The Knowledge

Nicolae Sfetcu

How to cite this article: Sfetcu, Nicolae (2022). The Knowledge, DOI: 10.13140/RG.2.2.11276.59528, in *Telework*: https://www.telework.ro/en/the-knowledge/

Published: 09.11.2022

Abstract

Hard to say what knowledge is. The more this concept is discussed, the more divergent opinions are. Epistemology is the theory of knowledge, and one of the characteristic questions of epistemology concerns what all the myriad kinds of knowledge we ascribe to ourselves have in common. A major distinction between different types of knowledge is descriptive, declarative, or propositional knowledge (which requires a greater degree of intellectual sophistication on the part of the knowledge seeker) and knowledge or skill knowledge.

For a description, statement, or assertion to be knowledge, it must be a belief, be true, and be justified. A statement of faith is an expression of belief in someone or something. Belief must be true to be knowledge. Plato, in the *Gorgias*, argues that faith is the most frequently invoked bearer of truth. In many of Plato's dialogues, such as the *Meno* and especially the *Theaetetus*, Socrates regards knowledge as true belief explained or defined in some way. Justification for belief involves a good reason for doing so. The definition of knowledge as justified true belief was widely accepted until 1960, when the American philosopher Edmund Gettier provoked major widespread discussion.

Keywords: knowledge

The value of knowledge

The history of philosophy's reflection on knowledge is a history of theses and theories; but no less an area of questions, concepts, distinctions, syntheses and taxonomies.

> "We may consider ourselves in possession of unqualified scientific knowledge of a thing, as opposed to accidental knowledge of it in the sophistic sense, when we know the cause on which that fact depends, as well as the specific cause of that fact, and, moreover, that the fact cannot be other than that. The idea that scientific knowledge is in this sense is self-evident—as evidenced both by those who falsely claim it and by those who possess it, the former simply imagining themselves in that situation, the others actually being in that situation. Consequently, the proper object of unqualified scientific knowledge is something that cannot be other than what it is." (Aristotle, *Second Analytics* (Book 1 Part 2))

We generally assume that knowledge is more valuable than mere true belief. Socrates points out in Plato's dialogue *Meno* that both knowledge and true opinion can guide actions, but

knowledge is more valuable than mere true belief because it is justified. The question of the value of knowledge has re-emerged in the philosophical literature on epistemology in the 21st century, following the emergence of virtual epistemology in the 1980s, in part due to its obvious connection with the concept of value in ethics. It has been presented as an argument against epistemic reliability by philosophers. The question of value is important for assessing the adequacy of theories of knowledge.

Throughout our lives, we store (both consciously and subconsciously) information that we obtain in our daily lives. Including what we intentionally learn at home, at school, and from our surroundings. Even when we watch the work of an ant, sing, sit on our backs in the grass and look at the clouds in the sky, or when we meditate, our brain accumulates information. We are constantly storing up knowledge. But do we need this knowledge? Why? Some we will consider important, others may seem like garbage, a waste of time.

All these knowledge, information, principles, skills, and understandings, acquired over time through education or experience, make up a person's cognition. Knowledge has enabled all the advances in science and technology, it makes us more capable, superior and sophisticated beings. Knowledge is the main factor that clearly distinguishes the human race from animals. With its help we can judge various situations and make decisions accordingly. Plato regarded human behavior as arising from three main sources: desire, emotion and knowledge; John Locke said that the improvement of understanding has two purposes: first, to increase our own knowledge, and second, to enable us to impart that knowledge to others; Benjamin Franklin believed that an investment in knowledge brings the greatest return, and William Shakespeare declared that ignorance is the curse of God, and knowledge is the wing with which we fly to heaven.

Knowledge allows you to gain an advantage over other people, manage yourself and others, and make your life easier. Knowledge gives humans unlimited powers with which they can dominate all other beings, some that are physically even stronger than humans, and control nature, determining human progress and civilization. Knowledge is the engine that drives human life, therefore acquiring knowledge is considered the most important human activity.

It is epistemology that should explain the value of knowledge. Knowing as a true belief enables us to achieve our goals. But not all true beliefs are instrumentally valuable. Their usefulness depends on each individual.

There is an ongoing dispute between knowledge and simple true belief - which is of greater value? Socrates, in Plato's dialogue *Meno*, states that knowledge is more valuable than mere true belief because it is justified. In contemporary philosophy, some epistemologists have defended virtue epistemology as a solution to the problem of value.

Defining knowledge

The definition of knowledge is a matter of continuous debate among philosophers in the field of epistemology. The classic definition, described but not necessarily approved by Plato, says that in order to be knowledge, at least three criteria must be met; to be considered knowledge, a statement must be verified, true, and believed. Some believe that these conditions are not sufficient, as can be seen from the example of the Gettier problem. There are several alternatives proposed, including Robert Nozick's arguments for a requirement of knowledge to "pursue the truth" and Simon Blackburn's further requirement that we do not want to admit that those who fulfill any of these conditions "as a result of a defect, blemish or vulnerability" possess the knowledge. Richard Kirkham suggests that our definition of knowledge requires that the evidence of the believer be such as to logically require the truth of the belief.

Knowledge is a familiarity, awareness, or understanding of someone or something, such as facts, information, descriptions, or skills, that is acquired through experience or education through perception, discovery, or learning. Knowledge is defined by the *Oxford English Dictionary* as (i) expertise and skills acquired by a person through experience and education; theoretical and practical understanding of a subject, (ii) what is known in a particular field or in general; facts and information, or (iii) awareness or familiarity gained through experience of a particular fact or situation. Philosophical debates usually start with Plato's formulation of knowledge as "**justified true belief**." There is, however, no generally agreed upon definition of knowledge yet, nor is there likely to be one, although there are many competing theories.

Knowledge can refer to a theoretical or practical understanding of a subject. It can be implicit (as in the case of practical skills or expertise) or explicit (as in the case of theoretical understanding of a subject); it can be more or less formal or systematic. In philosophy, the study of knowledge is called epistemology; the philosopher Plato famously defined knowledge as "justified true belief," although "*well*-justified true belief," is more complete because it takes into account Gettier-type problems. But there are several definitions of knowledge and theories to

explain it. The term *knowledge* is also used in the sense of knowing the secrets of a subject with the possibility of using them for certain purposes if possible.

Normally, knowledge is represented by facts (descriptive or propositional knowledge), skills (procedural knowledge), or objects (direct knowledge). It is epistemology that must provide a definition of knowledge. But the criteria against which any form of knowledge will be tested make this task actually very difficult, if not impossible. The criterion problem arises when we try to identify the elements common to all instances of knowledge. But such an attempt presupposes that we already know what a knowledge is, and therefore know the respective criteria. We enter a vicious circle. We can try to reach a more general view of knowledge, establishing its essence. But even for such a generalization we should rely on particular cases of knowledge, and thus we arrive where we left off. We are at a standstill.

Until to reach a consensus on this definition, it seems that the only solution would be to use, for now, the classical theory of knowledge, according to which knowledge is to be understood as justified true belief, where justification implies the existence of good reasons for believing that belief in cause is true. Although this too is imperfect, as demonstrated by Edmund Gettier in the paper entitled " Is Justified True Belief Knowledge?" published in 1963, which questioned the theory of knowledge. He argued that there are situations in which one's belief can be justified and true, but cannot count as knowledge. Gettier proposed two thought experiments, which came to be known as "Gettier cases," as counterexamples in the classical exposition of knowledge.

Even if one accepts the classical definition, the criterion problem asks how one knows whether each's justification is sound; therefore, the justification must be justified, and so on *ad infinitum*. This infinite regress has caused philosophers concern because of possible skepticism, even nihilism. Münchhausen's trilemma, also called Agrippa's trilemma, claims that it is impossible to prove a certain truth, since the proof of any theory is based on circular reasoning, infinite regress, or unproven axioms. The qualia dilemma is based on the question of whether color is a product of the mind or an inherent property of objects. This extends to all areas of physical reality, where the external world we perceive is only a representation of what is impressed upon the senses. Whether the colors and shapes we are faced with are perfect matches for various people, we will never know. The fact that people can communicate accurately shows that the order and proportionality in which experience is interpreted is generally reliable. Thus, one's reality is, at least, compatible with another person's in terms of structure and relationship.

There are people who say that there is no need for justification, possibly replacing justification with another characteristic. Socrates, in the *Theaetetus* dialogue of the ancient Greek philosopher Plato, is one of the first to reject the definition of knowledge by the three characteristics. To eliminate the problem highlighted by Gettier, some philosophers consider knowledge as true belief justified as a particular case of a more general conditioning by adding an additional criterion for knowledge.

It follows that a radically new definition of knowledge is needed. Answers to Gettier's problem have involved attempts to provide a definition of knowledge either by recasting knowledge as justified true belief with an additional fourth condition, or by proposing an entirely new set of conditions, disregarding the classical ones entirely. The American philosopher Richard Kirkham argued that the only definition of knowledge that could always be immune to all counterexamples is an infallibilist one, in which a belief must not only be true and justified, but the justification of the belief must *require* its truth (to be *infallible*).

The Indian philosopher B K Matilal used the Navya-Nyāya tradition of *fallibilism* to distinguish between *I know p* and *I know that one knows p*. The second level is a kind of implicit inference that usually follows immediately after the episode of knowing p (knowledge *simpliciter* (absolute)). The question of justification would arise only at the second level. Reliability has been a significant part of the response to Gettier-type problems among philosophers, originating with work by Alvin Goldman in the 1960s. According to fallibilism, a belief is justified only if it is produced by processes that typically yield a sufficiently large ratio of true to false beliefs.

Another candidate for the fourth condition of knowledge is *irrevocability*, according to which there should be no superior or victorious truth for the reasons that justify one's belief. If there are no claims to support a person's justification, a subject would be epistemologically justified. In his book *Knowledge and its Limits*, Timothy Williamson states that the notion of knowledge cannot be broken down into a set of other concepts (like "justified true belief") by analysis - rather, it is *sui generis*. Alvin Goldman writes in *A Causal Theory of Knowledge* that for knowledge to truly exist, there must be a causal chain between the statement and the belief in that statement.

Knowing by doing is considered by some scientists and philosophers to need no justification. But facts are known through sense perception, and this cannot provide knowledge unless we know the source to be reliable. And the assessment of trust already involves knowledge

about the workings of the world, acquired, at least in part, through sensory perception. We are once again in a vicious circle, and threatened by skepticism.

Evidentialism holds that the source of knowledge is evidence. Theories that reject the necessity of source trust avoid the criterion problem by allowing that a source of belief can provide knowledge before one knows that the source is trustworthy (background knowledge). Theories that accept background knowledge can appeal to it to explain how we know our sources are reliable. (Ernest Sosa's epistemology of virtue).

Alvin Goldman states that we can only know by virtue of the reliability of our cognitive processes. *Reliabilism* states that I do not need to know that my perceptual processes are reliable, it is enough that my perceptual processes are reliable.

Jonathan Vogel and Richard Fumerton developed a theory of easy cognition, "*bootstrapping*": by repeating a perceptual process enough times, it would appear that I can gather considerable evidence that my perception is reliable, enough to know that my perception it is reliable. Evidential foundationalism supports this logic, in contrast to Michael Bergmann who considers this to be a "non-self-supporting principle": one cannot obtain a justified or warranted belief that a source of belief is trustworthy by relying even partially on that source.

John Hawthorne appealed, to resolve this dilemma, to the idea that we possess relevant contingent *a priori* knowledge. Another variation on avoiding background knowledge is to claim that epistemic support is, to some extent, holistic.

Wittgenstein observes that, according to Moore's paradox, one can say "He believes but it is not so", but one cannot say "He knows but it is not so". He argues that they do not correspond to distinct mental states, but rather to distinct ways of talking about conviction. What is different here is not the mental state of the speaker, but the activity in which he is engaged. Wittgenstein tried to overcome the difficulty of definition by considering the way in which "knowledge" is used in natural languages. He saw knowledge as a case of family resemblance. Following this idea, "knowledge" has been reconstructed as a derivative concept that highlights relevant characteristics but is not adequately contained in any definition.

Truth and objectivity

The objectivity of truth presupposes that simply thinking that the world is in a certain way does not mean that it is so. This objectivism conforms to fallibilism by claiming that our beliefs

can be wrong. There is a strong objectivism (realism about truth), which holds that it is always possible for our beliefs to be wrong, and a weak form of objectivism (anti-realism) which holds that only what we now believe could be wrong (truth cannot exceed in last best opinion). Anti-realism may be motivated by the idea that a realist conception of truth does not help much in research.

Relativism is the view that truth is exactly what you think it is. Such a view is self-contradictory, since it would mean that what the realist thinks about truth is also true, so it would follow that relativism is false.

The structure of knowledge

The structure of knowledge refers to how a person's mental states must be connected to each other for knowledge to occur. An agent's exposure to this mode may justify his belief. But any motivation must in turn affect the epistemic status of the initial belief and threaten to lead to an infinite regress, since the epistemic status at each step depends on the epistemic status of the previous step.

According to Agrippa's trilemma, there are only three alternatives for solving the problem of justification in knowledge, and none of them is particularly appealing. The first alternative is to regard one's belief as being justified by nothing, for no reason at all. This theory of the structure of knowledge is *infinitism*, which does not deny the existence of infinite regress; it accepts an infinity of reasons, but this does not explain how human knowledge is possible, because the human mind is limited.

The second alternative is to regard one's belief as justified by some other reason which will presumably be another belief itself. This is the *coherentism* advocated by Quine, which states that a circular chain of mutually supporting grounds can justify a belief if the right kind of properties exist. These grounds ensure each other's epistemic status, but critics argue that this constitutes the fallacy of circular reasoning (if two beliefs support each other and one is accepted, the other can be accepted, but mutual support alone is not a reason for acceptance). Coherentists and infinitists argue that the concept of "basic reason" is contradictory, requiring in turn another motivation to be "basic"; they avoid these problems by denying the distinction between basic and non-basic reasons.

The third option allows the supporting beliefs, at one point in the chain of justification, to be beliefs that arose elsewhere in the chain. This theory of the structure of knowledge is *foundationalism*, its classic version being defended by Descartes. Foundationalism allows for circular justifications. Some basic reasons have their epistemic status independent of other reasons and thus constitute the endpoint of regress. But it is difficult to find an account of these fundamental beliefs that is plausible and at the same time count enough beliefs as fundamental that they can support the other beliefs we have. Foundationalists and coherentists deny the existence of this infinite regress, in contrast to infinitists.

It therefore seems hard to see how any belief could be justified. Gettier used counterexamples to contradict all these theories of the structure of knowledge, showing that a reason or justification for a true belief is not sufficient for knowledge when cognitive luck is involved.

Knowledge seems to be more of a way to get to the truth. Most epistemologists have found it overwhelmingly plausible that what is false cannot be known. You can only know what you believe. Not believing something prevents knowing it. To identify knowledge only with true belief would be implausible, since a belief could be true even if incorrectly formed.

There are two approaches to justification: a) *internalists* believe that whether a belief is justified depends entirely on the somewhat internal states of the subject; b) *externalists* believe that factors external to the subject may be relevant for justification; for example, process credibilists believe that justified beliefs are those that are formed by a cognitive process that tends to produce a high proportion of true beliefs relative to false ones. Justification can also be classified into "propositional justification" (also called "*ex ante*" - when a subject has sufficient reason to believe a given proposition), and "doxastic justification" ("*ex post*" - a certain belief is properly supported).

Hilary Kornblith states that knowledge is a natuiral type, to be analyzed in the same way as other sciences. Intuition has a role to play in identifying paradigms, but generalization there is an empirical, scientific caste, and intuitive counterexamples are to be expected. The 'knowledge first' position is also related to these methodological issues.

Contextualism discusses the attributes of knowledge; according to it, the word "knowledge" and its characteristics are context-sensitive. The relationship between contextualism and the analysis of knowledge is by no means straightforward. They can be said to have different

subjects (the first a word and the second a mental state). Contextualism and pragmatic invasion are different strategies for addressing some of the same "changing" patterns of intuitive data.

A central debate about the nature of justification is a debate between epistemological externalists and epistemological internalists. Externalists consider that "external" factors, outside the psychological states of those who acquire knowledge, can be conditions of justification. Internalists assert that all the conditions that create knowledge reside in the psychological states of those who acquire knowledge. Many point to René Descartes as an early example of internalism. Descartes said that man must use his faculties of knowledge correctly and carefully through methodological doubts.

Rationality

There seems to be a close connection between having a rational belief and having knowledge (and, conversely, between having an irrational belief and lack of knowledge), as (implicitly) between rational beliefs and justified beliefs.

In epistemology, epistemic rationality (by maximizing true beliefs), which specifically aims at true belief, is important. Maximizing true beliefs involves acquiring trivial true beliefs, or believing as many as possible (at the risk of also accepting false beliefs). Epistemic rationality is best achieved by minimizing false beliefs, but we must avoid the situation where we no longer believe in anything that would lead us away from epistemic rationality, through a balance between maximizing true beliefs and minimizing false beliefs.

There are two conceptions of epistemic rationality: deontic conceptions (*epistemic internalism*, when beliefs are formed responsibly - the closest to the idea of justification) and non-deontic (*epistemic externalism*, using correct epistemic norms - a closer relationship with knowledge).

Virtue and reliability

Reliabilism, in its simplest form, holds that knowledge is true belief formed reliably (through a process of trust). There is a Gettier-style problem with this view: one could reliably form true beliefs in a way in which the true beliefs formed are still essentially due to luck. To avoid this kind of counterexample, one can restrict the kinds of reliable processes that are relevant to determining whether or not an agent has knowledge. In order to acquire knowledge, one must gain

true belief through epistemic virtues or cognitive faculties such that they are by their very nature trustworthy (*virtue epistemology*).

Another problem with reliabilism is that it allows for knowledge in some controversial cases. Reliabilists tend to allow knowledge in such cases, but some believe that one cannot gain knowledge simply by being reliable. While epistemic internalists insist that knowledge must always be in possession of supporting grounds for one's beliefs, epistemic externalists allow that one may sometimes have knowledge even if one does not have such grounds—as long as one fulfills other relevant conditions, such as be a reliability condition. Virtue epistemologists tend to be epistemic externalists. One way to promote an epistemological virtue through epistemic internalism is to insist that the exercise of an epistemic virtue is essential to gaining knowledge.

Getting knowledge

Knowledge accumulation involves complex cognitive processes, such as perception, learning, communication, association, and reasoning. Various philosophers have contested the nature of the distinction between *a priori* knowledge (independent of experience, non-empirical, based on intuition or rational insights) and *a posteriori* knowledge (through experience, empirical).

Another distinction, made by Immanuel Kant in his *Critique of Pure Reason*, is between "analytic" (which are true only in their sense) and "synthetic" propositions (which have distinct subjects and predicates). Kant stated that all mathematical and scientific statements are *a priori* analytic propositions because they are necessarily true. Willard Van Orman Quine, in *Two Dogmas of Empiricism*, contested the distinction, arguing that the two have a blurred boundary.

Science is viewed as a refined, formalized, systematic, or institutionalized form of the pursuit and acquisition of empirical knowledge.

There are several branches or schools of thought regarding the acquisition of knowledge:

- *Historical*: The historical study of philosophical epistemology is the historical study of efforts to gain philosophical understanding or knowledge of the nature and domain of human knowledge.
- *Empiricism*: A theory of knowledge focused on the basis of experience, through the senses, with variants such as positivism, realism and common sense.
- *Idealism*: Knowledge is primarily acquired by processes (usually intuition) *a priori* or is innate - examples: Kant's theory of transcendental idealism, Plato's theory of forms.
- *Rationalism*: Centers around the epistemologically privileged status of sense data (empirical) and the primacy of reason (theoretical), respectively, adding a third "system of thought", all three of equal importance: empirical, theoretical and abstract.

- *Constructivism*: A view that all knowledge is a compilation of human-made constructions, not the neutral discovery of an objective truth.
- *Pragmatism*: An empirical epistemology, which understands truth as that which is practically applicable in the world.
- *Naturalized epistemology*: Considers the evolutionary role of knowledge for agents living and evolving in the world.
- *Indian Pramana*: Indian schools of philosophy such as the Haya Nyaya and Carvaka, and later the Jain and Buddhist schools of philosophy, developed an epistemological tradition called "pramana" as an "instrument of knowledge" that refers to various means or sources of knowledge considered reliable.
- *Skepticism*: Questions the validity of some knowledge or all human knowledge.

Theory of knowledge has been assimilated to philosophy of knowledge and epistemology. Beginning with the works of Edgar Morin, among others, the theory of knowledge is transdisciplinary, multidimensional, and multifactorial.

Jean-Michel Besnier asks: "How does this elaboration that led to knowledge take place? Through which prisms did reality pass before becoming an object for the knowing subject?" The synthesis of the various inputs gives the following scheme:

Real ⇔ Reality ⇔ Representation ⇔ Theory ⇔ Model ⇔ Real Explanation ⇔

Anticipation of research and the observer in relation to each entity / *Referential*.

Knowledge is gained through the senses, but some theorists also accept introspection as a source of knowledge, as well as memory, rational intuition, inference, and testimony. Perception or observation is identified as the most important source (*observational knowledge*). Together with *introspective knowledge*, it forms the category of fundamental or basic knowledge. Knowledge based on perception, introspection or memory can give rise to *inferential knowledge* (obtained from inferences).

According to the English philosopher Francis Bacon, observations and experiences give us access to the real, and theory results from the generalization of induction. For Bacon, building theories is therefore a supervised learning process. For Karl Popper, scientists construct hypotheses, including tests of the theories on which those hypotheses are based, before eliminating those that are disproved by observation and experience (*falsifiability*, or the criterion of demarcation).

The regression problem

The regression problem debates the possibility of providing a complete logical foundation for human knowledge. A rational argument is supported by appealing to other rational arguments, usually using chains of reasoning and rules of logic. This involves the problem of regress: how can we ultimately conclude a logical argument with some statements that do not require further justification, but can still be considered rational and justified? The apparent impossibility of completing an infinite chain of reasoning is thought by some to support skepticism.

Many epistemologists have tried to argue different kinds of chains of reasoning that can escape the regress problem:

- *Foundationalism*: states that certain "foundations" or "core beliefs" support other beliefs, but do not themselves require justification from differing views. Perception, memory, and *a priori* intuition are often considered possible examples of foundational beliefs. Critics state that if other beliefs do not support a belief, its acceptance may be arbitrary or unjustified.
- *Coherentism*: Rejects the assumption that regress proceeds according to a model of linear justification, arguing that a belief is circularly justified by how it fits (is coherent) with the rest of the belief system of which it is a part. But the difficulty lies in ensuring that the whole system corresponds to reality.
- *Funderentism*: Tries to unify foundationalism and coherentism, through the “crossword puzzle analogy”: regressive justifications are more like a crossword puzzle, with multiple lines that support each other.
- *Infinitism*: considers the infinite series to be only potential, using some of these justifications only as needed.

Formal epistemology studies the epistemic principles of knowledge:

- The *principle of transparency*, also called the luminosity of knowledge, states that knowing something involves the second-order knowledge that one knows it.
- The *principle of conjunction* says that having two justified beliefs in two separate propositions implies that the agent is also justified in believing the conjunction of those two propositions.
- The *principle of closure* states that if the agent has a justified belief in a proposition and this proposition implies another proposition, then the agent is also justified in believing this other proposition.
- The *principle of transfer of evidence* states that if a given piece of evidence justifies the first belief, then it also justifies the second belief.

Perception

Much of our knowledge of the world is gained through perception (that is, our senses), but these can deceive us (see the illusion argument). Thus, *indirect realism* says that there is an objective world independent of our experience; what we directly experience is only how the world appears to us, not what it is. Indirect realism can account for the distinction between the (primary) properties of an object that are inherent to the object (e.g., its shape) and the (secondary) properties of the object that depend on the perceiver (e.g., its color).

Idealism denies the existence of a real world, claiming that the world is made up of appearances and there is no mind-independent world. *Transcendental idealism* holds that although we cannot have any experiential knowledge of the external world independent of experience, we can use reason to show that there must be a world that gives rise to our experiences.

Direct realism holds that we can directly experience the real world.

Testimony and memory

Knowing through the testimony of others, when someone tells us what they know, or by reading what someone knows about (a textbook, for example) depends on that testimony. This knowledge can be difficult to verify, only by appealing to the trust we have in those testimonies. *Reductionism* avoids this problem by arguing that no trust is needed for knowledge based on testimony, thus avoiding the problem of circularity. The problem is that for a great deal of evidence-based knowledge, reductionism seems to imply that we know very little of what we usually think we know.

Credulism also holds that we can have knowledge based on testimony if there are no special grounds for doubt. The problem with credulity is that there is a possibility that it simply licenses credulity. In the case of credulism as an epistemic externalist thesis, the testimonies would still have to satisfy another relevant condition (for example, that they were formed in a reliable way), but this variant of credulism inherits the problems of epistemic externalism in general.

The epistemology of memory has problems similar to those of testimony. Our memory may be inherently unreliable. Thus, for a knowledge based on memory to be justified, it needs a non-memorial epistemic support, thus also reaching a form of reductionism. As with testimony, one can consider a form of credulism that grants them implicit epistemic status (by appealing to some version of epistemic externalism), but with the same problems as with testimony.

Knowledge by inference

There is a distinction between *a priori* and empirical knowledge. Part of introspective knowledge is *a priori* knowledge, obtained through inferences, deductive (from premises to conclusion) or inductive (from premises that provide support for the conclusion without actually implying it). Good inductive arguments provide strong support for the conclusion based on a representative sample. A type of non-deductive inference that is not inductive is abduction, which involves premises that do not imply the conclusion. These inferences involve adopting the best explanation. Virtually any correct form of abductive inference will be a shortened version of an inductive inference.

The problem of Hume's induction arises because it seems impossible to obtain a non-circular justification for induction, since inductive inferences are legitimate only on the condition that we already have the right to assume that the observed samples provide good grounds for the induced generalizations. But our grounds for this assumption itself depend on further inductive inferences, in which case our justification will itself be, at least in part, inductive, so there can be no non-circular justification for induction.

Such a problem can be avoided by arguing that such a fundamental epistemic practice needs no justification, but this way is not very satisfactory. A better approach is to defend induction on externalist epistemic grounds when the induction is reliable—an approach rejected by epistemic internalists.

Karl Popper argued that the problem of induction is not so serious because most apparently inductive knowledge is actually acquired by deduction. Scientists basically formulate hypotheses that they then try to falsify, which is a deductive rather than an inductive process.

Reichenbach admits that there is no justification for induction, but argues that using induction is the most rational thing to do, because only induction will bring us true knowledge of the world.

Knowledge transfer

Philosophers of language and semiologists construct and analyze theories of knowledge transfer or communication. Although writing and reading are considered by most as the most important tools for the transfer of knowledge, some researchers talk about the negative impact of the written word on societies. In Plato's *Phaedrus*, Socrates tells the story of Thamus, the Egyptian

king, and Theuth, the inventor of the written word. King Thamus is skeptical of this new invention and dismisses it as a tool of silence rather than knowledge: the written word will infect the Egyptian people with false knowledge from an external source, and they will no longer be required to mentally retain vast amounts of knowledge themselves.

The empiricist works of the philosopher John Locke were based on a model of the mind that equated ideas with words, reducing the mind to a container to be stocked with facts reduced to letters, numbers or symbols, with an exaggerated focus on structure visual information on the page and in notebooks.

Media theorists such as Andrew Robinson point out that the visual representation of knowledge in the modern world has often been seen as "truer" than oral knowledge. The extent of human knowledge is now so great, and those interested in a knowledge so separated in time and space, that writing is considered essential to the capture and sharing of knowledge. Thus, writing became the most available and universal form of recording and transmission of knowledge.

Types of knowledge

In epistemology, the main type of knowledge is *affirmative knowledge* (*knowing-that*), distinct from knowledge-how and direct knowledge, including linguistic in some languages.

In his work *On Denotation* and his later book *The Problems of Philosophy*, Bertrand Russell emphasized the distinction between "*knowledge by description*" and "*direct knowledge*". Gilbert Ryle is also credited with drawing the distinction between knowing-how and knowing-that in *Concept of Mind*. In *Personal Knowledge*, Michael Polanyi argues for the epistemological relevance of knowing-how and knowing-that. In recent times, some epistemologists (Sosa, Greco, Kvanvig, Zagzebski) and Duncan Pritchard have argued that epistemology should assess "properties" of people (eg intellectual virtues) and not just properties of propositions or propositional mental attitudes.

Knowledge can be propositional (implying a relation to a proposition) or non-propositional. *Propositional knowledge* is also called descriptive, declarative knowledge, or knowing-that with its derivative, knowing-with (a combination of knowing-who and knowing-where) or knowing-why. All these types can be paraphrased using a -clause. *Contrastivism* implies a type of knowing-that in which to know is to know one aspect rather than another. Propositional knowledge can be *a priori* (or innate - as opposed to acquired - knowledge, based on reason or

rational intuition) or *a posteriori* knowledge (based on empirical/sensory evidence). Depending on the proposition, knowledge can be necessary and contingent (if it is possible for the proposition to be false), or analytic and synthetic (if the truth of the proposition depends only on the meaning of the terms used). Also, knowledge can be acute (apparent, momentarily aware) or dispositional (not momentarily aware).

Non-propositional knowledge does not imply an essential relation to a proposition. Two of the most well-known subtypes are *knowing-how* (to know how, or procedural knowledge, which depends on certain skills) and *relationships knowledge* (through direct contact with other people - direct interaction). Gilbert Ryle highlighted the potential importance of distinguishing between knowing-that and knowing-how. Bertrand Russell famously distinguished between knowledge by description and a rather particular kind of knowledge by relationships. Descriptive knowledge is the means by which, in Russell's view, a person could learn about what he did not directly experience.

A special form of knowledge is *knowledge-as*, in which the philosophical forms of response imply

- Some or all knowledge is innate (and then we remember it later in life). A famous idea due to Noam Chomsk, but also to Plato (in the *Meno*) who granted humans this kind of innate knowledge; like Leibniz's in the *New Essays*.
- Part or all knowledge is observational. (Can there be pure or directly observational knowledge? Is conceptual knowledge what gives informed content to your observational experience? Can there be fundamental observational knowledge?)
- Some or all knowledge is non-observational, obtained only through thought (rather through reflection than through observation). Those who believe that *a priori* knowledge is possible are called knowledge rationalists. Empiricists, on the contrary, believe that all knowledge is observational in nature. underlying, even when it may not seem so. This is the belief that all knowledge is *a posteriori* — present only after some appropriate supporting observations are made.)
- Part or all knowledge is partly observational and partly not - obtained simultaneously by observation and thinking (Knowledge by thinking-plus-observation).
- Other distinctions of knowledge include self-knowledge (knowledge of one's own sensations, thoughts, beliefs, and other mental states), and situational knowledge (specific to a particular situation).

Situational knowledge involves methods of generating knowledge through trial and error or learning from experience, being embedded in language, culture or traditions. Finally, we can distinguish between higher knowledge (spiritual - knowledge of God, the absolute, true self or

ultimate reality) and lower knowledge (empirical and objective, based on the senses and intellect - includes scientific knowledge)).

Knowledge, by definition, can be acquired directly (*observing the real*) or indirectly. Situational knowledge is the knowledge of situations as they usually occur in a particular domain. *Conceptual knowledge* is static knowledge about facts, concepts, and principles that apply in a particular domain.

Situational knowledge is specific to a particular situation. This situation partially transforms science into a narrative, which Arturo Escobar considers to be neither fictions nor supposed facts, but a historical fabric of textures of facts and fictions. Certain methods of knowledge generation, such as trial-and-error, or learning from experience, tend to create highly situational knowledge. Situational knowledge is often embedded in language, culture or traditions.

Partial knowledge occurs when it is not possible to fully understand an area of information. Thus, most real problems must be solved by taking advantage of a partial understanding. This idea is also present in the concept of bounded rationality, which assumes that in real life situations people often have a limited amount of information and make decisions accordingly.

Intuition is the ability to acquire partial knowledge without inference or using reason. An individual can "know" about a situation and be unable to explain the process that led to his knowledge.

Scientific knowledge

The development of the scientific method has contributed significantly to how knowledge of the physical world and its phenomena is acquired. To be called scientific, a method of generating knowledge must be based on the collection of observable and measurable evidence subject to specific principles of reasoning and experimentation. Scientific methods are based on observable and measurable evidence, subject to specific principles of reasoning and experimentation, usually through the formulation and testing of hypotheses. For biologists, knowledge must be usefully available to the system, although that system need not be conscious.

Scientific knowledge is not immutable. Science must be questioned even when it is correct, for greater convergence with truth in general. Judge William Overton, in a famous trial, tried to decide whether creationism could be taught in publicly funded schools as an alternative to evolutionary theory. The key question at issue here was whether creationism is a genuine scientific

theory or just a pseudoscientific view. To resolve this issue, Judge Overton consider five conditions that genuine science had to meet:

1. It is guided by the laws of nature;
2. It must be explanatory by reference to the laws of nature;
3. To be testable against the empirical world;
4. Its conclusions are provisional (i.e. not necessarily the final word); and
5. Be falsifiable.

Thomas Kuhn proposed a radically different way of approaching scientific thought: the scientific change that occurs when scientific revolutions occur—not to be thought of as an incremental, rational process from an old scientific theory to a new one. The revolutionary new scientific theory will disagree about what the scientific evidence proves with the old one, and even disagree about what counts as scientific evidence in the first place.

Because technique naturally leaves no room for abstraction, the connections between knowledge and technique are much less obvious. The time of technique is shorter than that of prospective reflection, panoramic study and organizational policy of living together. There are more and more independent contributions from philosophers, sociologists and historical critics about knowledge obtained through technique. Bruno Latour, Isabelle Stengers, Vinciane Despret and Tobie Nathan invite in their articles and works to give the floor, a political representation, to the different entities of *the non-human*: the *parliament of things*.

Religious knowledge

The classical approach defines knowledge as true and justified belief, and not just true belief. This definition excludes cases where an individual has a true belief but is unable to explain why that belief is true. The justification of belief is therefore the crucial element of this traditional analysis of knowledge.

According to sociologist Mervin Verbit, knowledge can be understood as one of the key components of religiosity. Religious knowledge itself can be divided into four dimensions: content, frequency, intensity, and centrality. The evidentiary challenge to religious belief is to show that one has sufficient independent evidence in support of one's religious belief. One way to meet the evidentialist challenge is natural theology, which holds that there is a sound rational basis for believing in the existence of God.

There are three historically important rational "*proofs*" for the existence of God.

1. The *ontological argument* attempted to demonstrate that God's existence follows from the very concept of God.
2. The *cosmological argument* attempted to prove the existence of God by arguing that something must have brought the universe into existence and that God is the only plausible candidate to play this role of "creator."
3. The *design argument* attempted to prove the existence of God by arguing that it was the only way to explain the complexity found in nature.

Fideism argues that religious belief should not be subject to normal epistemic standards, arguing that religious belief is neither rational nor irrational, it should be evaluated by its own standards. Reformed epistemology also rejects the evidential challenge, defending religious belief by arguing that it is similar to perceptual belief and therefore should meet the same kind of epistemic standard. The proposition appeals to an innate sense of divinity known as the *sensus divinitatis*.

In many versions of Christianity, such as Catholicism and Anglicanism, knowledge is one of the seven gifts of the Holy Spirit. The tree of the knowledge of good and evil in the Old Testament contains the knowledge that separated man from God: "And the Lord God said, Behold, the man is become as one of us, to know good and evil: and now, lest he put forth his hand, and take also of the tree of life, and eat, and live for ever…" (Genesis 3: 22)

In *Gnosticism*, everyone is said to possess a piece of the highest good, or Supreme God, deep within themselves, which has fallen from the spirit world into people's bodies, sometimes called the divine spark. He who brings such knowledge is considered the savior.

In *Hinduism*, Vidya Daan, meaning exchange of knowledge, is an important part of Daan, a principle of all dharmic religions. Hindu scriptures present two types of knowledge, Paroksh Gyan and Prataksh Gyan. Paroksh Gyan (also spelled Paroksha-Jnana) is second-hand knowledge: knowledge obtained from books, hearsay, etc. Prataksh Gyan (also spelled Prataksha-Jnana) is knowledge gained from direct experience, or knowledge that a person discovers for himself. Jnana yoga ("the path of knowledge") is one of the three main types of yoga expounded by Krishna in the Bhagavad-Gita.

In Islam, knowledge is given great importance. "Understanding" (*al-ʿAlīm*) is one of the 99 names that reflect the distinctive attributes of God. The Qur'an states that knowledge comes from God (2: 239) and various hadiths encourage the acquisition of knowledge. Muhammad is said to have said, "Seek knowledge from the cradle to the grave" and "Truly the people of

knowledge are the heirs of the prophets." Islamic scholars, theologians and jurists were often given the title of *alim*, meaning "knower".

In Jewish tradition, knowledge (Hebrew: *da'ath*) is considered one of the most valuable traits a person can acquire. Faithful Jews recite three times a day in the Amidah: "Give us knowledge, understanding and discretion that come from you. Exalted are you, the Existent One, the gracious giver of knowledge." The Tanakh says, "A wise man gains strength, and a man of knowledge maintains his strength," and "Knowledge is more than gold."

Moral knowledge

The social dimension of knowledge includes the mutual effects between research and human life with social relationships and values included. This mutual influence enables the emergence of social movements such as environmentalism and feminism; anti-normative approaches in sociology can thus tend in philosophy towards naturalism and pragmatism

Moral facts do not appear to be objective in the way that "real", scientific facts are. Moral judgments largely reflect the person's cultural upbringing. If there are no moral facts (moral expressivism), then it would follow that there can be no moral knowledge. Moral expressivists argue that moral statements do not express facts, but fulfill a very different role (an intention).

If there are moral facts, however, it does not automatically imply that there is moral knowledge, since moral disagreements are often completely intractable.

If moral knowledge does exist, three possibilities arise:

1. Classical *foundationalist* theory holds that we have *a priori* knowledge of basic moral principles which, coupled with empirical knowledge in the case, allow us to form moral judgments about what to do in specific cases. But this view over-intellectualizes what is necessary for moral knowledge.
2. *Coherentism* holds that there are no fundamental moral beliefs and any belief in moral principles can be revised if adequate counter-evidence arises.
3. A kind of *virtue epistemology* allows us that, in certain cases, we could directly obtain moral knowledge, even without a rational basis as long as we make appropriate use of the epistemic virtues. Such a view can be problematic because moral knowledge, unlike, say, perceptual knowledge, seems to essentially involve the possession of appropriate reasons.

Skepticism of knowledge

Skepticism states that knowledge is not possible. According to the dream argument, dreaming provides unreliable information, and the agent might dream while being unable to

distinguish real perceptual experience from dream experience. Another argument brought forward by skeptics is that of a brain in a vat that is only fed with electrical stimuli. Such a brain would have the false impression of having a body and interacting with the outside world, thus unable to tell the difference.

Among other arguments, skeptics use Agrippa's trilemma (named after the Pyrrhonian philosopher Agrippa the Skeptic) to demonstrate that certain beliefs cannot be obtained. Foundationalists used the same trilemma argument as justification for claiming the validity of core beliefs. Skeptics oppose "dogmatic foundationalism," which states that there must be some basic beliefs that are self-justifying or beyond justification.

The evil demon skepticism described by Descartes (first appearing in Plato's allegory of the cave, with an updated version in scientific literature using the example of a brain in a vat) assumes that our sensory impressions could be under the control of an external power. As such, everything we see is fake and we can never know anything about the "real" world. However, we only depend on the information provided by our senses and therefore cannot make any definite statements about anything beyond that information.

Such thought experiments lead to the problem of underdetermination: that the available evidence is not sufficient to make a rational decision between competing theories. Another skeptical argument is based on the idea that human knowledge is fallible and therefore lacks absolute certainty.

There are two different categories of epistemological skepticism: "attenuated" skepticism (does not accept "strong" or "strict" knowledge claims, but approves weaker ones) and "unattenuated" skepticism (rejects both virtual and strong knowledge claims). The "strength" of a knowledge depends on the point of view of a person, and on the characterization of his knowledge. Several modifications of skepticism have emerged over the years, such as:

- *Fictionalism*: does not claim knowledge, but adheres to conclusions based on some criterion, such as utility, aesthetics, or other personal criteria, without claiming that said conclusion is necessarily "true."
- Philosophical *fideism*: (unlike religious fideism) accepts the truth of some propositions, but not with certainty.
- Some forms of *pragmatism* accept utility as a guide to truth, but not necessarily a universal decision-maker.

Local or selective (less radical) skepticism denies knowledge only in a particular area or discipline, and external world skeptics claim that we can only know about our own sense impressions and experiences, but not about the external world.

An important argument against global skepticism is that it seems to contradict itself: the claim that there is no knowledge seems to constitute a claim for knowledge itself.

Other minds

The problem of other minds refers to the fact that we seem to be unable to observe another person's mind in the same way that we can observe physical objects. But, are there other minds? Argument from analogy notes correlations between our behavior and our mental states, thereby making inferences about the mental states of others who behave in similar ways. But the style of reasoning used in this argument is considered by many to be flawed, denying generalization from a single-case correlation.

There are two issues involved in the question of other minds: The first is whether there are other minds. The second is whether, given that there are other minds, those minds are like ours. It seems possible that other people experience the world in a very different way. One possible answer would be to consider that we can, at least sometimes, have direct knowledge of another person's mind.

Radical skepticism

Radical skepticism asserts that it is impossible to know too much. The main argument in favor of this idea is the skeptical hypothesis, according to which normal life is completely different from reality (for example, a brain in a vat "fed" with "experiences" by supercomputers - the skeptical hypothesis). This argument seems to be based on the principle of closure, which generally holds that if you know a sentence and know that it implies a second sentence, then you also know the second sentence. The critique of this skeptical argument denies this principle (you can know a proposition without knowing another proposition implied by the first). Knowledge is essentially concerned with having sensibly true beliefs (which the agent believes to be true—the sensibility principle). If the closure principle is accepted, then one can opt for Maureanism, claiming that we can know the negations of skeptical assumptions, for example by appealing to a form of direct

realism. Or one can argue that we can know the negations of skeptical hypotheses (certain, falsifiable true beliefs - the principle of certainty).

The contextualist response to the skeptical problem holds that knowledge is a radically context-sensitive notion. Thus, the skeptic may be right to claim, relative to his epistemic standards, that we cannot know much, but this claim is consistent with the fact that we possess a great deal of knowledge by more relaxed standards that operate in normal contexts. The problem with this proposal is that it is not obvious that the skeptical argument changes with epistemic standards, it passes by reference to all epistemic standards, not just the very strict ones.

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