# NAVIGATING THE BOUNDARIES OF KNOW-HOW AND ACTION

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ABSTRACT: In recent philosophical exploration, a study delves into the essence of knowledge and intentional action, examining know-how and its connection to success. Carlotta Pavese's "Know-How, Action, and Luck" (2018) reevaluates know-how, asserting its similarities with know-that. Pavese introduces a novel perspective by exploring the value of know-how and intentional action. Emphasizing the role of knowledge in explaining success, she argues that know-how, as a form of knowledge, accounts for success. Using intentional action as a link to propositional knowledge, Pavese establishes the importance of know-how. I will delve into the nuances of these theories while scrutinizing Pavese's work, discussing their complementary aspects and potential areas for refinement. This approach aims to provide a comprehensive evaluation of Pavese's contribution within the broader context of contemporary philosophical discussions. Through this comprehensive assessment, I will demonstrate that know-how is not merely a form of know-that.

KEYWORDS: know-how, intentional action, intellectualism, anti-intellectualism, propositional knowledge

Carlotta Pavese's work, "Know-How, Action, and Luck" (2018), attempts to argue once again that know-how is a kind of know-that. She provides a new perspective on this matter by considering the value of know-how and intentional action. On one hand, the value of knowledge (one aspect of it) lies in its explanatory power for success, and since know-how contains or is knowledge, it follows that know-how can also account for success. On the other hand, the argument that "know-how is, or involves, a belief state epistemically alike propositional knowledge" utilizes intentional action as an intermediary. Pavese first establishes that know-how is a necessary condition of intentional action and then demonstrates that even though the agent has true and justified beliefs, they may not intend to perform a certain action, thus showing that true and justified beliefs alone are insufficient to establish know-how. This is consistent with the nature of knowledge, and therefore, it proves the relationship between these two. Pavese takes an intellectualism standpoint and challenges the traditional anti-intellectualist view on how know-how is ascribed in English. Additionally, she contributes new evidence against anti-intellectualism by analyzing previous researchers' works and highlighting the different types of luck present in Gettier-style cases. In some cases, know-how and luck are compatible,

while in others, they are not. When they are incompatible, know-how exhibits similar characteristics to knowledge, which contradicts the notion that know-how and know-that are completely distinct.

Furthermore, it is crucial to underscore that Carlotta Pavese's article synthesizes the latest research on know-how, incorporating several pivotal theories within the philosophical landscape. I will delve into the nuances of these theories while scrutinizing Pavese's work, discussing their complementary aspects and potential areas for refinement. This approach aims to provide a comprehensive evaluation of Pavese's contribution within the broader context of contemporary philosophical discussions on know-how. This approach aims to provide a comprehensive assessment of the latest theoretical advancements, demonstrating that know-how is not merely a form of know-that, within the broader context of contemporary philosophical discussions.

The entire article forms a coherent argumentative framework, which I have summarized as follows:

Argument 1:
P1. "The ability to intentionally φ is entailed by knowing how to φ". [Q1]
P2. "S knows how to φ just in case S has the ability to intentionally φ". [Q2]
C1. Knowing how to φ and having the ability to intentionally φ are mutually sufficient and necessary conditions for each other.
P3. Intentional action requires true beliefs as a necessary condition. [Q3]
P4. Knowing that requires true beliefs as a necessary condition.
C2. Know-how is, or involves, a belief state epistemically alike propositional knowledge. (P3, P4, C1)

**Argument 2:**
P5. If know-how and know-that are different, then know-how and know-that have properties in the realm of luck that are entirely distinct.
P6. Know-how and know-that have properties in the realm of luck that are not entirely distinct.
C3. Know-how and know-that are not (completely) different.

**Argument 3:**
P7. A good explanation of successful action is that the success is non-fluke.
P8. An explanation of successful intentional action φ is S know-how to φ.
C4. A good explanation of successful intentional action is that the success is non-fluke, and a good explanation of S knowing-how to φ is that the knowing-how to φ is also non-fluke. (P7, P8, C1)
P9. Know-how has a safety requirement. [Q4]

P10. Know-that has a safety requirement.
C5. Know-how and know-that are similar in terms of safety requirement. (But it fails to establish that know-how has the same epistemic profile as knowledge)

**Argument 4:**

P11. "Intentional action requires more than true and justified belief." (An agent with true and justified belief is still not intentional doing φ.).
C6. An agent with true and justified belief still doesn't know how to φ. (P11, C1)
P12. An agent with true and justified belief still lacks knowledge. (C6, P11)
C7. Know-how is, or involves, a belief state epistemically alike propositional knowledge. [Q5]

Therefore, Pavese presents four main arguments to establish the relationship between know-how and knowledge. Her arguments will be further explored in this paper. However, in my opinion, there are some flaws in these arguments, my doubts are marked on the argument with Q1 to Q5, and I will discuss them simultaneously. Overall, Pavese's attempt to prove that know-how is propositional knowledge is not entirely successful. It is entirely possible that know-how is not a form of knowledge but merely shares some similarities with knowledge in the mentioned aspects.

## 1. Argument 1

Starting from the first argument, Pavese's ideas of discussing and reshaping primarily focus on the "orthodox assumptions" presented by Cath (2011, 113). Cath puts forward three arguments against intellectualism, each based on one of the three orthodox assumptions: (i) an anti-luck condition, (ii) a justified belief condition, and (iii) a belief condition.[1] Her entire argument revolves around these three points, and argument 1 deals with the "belief condition".

Pavese argues that knowing how to φ is a sufficient and necessary condition of having the ability to intentionally φ. First, knowing how to φ is a necessary

[1] Cath provides common counterexamples for each condition (2011: 113). Against (i): Intuitively, someone can know how to φ without having the kind of knowledge that appears to be equivalent to knowing that how, because the agent's relevant beliefs are only accidentally true. Against (ii): Intuitively, someone can know how to φ without having the kind of knowledge that could be reasonably equated with knowledge-how, because their relevant beliefs are mistaken (i.e. the beliefs are unreliable or cognitively irresponsible, though correct, but lack the requisite justification or warrant for knowledge). Against (iii): Intuitively, someone can know how to φ without having the kind of knowledge-how that can be reasonably equated with knowing how, because they lack the relevant beliefs (do not believe it).

condition of having the ability to intentionally φ. "The ability to intentionally φ is entailed by knowing how to φ" (S1597). Pavese cites an example proposed by Ryle (2009, 21-22), where both a clown and a clumsy man trap and tumble, but the clumsy person's stumble and roll do not manifest know-how because they are not intentional. The clown's know-how is not only manifested in their stumble and roll but also in his intentional performance of stumbling and intentional rolling.

Second, knowing how to φ is a sufficient condition of having the ability to intentionally φ. This is a principle widely recognized in the debate between intellectualism and anti-intellectualism, known as the 'Know-how/Intentionality' principle.

> **Know-how/Intentionality:** "S knows how to φ just in case S has the ability to intentionally φ". (S1598).

This proposition is endorsed by many cases. For example, Susie has the ability to perform action A and the intention to make Joe angry by doing A, but Joe gets angry because of Susie's action B (Hawley 2003, 27; Setiya 2011, 297). So Susie would not be considered as intentionally provoking Joe because she does not know the correct way to annoy Joe.

Therefore, it is not difficult to conclude that knowing how to φ and having the ability to intentionally φ are mutually sufficient and necessary conditions. The first argument can be expressed as follows:

> P1. "S knows how to φ just in case S has the ability to intentionally φ". [Q1]
>
> P2. "The ability to intentionally φ is entailed by knowing how to φ". [Q2]
>
> C1. Knowing how to φ and having the ability to intentionally φ are mutually sufficient and necessary conditions for each other.

The question of what "ability" means in the context of "having the ability to intentionally φ" raises another set of arguments. Pavese reduces the ability for intentional action to a "doxastic attitude", which, she prefers a weaker claim that intentionally φ requires a true belief about how to φ (S1598). Intentionally φ necessitates beliefs about how to φ, which is a common viewpoint in action theories and philosophical psychology. Having beliefs about how to φ is equivalent to having a plan before φ-ing, where an agent believes he will achieve the goal behavior through that plan. Stronger evidence suggests that having a prior plan is a robust guarantee of successfully completing a task; otherwise, success can only be attributed to fortunate happenstance. The success of goal-directed action not only requires a prior plan but also demands that the plan is correct, meaning that the beliefs need to be true, as explaining success with erroneous beliefs is not a sufficient explanation. Susie wouldn't be considered intentionally annoying Joe because she has mistaken

belief about how to annoy Joe. Therefore, true beliefs become a necessary condition of the ultimate success of intentional actions by an agent. Furthermore, if knowing how to φ and having the ability to intentionally φ are mutually sufficient and necessary conditions, then true beliefs also become a necessary condition of the agent's know-how.

In terms of knowledge definition alone, regardless of whether one agrees with a Gettier-style of knowledge definition, true belief is widely regarded as an important component of knowledge. Therefore, true belief is a necessary condition of knowledge. Thus we can infer that true belief is simultaneously a necessary condition of both know-how and propositional knowledge, although the article does not directly state it. At least it can be concluded that know-how and propositional knowledge share a structural similarity.

Moreover, Pavese presents a requirement for true beliefs that are conducive to successful intentional actions, namely "Intentionality/Belief: If one successfully intentionally φs at t, then at t one believes, for some way ψ of φ-ing, that one is sufficiently likely to φ by ψ-ing" (S1600). "What counts as 'sufficiently likely' may vary with the task at hand (and the circumstances under which the task is being performed)" (S1600). This proposition sets a relatively loose requirement that allows for the existence of failed actions. For example, in basketball, a player may only successfully make a three-point shot once out of eight attempts or may have doubts about their success, but they may still intend to make the shot when they do succeed. The content of the Intentionality/Belief proposition is highly similar to the definition of know-how according to intellectualism[2]. By incorporating the previous notion that know-how is equivalent to intentional action, it can be concluded that "this sort of belief is the same sort of belief that intellectualists require of know-how" (S1600), which further demonstrates the consistency between know-how and knowledge. So the second argument goes like:

> P3. Intentional action requires true beliefs as a necessary condition. [Q4]
>
> P4. Knowing that requires true beliefs as a necessary condition.
>
> C2. Know-how is, or involves, a belief state epistemically alike propositional knowledge. (P3, P4, C1)

In this section, Pavese easily demonstrates that knowing how to φ and intentionally φ are mutually sufficient and necessary conditions, and true belief is a necessary condition of an agent's ability to intentionally φ, knowledge of how to φ, and know-that, showing a strong identity between know-how and knowledge.

[2] According to early formulations of intellectualism (Stanley & Williamson 2001; Stanley 2011), one only knows how to φ if one believes that ψ is a way of φ-ing for some way ψ.

However, there are still inconsistencies in the conclusion drawn from the widely accepted viewpoint. C1 states that knowing how to do something is equivalent to having the ability to intentionally do it. From my perspective, firstly, there are situations where one knows how to φ without intending to do it, and there are also cases where one intends to do something but does not know how to do it yet still succeeds in accomplishing it. (Q1 and Q2) Secondly, intentional actions can exist without true belief, and true belief is not necessarily a necessary condition of intentional actions. Furthermore, true belief is not necessarily a necessary condition of know-how. (Q3)

Let's start with the first objection. The situation of an agent "knowing how to φ without intending to do it" (when we are actively doing φ) often occurs in our subconscious reactions, habitual actions, and so on. In other words, we can manifest know-how without intentionally doing the action that manifests know-how. These activities rarely involve complex movements, and some behaviors may have become habits to the extent that people can perform them automatically. For example, when the alarm clock rings while sleeping, many people automatically get up to turn it off and continue sleeping. Or smoothly turning off the lights and locking the door when leaving home, people may not even be aware of performing these actions and may even doubt if they locked the door after leaving, exhibiting behavior that is psychologically referred to as 'Obsessive-Compulsive Disorder' symptoms. Other behaviors occur in mechanical tasks or jobs where people may have mastered the steps and techniques of the operation to the point where they can perform them automatically during the execution process without specific intention. For example, experienced chefs working in restaurants often develop a set of fixed movements and procedures when cooking a particular dish, and they can naturally follow these steps without consciously thinking about what they should do at each step. These situations can serve as strong evidence against the previous viewpoint.

When the behavior becomes more complex, there are also cases where intentional actions are not a necessary condition of knowing how to φ. Let's consider the example of the Strategic Bomber case provided by Sarah Paul (2009). The strategic bomber intends to bomb an enemy munitions factory to disrupt the enemy's war effort. After much thought, the bomber realizes that bombing the factory would also damage a nearby school and kill some students. He seriously considers this fact when considering how to proceed and express deep regret for the outcome of killing children, but he ultimately decides to proceed with dropping the bomb. The bomber does not intend to kill the children; he is not terrorist, and he wouldn't track the children with their bombs if they happened to move elsewhere. For him, it is an unfortunate side effect in pursuing his intended goal. Nevertheless,

the bomber knows how to drop the bomb and destroy the school, and he successfully accomplishes it, but it would be inappropriate to say that he intentionally bombed the school and killed some children because of it.

Regarding the counterexample of an agent "intending to do something but not knowing how to do it yet succeeding in accomplishing it", I will exclude extreme cases where the agent succeeds purely by luck to avoid excessive interference. It should be noted that knowing how to do something with intentional action is entirely different from purely know-that. Anscombe's (1957) famous viewpoint "if an agent is φ-ing (intentionally and under that description), she knows that she is φ-ing" emphasizes that the agent has knowledge of what she is currently doing, which pertains to her control over her actions. Having the intention to φ and knowing that one is φ-ing are both immediacy.

And know-how encompasses a broader range of content. When the activities are more complex, it involves methods or principles of actions. Additionally, according to Pavese, knowing how to φ precedes the action φ (in terms of planning), allowing for the existence of a situation where at the beginning of φ, an agent can consciously intend to φ and know that they are φ-ing, but not know how to φ. I believe that the existence of the term 'know-how' is premised on having a formed operational method for a particular behavior, which is a kind of 'summative' knowledge derived from extensive actions, anyway for those who are the first to try tomatoes, they have to experience them before knowing them. Therefore, even when no one knows how φ should be done, they can still intentionally do it. For example, any action that gradually finds its way through trial and error satisfies this situation. Let's consider the case of linguists interpreting an alien language. In the movie *Arrival*, there is a situation where the alien language system is completely different from humans', and the linguist's initial use of the linear structure of human language on the alien language proves to be futile and meaningless. It is only when the protagonist communicates with the aliens and gradually identifies a circular non-linear mode of communication from the alien symbols that she begins to understand their language system. Throughout the process of interpreting the alien language, knowledge of how to interpret it is acquired through continuous exploration, trial and error, and summarization. The intentionality and knowledge of "interpreting the alien language" are present in the protagonist's actions. Furthermore, even though she was initially perplexed by the completely unfamiliar written language, we would not consider the linguist as lacking the ability to interpret the alien script. Her expertise and professional skills ensure her successful completion of the task, but this situation cannot be simply summarized by know-how. In summary, due to the temporal difference between know-how and

knowledge, there exist counterexamples of "intending to do something but not knowing how to do it yet succeeding in accomplishing it".

The second objection is directed at the conclusion that "intending to φ requires belief about how to φ". This is because there are cases where the agent does not meet the condition of true belief but still intentionally performs certain actions. It is worth noting that Pavese does not limit intentional actions to 'successful' outcomes, which leaves room for many counterexamples. However, I will only present counterexamples targeting the narrowest requirement (successful action). Pavese points out that 'basic actions' should be situated at the most foundational level in actions. These actions are independent and can be performed without the need to execute other actions. Opening one's mouth, walking, stretching the body, blinking, breathing, and other physiological behaviors are basic actions that we perform countless times every day. In daily life, we can consciously open our mouth without having the belief "I plan to open my mouth". Although we can do basic actions without performing occurrent beliefs, Stanley argues that "propositional knowledge can be manifested without any prior basis" (Stanley 2011, 17). He believed that "if the functionalist conception of belief is correct, manifesting a belief is manifesting a dispositional state—just like, for Ryle, manifesting one's knowing how is manifesting a dispositional state" (Stanley 2011, 17). This implies that intellectualist do not take this as a serious problem.

So in order to make a solid defence, I will appeal to the explanation of complex behavior. In short, the belief of "how to φ" cannot provide an explanation for understanding or rapid learning, which primarily involves personal abilities. "We may grasp a complicated thought quickly, see the point of a philosophical argument or notice subtle differences between different interpretations of a piece of music" (Brandt 2021, 160), or when I try to understand what a painting in an art exhibition is conveying, it cannot be described by a proposition like "S believes that ψ is the way to understand artworks".

Understanding a philosophical argument goes beyond having knowledge or concepts related to it.[3] It requires the ability to employ reasoning and logical skills, as well as analytical and critical thinking abilities. This capacity involves comprehending complex concepts, abstract thinking, making connections and deductions, and having keen insights into argument structures and logical

[3] Some philosophers think that 'having' the relevant concepts is equivalent to having certain abilities. That is to say, to equate understanding with the concept of knowledge, such as Peter Unger's view of blurring the boundary between knowledge and understanding in his book *Ignorance: A Case for Scepticism*. But these views are often in the minority and not dominant in philosophical circles. Most philosophers consider understanding to be a more complex concept.

deductions. And distinguishing different music entails being attuned to music elements such as melody, rhythm, harmony, timbre, etc., and understanding emotions, expression, and artistic intent.

These behaviors involve abilities that go beyond a simple knowledge base, requiring individual thinking, insight, logical reasoning, perceptual capabilities, and emotional understanding, most of these abilities cannot be transformed into belief states. The view I am discussing here differs from Ryle's challenged claim that action requires propositional knowledge to guide it. Ryle argues that "the agent must first go through the internal process of avowing to himself certain propositions about what is to be done; only then can he execute his performance in according with those dictates" (2009, 18). This claim is considered not detrimental to intellectualism, as intellectualists can argue that actions are guided by propositional knowledge, but the guidance does not necessarily precede the action. But as for Pavese, her position demands a close connection between "beliefs about how to do φ" and intentional actions, indicating that once the belief about how to do φ is absent, φ cannot be intentionally performed, whether prior to or during the action. However, my argument demonstrates cases involving skilled behaviors where relevant beliefs that cannot be expressed in propositional form or beliefs that do not emerge throughout the process are allowed to exist. Therefore, the argument whose conclusion is "intentionally φ-ing requires a belief about how to φ" is refuted. Additionally, Pavese's exposition also involves treating this belief as a pre-action plan, explicitly stating that "a requirement of intentional actions that they be 'caused by action plans' .... where an action-plan includes a set of beliefs about the means to be taken in order to φ" (S1599). Plans inherently possess a temporal priority, which falls into the predicament of vicious regress that intellectualists try to avoid. Simply put, if a plan is required as guidance before an action, then the preceding action also requires guidance from a plan, and the action before that would require one as well, leading to an infinite regress. (Ryle 2009, 20)

Pavese presents a counterargument to the above objection as follows:

> **Basic Action:** φ is a basic action for s at t just in case s can (at t) φ intentionally without intentionally performing any other action. (S1605)

Based on the possibility of intentional actions containing beliefs, the following definitions can be provided for the properties of an action token:

> **Intentionality$_{minus}$**: a property that an action-token possesses just in case (i) the action is intended and (ii) it is caused in the right non-deviant way by that intention[4].

[4] Non-deviant way can be understood as a non-extreme case, referred to as not being 'produced

> **Intentionality$_{plus}$:** a property an action-token possesses just in case (i) the action is intended, (ii) it is caused in the right non-deviant way and, in addition, (iii) it satisfies a belief requirement. (S1605)

By applying these two definitions to Basic Action, two different definitions of basic action can be obtained: Basic Action$_{minus}$ and Basic Action$_{plus}$. Pavese argues that Basic Action$_{plus}$ should be chosen over Basic Action$_{minus}$ because "only actions that can enter in plans that are available to the subject at a time are plausible candidates for being basic actions for a subject at that time" (S1605). If the agent cannot plan basic actions, then the agent cannot plan complex actions built upon basic actions.

In my view, this rebuttal has the suspicion of circular argument. In fact Pavese is using "basic actions require a belief" to "prove that basic actions require a belief (plan)". The argument, which states "whether the successful completion of a complex action necessarily require a belief as a prerequisite", is essentially the proposition "intentional execution of φ requires a true belief about how to φ". This proposition needs to be proven as a claim, rather than being a true premise. This approach falls into the quagmire of circular reasoning and does not provide new information or valid reasoning to support its claim. Such argumentation is generally considered invalid and unacceptable.

Next, let's discuss the counterexamples faced by the requirement of know-how when replaced by intentional actions. Pavese concludes the "belief requirement on know-how" setting, which states that "s knows how to φ only if for some way ψ-ing for s to φ , s believes that ψ-ing is a way for oneself to φ , where ψ-ing is a way for one to φ just in case it is sufficiently likely for one to succeed at φ-ing by ψ-ing"(S1601). Again, belief is considered a necessary condition of the establishment of know-how. The objection to this conclusion still involves the characteristic of know-how, namely, its retrospective nature. The actual possession of knowledge by an agent is often determined afterward by judging whether their actions, beliefs, etc., conform to the standard of truth. On the one hand, judgments from others or ourselves about whether we know how to do something generally rely on the evidence of successfully completing the task. Without undergoing the test of practice, it is difficult to prove that we truly possess the knowledge. On the other hand, when faced with new challenges, it is highly likely that we initially have no clear idea of how to accomplish them. However, it is only through persistent efforts and successful completion that we come to believe that we know how to tackle the task. Therefore, one situation is as mentioned earlier, where in many cases, we may

through deviant causal chains', such as situations where the agent is lucky or coincidentally succeeds, etc.

not know how to do something, yet we start intentional actions without any plan and still achieve success. Barbara Vetter (2019) provided a similar view. She pointed out that many creative processes in everyday life involve such a phase. When poets deliberately write a poem and philosophers rack their brains to argue a certain point, they sometime fail to get what they want. The inspiration for creation often comes unintentionally. Should we therefore assume that poets and philosophers lack the ability to write this good poem or make this brilliant argument before the inspiration strikes? I believe most people would not agree with that.

Another more common situation, as emphasized by Pavese, is that although we may not be able to formulate precise plans due to the complexity of some actions, like how to deal with different kid for a babysitter, we still have a 'true general belief' about a rough approach. However, in many complex situations, the method $\psi$ chosen during the planning process may be incorrect, and the method used is continuously modified during the activity until the goal is successfully achieved, which ends up being $\omega$. If we adhere to the "belief requirement on know-how", which states that the agent only knows what to do when the method used by the agent can achieve the goal behavior, a contradiction arises. When the action is successful, my belief is "$\omega$ is the way for me to $\varphi$", indicating that $\omega$ is the correct way to $\varphi$, so I know how to $\varphi$ at that moment. However, before the intentional action begins, my belief is "$\psi$ is the way for me to $\varphi$", and since $\psi$ cannot actually achieve $\varphi$, it would lead to the conclusion that the agent does not know how to $\varphi$. In reality, there are many situations where the agent has the ability to accomplish the goal behavior but simply makes a wrong judgment. For example, a dance teacher instructs student S to dance and provides methods a,b,c,d, choosing method a. During the process, it is discovered that method b is more effective, the teacher using b and finally S successfully learn to dance. Can we say that the dance teacher does not know how to teach student S to dance simply because of an error in choosing the method at the beginning? Similarly, in a basketball match, if a player makes 7 out of 10 three-point shots in a match, would we directly deny the shooter's ability because he missed the remaining 3 shots? Furthermore, how does an agent who does not know how to $\varphi$ transition from not knowing how to $\varphi$ to knowing how to $\varphi$? Pavese's theory fails to provide a corresponding explanation.

There is also the viewpoint that knowing how does not require true belief. Brownstein and Michaelson (2016) provided an example where the agent lacks genuine belief about the way they perform a certain operation but still clearly knows how to execute that operation.

> Baseball player: It is commonplace for baseball players to be taught to 'keep their eye on the ball' or to 'watch the ball'. There is hardly any reason to think that the

> players would forgo their commitment to this advice. Yet, given the speed at which baseballs are pitched in professional baseball, it is physically impossible, from the batter's visual perspective, to track the ball from the pitcher's release point to the point of contact with the bat. Thus, professional baseball players, though not denied to know how to hit the ball, seem to harbor false beliefs about how to do so.

Brownstein and Michaelson go further and argue that players' explicit acknowledgment of mistaken belief about how to hit, along with the explicit denial by players of the possibility that they hit in the actual way, suggests a lack of genuine belief about how to hit. If Brownstein and Michaelson are right, then knowing how to φ does not require a person to know, in some sense, that it is a way for that person to φ. (Harris 2019, 1852)

## Argument 2 & 3

Argument 2 focuses on the 'anti-luck condition' in orthodox assumptions involving Gettier-style cognitive luck, which is one of the pieces of evidence widely discussed to demonstrate that know-how is not a species of propositional knowledge. The orthodox view of intellectualism holds that knowledge is always incompatible with Gettier-style luck, stating that "knowledge is a standard more demanding than justified true belief" (Stanley 2011, 175). On the other hand, the revisionary intellectualists argue that "knowledge-how is a distinctively practical species of knowledge-that that is compatible with Gettier-style luck" (Cath 2015, 1). Specifically, when John holds a true proposition due to luck, intuitively we would not consider it knowledge. However, if John knows how to do something due to luck, despite his belief being luck-affected, intuitively we would consider him to possess that ability. It is evident that "while 'orthodox' intellectualism about know-how identifies know-how with propositional knowledge, revisionary intellectualism identifies know-how with true belief t" (S1606). Cath suggests that the revisionist approach may not meet the standard for knowledge, while Pavese attempts to demonstrate that the revisionist view is "not really a stable position" (S1615).

Pavese takes recent findings in cutting-edge literature to argue that due to the actual existence of different categories of luck, know-how is compatible with some types of Gettier luck and incompatible with others, thus refuting the previous claim that Gettier luck is one of the criteria for distinguishing between know-how and know-that.

Duncan Pritchard (2005) divides epistemic luck into "veritic epistemic luck" and "reflective epistemic luck". Veritic epistemic luck is the kind of luck involved in the Gettier case. The belief under this kind of luck is false in the relevant similar worlds, that is, it happens to be true, the agent does not have sufficient reasons or

evidence to support the belief. Reflective epistemic luck appears when the subject has a true belief, but he is not aware that he has this knowledge, or does not have a proper reasoning process to support this knowledge, then his knowledge may be based on reflective epistemic luck.

Furthermore, intervening luck and environmental luck appear in the agent's acquisition process of knowledge involved in veritic epistemic luck. Intervening luck occurs when cognitive luck intervenes between the agent's cognitive performance and their cognitive success, resulting in a disconnect between the agent's cognitive performance and cognitive success, making know-how incompatible with intervening luck. An example is "The Lucky Light Bulb" case by Cath (2011). On the other hand, environmental luck purely depends on favorable or unfavorable environmental factors that enable or hinder the agent from acquiring or losing knowledge, as in Goldman's (1976) "Fake Barn" case, where environmental luck is compatible with know-how.

Pavese presents another piece of evidence from the level of risk in cases. Intuitions about the compatibility of know-how and luck are influenced in high-risk situations. For instance, in the case of a surgeon who doesn't know how to perform a highly difficult surgery (with a high risk of failure and patient death), even if the surgeon relies on environmental luck by having the correct surgical textbook and mastering its contents, intuitively we would be less inclined to say that the surgeon knows how to perform the surgery.

Unfortunately, Pavese argues that there is currently no "fully satisfactory theory of know-how" (S1608) that can explain why the cognitive features of know-how sometimes differ from propositional knowledge while other times there seems to be no difference in intuition. Pavese presents her own proposed solution later in the text, which serves as a supplementary conclusion for this section of the argument: the kind of doxastic state involving know-how must be subject to the anti-luck condition, just like knowledge-that.

This part of the argument follows a relatively simple and clear line of reasoning, summarized as follows:

> P5. If know-how and know-that are different, then know-how and know-that have properties in the realm of luck that are entirely distinct.
>
> P6. Know-how and know-that have properties in the realm of luck that are not entirely distinct.
>
> C3. Know-how and know-that are not (completely) different.

Since knowledge-that is subject to the anti-luck condition that know-how can usually escape from, which has been a longstanding challenge for intellectualists.

The Gettier Problem shows that propositional knowledge is incompatible with both intervening luck and environmental luck. Obviously if someone knows a proposition, then getting it right cannot be just a matter of luck. However, numerous thought experiments suggest that knowing-how is more resilient against the undermining of epistemic luck compared to the propositional knowledge. Like The Flight Simulator Case (Stanley 2011, 206) which shows that the agent Bob is unaware of using of the wrong machine, yet achieves correct results due to good luck. Possessing this ability is sufficient for us to intuitively believe that Bob knows how to fly a plane, regardless of whether the conditions for acquiring this ability were accidental. Despite the presence of Gettier-style luck that is incompatible with propositional knowledge, he still retains his know-how.

Pavese believes that one way to resolve the difference between know-how and knowledge is to demonstrate that know-how, like knowledge, must also comply with the anti-luck condition. Furthermore, a powerful method to support anti-luck condition is the safety constraint. A safety constraint is designed to limit the theory to ensure that it prevents the introduction of errors or unreasonable results during derivation or application. It serves to eliminate the possibility of luck-based issues within the theory. Thus the specific task here is to prove that "a safety constraint on know-how, analogous to the safety constraint on knowledge" (S1608).

According to Greco (2016), on one hand, since luck mostly occurs in accidental or fluke circumstances, fluke is an event "it does not occur in most (or sufficiently many) of the close cases" (S1609). A satisfactory explanation of an event requires it to occur in most circumstances, which is referred to as 'modally robust'. On the other hand, the agent having true belief is also a compelling explanation for why they successfully perform a certain action, as reflected in Argument 1.

Therefore, a good explanation that satisfies requirements of modal robustness and true belief at the same time is the security constraint when the agent successfully completes a certain behavior. Under which the knowledge acquired by him is safe, that is, he has a safe belief. The safety comes in two degrees: strong safety and weak safety. Strong safety refers to "a belief is safe just in case it is true in all the close cases" (S1610), while weak safety refers to "a belief is safe just in case it is true in most (or sufficiently many) of close cases" (S1610). Regarding the truthfulness of beliefs, there is also a notion of strong safety*, which states that "a belief is strongly safe* just in case it is true in all the relevantly close cases" (S1610). Since the concept of "what counts as the relevant worlds is fixed by the context of explanation" (S1610), strong safety* is actually a context-relative safety. Knowledge requires strong safety*. In Pavese's view, the most satisfactory explanation should not only

account for why an event occurs but also be able to "predict that the event will occur across that range of close cases" (S1611).

Argument 3 goes like this: since a good explanation of successful action excludes fortuitous circumstances, and because intentional success is explained by know-how, a safe explanation of intentional success also excludes fluke circumstances. Therefore, safe know-how also excludes fluke, and the beliefs involved in knowledge-how cannot be unsafe. However, Pavese acknowledges that "it fails to establish that know-how has the same epistemic profile as knowledge" (S1613), and the task of revealing the specific relationship needs to be completed in the next section. The argument is as follows:

> P7. A good explanation of successful action is that the success is non-fluke.
>
> P8. An explanation of successful intentional action φ is S know-how to φ.
>
> C4. A good explanation of successful intentional action is that the success is non-fluke, and a good explanation of S knowing-how to φ is that the knowing-how to φ is also non-fluke. (P7, P8, C1)
>
> P9. Know-how has a safety requirement. [Q4]
>
> P10. Know-that has a safety requirement.
>
> C5. Know-how and know-that are similar in terms of safety requirement. (But it fails to establish that know-how has the same epistemic profile as knowledge)

My thoughts here can be divided into several points. Pavese's requirement for a good explanation is reasonable in the pursuit of theoretical perfection, but the argument she presents is not valid. [Q4] Firstly, Premise P9 is false due to safety not being an internal characteristic of know-how but an external additional constraint. The main logic of this argument is actually A=A, as non-fortuitous (x) is non-fortuitous, so non-fortuitous know-how is non-fortuitous.

Secondly, safety constraints are a requirement for theories to be 'better', but they do not deny the existence of less favorable aspects within the connotation of know-how. There's reason to believe that this constitutes an excessively stringent requirement for knowing. After all, intuitively in many cases, the agent still knows how to perform φ even when luck is involved. That shows the safety requirement cannot explain the compatibility between know-how and different types of luck, and cannot provide guidance on how to resolve this apparent counterexample. Since all issues related to luck cease to exist under the strict requirement of good know-how, regardless of what compatibility they are.

Thirdly, even if know-how is subject to safety constraints, what happens when it is subjected to counterexamples? Since we want to have a better explanation, know-how cannot be unsafe. So if an agent relies on fluke, what does he possess?

Pavese does not provide a satisfactory explanation for this. Pavese bypasses this problem by leaving no room for it. The premise of Pavese's discussion of know-how is to find an explanation for the successful action, but here she in fact gave up the work of explanation. The phenomenon in counterexamples has already occurred and requires an explanation. Pavese cannot disallow such 'inferior' and extreme cases just because there is no good explanation. The existence of extreme cases challenges our intuitions and common sense, stimulates debate, and promotes theoretical advancements. I believe that Pavese's direct denial of the existence of such cases does not truly solve the problem but rather excludes this issue from her theory. Furthermore, safety does not provide an explanation for the different compatibility situations between know-how and different forms of luck, nor does it tell us how to resolve this apparent counterexample. Therefore, since P9 is false, the conclusion cannot be valid.

## 3. Argument 4

Pavese provides a lottery case from Gibbons (2001, 589-90):

> In Scenario 1, Cindy buys a lottery ticket in a fair lottery, knowing that her chances are a million to one, and she wins. In this case, with a fair lottery, Cindy's winning is too accidental and too lucky to count as intentional.
>
> In Scenario 2, Cindy knows the lottery is rigged in her favor and knows that if she buys a ticket she will win. In this case, Cindy intentionally wins the lottery.
>
> In Scenario 3, Cindy mistakenly believes someone rigged the lottery in her favor. She believes, on this basis, that if she buys a ticket, she will win. She buys the ticket and wins. So her belief about winning is true. She even has a justified true belief.

Is Cindy's success intentional in scenario 3? Intuitively, we would say it is not intentional. Pavese points out that if Cindy's success is not intentional in scenario 1, then her success cannot be intentional in scenario 3. However, in scenario 3, Cindy does have a justified true belief that she will win the lottery by buying that ticket. Therefore, "intentional action requires more than true and justified belief" (S1613), which can be understood as an agent with true and justified belief is still not intentional φ. The explanation for the intuition that Cindy is not intentionally winning in scenario 3 is that she doesn't know that she will win by purchasing that particular ticket (due to the presence of Gettier luck).

Another explanation for Cindy not intentionally winning is that "Cindy's belief is not about a reliable way of winning a fair lottery, for buying a lottery ticket is not a reliable way of winning a fair lottery" (S1614). Pavese argues that this shifts the focus to the relationship between intentional action and reliable ways rather than knowledge. Therefore, Pavese modifies Cath's view and states that Cindy's win

involves not only "upstream luck", which is luck involved in forming her belief but also "downstream luck", which pertains to luck in how to be successful. Consequently, all relevant downstream luck can be downgraded to upstream (or cognitive) luck, re-describing Gibbons' example. Cindy's true belief about winning is "based on false information about the lottery being rigged, she does not know that she will win the lottery by buying what she truly believes to be the winning ticket" (S1614). Due to the extreme fortuitousness of winning, Cindy is not intentionally winning, and according to Know-how/Intentionality, she doesn't know how to win. Next, Pavese employs a reductio ad absurdum: assuming know-how is a (non-knowledge) true belief, since Cindy already has a justified true belief in scenario 3, Cindy should know how to win, and therefore Cindy intentionally wins. This contradicts the intuition of unintentional winning. Hence, know-how is not merely justified true belief. Know-how cannot be less than knowledge. The specific process of argumentation is as follows:

> P11. "Intentional action requires more than true and justified belief." (An agent with true and justified belief is still not intentional doing φ.)
>
> C6. An agent with true and justified belief still doesn't know how to φ. (P11, C1)
>
> P12. An agent with true and justified belief still lacks knowledge. (C6, P11)
>
> C7. Know-how is, or involves, a belief state epistemically alike propositional knowledge. [Q5]

The problems in this argument relate to the issue that having similar necessary conditions cannot demonstrate the identity between two concepts. P11, C5 and P12 indicate that having true and justified beliefs is a necessary but not sufficient condition for both know-how and propositional knowledge. However, this does not prove any clear equivalence between know-how and propositional knowledge. [Q5] In this argument, it is not possible to conclude that B belongs to or is equal to C solely based on the fact that A is a necessary condition of both B and C. For example, both human and avian genetic information is stored in DNA (deoxyribonucleic acid) molecules, and they use similar genetic codes to translate the information in DNA, etc. These are necessary conditions for defining humans and birds, but it would be absurd to conclude that humans are birds or that humans are a type of bird. Similarly, it is entirely possible to argue that know-how is not a type of knowledge but merely shares some similarities in the mentioned aspects. Both know-how and knowledge originally fall within the scope of general knowledge and having similar characteristics is not impossible.

Furthermore, Pavese's proposed method of transforming downstream luck into upstream (or cognitive) luck lacks strong defense due to the lack of further

elaboration. Since downstream luck involves success and changes in reality rather than just at the level of belief, the conversion between the two should be substantiated with more convincing arguments.

## 4. Conclusion

In this paper, Pavese connects know-how and knowledge by finding the concept of intentional action that interacts with both. This is a novel approach with solid logical support, contributing to the establishment of the argument.

However, the paper also reveals the shortcomings of this approach. Firstly, whether the relationship between know-how and intentional action as stated by Pavese is mutually sufficient and necessary, once inconsistencies within the concepts are found, the argument is susceptible to collapse. This paper provides examples that cannot be explained within the framework of know-how as intentional action, which reveals the distinction and independence between know-how and intentional action, further challenging Pavese's argument. Additionally, the limitations imposed by the definition and scope of the concept of intentional action are in question. The concept of intentional action itself has some disputed attributes, which may lead to different interpretations and understandings, affecting the interpretation of the relationship between know-how and knowledge.

In conclusion, Pavese's paper provides an opportunity for the academic community to reflect on and further explore the relationship between know-how and knowledge, and encourages future researchers to delve into this intriguing topic. I find Pavese's viewpoints and discussions interesting and the argumentative approach of searching for intermediary concepts highly thought-provoking. However, her efforts ultimately fall short, and based on the counterexamples and deficiencies in the argument mentioned in this paper, I cannot support Pavese's conclusions.

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