

## *Knowing How and Implicit Memory*

Klayton Silverpen

Gilbert Ryle, in his essay “Knowing How and Knowing That,” argues that knowing a piece of information, such as an important date or fact, is a fundamentally different kind of knowledge than knowing how to perform a task, such as riding a bike. Since then, other philosophers have argued that Ryle fails to show these kinds of knowledge are truly different. In this essay, I examine arguments made by Carl Ginet, Jason Stanley and Timothy Williamson, which try to show that Ryle’s distinction between knowing how and knowing that fails. I defend Ryle’s position by borrowing empirical work in psychology done on implicit memory and explicit memory. Implicit memory is memory which is subconscious and automatic, such as remembering how to ride a bike. Explicit memory is memory which is consciously considered, such as remembering an important date or fact. I argue that implicit memory is similar in important ways to Ryle’s concept of knowing-how, and the same for explicit memory and knowing-that. I then reexamine Ginet, Stanley and Williamson’s arguments against Ryle with this comparison in mind. I conclude that Ryle’s distinction between knowing how and knowing that holds, and that it remains a useful way to talk about implicit memory and explicit memory.

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Gilbert Ryle's paper "Knowing How and Knowing That" (1945) argues against the then-popular conception of intelligence, which has since come to be known as *intellectualism*.<sup>1</sup> Intellectualism claims that intelligence consists of considering propositions. As such, all knowledge is knowledge of some proposition or a number of propositions. To argue against this position, Ryle distinguishes between knowing-that and knowing-how. He argues that knowing-that consists of considering propositions, whereas knowing-how consists of being able to perform an action. Examples of knowing-that might include "I know that today is Tuesday" or "Sally knows that the sun rises in the east." Examples of knowing-how could include "I know how to ride a bike" or "Brian knows how to play the piano." Importantly, knowing-how does not require considering propositions, and thus would not be considered knowledge according to the intellectualist view. However, Ryle's idea has its fair share of opposition. Several philosophers have criticized the distinction between knowing-that and knowing-how, arguing that knowing-how is actually just a special instance of knowing-that.

Since Ryle's publication, psychologists have made considerable progress in the study of learning and memory. One concept to come out of this research is that of explicit versus implicit memory.<sup>2</sup> Explicit memory is effortful and conscious, while implicit memory is effortless and unconscious. Explicit memory might include remembering facts, dates, and events, whereas implicit memory refers to motor skills which are utilized in activities such as riding a bike, playing an instrument, or walking. At first glance, the aforementioned examples of explicit memory and implicit memory resemble those of knowing-that and knowing-how. If this comparison holds, it could mean that Ryle's observation is now backed by decades of psychological research.

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1 Gilbert Ryle, "Knowing How and Knowing That: The Presidential Address," *Proceedings of the Aristotelian Society*, 46 (1945-1946): 1-16.

2 Daniel L. Schatner, "Implicit memory: History and Current Status," *Journal of Experimental Psychology* 13, no. 3 (1987): 501.

In this essay, I will be summarizing the main points that Ryle makes about knowing-how and knowing-that. I will then go over some criticisms of Ryle's idea made by Carl Ginet, Jason Stanley and Timothy Williamson. After which, I will offer a brief overview of the relevant aspects of explicit and implicit memory, then assess Ryle's arguments and criticism of Ryle's arguments in light of the psychology discussed. I argue that the psychological research gives us reason to take Ryle's distinction seriously.

Intellectualism, the view of intelligence which Ryle aims to criticize, holds two things to be true. First, intelligence consists of considering propositions.<sup>3</sup> Second, actions are labeled 'intelligent' or synonyms for intelligent (clever, wise, and so forth) because they are accompanied by the consideration of propositions.<sup>4</sup> Under this view, actions themselves are not intelligent, but rather preceded by intelligence, which requires the consideration of propositions. When one performs an action, they must employ knowledge of how to perform that action. Likewise, knowledge consists of knowing propositions that one could consider.

Ryle argues that intellectualism leads to an infinite regress. To engage in an action, one must first consider a proposition. But the contemplation of the proposition is itself an action, so one must contemplate a proposition prior to contemplating a proposition prior to performing the desired action.<sup>5</sup> So on and so forth. If knowing-how really is a species of knowing-that, then performing any intelligent action would result in an infinite regress, rendering it impossible.

Ryle argues that making a distinction between knowing-how and knowing-that ameliorates this problem. Rather than intelligent actions being actions that are preceded by contemplating a proposition, an action is intelligent if it is a well-ex-

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3 Ryle, "Knowing How and Knowing That," 1.

4 Ibid., 1.

5 Ibid., 2-3.

ecuted employment of knowing-how.<sup>6</sup> Consider two chess players, one very smart and the other rather dull. What is the difference between them? If all knowledge is knowing-that, then we must assume that there is some knowledge that the dull chess player lacks that the smart chess player possesses. If this were the case, then we would expect that if the dull player were to simply learn all of the facts that the smart player knows, the dull player would match the smart player in skill. If the dull player had been taught the same strategies, openings, and other knowledge-that regarding the game of chess, then he would not play so poorly. But this is not how we ordinarily think. We can imagine two chess players who have memorized all of the same strategies, and yet one of them is a much better chess player. This does not strike us as odd in any regard. We might simply say that the better player has more skill in executing chess strategies. This cannot be explained by knowing more propositional knowledge. Ryle suggests that knowing the rules of chess and knowing different strategies is knowing-that, but much of the skill in executing said strategies is knowing-how.<sup>7</sup>

Using this example, one might argue that executing a chess strategy is an implementation of knowing-that, since they must know the strategy in order to employ it. While someone of this position may run into difficulties explaining the difference between skilled execution and unskilled execution of knowledge-that, they could still maintain that it is a form of knowing-that. They could argue that when someone employs a particular opening gambit in chess, they are relying on their propositional knowledge of said opening to do so. Ryle disagrees. He claims that while we are learning something, we may actively contemplate the relevant propositions as if to remind ourselves of how to do something. However, once we have the knowledge-how, this is no longer necessary. Ryle would argue that the master chess player does not

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6 Ibid., 8-9.

7 Ibid., 5, 14.

need to actively contemplate propositions. For a clearer example, consider a musician. A master pianist does not need to actively remind themselves which keys play which notes, or what chord comes next in a song they have rehearsed hundreds of times, or what tempo a piece ought to be played in. They often can give detailed explanations of all these things when asked, but they do not need to recite the information to themselves while they are playing. There are also many excellent musicians who lack the propositional knowledge to explain their technique or the songs they play, but this does not stop them from playing masterfully. Meanwhile, someone may be very fluent in music theory and able to explain how a song is structured in great detail, yet they cannot themselves play the piece. Thus, not only is knowledge-that insufficient for being able to play an instrument, it is also not even necessary.

Ryle finds it plausible that knowing-how is not, and cannot be considered a mere variant of knowing-that. Of course, some have disagreed with his arguments, with one such challenger being Carl Ginet. In his book *Knowledge, Perception, and Memory* (1975), Ginet argues that Ryle has *only* managed to show that employment of knowledge-that does not strictly require that one actively consider the relevant propositions.<sup>8</sup> Ginet points out that clear examples of knowledge-that do not require one to recite the knowledge to oneself prior to utilizing it. For instance, one can utilize their knowledge that a door is unlocked when they are exiting a room, but they do not need to actively consider the fact that the door is unlocked to do so. He also suggests that someone does not need to be able to express knowledge in order to possess or utilize it. Someone who teaches themselves to play an instrument does not necessarily lack the knowledge-that, rather, they merely lack the language necessary to express that knowledge. Ginet concludes that knowledge-how is not distinct from knowing-that; instead, knowing how to perform an action merely consists of knowing

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<sup>8</sup> Carl Ginet, *Knowledge, Perception, and Memory* (Dordrecht: D. Reidel Publishing Company, 1975), 6-7.

what all the steps are to execute that action, even if one does not actively consider the knowledge or lacks the language necessary to express the knowledge.

Jason Stanley and Timothy Williamson also criticize Ryle's distinction. In their essay 'Knowing How' (2001), Stanley and Williamson target Ryle's argument that intellectualism leads to an infinite regress.<sup>9</sup> To show how this argument fails, they summarize Ryle's arguments as follows:

- (1) If one *F*s, one employs knowledge of *F*.
- (2) If one employs knowledge that *p*, one contemplates the proposition that *p*.<sup>10</sup>

If knowing-how is the same as knowing-that, then knowing how to *F* is knowing that some action or sequence of actions is how to *F*. Let us call this sequence of actions *h*, and the knowledge "how to *F*" will be *h(F)*. Also let us shorten "contemplating a proposition" to *C(p)*.

So when one *F*s, they employ knowledge of *F*. Knowledge of *F* is knowledge of how to *F*, or *h(F)* –so they employ the knowledge that *h(F)*. When one employs knowledge that *h(F)*, they contemplate the proposition that *h(F)*, so *C(h(F))*. But since *C(h(F))* is an action, in order to perform this action, they employ knowledge of how to *C(h(F))*, or *h(C(h(F)))*. And in order to employ knowledge that *h(C(h(F)))*, one would have to complete the proposition that *h(C(h(F)))*, or *C(h(C(h(F))))*. And so on and so forth.

Stanley and Williamson agree that, if the premises were true, then Ryle's argument that intellectualism leads to an infinite regress would be correct. However, they reject both premises.<sup>11</sup>

For premise one, it is not true that for every action, one employs knowledge of how to perform that action. For example, when one digests food or intakes oxy-

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9 Jason Stanley and Timothy Williamson, "Knowing How," *The Journal of Philosophy*, 98, no. 8 (2001): 411-444.

10 *Ibid.*, 413.

11 *Ibid.*, 414-416.

gen through the air, they do not need to employ any knowledge of how to do these things.<sup>12</sup>

For premise two, it is not true that when one employs knowledge of *p*, they contemplate the proposition that *p*. They point to the argument made by Carl Ginet, which was discussed earlier in this essay. When one leaves a room, they do not need to contemplate the proposition that the door is unlocked in order to use that knowledge.

For each premise, Stanley and Williamson offer a revision. For premise one, it might be true if we restrict *F* to *intentional* actions, instead of having it include all actions.<sup>13</sup> This would eliminate counter examples like digesting food.

For premise two, Ginet's objection depends on the assumption that 'contemplating a proposition' refers specifically to an intentional process. But if we allow that it could refer to an automatic, unintentional process, then the premise might be true. Perhaps there is something akin to contemplating a proposition that occurs in the brain unconsciously and automatically, without any intentional effort on behalf of the person performing the associated action.

After making these adjustments to save Ryle's premises, his argument no longer works. If premise one refers *only* to intentional actions, and premise two does not have to refer to intentional actions, then the chain of infinite regress does not begin. When one performs intentional action *F*, they employ knowledge *h(F)* (premise 1). When one employs knowledge *h(F)*, they *C(h(F))* (premise 2). But if "*C(h(F))*" is not an intentional action, then we do not return to premise one and there is no regress. Stanley and Williamson thus conclude that Ryle's infinite regress argument fails.<sup>14</sup>

Ryle's theory is faced with some strong criticisms. While traditional counter-ar-

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12 Ibid., 414-415.

13 Ibid., 415-416.

14 Ibid., 416.

guments to these criticisms could be made, I believe it is more valuable to look at the psychological research on implicit and explicit memory. The distinction between implicit and explicit memory is similar to the distinction Ryle makes between knowing-how and knowing-that. The remainder of this essay will focus on establishing what is meant by implicit versus explicit memory, and then seeing if the comparison between implicit/explicit memory and knowing-how/that is valid. I will then examine Ryle's theory in light of this comparison and respond to his critics.

Generally, when we think of 'memory,' we think of actively recalling information regarding past events. These tend to be facts we can readily relay to others. We are usually aware of our own memories as well. Memories that match this description are called *explicit memories*.<sup>15</sup> Remembering the name of a friend, or that today is Tuesday, or how a car engine works, are all examples of explicit memory. However, psychological research has found that much of our memory does not match this description. There are things we remember seemingly unconsciously. They are completely effortless and often automatic. Despite us not being aware of them, they can have a significant influence on our choices and actions. Memories that match this description are called *implicit memories*.<sup>16</sup> Remembering the way home despite never intentionally committing it to memory, or how to ride a bike, or humming the tune to a favorite song without realizing, are all examples of implicit memory.

The resemblance to Ryle's theory is striking. Most of Ryle's examples of knowing-that, for instance facts or propositions, are also examples of explicit memory, while most of Ryle's examples of knowing-how, including skills that do not require conscious thought to execute, are also examples of implicit memory. At first glance, it seems the research on memory may support Ryle's theory. Perhaps Ryle was observ-

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15 Ibid., 501.

16 Ibid., 501.

ing a phenomenon that would later be researched and verified by psychologists. This would make it difficult to take criticisms of Ryle's theory seriously, although it will still be worthwhile to examine where those arguments went wrong.

However, Ryle's theory and the psychology research do not line up perfectly. While most examples of knowing-how are also examples of implicit memory, the reverse is not strictly the case. Implicit memory also includes cases of unconscious learning, where that information can inform future behavior. There have been studies which exposed subjects to geometric shapes, but too briefly to be consciously recognized.<sup>17</sup> When the subjects were then asked to choose which of two shapes they liked better, they usually picked the shape they had been exposed to earlier, although they could not explain why they picked it. Another study subliminally exposed subjects to "hostile words," after which they were more likely to describe a target person more negatively than the control group.<sup>18</sup> These examples of implicit memory do not closely resemble what Ryle thought of as knowing-how. I doubt Ryle would say that subjects in the first study knew *how* to pick which shape was their favorite, or that subjects in the second study knew *how* to rate the target negatively. It might even be fair to say that these subjects' implicit memories of shapes or words did not really constitute knowledge of *any* sort; rather, it merely influenced their behavior subtly. It may be better to characterize these kinds of implicit memories as *dispositions*— a tendency to exhibit a certain behavior under specific circumstances —rather than skills.

Ryle's knowing-how may not overlap perfectly with implicit memories, but this does not necessarily spell doom for Ryle's theory; it could still be the case that that knowing-how is a kind of implicit memory, where not all implicit memories are in-

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17 William Raft Kunst-Wilson and R. B. Zajonc, "Affective discrimination of stimuli that cannot be recognized," *Science* 207, no. 4430 (1980): 557–558.

18 John A. Bargh and Paula Pietromonaco, "Automatic information processing and social perception: The influence of that information presented outside of conscious awareness on impression formation," *Journal of Personality and Social Psychology* 43, no. 3 (1982): 437–449.

stances of knowing-how. We might say that implicitly remembered skills are examples of knowing-how, whereas subliminal suggestions that subtly influence behavior are dispositions. Likewise, knowing-that is a kind of explicit memory, but we do not have to commit to saying that all explicit memories are instances of knowing-that. The differences in types of knowledge would remain consistent with the differences in types of memory, while allowing epistemologists to handle the theories as to what counts as knowledge and what does not.

Ginet's objection to Ryle could be used to challenge this distinction. Ginet says that Ryle merely shows that sometimes cases of knowing-that do not need to be consciously deliberated over in order to use them.<sup>19</sup> Ginet gives the example of an agent leaving a room without needing to actively consider the proposition that the door is unlocked to open the door and leave the room. This does not make knowing that the door was unlocked a new kind of knowledge. Ginet's example seems at first to be an example of implicit memory, since the agent does not need to be aware of their knowledge in order for it to influence their behavior. If knowledge-that can be stored as explicit memory or implicit memory, then one can simply say that knowing-how is just another kind of knowing-that which is ordinarily stored as implicit memory.

However, the research does have an answer for this that may help Ryle out. In Ginet's example, the agent does not consciously consider the proposition that the door is unlocked, but if someone were to ask them "Is the door locked?" they would likely answer "No" or "I don't think so." This knowledge is used automatically, similarly to implicit memory, but it is distinct in that it can also be explicitly remembered. Experiments done on explicit and implicit memory show that in some circumstances, implicitly remembered knowledge cannot be expressed explicitly. These are usually situations in which the subject has a memory disorder, or the information was pre-

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19 Carl Ginet, *Knowledge, Perception, and Memory*, 6-7.

sented subliminally and the subject never had a chance to become aware of the information.<sup>20</sup> There are also cases in which subjects implicitly express information, but that same information could also be expressed explicitly when asked.<sup>21</sup> This suggests that the information is being stored both implicitly and explicitly. Information stored explicitly does not prevent implicit memories from being formed as well. So the fact that the door is unlocked could be stored as an explicit memory, or knowing-that, and then also an implicit memory which acts as a behavioral disposition. A great musician may know how to play a piece implicitly, and may also know all of the explicit details about the piece and how it is composed. Or they might not have that explicit memory, and instead only possess the implicit memory of how to perform it. Yet another musician may be able to explain the piece in detail, without being able to play it. The distinction between knowing-that and knowing-how seems to fit in nicely with research in explicit and implicit memory.

Stanley and Williamson's criticisms are more difficult to refute using modern psychological research. Their argument is that Ryle's infinite regress argument does not work, which is largely unrelated to the relevant research. But this only means that the original problem Ryle is trying to address by making the distinction is not actually a problem at all. However, there could still be other reasons for making this distinction. One such reason might be that Ryle's account of knowing-how and knowing-that better matches the psychological research than the opposing intellectualist view. If this were the case, then Stanley and Williamson's objection to Ryle would not be a reason to reject knowing-how completely, as one could still make a distinction between knowing-that and knowing-how. They would just no longer be making the distinction to avoid infinite regress, and would instead be making the distinction to

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20 Eric Eich, "Memory for unattended events: Remembering with and without awareness," *Memory & Cognition* 12, no. 2 (1984): 109-110.

21 Schatner, "Implicit memory," 510.

complement empirical research.

There is evidence to suggest a distinction like the one Ryle makes would be sensible. There seems to be a distinction between kinds of memories that overlaps nicely (although not perfectly) with Ryle's distinction. As briefly mentioned earlier, subjects with memory disorders can express implicit memory without being able to express it explicitly. What is especially interesting about these cases is that in many of the studies, the subject's memory disorder prevented them from creating any explicit memories.<sup>22</sup> These subjects were unable to learn new facts, remember new people's names, or recall any events that had happened to them. Despite this, these people were still able to learn new motor skills. If we put this in Ryle's terms, these people were unable to learn *that*, but they could still learn *how*. The subjects do not even remember learning how, or that they can perform the action in question, but they can still perform it surprisingly well. One notable example of this is a study by Glisky and others, where amnesiac patients were able to learn how to write and execute simple computer programs, despite not being able to remember if they had learned this skill or if they had currently possessed it.<sup>23</sup> It is true that these patients often have trouble learning these skills, and that a lot of assistance from others is needed to do so. This lines up very well with Ryle's view. He said knowing-that was something that the student used, but the master did not. One might recite knowledge-that to themselves while learning a skill to help them remember, but once they have the skill mastered, they can do it without thinking. A novice skateboarder might have to consciously adjust their foot placement, and actively anticipate the correct timing of a trick they are attempting to perform. But once they have mastered a trick, they can perform it effortlessly,

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22 Ibid., 508-510.

23 Elizabeth L. Glisky, Daniel L. Schacter, and Endel Tulving, "Computer learning by memory impaired patients: Acquisition and retention of complex knowledge." *Neuropsychologia* 24, no. 3 (1986): 316-326.

without thinking. Ryle saw knowing-that as an extremely helpful tool for learning, but not necessary for the learned. This idea seems to be supported by the fact that patients suffering from a memory disorder are able to learn new motor skills, but have great difficulty with the beginning stages. They can learn-how, but learning-that is a natural first step towards learning-how, and so anyone who lacks the ability to learn-that is at a great disadvantage when it comes to learning-how. It is unclear whether it is possible for patients with severe memory disorders to learn extremely complex motor skills, like playing an instrument or riding a skateboard, but if in theory, one can learn-how even when they are completely unable to learn-that, then this suggests that these are two distinct kinds of knowledge. It would appear that Ryle's infinite regress argument is not needed after all.

Ryle's distinction between knowing-how and knowing-that seems to line up very nicely with the psychological concepts of explicit and implicit memory. Knowing-that is a form of explicit memory, which can be actively recalled and consciously considered, whereas knowing-how is a form of implicit memory, which cannot be consciously accessed but can influence behavior. While they do not line up perfectly, this may be an opportunity to update and improve Ryle's theory based on empirical research. The research has already helped Ryle respond to Ginet's criticism, and provided us with a reason to entertain Ryle's theory after Stanely and Williamson refuted his infinite regression argument. A deeper look into the distinctions between explicit and implicit memory could also lead to a more detailed, empirically grounded version of Ryle's theory of knowing-that and knowing-how. Likewise, using Ryle's ordinary language-grounded philosophy could lead to a more natural way of discussing complex psychological topics.

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