Knowing How is Knowing How You Are (or Could Have Been) Able

Abstract

Know how and ability have a seemingly fraught relationship. I deepen the tension here, by arguing for two new pieces of data concerning know how and ability. First, know how ascriptions have two distinct readings that differ in their entailments to ability: one entails ability, the other does not. Second, in certain cases, know how claims rely on ability to have determinate truth-values at all: the indeterminacy of certain ability claims infects both readings of know how claims. No existing accounts of the relationship between know how and ability captures both data points, I argue; but intellectualists about know how have special resources to account for them. Ascriptions of knowledge of *infinitival* questions give rise to a distinctive kind of context-sensitivity specific to infinitivals. I show how on an intellectualist view where, very roughly, knowing how to do something is knowing an answer to an infinitival question about your abilities, this context-sensitivity accounts for the relationship between know how and ability.

Know how and ability have a seemingly fraught relationship. Clearly there is *some* connection. Know how guides skilled, intentional action: when a champion pole vaulter clears the bar, they employ their particular know how. And ability is arguably a prerequisite for skilled, intentional action: clearing the bar *intentionally* is a good indicator of the athlete's abilities. Even so, there are many well-known cases where an agent knows how to do something, while lacking the ability. What then *is* the relationship then between the two? Perhaps ability is a mere fickle friend to know how.

I deepen the tension here, by arguing for two new pieces of data concerning know how and ability. First, know how ascriptions have two distinct readings that differ in their entailments to ability: one entails ability, the other does not. Second, in certain cases, know how claims rely on ability to have determinate truth-values at all: the indeterminacy of certain ability claims, independently motivated by Mandelkern et al. (2016) and Boylan (forthcoming), infects both readings of know how claims.

No existing accounts of the relationship between know how and ability captures both data points, I argue; but intellectualists about know how have special resources to account for them. Ascriptions of knowledge of *infinitival* questions give rise to a special kind of context-sensitivity: in some contexts they express questions about what I call one's *indicative* abilities, in others one's *subjunctive* abilities. I show this kind of context-sensitivity is *sui generis* and specific to infinitives: my subjunctive readings are not in general equivalent to claims about *generic* abilities or claims about what agents can *normally* do; and ability modals do not in general have these subjunctive readings outside of infinitivals. I consider an intellectualist view where, very roughly, knowing how to do something is knowing an answer to an infinitival question about your abilities; I show how this view accounts for the relationship between know how and ability.

1 The Connection Between Know How and Ability

Though elementary, the question of whether know how entails ability is a vexed one. I make two new claims about this relationship: know how claims have two readings, of which one, but not the other, entails an ability claim; and know how claims share in the indeterminacy of ability claims.

1.1 Two Readings

First, the two readings. Building on observations from Hawley (2003), we can illustrate them by considering some famous cases taken to break the

entailment from know how to ability.[1] Stanley and Willlamson (2001) say that in the following kind of example, an agent loses an ability but not the corresponding know how:[2]

> **The Handless Pianist.** Rachmaninov recently lost his hands in a car crash. However, he retains perfect memory of how he used to play his Third Piano Concerto.

Both of the following are true:

(1) Rachmaninov knows how to play his Third Piano Concerto.

(2) Rachmaninov is not able to play his Third Piano Concerto.

So, it is claimed, know how does not entail ability.

There are also agents with know how who have *never* had the corresponding ability. Stanley and Willlamson (2001) report the following case from Jeff King:

> **The Armchair Ski Instructor.** Alice the ski-instructor is a perfect teacher: she knows exactly what actions to instruct her students to do for them to ski. However, she cannot perform those actions in that sequence herself.

Again, the following seem true:

(3) Alice knows how to ski.

[1] While Hawley's discussion does suggest there are multiple readings of know how claims, my claim, *Two Readings*, ultimately goes beyond Hawley's discussion: she does not address the question of ability entailments; the data point about the *differing* entailments of these readings is, I think, the important contribution above. And, to foreshadow, I do not think Hawley's discussion explains this data point either. She introduces two ideas: first that know how ascriptions underspecify the relevant task; and second, know how attributions might be about *normal* conditions, rather than actual conditions. The normal conditions proposal has been widely explored in the discussion of know how without ability; I argue in §2.2 it does not account for the differing entailments. While natural, the first idea has not been as widely taken up; nonetheless, contra Hawley, I do not think it succeeds in explaining Rachmaninov-style cases; see footnote 21 for further discussion.

[2] See Ginet (1975), Carr (1979) and Snowdon (2004) for further examples.

(4) Alice is not able to ski.

So again, it is claimed, know how does not entail ability.

Notice that, with only slight alterations to the cases, suddenly the true know how claims turn false. Return to Rachmaninov and put a slightly different spin on the case:

> **The Handless Pianist's Concert.** Rachmaninov's condition is as before. You and I are seated in the concert hall. We see the handless Rachmaninov appear on stage and sit down as if about to play. On extending his handless stumps towards the piano, his expression changes to dismay.

In the light of this variation, consider again:

(1) Rachmaninov (still) knows how to play his Third Piano Concerto.

(5) Rachmaninov knows how to play his Third Piano Concerto right here right now.

To my ears, these claims now sound considerably worse. Or consider a further variation of the case:

> **The Handless, Hooked Pianist's Concert.** Rachmaninov's condition is as before, but he has now been given hooks to replace his hands. You and I are seated in the concert hall, about to take in a concert. The hooked Rachmaninov appears on stage and sits down as if about to play.

(1) and (5) are false here. For we can hear the following as true:

(6) Rachmaninov still knows how to play Chopsticks; but he doesn't know how to play his Third Piano Concerto.

Chopsticks, an extremely simple piece of music, can be played with Rachmaninov's hooks; the concerto is out of the question.

A final consideration: think about how we talk about agents who suffer more temporary setbacks. Suppose that, rather than losing his hands completely, Rachmaninov developed an extremely serious tremor in two fingers on either hand. Initially, this will rob him of the ability to play a complex piece like the concerto. But it is something he might ultimately be able to compensate for, changing his technique (through long hours of practice) to accommodate the tremor.[3] If successful, it would be natural to say of him:

(7) Rachmaninov *relearned* how to play his Third Piano Concerto.

It would be mysterious what this meant, if he unequivocally knew how to play the concerto all along.

The same points apply to our ski instructor. Suppose at gun point Alice is forced to take to the slopes herself. Now that she is no longer instructing, we can easily imagine her pleading with us:

(8) Please make one of the others do it — *I* don't know how to ski!

I invite you to think of other cases with this structure; I claim the same pattern as above will emerge. This is good evidence for the following:.[4]

> *Two Readings.* Know how claims have two distinct readings, one which entails an ability claim and another which does not.

1.2 Indeterminacy

My second data point is that know how claims share in the characteristic *indeterminacy* of ability claims.

I say a sentence is *indeterminate* when neither it nor its negation is clearly true in a scenario, even when we know all the relevant facts there. I leave open whether this indeterminacy is *semantic*, *metaphysical* indeterminists

[3] The pianist Murray Perahia is arguably a real life example of such a case.

[4] Note that, as a consequence, I also reject what Cath (2020) calls "the growing consensus" that one knows how to A just in case one is able to A *intentionally*.

or even *epistemic*. What matters is the distinctive *projection* behaviour of indeterminacy under negation: when ϕ is indeterminate, so is $\ulcorner\neg\phi\urcorner$.

Take the following case:

> **Dartboard.** Carol has no special talent at darts. When stood an ordinary distance away, half of the time she hits the dartboard when she tries; half the time she misses completely.

What does Carol know how to do? Consider:

(9) Carol knows how to hit the dartboard.

(10) Carol doesn't know how to hit the dartboard.

Neither seem appropriate. Clearly (9) is not true: Carol's rate of success in hitting the top is far too low. But (10) seems *under*rate Carol, suggesting her success rate is much *lower* than it in fact is. Both then are indeterminate: neither claim is clearly true.

Mandelkern et al. (2016) and Boylan (forthcoming) have argued that indeterminacy is characteristic of certain ability claims. Returning to **Dartboard**, let's think about Carol's abilities instead. Neither of these claims are clearly true:

(11) Carol is able to hit the dartboard.

(12) Carol is not able to hit the dartboard.

(11) is not true because ability requires more than mere physical possibility. (11) requires it be in Carol's control to do hit the board. But it isn't — she could easily fail upon trying. (12) is not true either because *can't* entails *won't*. Consider:

(13) #Carol cannot/isn't able to hit the dartboard but she will.

(14) #Carol cannot/isn't able to hit the dartboard but she might.

Both claims are defective. But in **Dartboard** Carol might well hit the top of the board. So, since can't entails won't, it cannot be determinate that she

isn't able to.

In fact, *both* readings of know how claims give rise to this indeterminacy. To see this, elaborate further on **Dartboard**:

> **Handless Dartboard.** Before she can make any improvements in playing darts, Carol loses her hands in a terrible accident.

In this case, (9) and (10) *remain* indeterminate — since it was indeterminate whether she knew how before the accident, she counts neither as clearly knowing how nor clearly not knowing how afterwards. Indeterminacy is not just a feature of the ability entailing reading — *both* readings of know how claims can be indeterminate.

Indeterminacy is a distinguishing mark of ability modals, as opposed to circumstantial or metaphysical modals. After all, the claim

(15) Carol could hit the dartboard.

is unquestionably true in the first version of our case. But know how claims can share in this indeterminacy. This is strongly suggestive of a tight connection between know how and ability. Summing up, we have as a second piece of data:

> *Indeterminacy.* Both readings of know how claims can share the indeterminacy of ability claims.

2 Against Existing Explanations

My two data points pull against each other. *Two Readings* suggests variation in the relationship between know how and ability: some ways of understanding know how entail ability, others do not. *Indeterminacy* pulls the other way: since *both* readings of know how claims can be indeterminate, this suggests there is always *some* connection to ability.

In this section, I will deepen the tension. First of all, we will get a better sense of the puzzle by seeing how some basic intellectualist and anti-intellectualist views fail to account for it. Then we will consider some more

sophisticated strategies, developed primarily to handle Rachmaninov-style cases; I show that these also fail to explain the broader picture emerging from my data.

2.1 The Basic Tension

What is the relationship between knowing how and propositional knowledge? *Intellectualists* argue that know how just is propositional knowledge: for instance, knowing how to ride a bike just is knowing some proposition about bike riding (though perhaps in a special way). *Anti-intellectualists* argue that know how is *not* reducible to knowing that; typically they say that knowing how to ride a bike is a sort of capacity. To bring out the basic issues raised by my data, I first consider how some simple intellectualist and anti-intellectualist views might handle them.

Stanley and Willlamson (2001) provide the canonical version of intellectualism about know how. On their view, one knows how to A just in case one knows of some way that it is a way for them to A. Stated more formally, here is their official view:

(16) $[\![\text{S knows how to } A]\!]^w = 1$ iff there's some way W for S to A s.t S knows in w, under a practical mode of presentation, that W is a way for S to A.

The official view adds an appeal to *practical modes of presentation*, which is intended to avoid making know how attributions trivial. My objections will not turn on, nor be addressed by, appeal to these modes of presentation; so I will work with the simpler formulation throughout.

First, let's consider *Two Readings*. Stanley and Williamson insist that, on their understanding of it, there can be a way for you to do something, even when you are not able to do it. This is to capture the true readings of know how descriptions in **The Handless Pianist** and **The Armchair Ski Instructor**: Rachmaninov knows how to play his piano concerto because there is still a *way* for him to do so; Alice the ski instructor knows how to ski because there is a way for her to do so.

The problem is that it is then mysterious why there should also be *false* readings of know how ascriptions in these cases: after all, to secure the truth of various know how ascriptions, we are conceding that there are ways for the relevant agents to do the relevant actions.

Perhaps Stanley and Williamson are wrong about the relationship between ways and abilities; perhaps there can be a way for you do to something only when you are able to do it. But this would not leave the account overall better off: now we correctly predict the false readings of know how claims, but not the true ones. There is a dilemma regardless of which way we go: either ways do not entail ability and so we fail to predict one kind of know how ascription in **The Handless Pianist** and **The Armchair Ski Instructor**; or they *do* entail ability and we fail to predict the other.[5]

The view also struggles with *Indeterminacy*. Return to **Dartboard**. Here there determinately *is* a way for Carol to hit the dartboard. To see this, imagine Carol's identical twin Daniela, a much more experienced dart-player who can hit either the top or bottom of the board at will. Clearly there is a way for Daniela to hit the top of the dartboard — she knows how to do it after all. But whatever is a way for Daniela to hit the dartboard is also a way for Carol to do so, given that they are physically identical. So Carol's problem is not that there is no way for her to hit the dartboard; rather it is, at least in part, that she does not yet know what specific shots will lead her to hit the dartboard.

Given Stanley and Williamson's semantics, this means both know how ascriptions (9) and (10) are perfectly determinate. (9) is false, because, while there is a way for Carol to hit the dartboard, Carol does not know of any given way that *that* is a way for her to do so; (10) is true because (9) is false. This is the wrong result: neither of (9) and (10) should be clearly true or false. What's more, the reasoning here generalises: Stanley and Williamson fail to predict *Indeterminacy*.

[5] At this point, we might wonder practical modes of presentation can be help. But they face the same dilemma: either being acquainted with the proposition *W is a way to do A* under a practical mode of presentation entails ability or it doesn't; either way, one reading is unaccounted for.

Turn now to simple anti-intellectualism. Anti-intellectualism, strictly speaking, is a negative thesis, that know how does *not* reduce to knowing-that. However, most anti-intellectualists are driven by the idea that know how is a kind of *capacity*. On one view that capacity is just some kind of ability: Lewis (1990) proposes it just is *ordinary* ability; others, like Craig (1990), Wiggins (2012), Löwenstein (2017) and Habgood-Coote (2019), claim know-how is some more complex ability, involving perhaps responsiveness to normative considerations or the ability to answer questions. Another form of anti-intellectualism takes know how to be a kind of disposition: Setiya (2008, 2012) and Constantin (2018) give such a view; and arguably Ryle (1949)'s own view also falls into this camp.[6] I will focus on the simple ability and dispositional accounts; my arguments here illustrate the difficulties for other anti-intellectualists.

The simple ability view partially predicts *Indeterminacy*.[7] On that view, know how just *is* ability. And ability, as I already argued, itself gives rise to indeterminacy in situations like **Unreliable Dartboard**. It is indeterminate whether Carol can hit the dartboard; so, on the ability view, it is also indeterminate whether she knows how to hit it. More generally, since abilities are indeterminate in just such cases, it is indeterminate whether you know how to do something, when you neither reliably fail nor reliably succeed, when you try.[8]

However, anti-intellectualism struggles both with *Two Readings*. This is easy to see on the ability analysis. If know how just is ability, then all know how ascriptions must entail ability. So there cannot fail to be a reading of know how that does not entail ability.[9] Thus we fail to predict *Two Readings*. This problem applies to dispositional views too. What is the relationship between the dispositions relevant for know how and ability? Either they

[6] See for instance Weatherson (2006). However, Kremer (2017) argues Ryle's actual view does not belong in either of the intellectualist or anti-intellectualist categories.

[7] Whether this carries over to more sophisticated ability accounts depends on what such accounts say about the entailment from know how to ability.

[8] Dispositional views may capture this too, since plausibly it's also indeterminate in such cases whether you have the relevant dispositions.

[9] The objection is somewhat different for the more complex ability accounts mentioned above; but they will face the same dilemma as the disposition view does.

entail ability, or they do not; and in neither case do we predict *Two Readings*. If they entail ability, then *any* reading of a know how ascription will entail an ability claim. If they do not entail ability, then *no* readings will.[10] Either way, the relationship between know how and ability is dramatically oversimplified.

Finally, anti-intellectualism only *partially* explains *Indeterminacy*. We said that in **Handless Dartboard** it's still indeterminate whether Carol knows how to hit the dartboard. But her abilities are not indeterminate in this case: it is quite clearly determinate that the handless Carol cannot hit the dartboard. The entailment to ability is quite clearly an asset in explaining *some* variations on this case; but it does not explain the full range of indeterminacy that know how can be subject to.

2.2 Contextualism about Ability?

At this point, intellectualists and anti-intellectualists alike will question my desiderata. *Two Readings* says one reading of know how claims does *not* entail an ordinary ability claim. This is a natural place to push back: perhaps I simply have not looked hard enough for the relevant ability claim. For ability claims are highly context-sensitive and give rise to a range of readings.[11] Perhaps each know how claim is associated with a *particular* reading of ability; and once we isolate that reading, the entailment goes through. I argue this strategy fails: ordinary ability claims are still not context-sensitive enough to rescue the entailment from know how to ability.

Before getting into the details, notice this strategy can be pursued by intellectualists and anti-intellectualists alike.[12] It is particularly natural on

[10] The same dilemma faces the more complex ability views mentioned above: either the relevant complex ability entails ordinary ability or it doesn't; and either way one of my two readings is mischaracterised.

[11] To flag where my solution ultimately differs: I agree that context-sensitivity of ability will be important. But the context-sensitivity we will need *goes beyond* that of ordinary ability claims; I argue that the right context-sensitivity is distinctive of ascriptions of infinitival knowledge. Unlike the solution explored above, this is a distinctively intellectualist explanation of the data.

[12] For this reason, it is ultimately unlike the context-sensitivity I argue for.

ability accounts of know how: if know how is ability, one would expect it to give rise to the same wide range of distinctions as ability. But it can be pursued by certain intellectualists too: Stanley (2011), for instance, thinks that know how attributions contain a silent modal, which often expresses ability. The intellectualist version of this strategy says, in the counterexamples from know how to ability, the reading of modal in the know how ascription is not coordinated with that of the ordinary ability claim; and once it is, there is no counterexample.[13,14]

But this strategy does not make good on its promise: while ability modals are highly context-sensitive, no attested form of context-sensitivity fits the bill. A first natural strategy is to appeal to internal and external abilities. *Internal* ability is what one can do simply as a matter of one's *intrinsic* make-up; *external* ability is what one can do in one's *present circumstances*. [15] Imagine a chef skilled at preparing ratatouille, but lacking the right ingredients: they have the internal ability to prepare the dish but lack the external ability. Many ability modals can express either reading, depending on the context.

Return to our cases. Perhaps Rachmaninov and Alice the ski-instructor simply lack *external* abilities, but retain *internal* abilities to play the piano or ski.[16] I find this implausible — they lack the relevant abilities in *both* senses. To see this, notice that natural language itself distinguishes these senses of ability. While "can" and "is able" give rise to a range of readings, the locution "has the ability" specifically tracks internal ability. We might say of our expert chef:

(17) He is not able to make ratatouille — he doesn't have the ingredi-

[13] I ultimately agree with Stanley that the solution here is the silent modal. However, his explanation appeals to the *ordinary* context-sensitivity of modal claims: he asserts that the parameters for the ability claim are simply not coordinated with that of the know-claim. I think this cannot be right: ordinary ability modals are not context-sensitive in the same way as know how ascriptions.

[14] Notice as well this strategy would give a nice explanation of *Indeterminacy*: if all know how claims entail an ability claim, they all inherit the indeterminacy of ability.

[15] I take the name of the former kind from Glick (2012).

[16] Glick (2012) has defended something like this claim, at least for Rachmaninov-style cases.

ents.

But we would never for that reason say:

(18) He does not have the ability to make ratatouille.

For internal abilities are not affected by the absence of ingredients.

This gives us an independent grip on internal ability claims. I submit that the following is simply false in **The Handless Pianist**:

(19) Rachmaninov has the ability to play his Third Piano Concerto.

The same goes for Alice in **The Armchair Ski Instructor**:

(20) Alice has the ability to ski.

We cannot reject *Two Readings* by appeal to the internal/external distinction.

A second kind of context-sensitivity comes from the distinction between specific and general abilities. My drunken friend is not able to drive their car in their current state. But this is not the norm: usually they're not drunk and so are able. Call the former, the ability to drive in these exact circumstances, the *specific* ability to drive and the latter, the ability to drive in normal circumstances, the *general* ability.[17] Again, ability modals can express either form, depending on the context.

Do our agents have the relevant abilities in *normal circumstances*?[18] This does look promising, for **The Handless Pianist** at least: being handless *is* abnormal; normally Rachmaninov could play the concerto.

But this proposal exploits a non-essential feature of our case— that the absent ability is a normal one. It overlooks that our abilities may sometimes

[17] Notice internal ability is not general ability. One's internal abilities hold fixed one's internal state and abstract from contingencies of the agent's particular situation; this is exactly why we deemed the chef to have the internal ability. Not so for the general ability: for my drunken friend to have the general ability to drive we must also change their internal state to a sober one, in addition to possibly changing their circumstances.

[18] As mentioned above, it is natural to read Hawley (2003) as suggesting this strategy, in at least certain cases.

be *abnormal*; and when they are, we can lose them precisely because we become *more* normal. Take another variation on the Rachmaninov case:

> **The Briefly Gifted Pianist.** Imagine Rachmaninov possessed a freakish agility in his teens, one never before seen in the history of music. Further imagine he composed a version of his Third Piano Concerto that strictly requires such agility to be performed. Sadly, this agility simply vanished in his mid-twenties, leaving him a gifted but relatively normal pianist. Nonethless, he retains complete memory of how he used to play his Third Piano Concerto.

Recall once more:

(1) Rachmaninov knows how to play his Third Piano Concerto.

(1) again has a true reading: to make it especially prominent, imagine a second pianist has developed Rachmaninov's former level of ability and she wants to know who can teach her to play the Third Piano Concerto. (1) sounds like exactly what the pianist wants to know. But it is certainly not true that Rachmaninov is able to play his piano concerto in normal circumstances — his present circumstances are normal and yet he cannot play the piece. **The Briefly Gifted Pianist** is then a counterexample to the entailment from general know how to general ability.

Alternatively, lacking a certain ability might be neither normal *nor* abnormal. This is exactly the situation of Alice the ski instructor. Being able to ski is clearly not abnormal. But *not* being able to ski is not abnormal either — skiing is an ability acquired through hard work, not one that people necessarily have in normal circumstances. Thus it is simply not true that in *normal* circumstances, Alice is able to ski. Normal circumstances are compatible with various levels of skiing expertise, including none at all. Alice is another counterexample to the entailment from general know how to general ability. The specific/general distinction also fails to undermine *Two Readings*.

I see no grounds for further optimism here. Ability modals are indeed context-sensitive. Even still, one reading of a know how claim fails to entail *any* reading of an ability claim.

2.3 Knowing How *One* Does A

Another common move, when faced with cases like **The Handless Pianist** and **The Armchair Ski Instructor**, is to say that know how claims in fact are ambiguous. On one reading, the phrase "know how" talks about a distinctively practical state. On a different reading, "knowing how" talks about an *unrelated* state of propositional knowledge, knowledge of how *one* does something. I argue this strategy does not solve the broader puzzle I've sketched: first, it does not explain *Indeterminacy*; second, it does not explain the full range of Rachmaninov-style cases.

Let us first spell out in detail how this strategy is supposed to work. Various anti-intellectualists, among them Brown (1970), Hornsby (2005) and Löwenstein (2017), claim the philosophically interesting notion of know how, the distinctively practical notion, is only *one* of the things expressed by the phrase "knowing how". There is, they say, a completely separate reading of "knowing how" where one knows how to do A just in case they know how *one* does A. I'll call this latter state *pseudo know how*.

The point of making this distinction is to save the entailment from know how, in the distinctive practical sense, to ability. Recall again, that (1) and (3), repeated below, can be heard to say something true in their respective cases:

(1) Rachmaninov knows how to play his Third Piano Concerto.

(3) Alice knows how to ski.

Granted, they do not entail ability claims; but, according to this view, the true readings of (1) and (3) not about know how in the first place. Rachmaninov and Alice in fact *do not* know how, in the distinctively practical sense, to play the concerto or ski. (1) and (3) attribute to merely pseudo know how. (1) would be equivalent to the claim:

(21) Rachmaninov knows how *one* plays his Third Piano Concerto.

And (3) to:

(22) Alice knows how *one* skis.

Pseudo know how clearly does not entail ability. Nor does it entail know how: knowing how *one* skis doesn't mean *you* know how to do so. So we get an explanation of the truth of these claims, one consistent with saying that genuine know how claims *do* entail ability. This, it might appear, satisfactorily explains, or explains away, *Two Readings*. While pioneered by anti-intellectualists, this move is open to intellectualists too: Stanley and Willamson (2001) treat both Rachmaninov-style and ski instructor-style cases this way.[19]

Despite its naturalness, there are two serious problems with this strategy. First, it fails to explain *Indeterminacy*. Return to Carol and her dartboard. I said the following is indeterminate:

(9) Carol knows how to hit the dartboard.

It is even indeterminate in **Handless Dartboard**, once she has lost her hands. Now in **Handless Dartboard**, the ability claims are not indeterminate: it is simply false that Carol is able to hit the dartboard, if she has no hands. So this reading of (9) must concern the non-ability entailing pseudo know how reading. If that were so, (9) would be equivalent to the following:

(23) Carol knows how one hits the dartboard

Is there any reason to think that this claim is indeterminate?

(23) is context-sensitive; but the answer is no on any resolution of the context-sensitivity. In one sense, Carol clearly does not know the answer to the question in (23): she does not know what a normal person may or must do in order to hit the dartboard; all she knows how to do is aim and throw in the right direction and hope for the best. On another, much more

[19] Stanley (2011) maintains this account of the ski instructor case, more or less.

trivial sense, Alice does know the answer to the question: a normal person does whatever a professional dart player would do. On either way of understanding it, (23) is either determinately true or false. It is determinately true on the trivial reading; it is determinately false on the more demanding reading.

In the big picture, it is clear why Carol's know how is indeterminate: if she had her hands, it *would* be indeterminate whether she is able to hit the dartboard. But by severing any connection to ability, pseudo know how cannot take advantage of this fact. What *one* must do in order to hit a dartboard, or what she knows about this question, has little bearing on Carol's current abilities one way or the other.

The second issue for this strategy is that, by considering simple variations on our cases, we see pseudo know how is neither necessary nor sufficient for what Alice and Rachmaninov have.[20]

Take necessity first. In fact, Rachmaninov was a giant of a man, and his enormous handspan made possible various techniques that are out of the question for most. The way *he* would play his concerto is very different from how a normal pianist would attempt it. Let's suppose that the only way he knows how to play it is how *he specifically* would play it. None of this affects the truth-value of (1) as said in **The Handless Pianist**. But it *does* affect the truth of (21):

(21) Rachmaninov knows how *one* plays his Third Piano Concerto.

This is no longer clearly true, given the addition just made to the case — Rachmaninov's knowledge is extremely specific to *him in particular*.

For sufficiency, consider the following variation on the ski instructor case:

> **The Physically Atypical Armchair Ski Instructor.** Billy the ski-instructor, just like Alice, is a perfect teacher who cannot herself ski. But her unusual physique is extremely different from that of

[20] Bengson and Moffett (2011) also object to the sufficiency claim, but on rather different grounds.

> the average student, so much so that even if she were perform that sequence of actions, it would not result in *her* skiing; she would simply slip and fall.

The analogue of (3), our true claim about Alice the first instructor, doesn't sound right here. Consider:

(24) Billy knows how to ski.

What Billy knows about skiing would never result in *her* skiing. Rather we would want to say:

(25) Billy knows how *one* skis.

(26) Billy knows how you ski.

But if claims like (3) and (24) were merely pseudo know how claims, *both* should be true.

I submit pseudo know how is not a plausible substitute for know how. And without some other plausible substitute, it is implausible to deny know how to Rachmaninov and our ski instructors.[21]

[21] Following Hawley (2003), a final suggestion might be that in cases like **The Handless Pianist** ambiguity arises because the *activity* is underspecified. Rachmaninov knows how to *play the piano with two hands* but not how to *play the piano without hands*. There are three worries here. First, it's not entirely clear how to apply this proposal to Alice the ski instructor: what would be the more specific task that she *does* know how and is able to do? Secondly, this proposal struggles to capture the sense in which Rachmaninov *relearns* how to play the concerto: on Hawley's account, no know how was either lost or gained. Finally, as Hawley herself notes, this proposal overgenerates. I don't know how to speak Russian; but I do know that after extensive language courses and several years of living in Moscow, I would be fluent. Still there's no way of reading the know how claim where the activity is "speak Russian after five years of living in Moscow". Hawley's suggests that this reading is not accessible because it is trivial and not useful. But this does not solve the basic problem. Imagine I discover there is one last surviving speaker of a language thought to be dead. Here I know something extremely non-trivial, something no one else knows, namely that extensive study with this particular person will lead me to speak that language. Still, I cannot be truly said to know how to speak that language.

2.4 Moving Forward

The relationship between know how and ability is more puzzling than previously realised. Know how claims have two readings, only one of which entails ability. But both readings maintain *some* connection to ability because of their potential indeterminacy. Existing accounts fail to explain how this relationship could come about. Going forward, I will argue that intellectualists have special resources to account for this complex relationship. To do this, though, I will first motivate some more general claims about ascriptions of knowledge of infinitival questions.

3 Context-Sensitivity in Infinitivals

For the next two sections, I consign know how to the background and focus on ascriptions of knowledge of questions. In this section, I isolate an important kind of context-sensitivity, which will be central to my explanation of the data.

Intellectualists take know how to ascribe knowledge of a question.[22] But not just any old question — specifically, an *infinitival* question. Such questions combine a question word with a verb in the infinitival form. Consider:

(27) John knows *who to call*.

(28) Alice asked *where to find them*.

The italicised expressions here are infinitival questions.

Both have an essential modal element to their meaning. (27) says something like:

(29) John knows who he *can* call.

(28) says something like:

[22] When the intended meaning is clear, I will be sloppy about distinguishing between a question and an *interrogative sentence*, which takes a question as its semantic value.

(30) Alice asked where she *should* find them.

No true paraphrase of claims like these will be modal-free. Since Bhatt (1999), a simple explanation has been widely accepted: (27) and (28) contain silent modal operators. Their real structure is something like:

(31) John knows who CAN to call.

(32) Alice asked where SHOULD to find them.

The source of the modality is thus explained.

I argue that infinitivals are subject to a novel kind of context-sensitivity — they can be read *indicatively* or *subjunctively*. I trace this to a context-sensitivity of the covert modal. First, I'll argue that there are two readings; then I will characterise the difference between them; and finally I will argue for some claims about their distribution.

3.1 Motivating Indicative vs. Subjunctive

Start with a case:

> **Evening Newspaper.** It's midnight. You approach me on the street and ask where to buy a newspaper. All the stores I know of are all shut. (But there may be others that I don't know about.)

There are two possible ways for me to answer. I could say:

(33) I don't know where to buy a newspaper around here; all the stores I know of are shut.

This seems truthful — I can't advise you on where to get your newspaper. But surprisingly, the *opposite* answer also seems truthful:

(34) Yes, I do know where to buy a newspaper around here; but unfortunately all the stores are shut.

I do know where sells newspapers around here; it's just that information is currently no use to you.

This is not specific to knowing where. Take knowing what. We can easily imagine a situation where either of the following are apt:

(35) I don't know what to do.

(36) I *do* know what to do. The problem is *I can't do it*.

Similar examples can be found for knowing who infinitivals, knowing when infinitivals and so on.

So there is context-sensitivity in ascribing knowledge of infinitival question. But where does it come from? The culprit, I think, is the silent modal. Modals are, famously, context-sensitive — their meaning is partially determined by the information held fixed in the context. Take an example from Lewis (1979). An elected official says:

(37) I must either destroy the evidence or else claim I committed the crime to stop Communism. What else *can* I do?

The elected official holds fixed the fact that he will only do what is his own interests. Lewis replies:

(38) You can put the public interest first for once!

Lewis does not hold fixed the lawmaker's self-interest; he is trying to dislodge that assumption with his utterance.

Kratzer (1977, 1981, 1991)'s semantics for modals captures this feature by the addition of a specific parameter, a *modal base* f. The modal base represents the information held fixed in the form of a set of worlds;[23] this set restricts the possibilities a modal quantifies over. In claims like (37) and (38), the modal base is a silent argument of the modal:

[23] f is standardly a function from worlds to sets of worlds. But since we will not be much concerned with embeddings, my simplification is harmless. Kratzer also adds an ordering source; again this won't matter for my purposes.

(39) I must$_f$ either destroy the evidence or else claim I did it to stop Communism.

(40) You can$_{f'}$ put the public interest first for once!

Since the identity of f is a context-sensitive matter, so too is what is said by claims like (37) and (38).

My claim is that **Evening Newspaper**, and other cases like it, two possible modal bases are available in the context; one I will call *indicative* and the other *subjunctive*. Call this claim *Infinitival Modal Bases*:

> *Infinitival Modal Bases.* Modals in infinitival questions can take either an *indicative* modal base $f_{c,i}$ *or* a *subjunctive* modal base $f_{c,s}$.

3.2 Characterising Indicative vs. Subjunctive

I said that when we evaluate (33), we hold fixed different facts from when we evaluated (34); the two utterances draw on different modal bases. But what facts *do* they hold fixed exactly?

In saying (33), I hold fixed the actual fact that the stores are closed; I say that given my *actual* circumstances, I don't know where to buy a newspaper. I call this reading *indicative*. In saying (34) on the other hand I quite clearly am not holding *everything* fixed in my utterance. The modal does not hold fixed the actual fact that the stores are closed; I could paraphrase what I said with:

(41) I know where you *could* buy a newspaper, if it weren't midnight.

But I do continue to hold a lot of other things fixed, like what stores there in fact are, which ones stock newspapers and so on. The reading in (34) holds some but not all of the actual facts fixed. For this reason, I call this reading a *subjunctive* reading.

The same relationship plays out in the various different cases of knowing what, where, and why infinitivals. We have an *indicative* reading, which

holds fixed the actual facts; and a subjunctive reading which suspends some, but not all of the actual facts.

But what kinds of assumptions can the subjunctive reading suspend? We saw it can suspend facts about our environment. In **Evening Newspaper** it is midnight and the stores are closed. But the subjunctive reading in (34) clearly does not hold this fixed; for this reason exactly it gets to be true.

Crucially for know how, the subjunctive also can suspend assumptions about *our own physical constitution*. Consider:

> **The Maze.** We have been lost for hours in an enormous hedge maze with two exits. I know the way to exit A from where we are. But following that complex route would take several hours and we are both too tired now to make our way successfully. Neither of us knows where exit B is.

Here I can say either of:

(42) I don't know where to go to get out of the maze. We'll never make it to exit A.

(43) I do know where to go to get out of the maze. The problem is we're too tired to make it to exit A.

(42) is the familiar indicative reading. In (43), the subjunctive reading, the silent modal does not hold fixed our current physical conditions — it is (42) that does this and that claim is false for exactly this reason.[24]

[24] Even so, what one is actually like has *some* bearing — the subjunctive reading is distinct from pseudo know how. Simply amend our maze example slightly:

> **The Giant in the Maze.** Suppose the maze has just one exit. But I am not a normal height — I am Rachmaninov-sized — and I know of a point in the hedge where it dips just low enough for someone like me to climb over. (No one of normal size can make this climb.) Unfortunately my leg is broken and I can't execute the climb in my current condition.

Again, I can say:

(i) I know where to go to get out of the maze. The problem is I can't currently climb over that point in the hedge.

It does however appear that the subjunctive holds fixed our *knowledge*: if a known fact remains fixed subjunctively, so too is the fact that we know it. We see this in **Evening Newspaper**: the subjunctive reading clearly holds fixed my knowledge of where the relevant stores are and what they sell. We also see this in **The Maze**: there we hold fixed that I know where exit A is. And the subjunctive reading does not appear to *add* assumptions about our knowledge: in **The Maze** there is *no* true reading of

(44) I know where to go to get to exit B.

3.3 The Distribution of the Subjunctive Reading

My last claim is that the subjunctive reading is selective. It is not an instance of the more general context-sensitivity of modals, of the kind we saw in §2.2. The subjunctive reading is not accessible to modals in unembedded or indicative contexts.

Return to (43) in **The Maze**. The covert modal must have the force of possibility; there are two ways to get out after all. But we cannot paraphrase this with a straightforward claim:

(45) I know where we can go to get out of the maze.

This simply sounds false — if we tried to take the route to exit A, we would fail. The right paraphrase of (43) requires the modal to be in the subjunctive:

(46) I know where we *could* go to get out of the maze (if we weren't so exhausted). The problem is that exit is too far away for us right now.

But I cannot say either of:

(ii) a. I know where one can go to exit the maze.
b. I know where one goes to exit the maze.

After all, my knowledge is useless to the normal-sized. (Similar arguments to those in §2 show that pseudo know how is not sufficient for the subjunctive reading.)

Notice the same applies to knowing what. In **The Maze**, because I know the route to exit A, I can say:

(47) I know what to do. (The problem is we can't do it.)

It sounds much worse to say:

(48) I know what we should do.

Because we cannot make our way to exit *A*; and *should*, very often at least, implies *can*.

Why would infinitivals be special in this way? I conjecture it is because there is no *tense* or *mood* marking on infinitival questions. Compare:

(27) John knows who to call.

(29) John knows who he called.

In (29), the verb carries tense marking. Not so for the verb in an infinitival question like (27): since it appears in its infinitival form, it carries no tense marking. The same goes for mood. Mood, when it occurs, comes in one of two forms, indicative or subjunctive. But it's generally agreed by linguists that infinitival questions do not carry mood marking. Thus the question in (27) has no mood at all.

But tense and/or mood is responsible for the kind of background information we hold fixed for a modal expression.[25] Compare indicative and subjunctive conditionals:

(49) If Oswald didn't kill Kennedy, somebody else did.

(50) If Oswald hadn't killed Kennedy, somebody else would have.

The truth-conditional difference between (49) and (50) lies in what is held fixed. (49) sounds true because, in evaluating it, we hold fixed the actual

[25]The literature on mood and subjunctive conditionals now largely agrees that, in English, the difference is due to an extra layer of past tense in subjunctives. See in particular Iatridou (2000) for discussion.

fact that there *was* a shooter; (50) sounds false because when we move to the subjunctive we no longer hold this fixed. It's generally agreed by linguists that tense and/or mood are responsible for this difference in what is held fixed in conditionals, as well as a range of other constructions.[26]

My hypothesis is simple: when tense and mood are *absent*, modals can take either indicative or subjunctive modal bases. This hypothesis explains why modals in infinitivals get a larger range of interpretations. Unembedded modals are in the indicative and select indicative modal bases. Since mood is absent in infinitival questions, these covert modals are not constrained in the same way.

4 Background on Questions

To state my view, I draw on three ideas from formal semantics about knowledge and questions, all standard to intellectualism.

First, I assume the semantic value of a question is a *set* of propositions — specifically of answers. The semantic value of a question like:

(51) Who came to the party?

is a set like:[27]

(52) {*Alice came to the party*, *Bob came to the party*,... }

I assume *how*-questions are answered using by *by*-phrases. The question

(53) How do you get to Harlem?

has as its semantic value a set like:

(54) {*You take the A train*, *You take the B train*,... }

Secondly, I assume that to know a question is just to know an answer to

[26] See Portner (2018) for further discussion.

[27] For concreteness, I here assume the Karttunen (1977) view of answers. But the view of Hamblin (1973) and Groenendijk and Stokhof (1984) would serve my purposes just as well.

the question.[28] Following Karttunen (1977) I give "knows" two meanings. One is the standard propositional meaning:

(55) $[\![\text{S knows } p]\!] = 1$ iff p is true in all worlds compatible with what S knows.

The other is a question meaning, defined out of the propositional sense and which I mark with a q-subscript:

(56) $[\![\text{S knows}_q\ Q]\!] = 1$ iff $\exists p \in [\![Q]\!]$: $[\![\text{S knows}]\!](p) = 1$

This entry simply says that you know, in the question sense, Q just in case you know a proposition that answers Q.[29]

My final assumption is about the structure of infinitivals. Infinitival questions contain no overt subject: for example in (27), no subject appears before the infinitival "to call".

(27) John knows *who to call*.

But most linguists think the appearances here mislead: they posit a special silent pronoun in the question called *PRO*. So the actual structure of (27) is something like:

(57) John knows who *PRO CAN* to call.

PRO tends to corefer with the subject of the knowledge claim; so *PRO* here would refer to John. Acceptance of *PRO* is the dominant position, so I will simply assume it here.[30]

[28] There are some controversies over the quantifier here. Some know-wh ascriptions require knowledge of *all* the answers to the relevant question; others only knowledge of *some* answer. How to predict both is a difficult issue, one I set aside here.

[29] This ambiguity is not strictly essential. One entry could suffice, if we posited silent type-shifting operators, following Groenendijk and Stokhof (1984), or if we made all content inquisitive, following Ciardelli et al. (2018). I choose ambiguity to minimise formalism.

[30] There is a different, minority tradition that, following Dowty and Jacobson (1991) rejects *PRO* and instead takes *wh*-infinitivals to denote centered properties. Roberts (2009) shows this framework is equally hospitable to intellectualism.

5 Back to Know How

I say that know how involves knowledge of an answer to a question involving ability; but, as with infinitival questions generally, that question can be understood indicatively or subjunctively. Let us now put those pieces together.

First I assume, as intellectualists typically do, that knowing how is knowing the answer to a how-infinitival question; call this claim *Knowing How Infinitivals.*

Second, I say that the silent modal in know how ascriptions is an *ability* modal. We have seen that the relevant structure for a know how ascription is something like:

(58) S knows how *PRO MODAL* ϕ

I claim simply that this modal here is the same in kind as that in:

(59) I can hit the bullseye from this distance.

(60) I am able to hit the bullseye from this distance.

Call this claim *Covert Ability Modals*:

Put these together with our assumptions from §4 and we get that knowing how to ϕ is knowing that you can ϕ by α-ing, for some α. Given *Knowing How Infinitivals*, this is the structure of a know how claim:

(61) S knows$_q$ how *PRO* MODAL ϕ

Our semantics for questions and *Covert Ability Modals* assign (61) the schematic truth-conditions:

(62) $[\![$S knows$_q$ how *PRO* CAN$_f$ $\phi]\!]^c = 1$ iff there's some $p \in [\![$How CAN$_f$ *PRO* ϕ?$]\!]$: $[\![$S knows$]\!]^c(p) = 1$

The answers to how-questions are given by by-phrases, giving us:

(63) $[\![$S knows$_q$ how *PRO* CAN$_f$ $\phi]\!]^c = 1$ iff there's some $p \in \{$*S can* ϕ *by*

α-*ing*, *S can* ϕ *by* β-*ing*,... }: $[\![\text{S knows}]\!]^c(p) = 1$

And finally, simplifying further we have:

> **Know How.**
>
> $[\![\text{S knows}_q \text{ how } PRO \text{ CAN}_f\ \phi]\!]^c = 1$ iff there's some α such that $[\![\text{S knows}]\!]^c(S\ CAN_f\ \phi$ *by* α-*ing*$) = 1$

I add further substance to this schema — given *Infinitival Modal Bases*, which I motivated and explained in §3, there are two readings of know how ascriptions, corresponding to the two possible readings of the ability claim. When the modal base is indicative, we get an indicative know how claim of the form:

$$\text{S knows}_q \text{ how } PRO \text{ CAN}_{f_{c,i}}\ \phi$$

This kind of claim is true just in case S knows how they can ϕ, *given the actual facts about the case*. When the modal base is subjunctive, we get a subjunctive know how claim:

$$\text{S knows}_q \text{ how } PRO \text{ CAN}_{f_{c,s}}\ \phi$$

A subjunctive know how claim is true just in case S knows how they can ϕ, given only the facts held fixed *subjunctively*.

Given the groundwork from §3, we know a lot about the difference between these readings. Indicative know how is generally more demanding since it holds fixed *actual* obstacles to your ϕ-ing in the here and now; subjunctive ability need not.

6 Predicting the Observations

Given the more general indicative/subjunctive distinction in infinitivals, the correct relationship between know how and ability simply falls out of this account. Let us see exactly why both data points are predicted.

6.1 Two Readings

The basic explanation of *Two Readings* is simple: indicative know how entails ability; subjunctive does not.

Let's return to the **Handless Pianist**, where there are true and false readings of the claim:

(1) Rachmaninov knows how to play his Third Piano Concerto.

My theory assigns two possible structures to this claim, depending on whether the modal base is indicative or subjunctive:

(64) Rachmaninov knows how *PRO* $\text{CAN}_{f_{c,i}}$ play his Third Piano Concerto.

(65) Rachmaninov knows how *PRO* $\text{CAN}_{f_{c,s}}$ play his Third Piano Concerto.

The former is false and the latter true, I claim, because only the former entails an ability ascription.

Let's start with (64). On my semantics, it is equivalent to:

(66) Rachmaninov knows how he $\text{CAN}_{f_{c,i}}$ play his Third Piano Concerto.

which in turn is equivalent to:

(67) For some ϕ: Rachmaninov knows that he $\text{CAN}_{f_{c,i}}$ play his Third Piano Concerto by ϕ-ing.

Given the factivity of knowledge, this entails:

(68) For some ϕ: Rachmaninov $\text{CAN}_{f_{c,i}}$ play his Third Piano Concerto by ϕ-ing.

But $\text{CAN}_{f_{c,i}}$ is simply what ordinary ability ascriptions express: after all, those are ability ascriptions in the indicative mood. So (68) is equivalent to:

(69) For some ϕ: Rachmaninov is able to play his Third Piano Concerto by ϕ-ing.

And this claim is false. For if you are able to ϕ by ψ-ing, then you are able to ϕ; [31] it is just contradictory to say:

(70) I am able to bake a cake by following this recipe; but I'm not able to bake a cake.

We can then see that (69) must be false, as it entails the false:

(71) Rachmaninov is able to play his Third Piano Concerto.

But on its indicative reading, (1) entails (69); so (1) must be false too.

The above reasoning shows that, on its indicative reading, know how entails ability. If someone knows how to ϕ in the indicative sense, then, via the factivity of knowledge, there must be some ψ such that they are able to ϕ by ψ-ing; and this entails they are able to ϕ.

This is half of *Two Readings* — the indicative reading entails ability. Now take the subjunctive reading of (65):

(65) Rachmaninov knows how he $\text{CAN}_{f_{c,s}}$ play his Third Piano Concerto.

By the same reasoning as before, this entails a subjunctive ability claim:

(72) Rachmaninov $\text{CAN}_{f_{c,s}}$ play his Third Piano Concerto.

But subjunctive ability does not suffice for an ordinary, indicative ability

[31] A possible exception to this inference is ϕ itself: one might think it's trivial that one can ϕ by ϕ-ing; it is not however in general trivial that one can ϕ.

I am inclined to reject the premise of this argument: it does not seem trivial to me that one can ϕ by ϕ-ing. To my ear, this claim suffers from presupposition failure. ϕ-ing is after all not a *means* to do ϕ; it just *is* the relevant activity.

For those not inclined to this response, I appeal to a restricted form of the inference that stipulates that ϕ-ing is not identical to ψ-ing. This inference at least looks safe to me; moreover, it seems plausible that we can restrict the domain of activities ranged over by the how-interrogative to exclude ones that would make the answer trivial.

ascription. Recall the maze: though I may count as able to escape the maze, given *some* of the background facts, I do not count as able given all of them.

Moreover, it's plausible that Rachmaninov has the subjunctive ability to play the concerto. The subjunctive reading does not hold fixed all the actual facts about one's physical constitution. So Rachmaninov's main barrier to ability, his handlessness, need not hold fixed by the subjunctive. Moreover there is a very natural subjunctive paraphrase of what claims like (1) mean in cases like **The Handless Pianist** — they say that Rachmaninov knows how he *could* play the concerto, if he had hands.

The subjunctive reading delivers the second half of *Two Readings*: it entails a subjunctive ability claim, but this does not in turn entail an ordinary, indicative ability claim.

6.2 Indeterminacy

Indeterminacy is explained because both indicative and subjunctive ability can be indeterminate; and this indeterminacy projects into knowledge claims.

Recall:

> **Dartboard.** Carol is at an early stage in learning to play darts. Half of the time she hits the dartboard when she tries; half the time she misses it completely.

We said that it is indeterminate whether Carol is able to hit the dartboard: it neither seems right to say she can, nor that she can't. It is also indeterminate whether she knows how to hit the board.

What else can we say about Carol's knowledge here? It is clearly wrong to say that Carol *knows* she can hit the board. But so too is the negation here:

(73) #Carol doesn't know that she can hit the board.

The indeterminacy of her abilities projects into the knowledge ascription. This is no mystery: knowledge ascriptions presuppose their prejacent is

true; and presupposition is standardly modelled as entailment.

This indeterminacy also projects into knowledge of certain *questions*. Consider:

(74) Carol knows how she is able to hit the board.

No action available to Carol settles that she hits the dartboard; so unsurprisingly (74) is not true. But again, neither is its negation:

(75) Carol doesn't know how she is able to hit the board.

There appears to be another presupposition at work: (74) and (75) both presuppose that there is indeed some way that Alice can hit the dartboard. This not being true, *both* fail to be true and so are indeterminate. The data support a generalisation here:[32]

> *Presuppositions of Known How-Questions.* A sentence of the form ⌜S knows how R can ϕ⌝ is determinate only if ⌜R can ϕ⌝ is true.

Given this generalisation, my theory explains why it is indeterminate whether Carol indicatively knows how to hit the dartboard. In situations like **Dartboard**, the presuppositions of know how ascriptions are simply not met: there is no way that you are indicatively able to ϕ. Thus indicative know how claims will be indeterminate, as desired.

This explanation carries over to the subjunctive reading also. We said that, when Carol loses her hands, it is still indeterminate whether she knows how to hit the dartboard. Here it is also indeterminate whether she has the subjunctive ability to hit the dartboard. The subjunctive reading of the modal here will not hold fixed Carol's actual handlessness. Here it is plausible that it will instead hold fixed that she does have her hands. And, as we said before, if she did have her hands, it would be indeterminate whether she was able; thus the subjunctive reading is indeterminate. From

[32]Moreover, this presupposition is easily derivable from the factivity presupposition of knowledge plus the presuppositions of *wh*-questions.

here, the explanation is the same as for the indicative: the know how claim is indeterminate because all of the possible answers to the question are too.

7 The Argument for Intellectualism

I think the foregoing is a powerful new argument for intellectualism. Let me summarise to make this argument clear.

I claimed that knowledge of infinitival questions is context-sensitive in a *distinctive* way: such claims can be read either indicatively or subjunctively; the subjunctive does not hold fixed many things that are actually the case. I argued that the subjunctive reading is *not* typically expressed by ordinary ability claims: it is not an instance of the more general kind of context-sensitivity that we examined in §2.2 and that either intellectualists or anti-intellectualists might appeal to; the subjunctive holds fixed quite different things from the ordinary context-sensitivity available to ability modals. These claims were all motivated *independently* of any assumptions about know how.

I then showed that, on the assumption that know how ascribes knowledge of an infinitival question about ability, the relationship between know how and ability is fully explained. The indicative reading of know how entails ability; the subjunctive does not. And both kinds of reading can inherit the distinctive indeterminacy of ability. We thus resolve the puzzle we started with: we explain the apparent heterogeneity in the relationship between know how and ability; but without ever completely losing any connection between know how and ability.

This is a powerful argument that know how ascribes knowledge of an infinitival question: supposing it does so explains some otherwise very recalcitrant data. But the claim that know how ascribes knowledge of an infinitival question leads straight to intellectualism: as we said, ascribing knowledge of a question is just ascribing knowledge of a proposition that answers the question. So if know how ascribes knowledge of how to do A then one can be truly said to know how to do A only if one knows some proposition about doing A.

Intellectualists still have various debts to pay: they must explain the appearance of know how without belief;[33] and they must account for apparently special epistemic properties of know how.[34] Nonetheless, I contend, we have a powerful new argument for the view.

8 No Practical Modes of Presentation

Before concluding, let me address a particular family squabble. Stanley and Williamson famously that know how cannot be not *ordinary* propositional knowledge, but propositional knowledge under a special *practical mode of presentation*. The account I give makes no mention of modes of presentation because I do not think they are necessary.

The problem for Stanley and Williamson is simple. There are trivial ways for you to know that something is a way for you to do A: if I see someone very like me cycling a bike then I know that whatever they are doing is a way to cycle a bike; but clearly this does not suffice for me to know how to cycle. Stanley and Williamson's diagnosis is that this proposition is not known under the practical guise necessary for know how. There have been serious attempts to spell out what these guises amount to, in particu-

[33] Wallis (2008), Cath (2011) and Brownstein and Michaelson (2016) all argue that know how can be possessed without any corresponding belief. While I cannot engage with all the details of this challenge here, I suspect this is a more general puzzle about knowledge. When I go to the ATM, I run on auto-pilot — I could no longer tell you the digits of my PIN. But suppose an alien, watching me at the ATM, asks you to explain my actions; you could say:

(i) They know that *that's* what they have to do to get money out of the machine.

It would be pretty strange to say instead say:

(ii) That's what they have to do to get money out of the machine; but they don't know that.

Do I have the corresponding beliefs here? I do not know. But I conjecture the best explanation of this case extends to the putative cases of know how without belief.

[34] Cath (2011, 2015) makes the case that know how can be possessed even in the face of Gettier-like luckiness. Again, I suspect this is a puzzle about knowledge, not know how: Marley-Payne (2016) observes that, despite the presence of epistemic luck in Cath's cases, we cannot attribute know how and deny knowledge in the same breath.

lar by Pavese (2015, 2017, 2019). Even still, the appeal to practical modes of presentation hurts intellectualism's credibility in the eyes of many.[35]

There is no problem of easy know how for indicative ability. As Brogaard (2011) observes, if know how entails ability, then there is a simple reason why easy know how is not possible: the agents lack the relevant abilities. Just seeing someone cycle does not give me the ability to cycle.

There is also no problem of easy know how for subjunctive ability. First note that, to figure out what your abilities are, your physique and environment alone do not suffice; what you *know* matters too. Consider a simple version of **The Maze**:

> **Ignorant Maze.** You and I are lost in a hedge maze. We are in peak physical condition, but neither of us knows where the exits of the maze are located.

The following is false:

(76) I am able to lead us out of the maze.

But not for lack of *physical* abilities: I am perfectly able to go through the sequence of motions that would lead us out of the maze. It is because I do not *know* where the exits are that I am not able to get us out. Ability has an epistemic, as well as a physical, component.

I argued in §3 that the subjunctive readings hold fixed our actual knowledge. Thus, subjunctive know how will often constrain only a subject's knowledge. It does not require much of you or your environment that you *could* ϕ, if things were different. But since the subjunctive holds fixed your actual knowledge, it does require that you *actually* have the requisite propositional knowledge for subjunctive ability. Lacking such knowledge will bar you from subjunctively knowing how to ϕ, as the subjunctive does not vary what you know.

But this knowledge is lacking in the cases of easy know how. Start by imagining I have an identical twin, who has just learned to cycle. What

[35] See in particular Koethe (2002), Schiffer (2002) and Glick (2015).

is the difference between us? We have the same physical abilities; and yet only one of us can cycle. I think the difference lies in what we *know* about cycling. I know very little, just that some demonstratively identified way is a way to cycle. My twin knows a lot more: through practice, they know they have to push off at a certain speed to stay balanced, that they must exert a certain force on the pedals to achieve this speed and so on. The problem of easy know how arises for Stanley and Williamson because they do not require *enough* propositional knowledge.

Pavese (forthcoming) thinks this response is insufficient, arguing that practical modes of presentation are still required, even if know how entails ability. She gives the following case:

> Mary is a skilled swimmer who is one day affected by memory loss and so forgets how she is able to swim... Nothing has changed in Mary's physical state: she is still able to swim but she just has forgotten how she is able to swim. Suppose she is told, by looking at a recording of her swimming the day before, that that is how she can in fact swim given her current physical state. She might come to know how she is in fact able to swim (just like that!). Yet, she still fails to know how to swim in the relevant sense and would still drown if thrown into the pool. (Pavese (forthcoming))

Pavese claims we cannot explain Mary's lack of know how by appeal to ability: it is supposed to be *true* that she is able to swim.

I do not share this judgement about Mary. As Pavese notes, she would drown if thrown into the pool — but this is hardly the mark of those able to swim. I agree it is *physically possible* for her to swim, but this is not the same thing as ability. Ability, as I just noted above, places epistemic requirements on subjects, as well as physical ones. This is exactly what Mary loses in this case; and so she loses the ability to swim.

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