The Collaboration of Knowing-How and The Safety Principle

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Abstract. Nowadays, the challenge of defining JTB (Justified True Belief) by Gettier's cases has not had a satisfying solution. Considering the difficulties caused by the K =df. True belief + X paradigm, this paper replaces belief with competence as a more fundamental component of knowledge. Moreover, by the way of using the safety principle to illustrate knowing-how, necessary conditions for knowledge definition are obtained. This paper aligns with Pritchard's anti-luck virtue epistemology, specifically elaborating on the concept of ability-based knowledge as a robust necessary condition for defining knowledge. Therefore, the main findings of this paper are: 1) taking knowing-how as the basic element of knowledge can strengthen the reliability of the knowledge definition and get closer to the essence of knowledge; 2) the safety principle is compatible with knowing-how; 3) the collaboration of the safety principle and knowing-how as a necessary condition for knowledge definition can effectively avoid the Gettier problem. Through establishing a reliable method for testing knowledge, this approach may ultimately deepen readers' understanding of what knowledge truly entails.

Keywords: The Gettier problem; Knowing-how; The safety principle; Anti-luck Virtue Epistemology.

1. Introduction

In the traditional epistemology from Plato, the definition of knowledge can be summarized as Justified True Belief (JTB). But in a paper published in 1963, Gettier presented two counterexamples of the classic JTB theory, which seriously undermined the definition of knowledge in traditional epistemology. The construction of the Gettier cases can be completed by following the following steps:

(1) Choose a cognitive subject that forms his beliefs in a way that would normally lead him to false cognition

(2) Add some details to the counterexample to ensure that the subject's belief is reasonable and defensible

(3) Present a special case where the way in which the cognitive subject forms a belief usually leads to a reasonably false belief in which case the belief happens to be true. [1]

Hence, the classic definition of knowledge is seriously challenged, while the main work in epistemology goes on around solving the Gettier problem.

Most previous studies take "true belief" as the basic component of knowledge, but the analytical definition of knowledge has faced great challenges [2-3]. Zagzebski has already stated that a paradigm like K = df: true belief + X cannot avoid the Gettier problem [3]. Taking the description of "true belief" as the basis for knowledge will inevitably face the difficulty of making a reliable description of the objective world due to the contingency of the state of mind.

In recent years, Pritchard has also proposed a solution that combines cognitive virtue with the safety principle (i.e., anti-luck virtue epistemology). He mainly starts from the value of knowledge, and responds to the intuition of ability and luck in real-world knowledge phenomena [2,4]. This article will explain the collaboration between competence and the safety principle from an analytical perspective, and discuss relevant cases against the anti-luck virtue theory of knowledge.

Therefore, this paper aims to analyse Pritchard's anti-luck virtue epistemology. Starting from re-examining the basic element of knowledge, this paper argues that summarizing knowledge as competence is a better method than viewing knowledge as belief. Considering that competence can better explain knowledge's ability to reveal the real world, however, the current description of

competence is not sufficient, which has caused new Gettier cases. Therefore, with the safety principle, competence of expressing knowledge can be better described through the discourse of possible worlds.

2. Starting from Knowing-how

2.1. Summarizing Knowledge as Competence

For analyzing the definition of knowledge and the Gettier problem, it would be helpful to reflect on the basic element of knowledge. Ryle divides knowledge into knowing-that and knowing-how. The relationship between the two types of knowledge has been debated [5]. One of the main arguments is that even if one type of knowledge is reduced to another, it is still necessary to clearly distinguish between the two different types of knowledge in practice [6]. However, according to Zagzebski, regarding knowledge as true belief plus something cannot avoid the Gettier problem. Considering the challenges posed by the Gettier problem, reducing knowing-that to knowing-how seems to provide a way to avoid the issues associated with defining knowledge as "true belief." Hartland-Swann argues that, according to Ryle, the core feature of competence-based knowledge (i.e., knowing-how) is its practical nature. For example, knowing that water is a liquid is not merely propositional but is tied to the ability to answer practical questions like whether water is a liquid. Hence, propositional knowledge like water is a liquid equal to the competence of knowing how to answer a question like is water a liquid [7]. Hetherington further argues in a more comprehensive way that knowing-that can be understood as a form of competence, including the ability to respond, reason, or represent propositions like "water is a liquid" accurately. In this view, knowing-that is reducible to knowing how to handle or express knowledge in practice, bridging the gap between theoretical and practical knowledge. Thus, knowing-that can be reduced to the knowing-how to respond, reply, and represent [8].

The reason why competence take priority can be further discussed when responding to questions such as "*we must know the facts before we can make appropriate responses, answers, and representations*", this paper asserts that communicability is one of the essences of knowledge, and the state of mind of "knowing the facts" alone is not enough to confirm the existence of knowledge. Focusing solely on mental states complicates the Gettier problem. By centering knowledge on the competence of "knowing how to do it," people can capture the essence of knowledge more precisely. Knowledge mediates in two ways: it facilitates communication between cognitive subjects and bridges the cognitive subject with the external world. Therefore, on the contrary, it is not a must to know the facts before people can respond appropriately, but that the appropriate response retrospectively constructs the state of mind of "knowing the facts." In daily life, it is common to be able to confirm the details of knowing through the practice of expression and statement.

2.2. The Case of Gettier of Knowing-how

In response to knowing-how, the academic community has also tried to put forward a related Gettier counterexample, that is, the flight simulator case:

Bob wanted to learn how to fly in an airplane simulator, and he was mentored by Henry. Unbeknownst to him, Henry was an impostor who had planted a random device in the simulator's controls and was going to give some false advice. Fortunately, the randomization device did not affect the results, and the incompetent Henry gave the same advice as those of the appropriate instructors. As a result, Bob passed the course without any problems, but he still couldn't fly a real plane. "[9]

It seems that Bob has the competence to fly the plane correctly from the intuitive, which leads to the saying that "*knowing-how and the knowledge of luck are compatible*." Poston asserted the judgement of knowing-how depends on whether Bob can successfully launch the plane with this knowledge. He emphasized that if someone can act intelligently and successfully, then he would know how to act. [10]. However, this perceived reliability is misleading, through elaborating this with the safety principle and more detailed telling, it can be easily realized that Bob's so called 'competence' is not 'safe' in most possible world.

3. The Safety Principle

3.1. Proposal of The Safety Principle

Pritchard proposed the safety principle on the basis of Nozick's principle of sensitivity, and further used counterfactual conditional sentences to characterize knowledge, establishing a close connection between belief and fact in a counterfactual sense. The safety principle can be formulated as:

$$S\ know\ p, if and\ only\ if, S's\ belief\ p\ wouldn't\ easily\ be\ false, namely\ B(p) \mathrel{\square\!\!\rightarrow} p$$

Counterfactual are often used to describe possible worlds, which provides a way to accentuate the causality between knowledge and facts. Counterfactual also help to exclude contingency from the forming process of knowledge. In the discourse of counterfactual, the general requirement of the safety principle is that "*if S knows p, then S's belief p*" is true not only in the real world, but also in the similar possible worlds where the vast majority of S also believe in p.

The safety principle aims to maximize the truth of beliefs and strengthen their reliability. Pritchard suggests that the safety principle effectively counters cognitive luck, as most true beliefs in Gettier cases arise due to such luck. According to the safety principle, in the possible worlds adjacent to the real world, this cognitive luck is easily untenable, so the cognitive agent cannot form true beliefs due to cognitive good luck, and the true beliefs in the Gettier case can indeed be excluded from the scope of knowledge by the safety principle [11].

3.2. Difficulties and Counterexamples of The Safety Principle

In recent years, one of the main criticisms of the safety principle is that the concept of "adjacent possible worlds" is too vague. It is often difficult and sometimes far-fetched to construct possible worlds that accurately reflect the conditions of specific cases. When counterfactual is adopted in specific cases, it is easily found that it is hard to circumscribe the how robust the knowledge should be, and to what extent should the belief stay true in 'most' possible worlds. For example, the lottery case:

Imagine that a fair lottery with a very small odds of winning (e.g., one in a million) has been drawn, and as well as a pair of cognitive subjects, each with a ticket. Suppose that the first cognitive subject does not have access to any information about the winning ticket, but she believes that her ticket did not win based solely on the information that the probability of winning the lottery is extremely small; Suppose that a second cognitive subject reads a reliable newspaper report about the winning ticket and believes that his or her ticket did not win. Now the problem arises: intuitively, the first cognitive agent does not know that her lottery did not win, while the second cognitive agent knows that her lottery did not win. This judgment is very confusing, because from the point of view of probability, the belief of the first cognitive agent is in an extremely advantageous position; However, for newspapers, even if they are (for obvious reasons) extremely careful in printing the winning lottery numbers, the probability of a typographical error will still be higher than the probability of winning a lottery. So, [our question is] why is the second cognitive subject possessing the knowledge? [12]

The second agent has reliable knowledge, but the first agent doesn't, when viewing from intuition. However, in most adjacent possible worlds, the first agent will not win the lottery indeed, regarding the safety principle. The conflict between intuition and the safety principle seems to be hard to fix.

This paper believes that stronger response can be posed to such cases through generalizing knowledge as competence and provide further explanations. In this way, there might be an easier way to solve the lottery case. Next, the safety principles will be used to elaborate knowing-how in details.

4. Elucidating Knowing-how with The Safety Principle

4.1. The Combination of Knowing-how and the Safety Principle

By integrating competence-based knowledge with the safety principle, it is necessary to create a more nuanced definition of knowledge, where each concept complements the other. This leads to two knowledge requisites for collaboration:

S knows P,only if:

(1) S has the appropriate ability to express (through concept or practice) P

(2)P wouldn't easily be false,B(p) □→ p

Competence-based knowledge helps clarify the vague descriptions of adjacent possible worlds in the safety principle, and it provides a framework for testing whether the subject truly possesses the relevant capabilities. Competence is the disposition to succeed reliably in repeated attempts. Sosa's SSS (seat, shape, situation) and AAA (accuracy, adroitness, aptness) conditions further demonstrate how competence aligns with the safety principle [13]. The SSS conditions clarify the commonalities between adjacent possible worlds and the real world, making the conditions for competence more concrete. The AAA features help assess whether the subject's attempts are successful in most adjacent possible worlds, thus determining if the subject truly possesses the competence to know. Therefore, knowing-how can be described as the ability of a subject to accurately and skillfully complete tasks in most adjacent possible worlds. Therefore, knowing-how and the safety principle are naturally compatible: the definition of knowledge of competence ensures the reliability of the cognitive subject, and the safety principle excludes possible interference factors from the outside world.

Among these, the description of adjacent possible worlds, upon which "not easily false" relies, can, refer to the nature of expressive competence as described in (1). This can be understood as an "inclination towards successful attempts" and illustrates the cognitive subject's repeated attempts to acquire knowledge. Moreover, the possibility of multiple cognitive agents existing in adjacent possible worlds can be reasonably depicted. In a Gettier case, when a cognitive agent forms a belief due to cognitive luck, other agents can easily verify and expose the belief as false.

In adjacent possible worlds, with the same attributes of reality, it is easily achievable for the knowledge that requires the competence to be established in different situations. With reference to these possible situations, the cognitive subject in Gettier's case will not be identified as having the competence to properly express his beliefs. Therefore, by grounding knowledge in competence and incorporating the safety principle, a more robust definition of knowledge can be established, one that withstands the challenges posed by Gettier cases.

4.2. Responses to Relevant Cases

In the case of the "flight simulator", just as true belief is not enough to prove knowledge, having the flight instruction that happens to be correct in the case is not enough to prove that Bob has the competence to fly. Although it is conceivable that Bob will be able to successfully test fly or launch the ship in later practice, according to the safety principle, Bob's competence acquisition is prone to error in adjacent possible worlds, so his competence to fly is not safe. At the same time, Bob was unable to defend his knowledge of competence to other trainees who had been instructed wrongly without further evidence. Until he drove or got stronger evidence, Bob and the others who were misguided couldn't come to a conclusion about what was the right way to do it.

Poston's mistake lies in his incorrect assumption that Bob's participation in a test flight or an impending flight is proof of Bob's already acquired knowledge or skills. Intuitively, one might assume that Bob's future actions would provide further evidence of his competence. However, in this thought experiment, the conditions should be constrained to a specific moment. It should be assumed that after Bob learns the flight instruction that happens to be real, the simulator's error is immediately discovered, and even if it is found that the random device does not seem to prevent Bob from learning the correct skill, a responsible instructor will still test Bob's competence in another reliable way before letting Bob continue the flight training. And once Bob is further tested, the confirmation of his

knowledge of competence changes, and the proof of Bob's knowledge of competence is no longer just a guide that happens to be true. Instead, it is a test. Knowing only by the guidance of cognitive luck cannot prove the knowledge of the competence unless further reliable defenses and evidence of non-luck are obtained. Therefore, the case of the flight simulator does not have knowing-how, and knowing-how will not be compatible with cognitive luck.

In the lottery case, it is easy to see that the first agent has no concrete evidence to accurately rule out the possibility that he won the lottery indeed, so the agent does not have the competence to know. Instead, with the newspaper reporting the winning lottery number, the second agent has the appropriate competence to express that he did not win the prize. It can be seen that the collaboration of knowledge of competence and safety principles can effectively respond to the Gettier problem.

5. Conclusion

Reducing knowing-that to knowing-how avoids the issue of separating true belief from objective knowledge. It anchors knowledge in cognitive abilities, providing a more reliable framework that withstands the challenges of the Gettier problem. Through the depiction of adjacent possible worlds in the principle of security, the reliability characteristic of "proficiency" in the knowledge of ability is further refined and emphasized, and the accidental situation caused by cognitive luck is removed.

It should be noted that some examples eliminated by the two knowledge conditions of knowing-how and the safety principle do not lead to a narrowing of the scope of human knowledge, but only that these cases require further and stronger proof to determine that these abilities are not easily fallible, and that these abilities can still be recognized as knowledge after further proof.

However, defining knowledge as cognitive competence purely has its limitations, as knowing-how can be too broad and may not always refer to a single proposition. Nonetheless, a reliable method for testing knowledge can be established through the collaboration of knowing-how and the safety principle. These two conditions, when combined, provide a more robust framework for confirming knowledge in everyday life, which could lay a stronger foundation for defining knowledge and deepens our understanding of its essence.

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