. Again, true enough. However, it is assumed in the example that A does not know how to ride a bike and, if the view in question is correct, then that is equivalent to A not knowing (under a mode of practical presentation) any way to ride a bike.
30. Different in terms of the numbers multiplied together. But the same point would hold for his performing the same multiplication calculation on different occasions.
31. I owe a version of this response to an anonymous referee.

32. However, given the above explained account of knowing-how, the techniques constitutive of knowledge-how are not sub-conscious processes in the motor system. Such processes would not count as *knowledge* since they are not in principle available to consciousness.
33. Of course, one could by definitional fiat insist that knowledge-how just is ability (and ability is knowledge-how) and, therefore, that basic actions manifest knowledge-how because they manifest abilities. However, this would be to beg the question.
34. Moreover, the above-described recourse to counterfactual circumstances is in danger of undermining the distinction between a person's possession of an ability to perform a certain type of action and the possibility of a person performing the action type under certain circumstances. In some circumstances, (e.g., the absence of a piano), the ability possessed by a person cannot be exercised. So in the counterfactual circumstances in which there is no piano, the piano player cannot play the piano. But, nevertheless, the piano-player still possesses the ability to play the piano in these circumstances in which there is no piano (i.e., circumstances) in which there is no possibility of her playing the piano.
35. Ryle (1949) described some such exercises as intelligent. It might or might not be the case that the use of the word 'intelligence' implies the presence propositional knowledge. See Hetherington (2013).
36. (Ryle 1949). For criticisms of knowing-how as an ability see Stanley and Williamson (2001). See also John, Moffett, and Wright (2009).
37. The notion of a basic action while not unproblematic has some intuitive support, (e.g., simple bodily actions) such as raising one's arm or walking. See, for instance, Danto (1965) and Setiya (2012).
38. For discussion of this issue see John, Moffett, and Wright (2009).
39. See, for instance, Loar (1986).
40. This use of the term, 'proposition' is not to commit to an ontology of entities (propositions) existing in an abstract realm.
41. Perhaps in so grasping reality the knower's action is true (in some sense). See Campbell (2011, ch. 4). Note that most contemporary analytic philosophers support deflationary, correspondence or coherence accounts of truth, (i.e., not action-based accounts). Pragmatist theories of truth are action-based in a somewhat different sense than is discussed here. See, for instance, the survey provided in Schmitt (2004).
42. Hence epistemic actions have a different direction of fit from behavioural actions; the former have word-to-world fit, the latter a world- to word fit. See, for instance, Searle (1983, 7).
43. NB: Since the know-how in question is knowing-how to perform a behavioral action the action of repeatedly casting has a non-epistemic end.
44. Naturally, the definition of epistemic actions would vary in accordance with one's definition of knowledge.
45. Some perceptual judgments do not involve the application of a learned technique, (e.g., the judgment) that there is a red patch in my visual field.
46. For a detailed analysis of assertion see Miller (2016).
47. The idea of truth as teleological has been advanced by Michael Dummett (Dummett 1978, 1981).
48. See Walker (1996) and Montmarquet (1993, ch. 1) for a related defence of the sort of view being espoused here. See also Christian Stern's reply (Stern 1997). Walker replied to Stern in Walker (1998). For a more recent treatment favorable to my own view and that of Montmarquet and Walker see Frankish (2007). Note that the general view being espousing here is that one can be *directly* responsible for some of one's beliefs, (i.e., that one's responsibility) for some of one's beliefs is not dependent on one's responsibility for some action that led to those beliefs. In short, doxastic responsibility does not reduce to responsibility for actions. Note also that there are different accounts of this general view that one can be directly responsible for some of one's beliefs. For example, I disagree with Walker in that I hold that the judgment that p is partially independent of the desire or goal to know whether or not that p. See Miller (2015).
49. For the classic defense of this view see Geach (1957).

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References

- Bengson, John, and Marc A. Moffett, eds. 2011. *Knowing-how*. Oxford: Oxford University Press.
- Byrne, Alex. 2005. "Perception and Conceptual Content." In *Contemporary Debates in Epistemology*, edited by Matthias Steup and Ernest Sosa, 231–250. Boston: Blackwell.
- Campbell, Richard. 2011. *Concept of Truth*. Basingstoke: Palgrave-Macmillan.
- Cath, Yuri. 2019. "Knowing How." *Analysis* 79 (3): 487–503. doi:10.1093/analys/anz027.
- Chisholm, Roderick. 1942. "The Problem of the Speckled Hen." *Mind* 51 (204): 368–373. doi:10.1093/mind/LI.204.368.
- Danto, Arthur. 1965. "Basic Actions." *Review of Metaphysics* 32 (3): 471–485.
- Dummett, Michael. 1978. "Truth." In *Truth and Other Enigmas*. London: Duckworth, 1–24.
- Dummett, Michael. 1981. "Assertion." In *Frege: Philosophy of Language*. London: Duckworth, 295–363.
- Evans, Gareth. 1982. *Varieties of Reference*. Oxford: Oxford University Press.
- Farkas, Katalin. 2019. "Objectual Knowledge." In *Acquaintance: New Essays*, edited by Jonathan Knowles and Thomas Raleigh, 260–276. Oxford: Oxford University Press.
- Frankish, Keith. 2007. "Deciding to Believe Again." *Mind* 116 (463): 523–547. doi:10.1093/mind/fzm523.
- Fumerton, Richard. 2005. "Speckled Hens and Objects of Acquaintance." *Philosophical Perspectives* 19 (1): 121–138. doi:10.1111/j.1520-8583.2005.00056.x.
- Fumerton, Richard. 2019. "Acquaintance: The Foundation of Knowledge and Thought." In *Acquaintance: New Essays*, edited by Jonathan Knowles and Thomas Raleigh, 245–259. Oxford: Oxford University Press.
- Geach, Peter. 1957. *Mental Acts*. London: Routledge and Kegan Paul.
- Glick, Ephraim. 2012. "Abilities and Know-how Attributions." In *Knowledge Ascriptions*, edited by Jessica Brown and Mikkel Gerken, 120–139. Oxford: Oxford University Press.
- Goldman, Alvin. 1967. "A Causal Theory of Knowing." *The Journal of Philosophy* 64 (12): 357–372. doi:10.2307/2024268.
- Hasan, Ali, and Richard Fumerton. 2020. "Knowledge by Acquaintance Vs. Description." In *Stanford Encyclopedia of Philosophy*, edited by Edward Zalta. Stanford, CA: Stanford University. <https://plato.stanford.edu/entries/knowledge-acquaintance/>
- Hawley, Katherine. 2003. "Success and Knowledge-how." *American Philosophical Quarterly* 40 (1): 19–31.
- Hawthorne, John. 2002. "Deeply Contingent A Priori Knowledge." *Philosophy and Phenomenological Research* 65 (2): 247–269. doi:10.1111/j.1933-1592.2002.tb00201.x.
- Hetherington, Stephen. 2011. *How to Know: A Practicalist Conception of Knowledge*. Hoboken: Wiley-Blackwell.
- Hetherington, Stephen. 2013. "Sceptical Challenges and Knowing Action." *Philosophical Issues* 23 (Epistemic Agency): 18–39. doi:10.1111/phis.12002.
- Hetherington, Stephen. 2017. "Knowledge as Potential for Action." *European Journal for Pragmatism and American Philosophy* IX (2): 1–19. doi:10.4000/ejpap.1070.
- Ichikawa, Jonathan J., and Matthias Steup. 2018. "The Analysis of Knowledge." In *Stanford Encyclopedia of Philosophy*, edited by Edward Zalta. Stanford, CA: Stanford University. <https://plato.stanford.edu/archives/sum2018/entries/knowledge-analysis/>
- John, Bengson, Marc A. Moffett, and Jennifer C. Wright. 2009. "The Folk on Knowing-how." *Philosophical Studies* 143 (3): 387–401.
- Knowles, Jonathan, and Thomas Raleigh, eds. 2019. *Acquaintance: New Essays*. Oxford: Oxford University Press.
- Lehrer, Keith. 1990. *Theory of Knowledge*. London: Routledge.
- Loar, Brian. 1986. *Mind and Meaning*. Cambridge: Cambridge University Press.
- Miller, Seumas. 2015. "Joint Epistemic Action and Collective Moral Responsibility." *Social Epistemology* 29(3): 280–302. doi:10.1080/02691728.2014.971908.
- Miller, Seumas. 2016. "Assertions, Joint Epistemic Actions and Social Practices." *Synthese* 1 (193): 71–94. doi:10.1007/s11229-015-0745-x.
- Miller, Seumas. 2020. "Joint Abilities, Joint Know How and Collective Knowledge." *Social Epistemology* 34 (1): 197–212. doi:10.1080/02691728.2019.1677799.
- Miller, Seumas. 2017. "Ignorance, Technology and Collective Responsibility." In *Perspectives on Ignorance from Moral and Social Philosophy*, edited by Rik Peels, 217–238. London: Routledge.
- Montmarquet, James A. 1993. *Epistemic Virtue and Doxastic Responsibility*. Lanham: Rowman and Littlefield.

- Moser, Paul. 1989. *Knowledge and Evidence*. Cambridge: Cambridge University Press.
- Moser, Paul, ed. 2002. *The Oxford Handbook of Epistemology*. Oxford: Oxford University Press.
- Nes, Anders. 2019. "Acquaintance, Conceptual Capacities and Attention." In *Acquaintance: New Essays*, edited by Jonathan Knowles and Thomas Raleigh, 191–214. Oxford: Oxford University Press.
- Pavese, Carlotta. 2021. "Knowledge How." In *Stanford Encyclopedia of Philosophy*, edited by Edward Zalta. Stanford, CA: Stanford University. <https://plato.stanford.edu/archives/sum2021/entries/knowledge-how/>
- Peels, Rik. 2010. "What Is Ignorance?" *Philosophia* 38: 57–67. doi:10.1007/s11406-009-9202-8.
- Polanyi, Michael. 1967. *The Tacit Dimension*. New York: Anchor Books.
- Pollock, John L., and Iris Oved. 2005. "Vision, Knowledge and the Mystical Link." *Philosophical Perspectives* 19 (1): 309–351. doi:10.1111/j.1520-8583.2005.00064.x.
- Raleigh, Thomas. 2019. "Introduction." In *Acquaintance: New Essays*, edited by Jonathan Knowles and Thomas Raleigh, 2. Oxford: Oxford University Press.
- Russell, Bertrand. 1910. "Knowledge-by-acquaintance and Knowledge by Description." *Proceedings of the Aristotelian Society* 11: 108–128.
- Russell, Bertrand. 1912. *Problems of Philosophy*. Oxford: Oxford University Press.
- Ryle, Gilbert. 1949. *Concept of Mind*. Chicago: University of Chicago Press.
- Schmitt, Frederick F., ed. 2004. *Theories of Truth*. Boston: Blackwell.
- Searle, John. 1983. *Intentionality*. Cambridge: Cambridge University Press.
- Setiya, Kieran. 2012. "Knowing How." *Proceedings of the Aristotelian Society* 112 (3): 285–307. doi:10.1111/j.1467-9264.2012.00336.x.
- Sosa, Ernest. 2015. *Judgment and Agency*. Oxford: Oxford University Press.
- Stanley, Jason. 2011. *Know How*. Oxford: Oxford University Press.
- Stanley, Jason, and Timothy Williamson. 2001. "Knowing-how." *Journal of Philosophy* 98 (8): 411–444. doi:10.2307/2678403.
- Stern, Christian. 1997. "Walker on the Voluntariness of Judgment." *Inquiry* 40 (2): 175–186. doi:10.1080/00201749708602445.
- Walker, Mark T. 1996. "The Voluntariness of Judgment." *Inquiry* 39 (1): 97–119. doi:10.1080/00201749608602409.
- Walker, Mark T. 1998. "The Voluntariness of Judgment: A Reply to Stern." *Inquiry* 41 (3): 333–339. doi:10.1080/002017498321805.
- Williamson, Timothy. 2000. *Knowledge and Its Limits*. Oxford: Oxford University Press.