RETHINKING KNOWLEDGE AFTER EDMUND GETTIER

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Abstract

  The problem of defining knowledge as "justified true belief" (JTB) was long accepted within epistemology until it was decisively challenged by Edmund Gettier in his landmark 1963 paper. Gettier presented counterexamples demonstrating that a person may hold a belief that is justified and true, yet still fail to possess knowledge due to the presence of epistemic luck. These cases reveal that justification and truth alone are insufficient to guarantee knowledge, thereby exposing a critical gap in the traditional account. Gettier's response reshaped contemporary epistemology by motivating the search for a fourth condition or alternative frameworks—such as causal, reliabilist to better explain the nature of knowledge. His contribution marks a turning point in analytic philosophy, shifting the debate from definition to the conditions that eliminate luck in true belief.

Keywords

  Epistemology, belief, truth, justification, reliabilism, infallibilism, knowledge by acquaintance

Introduction

The question "What is knowledge?" has occupied philosophers since antiquity. Traditional epistemology developed through attempts to differentiate knowledge from belief, error, and opinion. Philosophers consistently argued that belief alone is insufficient for knowledge; it must be connected to truth and supported by sufficient grounds. While methods and standards of justification varied but the underlying structure remained stable. The roots of the traditional view lie in ancient Greek philosophy, especially in the work of Plato[1]. In his dialogue *Theaetetus*, Plato examined several definitions of knowledge and rejected the idea that knowledge is merely perception or true belief. He argued that knowledge must be true belief accompanied by a rational account (logos). A belief may accidentally be true, but without explanatory grounding it remains opinion rather than knowledge[2]. Thus, Plato introduced the essential distinction between correct belief and justified understanding.

Kinds of Knowledge

Epistemology traditionally distinguishes different forms of knowledge based on what is known and how it is known. A major threefold classification separates propositional knowledge (knowing that something is the case), acquaintance knowledge (knowing someone or something directly), and practical or procedural knowledge (knowing how to do something)[3]. Each type traces its philosophical background, and clarifies how they differ in structure, justification, and application.

Propositional Knowledge (Knowing That)

Propositional knowledge is knowledge of facts or true propositions. So, things that can be true or false. For examples, 'I know that water boils at 100°C', ' I know that Delhi is the capital of India', 'I know that $2 + 2 = 4$' etc. In these examples, the objects of knowledge or what is known, are, respectively the true propositions. This structure was classically analyzed in modern form by Edmund Gettier, who challenged whether justified true belief is sufficient for knowledge, but the model still defines the core target of epistemic analysis[4]. Hence, Truth-evaluable, Expressible in language, Justifiable by evidence or reasons and Shareable through testimony and argument are the features of propositional knowledge. It is to think of belief which can be understood as a relationship between a subject and a proposition. When the proposition one believes is true, the belief is true; when the proposition is false, the belief is false. In a similar way, propositional knowledge can also be seen as a relationship between a subject and a true proposition. But more specifically, it is a relation to a proposition that is true.

Knowledge by Acquaintance (Knowing of)

Knowledge by acquaintance refers to direct familiarity or awareness of a person, object, place, or experience — not merely knowing facts about it. Therefore, acquaintance knowledge needs to be distinguished from propositional knowledge. For Example, 'I know my teacher', 'I know the taste of mango' etc. This distinction was strongly emphasized by Bertrand Russell. Russell argued that acquaintance knowledge[5] is direct and non-inferential which is based on immediate awareness and not dependent on descriptive propositions. He contrasted knowledge by acquaintance — direct awareness (sense-data, self, immediate experience) from knowledge by description — indirect, propositional knowledge about things. For example, seeing a red patch (acquaintance), knowing "this is red" (propositional). Acquaintance knowledge is foundational in some epistemological theories because it provides the most immediate contact with reality.

Knowledge-How (Practical or Procedural Knowledge)

Knowledge-how refers to the ability or skill to perform an action. For examples, Do you know how to swim?' to ride a horse? Such questions have to do with an ability to engage in a certain activity. Usually it is learned ability, like knowing how to walk, but sometimes it is not, like knowing how to cry. This category was famously analyzed by Gilbert Ryle[6], who argued against reducing all knowledge to propositional form. Ryle distinguished, Knowing that (theoretical, propositional) and Knowing how (practical, skill-based). He criticized the "intellectualist legend" — the idea that intelligent action always results from applying known propositions. According to Ryle, skills are not just stored propositions. They involve trained capacities and dispositions. Performance can exceed what a person can verbally state. For instance, a skilled cricketer may know how to bat well without being able to state the physics principles involved.

Propositional knowledge and Justified true belief

Traditionally, for a subject (S) to know a proposition (p), three conditions must be fulfilled. That is, the proposition p must be true. S must believe that p and S must have a justification for p. Moreover, to have propositional knowledge that p is to have epistemically justified true belief that p. The text explicitly refutes the idea that mere belief is sufficient for knowledge (represented by the formula)

S knows that p = *Df*. S believes that p

This view is clearly mistaken. If knowledge were just belief, a person believing a false statement (e.g., a child believing 2+3 = 6) would technically 'know' it. Which is logically incorrect.

S knows that p = *Df.* S believes that p and p is true

This view states that one knows that p if and only if one has a true belief that p. A true belief based on a lucky guess or a hunch does not count as knowledge; it must be backed by a rational account or evidence to be considered 'justified'. If mere true belief is not sufficient for defining knowledge, then what else is needed? One traditional answer is that s knows that p only if p is epistemically justified for S or p is reasonable for S to believe.

S knows that p = *Df.* S believes that p, p is true and p is epistemically justified for S. This particular statement states that S must have a sufficiently strong reason or evidence for believing p is true. This condition separates genuine knowledge from lucky guesses or superstations. The earlier definitions were flawed because they lacked a justification requirements. Without it, a lucky guess that happens to be true would count as knowledge[7]. But JTB (justified true belief) account of knowledge is considered as inadequate by modern philosophers due to 'Gettier problems'. Edmund Gettier showed that someone can have a belief that is both true and justified, but is only true by coincidence. Consequently, most contemporary epistemologists believe additional conditions are needed beyond just JTB to define knowledge accurately.

E. Gettier presents two counter examples to the traditional definition[8]. Gettier shows that some cases of justified true belief are not instances of knowledge. If some instances of justified true belief are not instances of knowledge, then traditional JTB accounts are mistaken. And those mistaken are shown in case 1 and 2. In case 2, Smith is justified in believing a false proposition (e.g., 'Jones owns a Ford'). He correctly deduces a new proposition from it (e.g., 'Either Jones owns a Ford or Brown is in Barcelona'). By sheer coincidence, the second part of the deduction is true (Brown is in Barcelona), making the entire statement true. Smith has a justified true belief, but intuitively, he does not have knowledge because his being right is due to sheer coincidence or mere luck. Gettier notes that these cases depend on two key principles of epistemic justification. Firstly, fallibilism, one can be justified in believing a false proposition based on non-conclusive evidence. Secondly, Principle of Deductive Closure, If one is justified in believing a proposition, they are also justified in believing any other proposition they correctly deduce from it. These cases show that the traditional JTB requirements (Truth, Belief and Justification) are necessary but not sufficient for defining knowledge.

There are many attempts to solve the Gettier problem, which challenge as justified true belief. There are three approaches we shall consider are 1. the No False Grounds Approach, 2. The Defeasibility Approach, and 3. The Causal

Approach. Of these three approaches, the first two tend to focus on the role of epistemic justification and develop the idea that one's justification must be of the right sort[9]. The third is an attempt to use the notion of causal connection to make sense of the idea that knowledge is true belief that is not the result of accident or coincidence.

1. The No False Grounds Approach

S knows that p = *Df.* (1) S believes that p, (2) p is true, (3) p is epistemically justified for S, and (4) S's grounds for believing that p do not justify any false proposition for S.

This approach identifies that in many of Edmund Gettier's famous examples, a subject (Smith) arrives at a true conclusion by deducing it from a false premise that they are nevertheless justified in believing. Proponents of the view argue that for a belief to qualify as knowledge, one's justification must be of the right sort. Specifically, it must meet an additional condition: it cannot rest on any false grounds or premises. In cases Smith's justification considered defective from the standpoint of knowledge because it is essentially tied to a falsehood, even if the final belief happens to be true by accident or coincidence.

2. The Defeasibility Approach

S knows that p = *Df.* (1) p is true, (2) S believes that p, (3) p is epistemically justified for S, and (4) there is no true proposition, q, such that if S were justified in believing q, then S would not be justified in believing that p.[10]

The core idea is that for a person to truly 'know' something, their justification must be undefeated by any true proposition. It adds a fourth condition to the traditional justified true belief (JTB) model of knowledge. One knows a proposition (p) only if there is no true proposition that, if added to one's evidence, would defeat the justification for believing p. In Gettier cases, a belief is justified and true, but 'lucky' defeasibility approach argues these are not knowledge because there is some hidden truth (a defeater) that, if known, would destroy the believer's justification.

3. The Causal Approach

Recognizing these difficulties, Alvin Goldman proposed the following definition of knowledge in his 1967 essay ''A Causal Theory of Knowing''

S knows that p = Df. The fact that p is causally connected in an ''appropriate'' way with S's believing that p. [11]

The final approach we shall considered is causal approach. The causal theory of knowledge, a philosophical approach holding that knowledge requires a causal connection between one's belief and the fact that makes the belief true. This particular

approach suggests that for a person (S) to know a proposition (p), the fact that p must be causally connected to S's belief that p. Simple cases of perceptual knowledge (e.g., knowing a coffee cup is on the desk because of the causal process of perception) and memory knowledge are presented as plausible examples. But the approach argues that a simple causal theory is insufficient using counterexamples where a causal links exists but knowledge does not, such as: A person with a brain tumor who believes they have a brain tumor due to the tumor itself, but this is not considered knowledge.

Reliabilism

Reliabilism is one of the most influential developments in contemporary epistemology, offering a process-oriented account of epistemic justification and knowledge. Developed primarily by Alvin Goldman in the late twentieth century, reliabilism shifts the focus from internally accessible reasons to the objective reliability of belief-forming processes[12]. It represents a major strand of epistemic externalism and is widely discussed in debates concerning justification, knowledge, and the Gettier problem. This section presents a research-oriented discussion of reliabilism, its core theses, motivations, strengths, and major criticisms.

Conceptual Foundations of Reliabilism

Reliabilism maintains that a belief is epistemically justified if it is produced by a cognitive process that reliably generates true beliefs rather than false ones. The central evaluative unit is not the believer's reflective access to reasons but the truth-conduciveness of the process that produces the belief.

A belief-forming process is considered reliable if it yields a high ratio of true beliefs over false beliefs across relevant cases. A belief-forming process refers to a repeatable cognitive or inferential mechanism through which a subject acquires beliefs. These processes include perception, memory, introspection, deductive reasoning, inductive inference, and credible testimony. Reliabilism evaluates these processes at the type-level rather than the token-level. That is, the concern is not merely whether a particular belief turned out to be true, but whether the kind of process that produced it generally tends toward truth. This shift from individual belief assessment to process-type evaluation allows reliabilism to introduce an objective standard for justification grounded in cognitive performance. The claim that a process yields a high ratio of true beliefs over false beliefs should be understood in a statistical and performance-oriented sense. A process is reliable when, across a sufficiently large and appropriate set of cases, its outputs are predominantly true. Reliability does not imply infallibility; rather, it implies a favorable success rate. This ratio-based conception includes three features: **Frequency dimension** (The

process regularly produces correct beliefs), **Comparative dimension** (True outputs significantly exceed false outputs) and **Stability dimension** (The success rate is not accidental but repeatable). Thus, reliability is a measure of systematic truth-conduciveness rather than occasional correctness.

Reliability assessment is restricted to relevant cases — namely, those conditions under which the process is designed or expected to function properly. This restriction is necessary because most cognitive processes are environment-sensitive. A process that is reliable in standard conditions may become unreliable in distorted or abnormal contexts.

For example, ordinary visual perception is highly reliable under adequate lighting and normal physiological functioning. The same perceptual mechanism becomes unreliable under severe distortion, illusion, or sensory impairment. Therefore, reliabilist evaluation incorporates environmental appropriateness and proper functional conditions when measuring the truth ratio of a process. This conditional evaluation prevents unfair classification of generally dependable processes as unreliable due to abnormal circumstances.

Reliabilist accounts interpret process reliability through both statistical and dispositional models. The **statistical model** emphasizes empirical track record. A process is reliable if past performance demonstrates a strong tendency to produce true beliefs. Repeated success across trials supports classification as truth-conducive[13]. The **dispositional model** emphasizes built-in tendency or capacity. Even when full statistical data are unavailable, a process may be considered reliable if it is structured in such a way that it would normally produce true beliefs when functioning correctly. This interpretation is especially important for evaluating cognitive faculties whose reliability is grounded in biological or functional design rather than constant measurement. Together, these interpretations support a robust notion of reliability that is both empirically informed and theoretically grounded.

A further component of high truth-ratio performance is the presence of an appropriate causal or logical connection between the belief and the fact believed. Reliable processes typically track truth through dependable links with reality. Perception tracks truth through causal interaction with objects. Memory tracks truth through retention of previously acquired information. Valid reasoning tracks truth through truth-preserving logical structure. In each case, the process is not merely correlated with truth but connected to it through stable mechanisms.

This truth-tracking feature strengthens the reliabilist claim that justification arises from dependable belief production rather than subjective assurance. Reliabilism explicitly rejects infallibilism. A process may count as reliable even if it

sometimes produces false beliefs. What matters is the overall ratio, not perfect accuracy. Many scientifically respected methods — including probabilistic inference and empirical generalization — are fallible yet highly reliable.

This tolerance for limited error allows reliabilism to align with actual cognitive practice and scientific reasoning, both of which operate under conditions of uncertainty while maintaining strong truth-orientation. The high truth–falsehood ratio criterion plays a foundational role in reliabilist epistemology. It enables an objective account of justification, supports externalist analysis, and explains how knowledge can arise from properly functioning cognitive systems without requiring reflective access to justificatory grounds. By grounding justification in truth-conducive performance, reliabilism connects epistemology with cognitive science and naturalistic models of human inquiry.

It functions properly under normal or appropriate conditions. In reliabilist epistemology, especially as developed by Alvin Goldman, epistemic justification depends on whether a belief is produced by a reliable cognitive process. Reliability, however, is not assessed in abstraction but relative to the proper functioning of that process under normal or appropriate conditions. This section explains what it means for a belief-forming process to function properly, how normal conditions are specified, and why these constraints are necessary for evaluating epistemic reliability.

It exhibits stable truth-tracking performance. Reliability is not merely occasional success but **stable truth-tracking performance** — a consistent tendency to produce true beliefs across varying but appropriate conditions. This section explains what truth-tracking means, how stability is established, and what features enable a belief-forming process to maintain dependable contact with truth. Reliabilism evaluates beliefs by examining the performance of the cognitive processes that generate them. A process counts as reliable not simply because it once produced a true belief, but because it **systematically tracks truth** over time and across cases. Stable truth-tracking performance therefore refers to a process's enduring capacity to align belief outputs with actual states of affairs. The concept combines modal sensitivity, causal connection, and repeatable success. Truth-tracking means that a belief-forming method is responsive to how things really are. When the relevant fact is present, the process tends to produce a corresponding belief; when the fact is absent, the process tends not to produce that belief. Examples of generally reliable processes include perception under suitable conditions, memory, introspection, and valid deductive or inductive reasoning. By contrast, processes such as guessing, wishful thinking, and prejudicial reasoning are treated as unreliable.

Dr. Himanshu Sekhar Samal

Reliabilism as Epistemic Externalism

Reliabilism is classified as an externalist theory of justification because it denies that all justificatory factors must be internally accessible to the subject. According to internalist theories, a person is justified in believing something only if they can access or articulate the grounds of that justification through reflection. Reliabilism rejects this requirement.

- A subject may be justified without knowing that their belief-forming method is reliable.
- Justification depends on objective features of the cognitive process.
- Reflective awareness is not necessary for epistemic warrant.

This externalist orientation allows reliabilism to account for everyday knowledge claims, including those held by children or non-experts, who may lack the capacity to articulate their epistemic reasons but nonetheless form beliefs through dependable cognitive mechanisms.

Reliabilism and the Analysis of Knowledge

Reliabilism is often presented not only as a theory of justification but also as a framework for analyzing knowledge. In response to Gettier-style counterexamples to the traditional "justified true belief" model, reliabilism[14] introduces a stronger connection between belief and truth by requiring that true belief arise from a reliable process.

The reliabilist reconstruction of knowledge typically includes:

1. Truth of the proposition
2. Belief by the subject
3. Production of the belief through a reliable cognitive process

This approach aims to rule out cases in which a belief is true merely by accident. If a belief happens to be true but is formed through an unreliable method, it does not qualify as knowledge, even if the subject possesses some form of justification in the internalist sense.

Major Objections and Challenges

Despite its strengths, reliabilism faces several well-known objections.

1. The Generality Problem

A belief-forming event can be described under many process types, each with different reliability ratings. For example, a belief may result from "vision," "vision in daylight," or "vision while tired and distracted." The theory lacks a universally accepted rule for selecting the relevant process type for evaluation.

2. The New Evil Demon Problem

Consider a subject whose experiences are systematically deceptive due to factors beyond their control but whose internal cognitive processes function normally. Intuitively, such a subject seems justified in their beliefs. However, because their processes are not truth-conducive in that environment, reliabilism appears to classify their beliefs as unjustified. Critics argue that this conflicts with strong intuitions about epistemic fairness.

3. Clairvoyance and Strange Reliable Processes

Thought experiments describe agents who form beliefs through unusual but statistically reliable processes (such as hypothetical clairvoyance) without supporting evidence or awareness. Reliabilism may classify these beliefs as justified, while intuition suggests they are epistemically defective.

4. Neglect of Epistemic Responsibility

Some critics argue that reliabilism underplays the role of intellectual responsibility, reflection, and critical evaluation. By focusing on process reliability alone, it may overlook normative aspects of epistemic agency.

Reliabilism represents a major shift in epistemological theory by grounding justification and knowledge in the reliability of belief-forming processes rather than solely in internally accessible reasons. Its externalist and naturalistic orientation provides a powerful framework for explaining everyday knowledge and responding to Gettier-type challenges. However, persistent issues — including the generality problem, deceptive environment cases, and intuitions about epistemic responsibility — continue to generate debate. As a result, reliabilism remains a central and evolving position in contemporary discussions of epistemic justification and knowledge.

Conclusion

In conclusion, the challenge to the justified true belief model demonstrates that knowledge cannot be adequately defined by truth and justification alone. The Gettier-style counterexamples show that a belief may satisfy all three traditional conditions—being true, believed, and justified—yet still fall short of knowledge when its truth is connected to justification only through coincidence or epistemic luck. This reveals a structural weakness in the classical account and establishes that any successful theory of knowledge must include safeguards against accidental correctness. The central philosophical lesson is that justification must be appropriately connected to truth in a non-accidental and truth-conducive way.

The impact of this critique extends beyond the rejection of a single definition; it reorients epistemological inquiry toward the mechanisms that reliably link belief

with reality. Subsequent theoretical developments—such as causal theories, reliabilist approaches, and virtue epistemology—can be understood as systematic attempts to repair the gap exposed by Gettier cases. Each of these approaches introduces additional constraints designed to ensure that true belief arises from dependable cognitive processes, proper causal connections, or the exercise of intellectual virtue. What unites these diverse responses is a shared commitment to eliminating epistemic luck as a determining factor in knowledge attribution.

Furthermore, the post-Gettier landscape shows that knowledge is best understood not merely as a static state but as the outcome of well-functioning epistemic practices. This shift places greater emphasis on process, method, and cognitive performance rather than solely on propositional justification. It also encourages a more interdisciplinary orientation, drawing from logic, cognitive science, and philosophy of mind to explain how beliefs successfully track truth. As a result, epistemology moves from a narrow definitional project toward a broader explanatory framework focused on reliability, competence, and truth-connection.

The enduring significance of the Gettier problem lies in its methodological force. By demonstrating that a widely accepted definition fails under carefully constructed counterexamples, it establishes the necessity of counterexample testing in conceptual analysis. It also shows that intuitive judgments about knowledge are more demanding than earlier models assumed. Any adequate theory must therefore accommodate these intuitions while providing principled criteria that distinguish knowledge from merely justified true belief.

Ultimately, the rejection of the JTB model marks a turning point in contemporary epistemology. It replaces a simple tripartite definition with a richer investigation into the conditions under which belief qualifies as knowledge. The continuing debate over how best to exclude epistemic luck indicates that the analysis of knowledge remains an open and productive field. Nevertheless, the consensus that emerges is clear: knowledge requires not just justification and truth, but a dependable, non-accidental link between the knower's grounds and the fact known.

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