Epistemology
An overview
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Chapter 1

Main article

1.1 Epistemology

Epistemology (ˌiːpɪstəˈmɒlədʒi; from Greek ἐπιστήμη, epistēmē, meaning “knowledge, understanding”, and λόγος, logos, meaning “word”) is a term first used by the Scottish philosopher James Frederick Ferrier to describe the branch of philosophy concerned with the nature and scope of knowledge. It is also referred to as “theory of knowledge”. Put concisely, it is the study of knowledge and justified belief. It questions what knowledge is and how it can be acquired, and the extent to which knowledge pertinent to any given subject or entity can be acquired. Much of the debate in this field has focused on the philosophical analysis of the nature of knowledge and how it relates to connected notions such as truth, belief, and justification. The term was probably first introduced in Ferrier's Institutes of Metaphysic: The Theory of Knowing and Being (1854), p. 46.

1.1.1 Background and meaning

The word epistemology is derived from the Greek epistêmē meaning “knowledge” and logos meaning “speech” or “word”, in this context denoting “codified knowledge of”. J.F. Ferrier coined epistemology on the model of ‘ontology’, to designate that branch of philosophy which aims to discover the meaning of knowledge, and called it the ‘true beginning’ of philosophy. The word is equivalent to the German concept Wissenschaftslehre, which was used by Fichte and Bolzano for different projects before it was taken up again by Husserl. French philosophers then gave the term épistémologie a narrower meaning as ‘theory of knowledge [théorie de la connaissance].’ E.g., Émile Meyerson opened his Identity and Reality, written in 1908, with the remark that the word ‘is becoming current’ as equivalent to ‘the philosophy of the sciences.’

1.1.2 Knowledge

Knowledge that, knowledge how, and knowledge by acquaintance

In epistemology in general, the kind of knowledge usually discussed is propositional knowledge, also known as “knowledge that.” This is distinguished from “knowledge how” and “acquaintance-knowledge.” For example: in mathematics, it is known that $2 + 2 = 4$, but there is also knowing how to add two numbers and knowing a person (e.g., oneself), place (e.g., one’s hometown), thing (e.g., cars), or activity (e.g., addition). Some philosophers think there is an important distinction between “knowing that,” “knowing how,” and “acquaintance-knowledge,” with epistemology being primarily concerned with the first of these. It is sometimes suggested that these distinctions are defined linguistically in some languages, even if not in modern Standard English (N.B. some languages related to English have been said to retain these verbs, e.g. Scots: “wit” and “ken”). In French, Portuguese and Spanish, to know (a person) is translated using connaître, conhecer, and conocer, respectively, whereas to know (how to do something) is translated using savoir, saber, and wissen. Modern Greek has the verbs γνωρίζω (gnorízo) and ξέρω (kséro). Italian has the verbs conoscere and sapere and the nouns for knowledge are conoscenza and sapienza. German has the verbs kennen and wissen. Wissen implies knowing a fact, kennen implies knowing in the sense of being acquainted with and having a working knowledge of; there is also a noun derived from kennen, namely Erkennen, which has been said to imply knowledge in the form of recognition or acknowledgment. The verb itself implies a process: you have to go from one state to another, from a state of “not-erkennen” to a state of true erkennen. This verb seems to be the most appropriate in terms of describing the “episteme” in one of the modern European languages, hence the German name "Erkenntnistheorie." The theoretical interpretation and significance of these linguistic issues remains controversial.

In his paper On Denoting and his later book Problems of Philosophy Bertrand Russell stressed the distinction between "knowledge by description" and "knowledge by acquaintance". Gilbert Ryle is also credited with stress-
ing the distinction between knowing how and knowing that in *The Concept of Mind*. In *Personal Knowledge*, Michael Polanyi argues for the epistemological relevance of knowledge how and knowledge that; using the example of the act of balance involved in riding a bicycle, he suggests that the theoretical knowledge of the physics involved in maintaining a state of balance cannot substitute for the practical knowledge of how to ride, and that it is important to understand how both are established and grounded. This position is essentially Ryle’s, who argued that a failure to acknowledge the distinction between knowledge that and knowledge how leads to infinite regress.

In recent times, some epistemologists (Sosa, Greco, Kvanvig, Zagzebski) and Duncan Pritchard have argued that epistemology should evaluate people’s "properties" (i.e., intellectual virtues) and not just the properties of propositions or of propositional mental attitudes.

**Belief**

Main article: Belief

In common speech, a “statement of belief” is typically an expression of faith and/or trust in a person, power or other entity — while it includes such traditional views, epistemology is also concerned with what we believe. This includes 'the' truth, and everything else we accept as true for ourselves from a cognitive point of view.

**Truth**

Main article: Truth

Whether someone’s belief is true is not a prerequisite for (its) belief. On the other hand, if something is actually known, then it categorically cannot be false. For example, if a person believes that a bridge is safe enough to support him, and attempts to cross it, but the bridge then collapses under his weight, it could be said that he believed that the bridge was safe but that his belief was mistaken. It would not be accurate to say that he knew that the bridge was safe, because plainly it was not. By contrast, if the bridge actually supported his weight, then he might say that he had believed that the bridge was safe, whereas now, after proving it to himself (by crossing it), he knows it was safe.

Epistemologists argue over whether belief is the proper truth-bearer. Some would rather describe knowledge as a system of justified true propositions, and others as a system of justified true sentences. Plato, in his *Gorgias*, argues that belief is the most commonly invoked truth-bearer.

See also: Criteria of truth

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**Justification**

In many of Plato's dialogues, such as the *Meno* and, in particular, the *Theaetetus*, Socrates considers a number of theories as to what knowledge is, the last being that knowledge is true belief that has been “given an account of” (meaning explained or defined in some way). According to the theory that knowledge is justified true belief, in order to know that a given proposition is true, one must not only believe the relevant true proposition, but one must also have a good reason for doing so. One implication of this would be that no one would gain knowledge just by believing something that happened to be true. For example, an ill person with no medical training, but with a generally optimistic attitude, might believe that he will recover from his illness quickly. Nevertheless, even if this belief turned out to be true, the patient would not have known that he would get well since his belief lacked justification.

The definition of knowledge as justified true belief was widely accepted until the 1960s. At this time, a paper written by the American philosopher Edmund Gettier provoked major widespread discussion. (See theories of justification for other views on the idea.)

**Gettier problem**

Main article: Gettier problem

Edmund Gettier is best known for a short paper entitled "Is Justified True Belief Knowledge?" published in 1963, which called into question the theory of knowledge that had been dominant among philosophers for thousands of years. In a few pages, Gettier argued that there are situations in which one’s belief may be justified and true, yet fail to count as knowledge. That is, Gettier contended that while justified belief in a true proposition is necessary for that proposition to be known, it is not sufficient. As in the diagram, a true proposition can be believed by an individual (purple region) but still not fall within the “knowledge” category (yellow region).

According to Gettier, there are certain circumstances in
which one does not have knowledge, even when all of the above conditions are met. Gettier proposed two thought experiments, which have come to be known as “Gettier cases,” as counterexamples to the classical account of knowledge. One of the cases involves two men, Smith and Jones, who are awaiting the results of their applications for the same job. Each man has ten coins in his pocket. Smith has excellent reasons to believe that Jones will get the job and, furthermore, knows that Jones has ten coins in his pocket (he recently counted them). From this Smith infers, “the man who will get the job has ten coins in his pocket.” However, Smith is unaware that he also has ten coins in his own pocket. Furthermore, Smith, not Jones, is going to get the job. While Smith has strong evidence to believe that Jones will get the job, he is wrong. Smith has a justified true belief that a man with ten coins in his pocket will get the job; however, according to Gettier, Smith does not know that a man with ten coins in his pocket will get the job, because Smith’s belief is “…true by virtue of the number of coins in Jones’s pocket, while Smith does not know how many coins are in Smith’s pocket, and bases his belief…on a count of the coins in Joneses pocket, whom he falsely believes to be the man who will get the job.” (see[6] p. 122.) These cases fail to be knowledge because the subject’s belief is justified, but only happens to be true by virtue of luck. In other words, he made the correct choice (in this case predicting an outcome) for the wrong reasons. This example is similar to those often given when discussing belief and truth, wherein a person’s belief of what will happen can coincidentally be correct without his or her having the actual knowledge to base it on.

Responses to Gettier The responses to Gettier have been varied. Usually, they have involved substantial attempts to provide a definition of knowledge different from the classical one, either by recasting knowledge as justified true belief with some additional fourth condition, or as something else altogether. Yet a good counter-argument to Gettier’s cases, is that unless they pulled out the coins and recounted them, they could not have known, because the knowledge was based on past events. As time passes, so too does circumstances; for one could have dropped a coin after the other counted them, also without his knowledge, and he would be aware of this variable; thus couldn’t truly believe this; ergo, the counter case is null.

Infallibilism, indefeasibility In one response to Gettier, the American philosopher Richard Kirkham has argued that the only definition of knowledge that could ever be immune to all counterexamples is the infallibilist one.[7] To qualify as an item of knowledge, goes the theory, a belief must not only be true and justified, the justification of the belief must necessitate its truth. In other words, the justification for the belief must be infallible. Yet another possible candidate for the fourth condition of knowledge is indefeasibility. Defeasibility theory maintains that there should be no overriding or defeating truths for the reasons that justify one’s belief. For example, suppose that person S believes he saw Tom Grabit steal a book from the library and uses this to justify the claim that Tom Grabit stole a book from the library. A possible defeater or overriding proposition for such a claim could be a true proposition like, “Tom Grabit’s identical twin Sam is currently in the same town as Tom.” When no defeaters of one’s justification exist, a subject would be epistemologically justified.

The Indian philosopher B K Matilal has drawn on the Navya-Nyāya fallibilism tradition to respond to the Gettier problem. Nyaya theory distinguishes between know p and know that one knows p – these are different events, with different causal conditions. The second level is a sort of implicit inference that usually follows immediately the episode of knowing p (knowledge simpliciter). The Gettier case is examined by referring to a view of Gangesha Upadhyaya (late 12th century), who takes any true belief to be knowledge; thus a true belief acquired through a wrong route may just be regarded as knowledge simpliciter on this view. The question of justification arises only at the second level, when one considers the knowledgehood of the acquired belief. Initially, there is lack of uncertainty, so it becomes a true belief. But at the very next moment, when the hearer is about to embark upon the venture of knowing whether he knows p, doubts may arise. “If, in some Gettier-like cases, I am wrong in my inference about the knowledgehood of the given occurrence (for the evidence may be pseudo-evidence), then I am mistaken about the truth of my belief – and this is in accordance with Nyaya fallibilism: not all knowledge-claims can be sustained.”[8]

Reliabilism Main article: Reliabilism

Reliabilism has been a significant line of response to the Gettier problem among philosophers, originating with work by Alvin Goldman in the 1960s. According to reliabilism, a belief is justified (or otherwise supported in such a way as to count towards knowledge) only if it is produced by processes that typically yield a sufficiently high ratio of true to false beliefs. In other words, this theory states that a true belief counts as knowledge only if it is produced by a reliable belief-forming process. Reliabilism has been challenged by Gettier cases. Another argument that challenges reliabilism, like the Gettier cases (although it was not presented in the same short article as the Gettier cases), is the case of Henry and the barn façades. In the thought experiment, a man, Henry, is driving along and sees a number of buildings that resemble barns. Based on his perception of one of these, he concludes that he has just seen barns. While he has seen one, and the perception he based his belief that the one he saw was of a real barn, all the other barn-like buildings...
he saw were façades. Theoretically, Henry does not know that he has seen a barn, despite both his belief that he has seen one being true and his belief being formed on the basis of a reliable process (i.e., his vision), since he only acquired his true belief by accident.[9]

**Other responses** Robert Nozick has offered the following definition of knowledge: S knows that P if and only if:

- P;
- S believes that P;
- if P were false, S would not believe that P;
- if P is true, S will believe that P.[10]

Nozick argues that the third of these conditions serves to address cases of the sort described by Gettier. Nozick further claims this condition addresses a case of the sort described by D. M. Armstrong.[11] A father believes his daughter innocent of committing a particular crime, both because of faith in his baby girl and (now) because he has seen presented in the courtroom a conclusive demonstration of his daughter’s innocence. His belief via the method of the courtroom satisfies the four subjunctive conditions, but his faith-based belief does not. If his daughter were guilty, he would still believe her innocent, on the basis of faith in his daughter; this would violate the third condition.

The British philosopher Simon Blackburn has criticized this formulation by suggesting that we do not want to accept as knowledge beliefs, which, while they “track the truth” (as Nozick’s account requires), are not held for appropriate reasons. He says that “we do not want to award the title of knowing something to someone who is only meeting the conditions through a defect, flaw, or failure, compared with someone else who is not meeting the conditions.” In addition to this, externalist accounts of knowledge, such as Nozick’s, are often forced to reject closure in cases where it is intuitively valid.

**Timothy Williamson** has advanced a theory of knowledge according to which knowledge is not justified true belief plus some extra condition(s). In his book *Knowledge and its Limits*, Williamson argues that the concept of knowledge cannot be broken down into a set of other concepts through analysis—instead, it is *sui generis*. Thus, though knowledge requires justification, truth, and belief, the word “knowledge” can’t be, according to Williamson’s theory, accurately regarded as simply shorthand for “justified true belief.”

**Alvin Goldman** writes in his *Causal Theory of Knowing* that in order for knowledge to truly exist there must be a causal chain between the proposition and the belief of that proposition.

**Externalism and internalism**

Part of the debate over the nature of knowledge is a debate between epistemological externalists on the one hand, and epistemological internalists on the other. Externalists hold that factors deemed “external”, meaning outside of the psychological states of those who gain knowledge, can be conditions of knowledge. For example, an externalist response to the Gettier problem is to say that, in order for a justified true belief to count as knowledge, there must be a link or dependency between the belief and the state of the external world. Usually this is understood to be a causal link. Such causation, to the extent that it is “outside” the mind, would count as an external, knowledge-yielding condition. Internalists, on the other hand, assert that all knowledge-yielding conditions are within the psychological states of those who gain knowledge.

Though unfamiliar with the internalist/externalist debate himself, many point to René Descartes as an early example of the internalist path to justification. He wrote that, because the only method by which we perceive the external world is through our senses, and that, because the senses are not infallible, we should not consider our concept of knowledge to be infallible. The only way to find anything that could be described as “indubitably true,” he advocates, would be to see things “clearly and distinctly”. He argued that if there is an omnipotent, good being who made the world, then it’s reasonable to believe that people are made with the ability to know. However, this does not mean that man’s ability to know is perfect. God gave man the ability to know, but not omniscience. Descartes said that man must use his capacities for knowledge correctly and carefully through methodological doubt.[13] The dictum “Cogito ergo sum” (I think, therefore I am) is also commonly associated with Descartes’ theory, because in his own methodological doubt, doubting everything he previously knew in order to start from a blank slate, the first thing that he could not logically bring himself to doubt was his own existence: “I do not exist” would be a contradiction in terms; the act of saying that one does not exist assumes that someone must be making the statement in the first place. Though Descartes could doubt his senses, his body and the world around him, he could not deny his own existence, because he was able to doubt and must exist in order to do so. Even if some “evil genius” were to be deceiving him, he would have to exist in order to be deceived. This one sure point provided him with what he would call his Archimedean point, in order to further develop his foundation for knowledge. Simply put, Descartes’ epistemological justification depended upon his indubitable belief in his own existence and his clear and distinct knowledge of God.[14]
1.1. EPistemology

Value problem

A formulation of the value problem in epistemology first occurs in Plato’s Meno. The problem is to identify what is it about knowledge (if anything) that makes it more valuable than mere true belief, or that makes knowledge more valuable than a more minimal conjunction of its components on a particular analysis of knowledge.\cite{15} The value problem re-emerged in the philosophical literature on epistemology in the twenty-first century following the rise of virtue epistemology in the 1980s, partly because of the obvious link with the concept of value in ethics.\cite{16}

The value problem has been presented as an argument against epistemic reliabilism by philosophers including Linda Zagzebski, Wayne Riggs and Richard Swinburne. Zagzebski gives a thought experiment to illustrate the unimportance of the belief being produced by a reliable process: imagine you go to a coffee machine and attempt to have it produce you a cup of coffee. The machine you use might reliably produce coffee, or it might not. Imagine one machine had a 90% chance of producing you coffee while another only had a 40% chance. If you happen to choose the 40% chance machine and it produces you a cup of coffee, the fact that it does not reliably produce coffee does not change the value that the coffee has to you. Similarly, if you have a true belief achieved through an unreliable process, Zagzebski argues that there’s no particular reason that has less value than one produced through a reliable process. Advocates of virtue epistemology have argued that the value of knowledge comes from an internal relationship between the knower and the mental state of believing.\cite{15}

One of the more influential responses to the problem is that knowledge is not particularly valuable and is not what ought to be the main focus of epistemology. Instead, epistemologists ought to focus on other mental states, such as understanding.\cite{17}

1.1.3 Acquiring knowledge

A priori and a posteriori knowledge

Main article: A priori and a posteriori

The way of gaining knowledge with-out the need of experience. In Bruce Russell’s article “A Priori Justification and Knowledge”\cite{18} he says that it is “knowledge based on a priori justification,” (1) which relies on intuition and the nature of these intuitions. A priori knowledge is often contrasted with posteriori knowledge, which is knowledge gained by experience. A way to look at the difference between the two is through an example. Bruce Russell gives two propositions in which the reader decides which one he believes more. Option A: All crows are birds. Option B: All crows are black. If you believe option A, then you are a priori justified in believing it because you don’t have to see a crow to know it’s a bird. If you believe in option B, then you are posteriori justified to believe it because you have seen many crows therefore knowing they are black. He goes on to say that it doesn’t matter if the statement is true or not, only that if you believe in one or the other that matters.

Evolutionary psychology takes a novel approach to the problem. It says that there is an innate predisposition for certain types of learning. “Only small parts of the brain resemble a tabula rasa; this is true even for human beings. The remainder is more like an exposed negative waiting to be dipped into a developer fluid.”\cite{20}

Analytic–synthetic distinction

Main article: Analytic–synthetic distinction

Immanuel Kant, in his Critique of Pure Reason, drew a distinction between “analytic” and “synthetic” propositions. He contended that some propositions are such that we can know them to be true just by understanding their meaning. For example, consider, “My father’s brother is my uncle.” We can know it to be true solely by virtue of our understanding what its terms mean. Philosophers call such propositions “analytic.” Synthetic propositions, on the other hand, have distinct subjects and predicates. An example would be, “My father’s brother has black hair.” Kant stated that all mathematical and scientific statements are synthetic a priori propositions because they are necessarily true but our knowledge about the attributes of the mathematical or physical subjects we can only get by logical inference.

The American philosopher W. V. O. Quine, in his Two Dogmas of Empiricism, famously challenged the distinction, arguing that the two have a blurry boundary. Some
contemporary philosophers have offered more sustainable accounts of the distinction.\[21\]

**Branches or ‘tendencies’ within epistemology**

**Historical** The historical study of philosophical epistemology is the historical study of efforts to gain philosophical understanding or knowledge of the nature and scope of human knowledge.\[22\] Since efforts to get that kind of understanding have a history, the questions philosophical epistemology asks today about human knowledge are not necessarily the same as they once were: \[22\] But that does not mean that philosophical epistemology is itself a historical subject, or that it pursues only or even primarily historical understanding.\[22\]

**Empiricism** In philosophy, empiricism is generally a theory of knowledge focusing on the role of experience, especially experience based on perceptual observations by the senses. Certain forms treat all knowledge as empirical, while some regard disciplines such as mathematics and logic as exceptions. There are many variants of empiricism, positivism, realism and common sense being among the most commonly expounded. But central to all empiricist epistemologies is the notion of the epistemologically privileged status of sense data.

**Idealism** Many idealists believe that knowledge is primarily (at least in some areas) acquired by a priori processes or is innate—for example, in the form of concepts not derived from experience. The relevant theoretical processes often go by the name "intuition".\[23\] The relevant theoretical concepts may purportedly be part of the structure of the human mind (as in Kant’s theory of transcendental idealism), or they may be said to exist independently of the mind (as in Plato’s theory of Forms).

**Rationalism** Main article: Rationalism

By contrast with empiricism and idealism, which centres around the epistemologically privileged status of sense data (empirical) and the primacy of Reason (theoretical) respectively, modern rationalism adds a third 'system of thinking', (as Gaston Bachelard has termed these areas) and holds that all three are of equal importance: The empirical, the theoretical and the abstract. For Bachelard, rationalism makes equal reference to all three systems of thinking.

**Constructivism** Constructivism is a view in philosophy according to which all “knowledge is a compilation of human-made constructions”.\[24\] “not the neutral discovery of an objective truth”.\[25\] Whereas objectivism is concerned with the “object of our knowledge”, constructivism emphasises “how we construct knowledge”.\[26\] Constructivism proposes new definitions for knowledge and truth that form a new paradigm, based on inter-subjectivity instead of the classical objectivity, and on viability instead of truth. Piagetian constructivism, however, believes in objectivity—constructs can be validated through experimentation. The constructivist point of view is pragmatic.\[27\] as Vico said: “The norm of the truth is to have made it.”

**Regress problem**

Main article: Regress argument

The regress problem is the problem of providing a complete logical foundation for human knowledge. The traditional way of supporting a rational argument is to appeal to other rational arguments, typically using chains of reason and rules of logic. A classic example that goes back to Aristotle is deducing that Socrates is mortal. We have a logical rule that says All humans are mortal and an assertion that Socrates is human and we deduce that Socrates is mortal. In this example how do we know that Socrates is human? Presumably we apply other rules such as: All born from human females are human. Which then leaves open the question how do we know that all born from humans are human? This is the regress problem: how can we eventually terminate a logical argument with some statement(s) that do not require further justification but can still be considered rational and justified?

As John Pollock stated:

> ... to justify a belief one must appeal to a further justified belief. This means that one of two things can be the case. Either there are some beliefs that we can be justified for holding, without being able to justify them on the basis of any other belief, or else for each justified belief there is an infinite regress of (potential) justification [the nebula theory]. On this theory there is no rock bottom of justification. Justification just meanders in and out through our network of beliefs, stopping nowhere.\[28\]

The apparent impossibility of completing an infinite chain of reasoning is thought by some to support skepticism. It is also the impetus for Descartes’ famous dictum: I think therefore I am. Descartes was looking for some logical statement that could be true without appeal to other statements.

**Response to the regress problem** Many epistemologists studying justification have attempted to argue for various types of chains of reasoning that can escape the regress problem.
1.1. EPISTEMOLOGY

Foundationalism  Foundationalists respond to the regress problem by asserting that certain “foundations” or “basic beliefs” support other beliefs but do not themselves require justification from other beliefs. These beliefs might be justified because they are self-evident, infallible, or derive from reliable cognitive mechanisms. Perception, memory, and a priori intuition are often considered to be possible examples of basic beliefs.

The chief criticism of foundationalism is that if a belief is not supported by other beliefs, accepting it may be arbitrary or unjustified.\(^{[29]}\)

Coherentism  Another response to the regress problem is coherentism, which is the rejection of the assumption that the regress proceeds according to a pattern of linear justification. To avoid the charge of circularity, coherentists hold that an individual belief is justified circularly by the way it fits together (coheres) with the rest of the belief system of which it is a part. This theory has the advantage of avoiding the infinite regress without claiming special, possibly arbitrary status for some particular class of beliefs. Yet, since a system can be coherent while also being wrong, coherentists face the difficulty of ensuring that the whole system corresponds to reality. Additionally, most logicians agree that any argument that is circular is trivially valid. That is, to be illuminating, arguments must be linear with conclusions that follow from stated premises.

However, Warburton writes in 'Thinking from A to Z,' “Circular arguments are not invalid; in other words, from a logical point of view there is nothing intrinsically wrong with them. However, they are, when viciously circular, spectacularly uninformative. (Warburton 1996).”

Foundherentism  A position known as "foundherentism", advanced by Susan Haack, is meant to be a unification of foundationalism and coherentism. One component of this theory is what is called the "analogy of the crossword puzzle." Whereas, for example, infinitists regard the regress of reasons as "shaped" like a single line, Susan Haack has argued that it is more like a crossword puzzle, with multiple lines mutually supporting each other.\(^{[30]}\)

Infinitism  An alternative resolution to the regress problem is known as "infinitism". Infiniteists take the infinite series to be merely potential, in the sense that an individual may have indefinitely many reasons available to them, without having consciously thought through all of these reasons when the need arises. This position is motivated in part by the desire to avoid what is seen as the arbitrariness and circularity of its chief competitors, foundationalism and coherentism.

1.1.4 Skepticism

Main article: Philosophical skepticism

Skepticism is a position that questions the validity of some or all of human knowledge. Skepticism does not refer to any one specific school of philosophy, rather it is a thread that runs through many philosophical discussions of epistemology. The first well known sceptic was Socrates who claimed that his only knowledge was that he knew nothing with certainty. Descartes' most famous inquiry into mind and body also began as an exercise in skepticism. Descartes began by questioning the validity of all knowledge and looking for some fact that was irrefutable. In so doing, he came to his famous dictum: I think therefore I am.

Foundationalism and the other responses to the regress problem are essentially defenses against skepticism. Similarly, the pragmatism of William James can be viewed as a coherentist defense against skepticism. James discarded conventional philosophical views of truth and defined truth to be based on how well a concept works in a specific context rather than objective rational criteria. The philosophy of Logical Positivism and the work of philosophers such as Kuhn and Popper can be viewed as skepticism applied to what can truly be considered scientific knowledge.\(^{[31]}\)

1.1.5 See also

For a topical guide to this subject, see Outline of epistemology.

- Eastern epistemology
- Epistemological rupture
- Gödel's incompleteness theorems
- Gnosiology
- Methodology
- Methods of obtaining knowledge
- Monopolies of knowledge
- Noölogy
- Participatory epistemology
- Philosophy of space and time
- Reformed epistemology
- Scientific method
- Self-evidence
- Semiotics
• Sociology of knowledge
• Uncertainty principle

1.1.6 References


[29] Foundational Theories of Epistemic Justification entry in the Stanford Encyclopedia of Philosophy


1.1. EPISTEMOLOGY

1.1.7 Works cited

- Descartes, Rene. 1641. Meditations on First Philosophy
- Kierkegaard, Søren. 1844. Philosophical Fragments.
- Morin, Edgar. 1986. La Méthode, Tome 3, La Connaissance de la connaissance (Method, 3rd volume : The knowledge of knowledge)
- Plato. Meno.


1.1.8 External links

*Stanford Encyclopedia of Philosophy* articles:

• Epistemology by Matthias Steup.

• Bayesian Epistemology by William Talbott.

• Evolutionary Epistemology by Michael Bradie & William Harms.

• Feminist Epistemology and Philosophy of Science by Elizabeth Anderson.

• Naturalized Epistemology by Richard Feldman.

• Social Epistemology by Alvin Goldman.

• Virtue Epistemology by John Greco.

• Knowledge How by Jeremy Fantl.

Other links:

• The London Philosophy Study Guide offers many suggestions on what to read, depending on the student’s familiarity with the subject: Epistemology & Methodology
Chapter 2

Knowledge

2.1 Knowledge

For other uses, see Knowledge (disambiguation).

Knowledge is a familiarity, awareness or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning.

Knowledge can refer to a theoretical or practical understanding of a subject. It can be implicit (as with practical skill or expertise) or explicit (as with the 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", though "well-justified true belief" is more complete as it accounts for the Gettier problems. However, several definitions of knowledge and theories to explain it exist.

Knowledge acquisition involves complex cognitive processes: perception, communication, and reasoning; while knowledge is also said to be related to the capacity of acknowledgment in human beings.

2.1.1 Theories of knowledge

See also: Epistemology

The eventual demarcation of philosophy from science was made possible by the notion that philosophy’s core was “theory of knowledge,” a theory distinct from the sciences because it was their foundation... Without this idea of a “theory of knowledge,” it is hard to imagine what “philosophy” could have been in the age of modern science.

— Richard Rorty, Philosophy and the Mirror of Nature

The definition of knowledge is a matter of ongoing debate among philosophers in the field of epistemology. The classical definition, described but not ultimately endorsed by Plato, specifies that a statement must meet three criteria in order to be considered knowledge: it must be justified, true, and believed. Some claim that these conditions are not sufficient, as Gettier case examples allegedly demonstrate. There are a number of alternatives proposed, including Robert Nozick’s arguments for a requirement that knowledge ‘tracks the truth’ and Simon Blackburn’s additional requirement that we do not want to say that those who meet any of these conditions ‘through a defect, flaw, or failure’ have knowledge. Richard Kirkham suggests that our definition of knowledge requires that the evidence for the belief necessitates its truth.

In contrast to this approach, Ludwig Wittgenstein observed, following Moore’s paradox, that one can say “He believes it, but it isn’t so,” but not “He knows it, but it isn’t so.” He goes on to argue that these 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 they are engaged. For example, on this account, to know
that the kettle is boiling is not to be in a particular state of mind, but to perform a particular task with the statement that the kettle is boiling. Wittgenstein sought to bypass the difficulty of definition by looking to the way “knowledge” is used in natural languages. He saw knowledge as a case of a family resemblance. Following this idea, “knowledge” has been reconstructed as a cluster concept that points out relevant features but that is not adequately captured by any definition. \[6\]

### 2.1.2 Communicating knowledge

The argument against the use of writing through an excerpt from Plato’s work *Phaedrus* (Postman, Neil (1992) *Technopoly*, Vintage, New York, pp 73). In this excerpt, the scholar Socrates recounts the story of Thamus, the Egyptian king and Theuth the inventor of the written word. In this story, Theuth presents his new invention “writing” to King Thamus, telling Thamus that his new invention “will improve both the wisdom and memory of the Egyptians” (Postman, Neil (1992) *Technopoly*, Vintage, New York, pp 74). King Thamus is skeptical of this new invention and rejects it as a tool of recollection rather than retained knowledge. He argues that the written word will infect the Egyptian people with fake knowledge as they will be able to attain facts and stories from an external source and will no longer be forced to mentally retain large quantities of knowledge themselves (Postman, Neil (1992) *Technopoly*, Vintage, New York, pp 74).

Classical early modern theories of knowledge, especially those advancing the influential empiricism of the philosopher John Locke, were based implicitly or explicitly on a model of the mind which likened ideas to words. \[7\] This analogy between language and thought laid the foundation for a graphic conception of knowledge in which the mind was treated as a table (a container of content) that had to be stocked with facts reduced to letters, numbers or symbols. This created a situation in which the spatial alignment of words on the page carried great cognitive weight, so much so that educators paid very close attention to the visual structure of information on the page and in notebooks. \[8\]

Media theorists like Andrew Robinson emphasise that the visual depiction of knowledge in the modern world was often seen as being ‘truer’ than oral knowledge. This plays into a longstanding analytic notion in the Western intellectual tradition in which verbal communication is generally thought to lend itself to the spread of falsehoods as much as written communication. It is harder to preserve records of what was said or who originally said it – usually neither the source nor the content can be verified. Gossip and rumors are examples prevalent in both media. As to the value of writing, the extent of human knowledge is now so great, and the people interested in a piece of knowledge so separated in time and space, that writing is considered central to capturing and sharing it.

Major libraries today can have millions of books of knowledge (in addition to works of fiction). It is only recently that audio and video technology for recording knowledge have become available and the use of these still requires replay equipment and electricity. Verbal teaching and handing down of knowledge is limited to those who would have contact with the transmitter or someone who could interpret written work. Writing is still the most available and most universal of all forms of recording and transmitting knowledge. It stands unchallenged as mankind’s primary technology of knowledge transfer down through the ages and to all cultures and languages of the world.

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Los portadores de la antorcha (The Torch-Bearers) – Sculpture by Anna Hyatt Huntington symbolizing the transmission of knowledge from one generation to the next (Ciudad Universitaria, Madrid, Spain)

Symbolic representations can be used to indicate meaning and can be thought of as a dynamic process. Hence the transfer of the symbolic representation can be viewed as one ascription process whereby knowledge can be transferred. Other forms of communication include observation and imitation, verbal exchange, and audio and video recordings. Philosophers of language and semioticians construct and analyze theories of knowledge transfer or communication.

While many would agree that one of the most universal and significant tools for the transfer of knowledge is writing and reading (of many kinds), argument over the usefulness of the written word exists nonetheless, with some scholars skeptical of its impact on societies. In his collection of essays *Technopoly*, Neil Postman demonstrates
2.1.3 Situated knowledge

Situated knowledge is knowledge specific to a particular situation. It is a term coined by Donna Haraway as an extension of the feminist approaches of “successor science” suggested by Sandra Harding, one which “offers a more adequate, richer, better account of a world, in order to live in it well and in critical, reflexive relation to our own as well as others’ practices of domination and the unequal parts of privilege and oppression that makes up all positions.”[9] This situation partially transforms science into a narrative, which Arturo Escobar explains as, “neither fictions nor supposed facts.” This narrative of situation is historical textures woven of fact and fiction, and as Escobar explains further, “even the most neutral scientific domains are narratives in this sense,” insisting that rather than a purpose dismissing science as a trivial matter of contingency, “it is to treat (this narrative) in the most serious way, without succumbing to its mystification as ‘the truth’ or to the ironic skepticism common to many critiques.”[10]

Haraway’s argument stems from the limitations of the human perception, as well as the overemphasis of the sense of vision in science. According to Haraway, vision in science has been, “used to signify a leap out of the marked body and into a conquering gaze from nowhere.” This is the “gaze that mythically inscribes all the marked bodies, that makes the unmarked category claim the power to see and not be seen, to represent while escaping representation.”[9] This causes a limitation of views in the position of science itself as a potential player in the creation of knowledge, resulting in a position of “modest witness”. This is what Haraway terms a “god trick”, or the aforementioned representation while escaping representation.[11] In order to avoid this, “Haraway perpetuates a tradition of thought which emphasizes the importance of the subject in terms of both ethical and political accountability.”[12]

Some methods of generating knowledge, such as trial and error, or learning from experience, tend to create highly situational knowledge. One of the main attributes of the scientific method is that the theories it generates are much less situational than knowledge gained by other methods. Situational knowledge is often embedded in language, culture, or traditions. This integration of situational knowledge is an allusion to the community, and its attempts at collecting subjective perspectives into an embodiment “of views from somewhere.”[9]

Knowledge generated through experience is called knowledge “a posteriori”, meaning afterwards. The pure existence of a term like “a posteriori” means this also has a counterpart. In this case, that is knowledge “a priori”, meaning before. The knowledge prior to any experience means that there are certain “assumptions” that one takes for granted. For example, if you are being told about a chair, it is clear to you that the chair is in space, that it is 3D. This knowledge is not knowledge that one can “forget”, even someone suffering from amnesia experiences the world in 3D.

Even though Haraway’s arguments are largely based on feminist studies,[9] this idea of different worlds, as well as the skeptic stance of situated knowledge is present in the main arguments of post-structuralism. Fundamentally, both argue the contingency of knowledge on the presence of history; power, and geography, as well as the rejection of universal rules or laws or elementary structures; and the idea of power as an inherited trait of objectification.[13]

2.1.4 Partial knowledge

One discipline of epistemology focuses on partial knowledge. In most cases, it is not possible to understand an information domain exhaustively; our knowledge is always incomplete or partial. Most real problems have to be solved by taking advantage of a partial understanding of the problem context and problem data, unlike the typical math problems one might solve at school, where all data is given and one is given a complete understanding of formulas necessary to solve them.

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 the use of reason.[14] An individual may “know” about a situation and be unable to explain the process that led to their knowledge.

2.1.5 Scientific knowledge

The development of the scientific method has made a significant contribution to how knowledge of the physical world and its phenomena is acquired.[15] To be termed scientific, a method of inquiry must be based on gathering observable and measurable evidence subject to specific principles of reasoning and experimentation.[16] The scientific method consists of the collection of data through observation and experimentation, and the formulation and testing of hypotheses.[17] Science, and the nature of scientific knowledge have also become the subject of Philosophy. As science itself has developed, knowledge has developed a broader usage which has been developing within biology/psychology—discussed elsewhere as meta-epistemology, or genetic epistemology, and to some extent related to “theory of cognitive development”. Note that “epistemology” is the study of knowledge and how it is acquired. Science is “the process used everyday to logically complete thoughts through inference of facts determined by calculated experiments.” Sir Francis Bacon was critical in the historical development of the scientific method; his works established and popularized an induc-
CHAPTER 2. KNOWLEDGE

Sir Francis Bacon, “Knowledge is Power”

Francis Bacon, a proponent of a new methodology for scientific inquiry. His famous aphorism, "knowledge is power", is found in the Meditations Sacrae (1597).[18]

Until recent times, at least in the Western tradition, it was simply taken for granted that knowledge was something possessed only by humans — and probably adult humans at that. Sometimes the notion might stretch to (ii) Society-as-such, as in (e.g.) “the knowledge possessed by the Coptic culture” (as opposed to its individual members), but that was not assured either. Nor was it usual to consider unconscious knowledge in any systematic way until this approach was popularized by Freud.[19]

Other biological domains where “knowledge” might be said to reside, include: (iii) the immune system, and (iv) in the DNA of the genetic code. See the list of four “epistemological domains”: Popper, (1975);[20] and Traill (2008)[21] Table S, page 31)—also references by both to Niels Jerne.

Such considerations seem to call for a separate definition of “knowledge” to cover the biological systems. For biologists, knowledge must be usefully available to the system, though that system need not be conscious. Thus the criteria seem to be:

- The system should apparently be dynamic and self-organizing (unlike a mere book on its own).
- The knowledge must constitute some sort of representation of “the outside world”,[22] or ways of dealing with it (directly or indirectly).
- Some way must exist for the system to access this information quickly enough for it to be useful.

Scientific knowledge may not involve a claim to certainty, maintaining skepticism means that a scientist will never be absolutely certain when they are correct and when they are not. It is thus an irony of proper scientific method that one must doubt even when correct, in the hopes that this practice will lead to greater convergence on the truth in general.[23]

2.1.6 Religious meaning of knowledge

In many expressions of Christianity, such as Catholicism and Anglicanism, knowledge is one of the seven gifts of the Holy Spirit.[24]

The Old Testament's tree of the knowledge of good and evil contained 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...” (Genesis 3:22)

In Gnosticism, divine knowledge or gnosis is hoped to be attained.

In Hindu tradition, knowledge sharing is a major part of Daan, a tenet of all Dharmic Religions.[25] Hindi Scriptures present two kinds of knowledge, Paroksh Gyan and Prataksh Gyan. Paroksh Gyan (also spelled Paroksha-Jnana) is secondhand knowledge: knowledge obtained from books, hearsay, etc. Prataksh Gyan (also spelled Pratoshka-Jnana) is the knowledge borne of direct experience, i.e., knowledge that one discovers for oneself.[26] Jnana yoga ("path of knowledge") is one of three main types of yoga expounded by Krishna in the Bhagavad Gita. (It is compared and contrasted with Bhakti Yoga and Karma yoga.)

In Islam, knowledge (Arabic: ʿilm) is given great significance. “The Knowing” (al-ʿAlīm) is one of the 99 names reflecting distinct attributes of God. The Qur’ān asserts that knowledge comes from God (2:239) and various hadith encourage the acquisition of knowledge. Muhammad is reported to have said “Seek knowledge from the cradle to the grave” and “Verily the men of knowledge are the inheritors of the prophets”. Islamic scholars, theologians and jurists are often given the title alim, meaning "knowledgeable".

In Jewish tradition, knowledge (Hebrew: da'ath) is considered one of the most valuable traits a person can acquire. Observant Jews recite three times a day in the Amidah “Favor us with knowledge, understanding and discretion that come from you. Exalted are
you, Existent-One, the gracious giver of knowledge.” The Tanakh states, “A wise man gains power, and a man of knowledge maintains power”, and “knowledge is chosen above gold”.

As a measure of religiosity (in sociology of religion)

According to the sociologist Mervin Verbit, knowledge may be understood as one of the key components of religiosity. Religious knowledge itself may be broken down into four dimensions:

- content
- frequency
- intensity
- centrality

The content of one’s religious knowledge may vary from person to person, as will the degree to which it may occupy the person’s mind (frequency), the intensity of the knowledge, and the centrality of the information (in that religious tradition, or to that individual).[27][28][29]

2.1.7 See also

- Outline of knowledge – guide to the subject of knowledge presented as a tree structured list of its subtopics.
- a priori and a posteriori
- Analytic-synthetic distinction
- Descriptive knowledge
- Epistemic modal logic
- Explicit knowledge
- Figurative system of human knowledge
- Inductive inference
- Inductive probability
- Intelligence
- Knowledge engineering
- Knowledge extraction
- Knowledge management
- Knowledge relativity
- Knowledge representation
- Knowledge retrieval
- Metaknowledge
- Philosophical skepticism
- Procedural knowledge
- Society for the Diffusion of Useful Knowledge
- Tacit knowledge

2.1.8 References

[3] In Plato’s Theaetetus, Socrates and Theaetetus discuss three definitions of knowledge: knowledge as nothing but perception, knowledge as true judgment, and, finally, knowledge as a true judgment with an account. Each of these definitions is shown to be unsatisfactory.
CHAPTER 2. KNOWLEDGE


[19] There is quite a good case for this exclusive specialization used by philosophers, in that it allows for in-depth study of logic-procedures and other abstractions which are not found elsewhere. However this may lead to problems whenever the topic spills over into those excluded domains—e.g. when Kant (following Newton) dismissed Space and Time as axiomatically “transcendental” and “a priori” — a claim later disproved by Piaget’s clinical studies. It also seems likely that the vexed problem of “infinite regress” can be largely (but not completely) solved by proper attention to how unconscious concepts are actually developed, both during infantile learning and as inherited “pseudo-transcendentials” inherited from the trial-and-error of previous generations. See also "Tacit knowledge".


[22] This “outside world” could include other subsystems within the same organism—e.g. different “mental levels” corresponding to different Piagetian stages. See Theory of cognitive development.


2.1.9 External links

- Knowledge at PhilPapers
- Knowledge entry in the Internet Encyclopedia of Philosophy
- The Value of Knowledge entry in the Stanford Encyclopedia of Philosophy
- The Analysis of Knowledge entry in the Stanford Encyclopedia of Philosophy
- Knowledge by Acquaintance vs. Description entry in the Stanford Encyclopedia of Philosophy
- Knowledge at the Indiana Philosophy Ontology Project

2.2 Belief

This article is about the general concept. For other uses, see Belief (disambiguation).

Belief is the state of mind in which a person thinks something to be the case, with or without there being empirical evidence to prove that something is the case with factual certainty. In other words, belief is when someone thinks something is reality, true, when they have no absolute verified foundation for their certainty of the truth or reality of something.[1] Another way of defining belief is, it is a mental representation of an attitude positively orientated towards the likelihood of something being true.[2] In the context of Ancient Greek thought, two related concepts were identified with regards to the concept of belief: pistis and doxa. Simplified, we may say that pistis refers to trust and confidence, while doxa refers to opinion and acceptance. The English word doctrine is derived from doxa. Belief’s purpose is to guide action and not to indicate truth.[3]

In epistemology, philosophers use the term ‘belief’ to refer to personal attitudes associated with true or false ideas and concepts. However, ‘belief’ does not require active introspection and circumspection. For example, we never ponder whether or not the sun will rise. We simply assume the sun will rise. Since ‘belief’ is an important aspect of mundane life, according to the Stanford Encyclopedia of Philosophy, the question that must be answered is, “how a physical organism can have beliefs” (http://plato.stanford.edu/entries/belief/).
2.2. BELIEF

2.2.1 Knowledge and epistemology

Epistemology is concerned with delineating the boundary between justified belief and opinion,[4] and involved generally with a theoretical philosophical study of knowledge. The primary problem in epistemology is to understand exactly what is needed in order for us to have knowledge. In a notion derived from Plato’s dialogue Theaetetus, where the epistemology of Socrates (Platon) most clearly departs from that of the sophists, who at the time of Plato seem to have defined knowledge as what is here expressed as “justified true belief”. The tendency to translate from belief (here: doxa - common opinion) to knowledge (here: episteme), which Plato (e.g. Socrates of the dialogue) utterly dismisses, results from failing to distinguish a dispositional belief (gr. ’doxa’, not ’pistis’) from knowledge (episteme) when the opinion is regarded true (here: orthé), in terms of right, and juristically so (according to the premises of the dialogue). Which was the task of the rhetors to prove. Plato dismisses this possibility of an affirmative relation between belief (i.e. opinion) and knowledge even when the one who opines grounds his belief on the rule, and is able to add justification (gr. logos: reasonable and necessarily plausible assertions/evidence/guidance) to it.[5] It is important to keep in mind that the sort of belief in the context of Theaetetus is not derived from the theological concept of belief, which is pistis, but doxa, which in theological terms refers to acceptance in the form of praise and glory.

Strangely, or not, Plato has been credited for the “justified true belief” theory of knowledge, even though Plato in the Theaetetus (dialogue) elegantly dismisses it, and even posits this argument of Socrates as a cause for his death penalty. Among American epistemologists, Gettier (1963)[6] and Goldman (1967)[7] have questioned the “justified true belief” definition, and challenged the “sophists” of their time.

2.2.2 As a psychological phenomenon

Mainstream psychology and related disciplines have traditionally treated belief as if it were the simplest form of mental representation and therefore one of the building blocks of conscious thought. Philosophers have tended to be more abstract in their analysis, and much of the work examining the viability of the belief concept stems from philosophical analysis.

The concept of belief presumes a subject (the believer) and an object of belief (the proposition). So, like other propositional attitudes, belief implies the existence of mental states and intentionality, both of which are hotly debated topics in the philosophy of mind, whose foundations and relation to brain states are still controversial.

Beliefs are sometimes divided into core beliefs (that are actively thought about) and dispositional beliefs (that may be ascribed to someone who has not thought about the issue). For example, if asked “do you believe tigers wear pink pajamas?” a person might answer that they do not, despite the fact they may never have thought about this situation before.[8]

This has important implications for understanding the neuropsychology and neuroscience of belief. If the concept of belief is incoherent, then any attempt to find the underlying neural processes that support it will fail.

Philosopher Lynne Rudder Baker has outlined four main contemporary approaches to belief in her controversial book Saving Belief:[9]

- Our common-sense understanding of belief is correct - Sometimes called the “mental sentence theory,” in this conception, beliefs exist as coherent entities, and the way we talk about them in everyday life is a valid basis for scientific endeavour. Jerry Fodor is one of the principal defenders of this point of view.

- Our common-sense understanding of belief may not be entirely correct, but it is close enough to make some useful predicitions - This view argues that we will eventually reject the idea of belief as we use it now, but that there may be a correlation between what we take to be a belief when someone says “I believe that snow is white” and how a future theory of psychology will explain this behaviour. Most notably, philosopher Stephen Stich has argued for this particular understanding of belief.

- Our common-sense understanding of belief is entirely wrong and will be completely superseded by a radically different theory that will have no use for the concept of belief as we know it - Known as eliminativism, this view (most notably proposed by Paul and Patricia Churchland) argues that the concept of belief is like obsolete theories of times past such as the four humours theory of medicine, or the
phlogiston theory of combustion. In these cases science hasn’t provided us with a more detailed account of these theories, but completely rejected them as valid scientific concepts to be replaced by entirely different accounts. The Churchlands argue that our common-sense concept of belief is similar in that as we discover more about neuroscience and the brain, the inevitable conclusion will be to reject the belief hypothesis in its entirety.

- Our common-sense understanding of belief is entirely wrong; however, treating people, animals, and even computers as if they had beliefs is often a successful strategy - The major proponents of this view, Daniel Dennett and Lynne Rudder Baker, are both eliminativists in that they hold that beliefs are not a scientifically valid concept, but they don’t go as far as rejecting the concept of belief as a predictive device. Dennett gives the example of playing a computer at chess. While few people would agree that the computer held beliefs, treating the computer as if it did (e.g. that the computer believes that taking the opposition’s queen will give it a considerable advantage) is likely to be a successful and predictive strategy. In this understanding of belief, named by Dennett the intentional stance, belief-based explanations of mind and behaviour are at a different level of explanation and are not reducible to those based on fundamental neuroscience, although both may be explanatory at their own level.

2.2.3 Epistemological belief compared to religious belief

Historically belief-in belonged in the realm of religious thought, belief-that instead belonged to epistemological considerations.

Belief-in

To “believe in” someone or something is a distinct concept from “believing-that.” There are at least these types of belief-in:

- **Commentatory / Faith** - we may make an expression of ‘faith’ in respect of some performance by an agent X, when without prejudice to the truth value of the factual outcome or even confidence in X otherwise, we expect that specific performance. In particular self-confidence or faith in one’s self is this kind of belief.

- **Existential claim** - to claim belief in the existence of an entity or phenomenon in a general way with the implied need to justify its claim to existence. It is often used when the entity is not real, or its existence is in doubt. “He believes in witches and ghosts” or “many children believe in Santa Claus” or “I believe in a deity” are typical examples. The linguistic form is distinct from the assertion of the truth of a proposition since verification is either considered impossible/irrelevant or a counterfactual situation is assumed.

Belief-that

**Economical belief**  Economic beliefs are beliefs which are reasonably and necessarily contrary to the tenet of rational choice or instrumental rationality.

Studies of the Austrian tradition of the economic thought, in the context of analysis of the influence and subsequent degree of change resulting from existing economic knowledge and belief, has contributed the most to the subsequent holistic collective analysis.

**Delusion**  Insofar as the truth of belief is expressed in sentential and propositional form we are using the sense of belief-that rather than belief-in. Delusion arises when the truth value of the form is clearly nil. Delusions are defined as beliefs in psychiatric diagnostic criteria (for example in the Diagnostic and Statistical Manual of Mental Disorders). Psychiatrist and historian G.E. Berrios has challenged the view that delusions are genuine beliefs and instead labels them as “empty speech acts,” where affected persons are motivated to express false or bizarre belief statements due to an underlying psychological disturbance. However, the majority of mental health professionals and researchers treat delusions as if they were genuine beliefs.

In Lewis Carroll’s *Through the Looking-Glass* the White Queen says, “Why, sometimes I’ve believed as many as six impossible things before breakfast.” This is often quoted in mockery of the common ability of people to entertain beliefs contrary to fact.

2.2.4 Formation

We are influenced by many factors that ripple through our minds as our beliefs form, evolve, and may eventually change.
Psychologists study belief formation and the relationship between beliefs and actions. Three models of belief formation and change have been proposed:

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The Conditional Inference Process

When people are asked to estimate the likelihood that a statement is true, they search their memory for information that has implications for the validity of this statement. Once this information has been identified, they estimate a) the likelihood that the statement would be true if the information were true, and b) the likelihood that the statement would be true if the information were false. If their estimates for these two probabilities differ, people average them, weighting each by the likelihood that the information is true and false (respectively). Thus, information bears directly on beliefs of another, related statement.[19]

Linear Models of Belief Formation

Unlike the previous model, this one takes into consideration the possibility of multiple factors influencing belief formation. Using regression procedures, this model predicts belief formation on the basis of several different pieces of information, with weights assigned to each piece on the basis of their relative importance.[19]

Information Processing Models of Belief Formation and Change

These models address the fact that the responses people have to belief-relevant information is unlikely to be predicted from the objective basis of the information that they can recall at the time their beliefs are reported. Instead, these responses reflect the number and meaning of the thoughts that people have about the message at the time that they encounter it.[19]

Some influences on people’s belief formation include:

- Advertising can form or change beliefs through repetition, shock, and association with images of sex, love, beauty, and other strong positive emotions.[20] Contrary to intuition, a delay, known as the sleeper effect, instead of immediate succession may increase an advertisement’s ability to persuade viewer’s beliefs if a discounting cue is present.[24]
- Physical trauma, especially to the head, can radically alter a person’s beliefs.[22]

However, even educated people, well aware of the process by which beliefs form, still strongly cling to their beliefs, and act on those beliefs even against their own self-interest. In Anna Rowley’s book, Leadership Therapy, she states “You want your beliefs to change. It’s proof that you are keeping your eyes open, living fully, and welcoming everything that the world and people around you can teach you.” This means that peoples’ beliefs should evolve as they gain new experiences.[26]

2.2.5 Justified true belief

Justified true belief is a definition of knowledge that is most frequently credited to Plato and his dialogues.[27] The concept of justified true belief states that in order to know that a given proposition is true, one must not only believe the relevant true proposition, but also have justification for doing so. In more formal terms, a subject S knows that a proposition \( P \) is true if and only if:

1. \( P \) is true
2. \( S \) believes that \( P \) is true, and
3. \( S \) is justified in believing that \( P \) is true

This theory of knowledge suffered a significant setback with the discovery of Gettier problems, situations in which the above conditions were seemingly met but that many philosophers disagree that anything is known.[28] Robert Nozick suggested a clarification of “justification” which he believed eliminates the problem: the justification has to be such that were the justification false, the knowledge would be false. If so we can say belief becomes knowledge (accepted reality) when it is justified.

2.2.6 Modification

See also: Belief revision

An extensive amount of scientific research and philosophical discussion exists around the modification of beliefs, which is commonly referred to as belief revision. Generally speaking, the process of belief revision entails the believer weighing the set of truths and/or evidence, and
the dominance of a set of truths or evidence on an alternative to a held belief can lead to revision. One process of belief revision is Bayesian updating and is often referenced for its mathematical basis and conceptual simplicity. However, such a process may not be representative for individuals whose beliefs are not easily characterized as probabilistic.

There are several techniques for individuals or groups to change the beliefs of others; these methods generally fall under the umbrella of persuasion. Persuasion can take on more specific forms such as consciousness raising when considered in an activist or political context. Belief modification may also occur as a result of the experience of outcomes. Because goals are based, in part on beliefs, the success or failure at a particular goal may contribute to modification of beliefs that supported the original goal.

Whether or not belief modification actually occurs is dependent not only on the extent of truths or evidence for the alternative belief, but also characteristics outside the specific truths or evidence. This includes, but is not limited to: the source characteristics of the message, such as credibility; social pressures; the anticipated consequences of a modification; or the ability of the individual or group to act on the modification. Therefore, individuals seeking to achieve belief modification in themselves or others need to consider all possible forms of resistance to belief revision.

2.2.7 Partial

Without qualification, “belief” normally implies a lack of doubt, especially insofar as it is a designation of a life stance. In practical everyday use however, belief is normally partial and retractable with varying degrees of certainty.

A copious literature exists in multiple disciplines to accommodate this reality. In mathematics probability, fuzzy logic, fuzzy set theory, and other topics are largely directed to this.

2.2.8 Prediction

Different psychological models have tried to predict people’s beliefs and some of them try to estimate the exact probabilities of beliefs. For example, Robert Wyer developed a model of subjective probabilities. When people rate the likelihood of a certain statement (e.g., “It will rain tomorrow”), this rating can be seen as a subjective probability value. The subjective probability model posits that these subjective probabilities follow the same rules as objective probabilities. For example, the law of total probability might be applied to predict a subjective probability value. Wyer found that this model produces relatively accurate predictions for probabilities of single events and for changes in these probabilities, but that the probabilities of several beliefs linked by “and” or “or” do not follow the model as well.

2.2.9 Religion

Religious belief refers to attitudes towards mythological, supernatural, or spiritual aspects of a religion. Religious belief is distinct from religious practice or religious behaviours with some believers not practicing religion and some practitioners not believing religion. Religious beliefs, being derived from ideas that are exclusive to religion, often relate to the existence, characteristics and worship of a deity or deities, divine intervention in the universe and human life, or the deontological explanations for the values and practices centered on the teachings of a spiritual leader or group. In contrast to other belief systems, religious beliefs are usually codified.

Forms of religious belief

While it is popularly conceived that religions each have identifiable and exclusive sets of beliefs or creeds, surveys of religious belief have often found that the official doctrine and descriptions of the beliefs offered by religious authorities do not always agree with the privately held beliefs of those who identify as members of a particular religion. A broad classification of the kinds of religious belief is documented below.

Fundamentalism

First self-applied as a term to the conservative doctrine outlined by anti-modernist Protestants in the United States of America, fundamentalism as a religious belief is associated with a strict adherence to an interpretation of scriptures that are generally associated with theologically conservative positions or traditional understandings of the text and are distrustful of innovative readings, new revelation, or alternate interpretations. Religious fundamentalism has been identified in the media as
being associated with fanatical or zealous political movements around the world that have used a strict adherence to a particular religious doctrine as a means to establish political identity and enforce societal norms.

Orthodoxy  Main article: Orthodoxy (disambiguation)

First used in the context of Early Christianity, orthodoxy is a religious belief that closely follows the edicts, apologies, and hermeneutics of a prevailing religious authority. In the case of Early Christianity, this authority was the communion of bishops, and is often referred to by the term [Magisterium]. The term orthodox was applied almost as an epithet to a group of Jewish believers who held to pre-Enlightenment understanding of Judaism and now known as Orthodox Judaism. The Eastern Orthodox Church of Christianity, as well as the Catholic Church, consider themselves to be the true heir to the Early Christian belief and practice. The antonym of orthodox is heterodox and those adhering to orthodoxy often accuse the heterodox of apostasy, schism, or heresy.

Modernism/reform  The Renaissance and later the Enlightenment in Europe were associated with varying degrees of religious tolerance and intolerance towards new religious ideas. The Philosophes took particular exception to many of the more fantastical claims of religions and directly challenged religious authority and the prevailing beliefs associated with the established churches. In response to the liberalizing political and social movements, some religious groups attempted to integrate Enlightenment ideals of rationality, equality, and individual liberty into their belief systems, especially into the nineteenth and twentieth centuries. Reform Judaism and Liberal Christianity are two examples of such religious associations.

Superstition  Main article: Superstition

A term signifying derogation that is used by the religious and non-religious alike, superstition is the deprecated belief in supernatural causation. Those who deny the existence of the supernatural generally attribute all beliefs associated with it to be superstitious while a typical religious critique of superstition holds that it either encompasses beliefs in non-existent supernatural activity or that the supernatural activity is inappropriately feared or held in improper regard (see idolatry). Occultism, animism, paganism, and other folk religions were strongly condemned by Christian Churches as mean forms of superstition, though such condemnation did not necessarily eliminate the beliefs among the common people and many such religious beliefs persist to today.

Systemization  In Buddhism, practice and progress along the spiritual path happens when one follows the system of Buddhist practice. Any religion which follows (parts of) the fundamentals of this system has, according to the teachings of Buddha, good aspects to the extent it accords with this system. Any religion which goes against (parts of) the fundamentals of this system, includes bad aspects too. Any religion which does not teach certain parts of this system, is not because of this a ‘bad’ religion; it just lacks those teachings and is to that extent incomplete.

A question by the monk Subhadda to the Buddha:

“O Gotama, there are Samanas (wandering monks) and Brahmanas (religious leaders) who are leaders of their sects, who are well-esteemed by many people, such as Purana Kassapa, Makkhali Gosala, Ajita Kesakambala, Pakudha Kaccayana, Sancaya Belatthaputta and Nigantha Nataputta. Do all of them have knowledge and understanding as they themselves have declared? Or do all of them have no knowledge and understanding?”

The reply by Buddha was:

“Subhadda, in whatever teaching is not found the Noble Eightfold Path, neither in it is there found a Samana of the first stage, nor a Samana of the second stage, nor a Samana of the third stage, nor a Samana of the fourth stage.”

As a religious tradition, Hinduism has experienced many attempts at systemization. In medieval times, Shankara advocated for the Advaita system of philosophy. In recent times, Tamala Krishna Govarni has researched the systemization of Krishna theology as expounded by Srila Prabhupada. (See Krishnology)

Universalism  Some believe that religion cannot be separated from other aspects of life, or believe that certain cultures did not or do not separate their religious activities from other activities in the same way that some people in modern Western cultures do.

Some anthropologists report cultures in which gods are involved in every aspect of life - if a cow goes dry, a god has caused this, and must be propitiated, when the sun rises in the morning, a god has caused this, and must be thanked. Even in modern Western cultures, many people see supernatural forces behind every event, as described by Carl Sagan in his book The Demon-Haunted World.

People with this worldview often consider the influence of Western culture to be inimical. Others with this world view resist the influence of science, and believe that science, or “so-called science”, should be guided by religion.
Still others with this worldview believe that all political decisions and laws should be guided by religion. This last belief is written into the constitution of many Islamic nations, and is shared by some fundamentalist Christians.

In addition, beliefs about the supernatural or metaphysical may not presuppose a difference between any such thing as nature and non-nature, nor between science and what the most educated people believe. In the view of some historians, the pre-Socratic Athenians saw science, political tradition, culture and religion as not easily distinguishable, but all part of the same body of knowledge and wisdom available to a community.

**Approaches to the beliefs of others**

Adherents of particular religions deal with the differing doctrines and practices espoused by other religions in a variety of ways. All strains of thought appear in different segments of all major world religions.

**Exclusivism** See also: Exclusivism

People with exclusivist beliefs typically explain other religions as either in error, or as corruptions or counterfeits of the true faith. This approach is a fairly consistent feature among smaller new religious movements that often rely on doctrine that claims a unique revelation by the founder or leaders, and consider it a matter of faith that the religion has a monopoly on truth. All three major Abrahamic monotheistic religions have passages in their holy scriptures that attest to the primacy of the scriptural testimony and indeed monotheism itself is often couched as an innovation characterized specifically by its explicit rejection of earlier polytheistic faiths.

Some exclusivist faiths incorporate a specific element of proselytization. This is a strongly held belief in the Christian tradition which follows the doctrine of the Great Commission, and is less emphasized by the Islamic faith where the Quranic edict “There shall be no compulsion in religion” (2:256) is often quoted as a justification for toleration of alternative beliefs, while the Jewish tradition is one that does not actively seek out converts. Exclusivism correlates with conservative, fundamentalist, and orthodox approaches of many religions while pluralistic and syncretist approaches either explicitly downplay or reject the exclusivist tendencies of the religion.

**Inclusivism** People with inclusivist beliefs recognize some truth in all faith systems, highlighting agreements and minimizing differences. The attitude is sometimes associated with Interfaith dialogue or the Christian Ecumenical movement, though in principle such attempts at pluralism are not necessarily inclusivist and many actors in such interactions (for example, the Roman Catholic Church) still hold to exclusivist dogma while participating in inter-religious organizations.

Explicitly inclusivist religions include many that are associated with the New Age movement as well as modern reinterpretations of Hinduism and Buddhism. The Bahá’í Faith considers it doctrine that there is truth in all faith systems.

**Pluralism** Main article: Religious pluralism

People with pluralist beliefs make no distinction between faith systems, viewing each one as valid within a particular culture. Examples include:

- Extracts from the Sri Guru Granth Sahib Ji (Sikh Holy Scriptures), “There is only the One Supreme Lord God; there is no other at all” (Pannaa 45). “By His Power the Vedas and the Puranas exist, and the Holy Scriptures of the Jewish, Christian and Islamic religions. By His Power all deliberations exist...” (Pannaa 464). “Some call Him, 'Ram, Ram', and some call Him, 'Khudaa-i'. Some serve Him as 'Gusain', others as 'Allaah'. ||1|| He is the Cause of causes, the Generous Lord. He showers His Grace and Mercy upon us amen.” (Pannaa 885).

**Syncretism** Main article: Syncretism

People with syncretistic views blend the views of a variety of different religions or traditional beliefs into a unique fusion which suits their particular experience and context (see eclecticism). Unitarian Universalism is an example of a syncretistic faith.

**Adherence**

See also: Existence of God

Typical reasons for adherence to religion include:

- Belief in God is seen by some to be necessary for moral behavior.[34]
- Many people consider religious practices to be serene, beautiful, and conducive to religious experiences, which in turn support religious beliefs.[33]
- Organized religions promote a sense of community among their followers, and the moral and cultural common ground of these communities makes them attractive to people with the same values.[36] Indeed, while religious beliefs and practices are usually connected, some individuals with substantially secular beliefs still participate in religious practices for cultural reasons.
• Each religion asserts that it is a means by which its adherents may come into closer contact with God, Truth, and Spiritual Power. They all promise to free adherents from spiritual bondage, and bring them into spiritual freedom. It naturally follows that a religion which frees its adherents from deception, sin, and spiritual death will have significant mental health benefits. Abraham Maslow's research after World War II showed that Holocaust survivors tended to be those who held strong religious beliefs (not necessarily temple attendance, etc.), suggesting it helped people cope in extreme circumstances. Humanistic psychology went on to investigate how religious or spiritual identity may have correlations with longer lifespan and better health. The study found that humans may particularly need religious ideas to serve various emotional needs such as the need to feel loved, the need to belong to homogeneous groups, the need for understandable explanations and the need for a guarantee of ultimate justice. Other factors may involve sense of purpose, sense of identity, sense of contact with the divine. See also Man's Search for Meaning, by Victor Frankl, detailing his experience with the importance of religion in surviving the Holocaust. Critics assert that the very fact that religion was the primary selector for research subjects may have introduced a bias, and that the fact that all subjects were holocaust survivors may also have had an effect. According to Larson et al. (2000), "[m]ore longitudinal research with better multidimensional measures will help further clarify the roles of these [religious] factors and whether they are beneficial or harmful." [37]

2.2.10 Systems

A belief system is a set of mutually supportive beliefs. The beliefs of any such system can be classified as religious, philosophical, ideological, or a combination of these. Philosopher Jonathan Glover says that beliefs are always part of a belief system, and that tenant belief systems are difficult for the tenants to completely revise or reject. [42][43]

Gilbert, sociological perspectives

A collective belief is referred to when people speak of what 'we' believe when this is not simply elliptical for what 'we all' believe.

Sociologist Émile Durkheim wrote of collective beliefs and proposed that they, like all 'social facts', 'inhered in' social groups as opposed to individual persons. Durkheim's discussion of collective belief, though suggestive, is relatively obscure. Philosopher Margaret Gilbert has offered a related account in terms of the joint commitment of a number of persons to accept a certain belief as a body. According to this account, individuals who together collectively believe something need not personally believe it themselves. Gilbert's work on the topic has stimulated a developing literature among philosophers. One question that has arisen is whether and how philosophical accounts of belief in general need to be sensitive to the possibility of collective belief.

Glover

Jonathan Glover believes that he and other philosophers ought to play some role in starting dialogues between people with deeply held, opposing beliefs, especially if there is risk of violence. Glover also believes that philosophy can offer insights about beliefs that would be relevant to such dialogue.
Philosopher Jonathan Glover warns that belief systems are like whole boats in the water; it is extremely difficult to alter them all at once (e.g., it may be too stressful, or people may maintain their biases without realizing it).\textsuperscript{[42]}

Glover suggests that beliefs have to be considered holistically, and that no belief exists in isolation in the mind of the believer. It always implicates and relates to other beliefs.\textsuperscript{[42]} Glover provides the example of a patient with an illness who returns to a doctor, but the doctor says that the prescribed medicine is not working. At that point, the patient has a great deal of flexibility in choosing what beliefs to keep or reject: the patient could believe that the doctor is incompetent, that the doctor’s assistants made a mistake, that the patient’s own body is unique in some unexpected way, that Western medicine is ineffective, or even that Western science is entirely unable to discover truths about ailments.\textsuperscript{[42]}

Glover maintains that any person can continue to hold any belief if they would really like to \textsuperscript{[42]} (e.g., with help from \textit{ad hoc} hypotheses). One belief can be held fixed, and other beliefs will be altered around it. Glover warns that some beliefs may not be entirely explicitly believed (e.g., some people may not realize they have racist belief systems adopted from their environment as a child). Glover believes that people tend to first realize that beliefs can change, and may be contingent on their upbringing, around age 12 or 15.\textsuperscript{[42]}

Glover emphasizes that beliefs are difficult to change. He says that one may try to rebuild one’s beliefs on more secure foundations (axioms), like building a new house, but warns that this may not be possible. Glover offers the example of René Descartes, saying about Descartes that “[h]e starts off with the characteristic beliefs of a 17th-century Frenchman; he then junks the lot, he rebuilds the system, and somehow it looks a lot like the beliefs of a 17th-century Frenchman.” To Glover, belief systems are not like houses but are instead like boats. As Glover puts it: “Maybe the whole thing needs rebuilding, but inevitably at any point you have to keep enough of it intact to keep floating.”\textsuperscript{[42]}

Glover’s final message is that if people talk about their beliefs, they may find more deep, relevant, philosophical ways in which they disagree (e.g., less obvious beliefs, or more deeply held beliefs). Glover thinks that people often manage to find agreements and consensus through philosophy. He says that at the very least, if people do not convert each other, they will hold their own beliefs more open-mindedly and will be less likely to go to war over conflicting beliefs.\textsuperscript{[42][44]}

**Law**

The British philosopher Stephen Law has described some belief systems (including belief in homeopathy, psychic powers, and alien abduction) as "claptrap" and said that they “draw people in and hold them captive so they become willing slaves to victory... if you get sucked in, it can be extremely difficult to think your way clear again”\textsuperscript{[45]}

### 2.2.11 See also

- Alief
- Collective behavior
- Culture-specific syndrome
- Doxastic attitudes
- Doxastic logic
- Evil eye
- Expectation (epistemic)
- Folk psychology
- Frankenstein
- Idea
- List of philosophies
- Moore’s paradox
- Nocebo
- Observer-expectancy effect
- Opinion
- Placebo
- Propositional knowledge
- Psychosomatic illness
- Ruth Barcan Marcus
- Self-deception
- Spell (paranormal)
- Spirituality
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- Subject-expectancy effect
- Subjective validation
- Sugar pill
- Suggestibility
- Suggestion
- Superficial charm
- Theory of justification
- Thomas theorem
- Trust
- Ultimate importance
- Unintended consequence
- Validity
- Value (personal and cultural)
- World view

2.2.12 Notes


[13] Peter Taylor-Gooby - ECONOMIC BELIEFS AND SOCIAL POLICY BEHAVIOUR Economic and Social Research Council (Economic Beliefs and behaviour research programme) [Retrieved 2015-08-09]


[16] Tarski’s Truth Definitions, LOTH Stanford Encyclopedia of Philosophy

[17] Introduction to Logic and to the Methodology of the Deductive Sciences Alfred Tarski Dover 1995/41, Ch. I, § 2 Expressions containing variables—sentential and designatory functions and Ch. II On the Sentential Calculus in its entirety

[18] Delusions in the DSM 5 A blog by Lisa Bortolotti & Ema Sullivan-Bissett


[24] see Kumkale & Albarracin, 2004

other when Pakistan separated from India in 1947; the persecution and killing of Shiite Muslims by Sunni Muslims in Iraq and the murder of Protestants by Catholics and vice versa in Ireland, (both of these examples in the late Twentieth century); and the Israeli-Palestinian conflict that continues today. According to some critics of religion, these beliefs can encourage completely unnecessary conflicts and in some cases even wars. Many atheists believe that, because of this, religion is incompatible with world peace, freedom, civil rights, equality, and good government. On the other hand, most religions perceive atheism as a threat and will vigorously and violently defend themselves against religious sterilization, making the attempt to remove public religious practices a source of strife.

[40] Beauchamp, Philip (pseudonym of Jeremy Bentham) “Analysis of the Influence of Natural Religion on the Temporal Happiness of Mankind”, 1822, R. Carlile, London, at page 76: “Of all human antipathies, that which the believer in a God bears to the unbeliever is the fullest, the most unqualified, and the most universal”

[41] Faith is the commitment of one’s consciousness to beliefs for which one has no sensory evidence or rational proof. When a person rejects reason as their standard of judgment, only one alternative standard remains to them: feelings. A mystic is a person who treats feelings as tools of cognition. Faith is the equation of feeling with knowledge. To practice the “virtue” of faith, one must be willing to suspend one’s sight and one’s judgment; one must be willing to live with the unintelligible, with that which cannot be conceptualized or integrated into the rest of one’s knowledge, and to induce a trance like illusion of understanding. One must be willing to repress one’s critical faculty and hold it as one’s guilt; one must be willing to drown any questions that rise in protest—to strand any trust of reason convulsively seeking to assert its proper function as the protector of one’s life and cognitive integrity. The human need for self-esteem entails the need for a sense of control over reality—but no control is possible in a universe which, by one’s own concession, contains the supernatural, the miraculous and the causeless, a universe in which one is at the mercy of ghosts and demons, in which one must deal, not with the unknown, but with the unknowable; no control is possible if a person proposes, but a ghost disposes; no control is possible if the universe is a haunted house. A person’s life and self-esteem require that the object and concern of his or her consciousness be reality and this earth—by that superior state of intellectuallucidity known to Zen-Buddhists as “No-Mind,” or by death. A mystic is a person who treats feelings as tools of cognition. When a person rejects reason as their standard of judgment, only one alternative standard remains to them: feelings. A mystic is a person who treats feelings as tools of cognition. Faith is the equation of feeling with knowledge. To practice the “virtue” of faith, one must be willing to suspend one’s sight and one’s judgment; one must be willing to live with the unintelligible, with that which cannot be conceptualized or integrated into the rest of one’s knowledge, and to induce a trance like illusion of understanding. One must be willing to repress one’s critical faculty and hold it as one’s guilt; one must be willing to drown any questions that rise in protest—to strand any trust of reason convulsively seeking to assert its proper function as the protector of one’s life and cognitive integrity. The human need for self-esteem entails the need for a sense of control over reality—but no control is possible in a universe which, by one’s own concession, contains the supernatural, the miraculous and the causeless, a universe in which one is at the mercy of ghosts and demons, in which one must deal, not with the unknown, but with the unknowable; no control is possible if a person proposes, but a ghost disposes; no control is possible if the universe is a haunted house. A person’s life and self-esteem require that the object and concern of his or her consciousness be reality and this earth—but morality, people are taught, consists of scoring this earth and the world available to sensory perception, and of contemplating, instead, a “different” and “higher” reality, a realm inaccessible to reason and incommunicable in language, but attainable by revelation, by special dialectical processes, by that superior state of intellectual lucidity known to Zen-Buddhists as “No-Mind,” or by death. A person’s life and self-esteem require that this person take pride in their power to think, pride in their power to live—but morality, people are taught, holds pride, and specifically intellectual pride, as the gravest of sins. Virtue begins, people are taught, with humility: the recognition of the helplessness, the smallness, the impotence of one’s mind. A person’s life and self-esteem require the
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people are taught, consists of self-sacrifice: the sacrifice of one’s mind to some higher authority, and the sacrifice of one’s values to whoever may claim to require it. A sacrifice, it is necessary to remember, means the surrender of a higher value in favor of a lower value or of a non-value. If one gives up that which one does not value in order to obtain that which one does value—or if one gives up a lesser value in order to obtain a greater one—this is not a sacrifice, but a gain. Remember further that all of a person’s values exist in a hierarchy; people value some things more than others; and, to the extent that a person is rational, the hierarchical order of the person’s values is rational: that is, the person values things in proportion to their importance in serving this person’s life and well-being. That which is inimical to their life and well-being, that which is inimical to their nature and needs as a living being, the person disvalues. Conversely, one of the characteristics of mental illness is a distorted value structure; the neurotic does not value things according to their objective merit, in relation to the person’s nature and needs; they frequently value the very things that will lead them to self-destruction. Judged by objective standards, they are engaged in a chronic process of self-sacrifice. But if sacrifice is a virtue, it is not the neurotic but the rational person who must be “cured.” They must learn to do violence to their own rational judgment—to reverse the order of their value hierarchy—to surrender that which their mind has chosen as the good—to turn against and invalidate their own consciousness. Waldau, Paul (2001). The Specter of Speciesism: Buddhist and Christian Views of Animals (American Academy of Religion Books). Oxford University Press, USA. ISBN 978-0195145717.


[44] ‘Philosophy, Beliefs, and Conflict’, JonathanGlover.co.uk

[45] New Scientist (magazine), 11 June 2011 A field guide to bullshit | New Scientist

2.2.14 External links

- The dictionary definition of belief at Wiktionary
- The dictionary definition of belief system at Wiktionary
- Belief entry by Eric Schwitzgebel in the Stanford Encyclopedia of Philosophy

2.3 Truth

For other uses, see Truth (disambiguation).

Truth is most often used to mean being in accord with fact or reality, or fidelity to an original or standard. Truth may also often be used in modern contexts to refer to an idea of “truth to self,” or authenticity.

The commonly understood opposite of truth is falsehood, which, correspondingly, can also take on a logical, factual, or ethical meaning. The concept of truth is discussed and debated in several contexts, including philosophy, art, and religion. Many human activities depend upon the concept, where its nature as a concept is assumed rather than being a subject of discussion; these include most (but not all) of the sciences, law, journalism, and everyday life. Some philosophers view the concept of truth as basic, and unable to be explained in any terms that are more easily understood than the concept of truth itself. Commonly, truth is viewed as the correspondence of language or thought to an independent reality, in what is sometimes called the correspondence theory of truth.
CHAPTER 2. KNOWLEDGE

Truth, holding a mirror and a serpent (1896).


Other philosophers take this common meaning to be secondary and derivative. According to Martin Heidegger, the original meaning and essence of “Truth” in Ancient Greece was unconcealment, or the revealing or bringing of what was previously hidden into the open, as indicated by the original Greek term for truth, "Aletheia." On this view, the conception of truth as correctness is a later derivation from the concept’s original essence, a development Heidegger traces to the Latin term “Veritas.”

Pragmatists like C.S. Pierce take Truth to have some manner of essential relation to human practices for inquiring into and discovering Truth, with Pierce himself holding that Truth is what human inquiry would find out on a matter, if our practice of inquiry were taken as far as it could profitably go: “The opinion which is fated to be ultimately agreed to by all who investigate, is what we mean by the truth…”[4]

Various theories and views of truth continue to be debated among scholars, philosophers, and theologians.[5] Language and words are a means by which humans convey information to one another and the method used to determine what is a “truth” is termed a criterion of truth. There are differing claims on such questions as what constitutes truth: what things are truthbearers capable of being true or false; how to define and identify truth; the roles that faith-based and empirically based knowledge play; and whether truth is subjective or objective, relative or absolute.

Friedrich Nietzsche famously suggested that an ancient, metaphysical belief in the divinity of Truth lies at the heart of and has served as the foundation for the entire subsequent Western intellectual tradition: “But you will have gathered what I am getting at, namely, that it is still a metaphysical faith on which our faith in science rests—that even we knowers of today, we godless anti-metaphysicians still take our fire too, from the flame lit by the thousand-year old faith, the Christian faith which was also Plato’s faith, that God is Truth; that Truth is ‘Divine’…”[6][7]

2.3.1 Definition and etymology

Further information: Veritas, Aletheia and Tryggvi

The English word truth is derived from Old English tríewþ, tréowþ, trýwþ, Middle English trewe, cognate to Old High German triuwe, Old Norse tryggð. Like troth, it is a -th nominalisation of the adjective true (Old English trewe).

The English word true is from Old English (West Saxon) (ge)tríewe, treowe, cognate to Old Saxon (gi)trówe, Old High German (go)truíu (Modern German treu “faithful”), Old Norse tryggr, Gothic trīgws.[8] all from a Proto-Germanic *trevwj- “having good faith”, perhaps
ultimately from PIE *dru- “tree”, on the notion of “steadfast as an oak” (e.g., Sanskrit *dru “tree”).[9] Old Norse trî, “faith, word of honour; religious faith, belief”[10] (archaic English troth “loyalty, honesty, good faith”, compare Asatru).

Thus, ‘truth’ involves both the quality of “faithfulness, fidelity, loyalty, sincerity, veracity”,[11] and that of “agreement with fact or reality”, in Anglo-Saxon expressed by sóp (Modern English sooth).

All Germanic languages besides English have introduced a terminological distinction between truth “fidelity” and truth “factuality”. To express “factuality”, North Germanic opted for nouns derived from samna “to assert, affirm”, while continental West Germanic (German and Dutch) opted for continuations of wâra “faith, trust, pact” (cognate to Slavic véra ”(religious) faith”, but influenced by Latin verus). Romance languages use terms following the Latin veritas, while the Greek aletheia, Russian pravda and South Slavic istina have separate etymological origins.

2.3.2 Major theories

The question of what is a proper basis for deciding how words, symbols, ideas and beliefs may properly be considered true, whether by a single person or an entire society, is dealt with by the five most prevalent substantive theories listed below. Each presents perspectives that are widely shared by published scholars.[12][13][14]

However, the substantive theories are not universally accepted. More recently developed “deflationary” or “minimalist” theories of truth have emerged as competitors to the older substantive theories. Minimalist reasoning centres around the notion that the application of a term like true to a statement does not assert anything significant about it, for instance, anything about its nature. Minimalist reasoning realises truth as a label utilised in general discourse to express agreement, to stress claims, or to form general assumptions.[12][15][16]

Substantive theories

**Correspondence theory** Main article: Correspondence theory of truth

Correspondence theories emphasise that true beliefs and true statements correspond to the actual state of affairs.[17] This type of theory stresses a relationship between thoughts or statements on one hand, and things or objects on the other. It is a traditional model tracing its origins to ancient Greek philosophers such as Socrates, Plato, and Aristotle.[18] This class of theories holds that the truth or the falsity of a representation is determined in principle entirely by how it relates to “things”, by whether it accurately describes those “things.” An example of correspondence theory is the statement by the thirteenth century philosopher/theologian Thomas Aquinas: *Veritas est adaequatio rei et intellectus* (“Truth is the equation [or adequation] of things and intellect”), a statement which Aquinas attributed to the ninth century neoplatonist Isiac Israeli.[19][20][21] Aquinas also restated the theory as: “A judgment is said to be true when it conforms to the external reality”. [22]

Correspondence theory centres heavily around the assumption that truth is a matter of accurately copying what is known as “objective reality” and then representing it in thoughts, words and other symbols.[23] Many modern theorists have stated that this ideal cannot be achieved without analysing additional factors.[12][24] For example, language plays a role in that all languages have words to represent concepts that are virtually undefined in other languages. The German word Zeitgeist is one such example: one who speaks or understands the language may “know” what it means, but any translation of the word apparently fails to accurately capture its full meaning (this is a problem with many abstract words, especially those derived in agglutinative languages). Thus, some words add an additional parameter to the construction of an accurate truth predicate. Among the philosophers who grappled with this problem is Alfred Tarski, whose semantic theory is summarized further below in this article.[25]

Proponents of several of the theories below have gone further to assert that there are yet other issues necessary to the analysis, such as interpersonal power struggles, community interactions, personal biases and other factors involved in deciding what is seen as truth.

**Coherence theory** Main article: Coherence theory of truth

For coherence theories in general, truth requires a proper fit of elements within a whole system. Very often, though, coherence is taken to imply something more than simple logical consistency; often there is a demand that the propositions in a coherent system lend mutual inferential support to each other. So, for example, the completeness and comprehensiveness of the underlying set of concepts is a critical factor in judging the validity and usefulness of a coherent system.[26] A pervasive tenet of coherence theories is the idea that truth is primarily a property of whole systems of propositions, and can be ascribed to individual propositions only according to their coherence with the whole. Among the assortment of perspectives commonly regarded as coherence theory, theorists differ on the question of whether coherence entails many possible true systems of thought or only a single absolute system.

Some variants of coherence theory are claimed to describe the essential and intrinsic properties of formal systems in logic and mathematics.[27] However, formal reasoners are content to contemplate axiomatically independent and sometimes mutually contradictory systems side by side, for example, the various alternative geometries.
On the whole, coherence theories have been rejected for lacking justification in their application to other areas of truth, especially with respect to assertions about the natural world, empirical data in general, assertions about practical matters of psychology and society, especially when used without support from the other major theories of truth.[28]

Coherence theories distinguish the thought of rationalist philosophers, particularly of Spinoza, Leibniz, and G.W.F. Hegel, along with the British philosopher F.H. Bradley.[29] They have found a resurgence also among several proponents of logical positivism, notably Otto Neurath and Carl Hempel.

Constructivist theory Main article: Constructivist epistemology

Social constructivism holds that truth is constructed by social processes, is historically and culturally specific, and that it is in part shaped through the power struggles within a community. Constructivism views all of our knowledge as "constructed," because it does not reflect any external "transcendent" realities (as a pure correspondence theory might hold). Rather, perceptions of truth are viewed as contingent on convention, human perception, and social experience. It is believed by constructivists that representations of physical and biological reality, including race, sexuality, and gender, are socially constructed.

Giambattista Vico was among the first to claim that history and culture were man-made. Vico's epistemological orientation gathers the most diverse rays and unfolds in one axiom – *verum ipsum factum* – “truth itself is constructed”. Hegel and Marx were among the other early proponents of the premise that truth is, or can be, socially constructed. Marx, like many critical theorists who followed, did not reject the existence of objective truth but rather distinguished between true knowledge and knowledge that has been distorted through power or ideology. For Marx, scientific and true knowledge is “in accordance with the dialectical understanding of history” and ideological knowledge is “an epiphenomenal expression of the relation of material forces in a given economic arrangement”.[30]

Consensus theory Main article: Consensus theory of truth

Consensus theory holds that truth is whatever is agreed upon, or in some versions, might come to be agreed upon, by some specified group. Such a group might include all human beings, or a subset thereof consisting of more than one person.

Among the current advocates of consensus theory as a useful accounting of the concept of “truth” is the philosopher Jürgen Habermas.[31] Habermas maintains that truth is what would be agreed upon in an ideal speech situation.[32] Among the current strong critics of consensus theory is the philosopher Nicholas Rescher.[33]

Pragmatic theory Main article: Pragmatic theory of truth

The three most influential forms of the pragmatic theory of truth were introduced around the turn of the 20th century by Charles Sanders Peirce, William James, and John Dewey. Although there are wide differences in viewpoint among these and other proponents of pragmatic theory, they hold in common that truth is verified and confirmed by the results of putting one’s concepts into practice.[34]

Peirce defines truth as follows: “Truth is that concordance of an abstract statement with the ideal limit towards which endless investigation would tend to bring scientific belief, which concordance the abstract statement may possess by virtue of the confession of its inaccuracy and one-sidedness, and this confession is an essential ingredient of truth.”[35] This statement stresses Peirce’s view that ideas of approximation, incompleteness, and partiality, what he describes elsewhere as fallibilism and “reference to the future”, are essential to a proper conception of truth. Although Peirce uses words like concordance and correspondence to describe one aspect of the pragmatic sign relation, he is also quite explicit in saying that definitions of truth based on mere correspondence are no
From this point of view, to assert that "2 + 2 = 4" is true
in the first half of the 20th century.

William James's version of pragmatic theory, while complex,
is often summarized by his statement that "the 'true'
is only the expedient in our way of thinking, just as the
'real' is only the expedient in our way of behaving."[36]
By this, James meant that truth is a quality, the value
of which is confirmed by its effectiveness when applying
concepts to practice (thus, "pragmatic").

John Dewey, less broadly than James but more broadly
than Peirce, held that inquiry, whether scientific, technical,
sociological, philosophical or cultural, is self-
corrective over time if openly submitted for testing by a
community of inquirers in order to clarify, justify, refine
and/or refute proposed truths.[37]

Though not widely known, a new variation of the pragmatic
theory was defined and wielded successfully from the 20th century forward. Defined and named by William
Ernest Hocking, this variation is known as "negative prag-
smatism". Essentially, what works may or may not be
true, but what fails cannot be true because the truth al-
ways works.[38] Richard Feynman also ascribed to it: "We
never are definitely right, we can only be sure we are
wrong."[39] This approach incorporates many of the ideas
from Peirce, James, and Dewey. For Peirce, the idea of
"... endless investigation would tend to bring about scientific belief ...", fits negative pragmatism in that a negative
pragmatist would never stop testing. As Feynman noted,
an idea or theory "... could never be proved right, be-
cause tomorrow's experiment might succeed in proving
wrong what you thought was right."[39] Similarly, James
and Dewey's ideas also ascribe truth to repeated testing
which is "self-corrective" over time.

Pragmatism and negative pragmatism are also closely
aligned with the coherence theory of truth in that any test-
ing should not be isolated but rather incorporate knowl-
dge from all human endeavors and experience. The uni-
verse is a whole and integrated system, and testing should
acknowledge and account for its diversity. As Feynman
said, "... if it disagrees with experiment, it is wrong."[40]

**Minimalist (deflationary) theories**

Main article: Deflationary theory of truth

Modern developments in the field of philosophy, starting
with the relatively modern notion that a theory being old
does not necessarily imply that it is completely flawless,
have resulted in the rise of a new thesis: that the term truth
does not denote a real property of sentences or proposi-
tions. This thesis is in part a response to the common use
of *truth predicates* (e.g., that some particular thing "...is
true") which was particularly prevalent in philosophical
discourse on truth in the first half of the 20th century.
From this point of view, to assert that "2 + 2 = 4" is true
is logically equivalent to asserting that "2 + 2 = 4", and
the phrase "is true" is completely dispensable in this and
every other context. In common parlance, truth predic-
ates are not commonly heard, and it would be interpreted
as an unusual occurrence were someone to utilise a truth
predicate in an everyday conversation when asserting that
something is true. Newer perspectives that take this dis-
crepancy into account and work with sentence structures
that are actually employed in common discourse can be
broadly described:

- as deflationary theories of truth, since they attempt
to deflate the presumed importance of the words
"true" or truth,
- as disquotational theories, to draw attention to the
disappearance of the quotation marks in cases like
the above example, or
- as minimalist theories of truth.[12][41]

Whichever term is used, deflationary theories can be said
to hold in common that "[t]he predicate 'true' is an ex-
pressive convenience, not the name of a property requir-
ing deep analysis."[12] Once we have identified the truth
predicate's formal features and utility, deflationists argue,
we have said all there is to be said about truth. Among
the theoretical concerns of these views is to explain away
those special cases where it *does* appear that the concept
of truth has peculiar and interesting properties. (See, e.g.,
Semantic paradoxes, and below.)

In addition to highlighting such formal aspects of the
predicate "is true", some deflationists point out that the
concept enables us to express things that might otherwise
require infinitely long sentences. For example, one can-
not express confidence in Michael's accuracy by asserting
the endless sentence:

*Michael says, 'Snow is white' and snow is white,
or he says 'roses are red' and roses are red or he
says ... etc.*

This assertion can also be succinctly expressed by saying:
**What Michael says is true**.[42]

**Performative theory of truth** Attributed to P. F.
Strawson is the performative theory of truth which holds
that to say "Snow is white is true" is to perform the
speech act of signaling one's agreement with the claim
that snow is white (much like nodding one's head in agree-
ment). The idea that some statements are more actions
than communicative statements is not as odd as it may
seem. Consider, for example, that when the bride says "I
do" at the appropriate time in a wedding, she is perform-
ing the act of taking this man to be her lawful wedded
husband. She is not describing herself as taking this man,
but actually doing so (perhaps the most thorough analysis
of such “illocutionary acts” is J. L. Austin, "How to Do Things With Words."[43]

Strawson holds that a similar analysis is applicable to all speech acts, not just illocutionary ones: “To say a statement is true is not to make a statement about a statement, but rather to perform the act of agreeing with, accepting, or endorsing a statement. When one says ‘It’s true that it’s raining,’ one asserts no more than ‘It’s raining.’ The function of [the statement] ‘It’s true that...’ is to agree with, accept, or endorse the statement that ‘it’s raining.’”[44]

Redundancy and related theories Main article: Redundancy theory of truth

According to the redundancy theory of truth, asserting that a statement is true is completely equivalent to asserting the statement itself. For example, making the assertion that "Snow is white" is true is equivalent to asserting "Snow is white." Redundancy theorists infer from this premise that truth is a redundant concept; that is, it is merely a word that is traditionally used in conversation or writing, generally for emphasis, but not a word that actually equates to anything in reality. This theory is commonly attributed to Frank P. Ramsey, who held that the use of words like fact and truth was nothing but a roundabout way of asserting a proposition, and that treating these words as separate problems in isolation from judgment was merely a “linguistic muddle.”[12][45][46]

A variant of redundancy theory is the disquotational theory which uses a modified form of Tarski’s schema: ‘To say that "P" is true’ is to say that P. A version of this theory was defended by C. J. F. Williams in his book What is Truth?. Yet another version of deflationism is the proponental theory of truth, first developed by Dorothy Grover, Joseph Camp, and Nuel Belnap as an elaboration of Ramsey’s claims. They argue that sentences like “That’s true”, when said in response to “It’s raining”, are prosentences, expressions that merely repeat the content of other expressions. In the same way that it means the same as my dog in the sentence My dog was hungry, so I fed it, That’s true is supposed to mean the same as It’s raining — if you say the latter and I then say the former. These variations do not necessarily follow Ramsey in asserting that truth is not a property, but rather can be understood to say that, for instance, the assertion “P” may well involve a substantial truth, and the theorists in this case are minimizing only the redundancy or prosentence involved in the statement such as “that’s true.”[12]

Deflationary principles do not apply to representations that are not analogous to sentences, and also do not apply to many other things that are commonly judged to be true or otherwise. Consider the analogy between the sentence “Snow is white” and the character named Snow White, both of which can be true in some sense. To a minimalist, saying “Snow is white is true” is the same as saying “Snow is white,” but to say “Snow White is true” is not the same as saying “Snow White.”

Pluralist theories

Main article: Pluralist theories of truth

Several of the major theories of truth hold that there is a particular property the having of which makes a belief or proposition true. Pluralist theories of truth assert that there may be more than one property that makes propositions true: ethical propositions might be true by virtue of coherence. Propositions about the physical world might be true by corresponding to the objects and properties they are about.

Some of the pragmatic theories, such as those by Charles Peirce and William James, included aspects of correspondence, coherence and constructivist theories.[35][36]

Crispin Wright argued in his 1992 book Truth and Objectivity that any predicate which satisfied certain platitude about truth qualified as a truth predicate. In some discourses, Wright argued, the role of the truth predicate might be played by the notion of superassertibility.[47]

Michael Lynch, in a 2009 book Truth as One and Many, argued that we should see truth as a functional property capable of being multiply manifested in distinct properties like correspondence or coherence.[48]

Most believed theories

According to a survey of professional philosophers and others on their philosophical views which was carried out in November 2009 (taken by 3226 respondents, including 1803 philosophy faculty members and/or PhDs and 829 philosophy graduate students) 44.9% of respondents accept or lean towards correspondence theories, 20.7% accept or lean towards deflationary theories and 13.8% epistemic theories.[49]

2.3.3 Formal theories

Truth in logic

Main articles: Logical truth, Criteria of truth and Truth value

Logic is concerned with the patterns in reason that can help tell us if a proposition is true or not. However, logic does not deal with truth in the absolute sense, as for instance a metaphysician does. Logicians use formal languages to express the truths which they are concerned with, and as such there is only truth under some interpretation or truth within some logical system.

A logical truth (also called an analytic truth or a necessary truth) is a statement which is true in all possible worlds[50] or under all possible interpretations, as contrasted to a
fact (also called a synthetic claim or a contingency) which is only true in this world as it has historically unfolded. A proposition such as “If p and q, then p’” is considered to be a logical truth because of the meaning of the symbols and words in it and not because of any fact of any particular world. They are such that they could not be untrue.

Truth in mathematics

Main articles: Model theory and Proof theory

There are two main approaches to truth in mathematics. They are the model theory of truth and the proof theory of truth.[51]

Historically, with the nineteenth century development of Boolean algebra mathematical models of logic began to treat “truth”, also represented as “T” or “1”, as an arbitrary constant. “Falsity” is also an arbitrary constant, which can be represented as “F” or “0”. In propositional logic, these symbols can be manipulated according to a set of axioms and rules of inference, often given in the form of truth tables.

In addition, from at least the time of Hilbert’s program at the turn of the twentieth century to the proof of Gödel’s incompleteness theorems and the development of the Church-Turing thesis in the early part of that century, true statements in mathematics were generally assumed to be those statements that are provable in a formal axiomatic system.[52]

The works of Kurt Gödel, Alan Turing, and others shook this assumption, with the development of statements that are true but cannot be proven within the system.[53] Two examples of the latter can be found in Hilbert’s problems. Work on Hilbert’s 10th problem led in the late twentieth century to the construction of specific Diophantine equations for which it is undecided whether they have a solution,[54] or even if they do, whether they have a finite or infinite number of solutions. More fundamentally, Hilbert’s first problem was on the continuum hypothesis.[55] Gödel and Paul Cohen showed that this hypothesis cannot be proved or disproved using the standard axioms of set theory.[56] In the view of some, then, it is equally reasonable to take either the continuum hypothesis or its negation as a new axiom.

Semantic theory of truth

Main article: Semantic theory of truth

The semantic theory of truth has as its general case for a given language:

‘P’ is true if and only if P

where ‘P’ refers to the sentence (the sentence’s name), and P is just the sentence itself.

Logician and philosopher Alfred Tarski developed the theory for formal languages (such as formal logic). Here he restricted it in this way: no language could contain its own truth predicate, that is, the expression is true could only apply to sentences in some other language. The latter he called an object language, the language being talked about. (It may, in turn, have a truth predicate that can be applied to sentences in still another language.) The reason for his restriction was that languages that contain their own truth predicate will contain paradoxical sentences such as, “This sentence is not true”. As a result, Tarski held that the semantic theory could not be applied to any natural language, such as English, because they contain their own truth predicates. Donald Davidson used it as the foundation of his truth-conditional semantics and linked it to radical interpretation in a form of coherentism.

Bertrand Russell is credited with noticing the existence of such paradoxes even in the best symbolic formations of mathematics in his day, in particular the paradox that came to be named after him, Russell’s paradox. Russell and Whitehead attempted to solve these problems in Principia Mathematica by putting statements into a hierarchy of types, wherein a statement cannot refer to itself, but only to statements lower in the hierarchy. This in turn led to new orders of difficulty regarding the precise natures of types and the structures of conceptually possible type systems that have yet to be resolved to this day.

Kripke’s theory of truth

Saul Kripke contends that a natural language can in fact contain its own truth predicate without giving rise to contradiction. He showed how to construct one as follows:

- Begin with a subset of sentences of a natural language that contains no occurrences of the expression “is true” (or “is false”). So The barn is big is included in the subset, but not “The barn is big is true”, nor problematic sentences such as “This sentence is false”.

- Define truth just for the sentences in that subset.

- Then extend the definition of truth to include sentences that predicate truth or falsity of one of the original subset of sentences. So “The barn is big is true” is now included, but not either “This sentence is false” nor “The barn is big is true”.

- Next, define truth for all sentences that predicate truth or falsity of a member of the second set. Imagine this process repeated infinitely, so that truth is defined for The barn is big; then for “The barn is big is true”; and then for “The barn is big is true”, and so on.
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Notice that truth never gets defined for sentences like *This sentence is false*, since it was not in the original subset and does not predicate truth of any sentence in the original or any subsequent set. In Kripke’s terms, these are “ungrounded.” Since these sentences are never assigned either truth or falsehood even if the process is carried out infinitely, Kripke’s theory implies that some sentences are neither true nor false. This contradicts the Principle of bivalence: every sentence must be either true or false. Since this principle is a key premise in deriving the Liar paradox, the paradox is dissolved.¹⁵⁷

However, it has been shown by Gödel that self-reference cannot be avoided naïvely, since propositions about seemingly unrelated objects can have an informal self-referential meaning; in Gödel’s work, these objects are integer numbers, and they have an informal meaning regarding propositions. In fact, this idea - manifested by the diagonal lemma - is the basis for Tarski’s theorem that truth cannot be consistently defined.

It has thus been claimed¹⁵⁸ that Kripke’s system indeed leads to contradiction: while its truth predicate is only partial, it does give truth value (true/false) to propositions such as the one built in Tarski’s proof, and is therefore inconsistent. While there is still a debate on whether Tarski’s proof can be implemented to every similar partial truth system, none have been shown to be consistent by acceptable methods used in mathematical logic.

Revision theory of truth

Main article: Revision_Theory § Truth

The revision theory of truth, as developed by Anil Gupta and Nuel Belnap, takes truth to be a circular concept whose definition is the set of biconditionals of the form

'A' is true if and only if A.¹⁵⁹

Unlike Kripke’s theory of truth, revision theory can be used with classical logic and can maintain the principle of bivalence.

2.3.4 Notable views

Ancient history

The ancient Greek origins of the words “true” and “truth” have some consistent definitions throughout great spans of history that were often associated with topics of logic, geometry, mathematics, deduction, induction, and natural philosophy.

Socrates’, Plato’s and Aristotle’s ideas about truth are seen by some as consistent with correspondence theory. In his *Metaphysics*, Aristotle stated: “To say of what is that it is not, or of what is not that it is, is false, while to say of what is that it is, and of what is not that it is not, is true”.¹⁶⁰ The Stanford Encyclopedia of Philosophy proceeds to say of Aristotle:

"(...) Aristotle sounds much more like a genuine correspondence theorist in the Categories (12b11, 14b14), where he talks of “underlying things” that make statements true and implies that these “things” (pragmata) are logically structured situations or facts (viz., his sitting, his not sitting). Most influential is his claim in De Interpretatione (16a3) that thoughts are
“likeness” (homoiosis) of things. Although he nowhere defines truth in terms of a thought’s likeness to a thing or fact, it is clear that such a definition would fit well into his overall philosophy of mind. (...)”[60]

Very similar statements can also be found in Plato (Cratylus 385b2, Sophist 263b).[60]

In Hinduism, Truth is defined as “unchangeable”, “that which has no distortion”, “that which is beyond distinctions of time, space, and person”, “that which pervades the universe in all its constancy”. The human body, therefore is not completely true as it changes with time, for example. There are many references, properties and explanations of truth by Hindustanijuts that explain varied facets of truth, such as the national motto of India: “Satyameva Jayate” (Truth alone wins), as well as “Satyam muktaye” (Truth liberates), “Satya’i’s ‘Parahit’artham’ va’unmanaso yatha’rthatvam’ satyam” (Satya is the benevolent use of words and the mind for the welfare of others or in other words responsibilities is truth too). “When one is firmly established in speaking truth, the fruits of action become subservient to him ( patanjali yogasutras, sutra number 2.36 ), “The face of truth is covered by a golden bowl. Unveil it, O Pusan (Sun), so that I who have truth as my duty (satyadharma) may see it!”(Brhadaranyaka V151-4 and the brief IIsa Upanisad 15-18), Truth is superior to silence ( Manusmriti ). Combined with other words, satya acts as modifier, like “ultra” or “highest,” or more literally “truest,” connoting purity and excellence. For example, satyaloka is the “highest heaven’ and Satya Yuga is the “golden age” or best of the four cyclical cosmic ages in Hinduism, and so on.

Middle Ages

Avicenna In early Islamic philosophy, Avicenna (Ibn Sina) defined truth in his work Kitab Al-Shifa The Book of Healing, Book I, Chapter 8, as:

“What corresponds in the mind to what is outside it.”[61]

Avicenna elaborated on his definition of truth later in Book VIII, Chapter 6:

“The truth of a thing is the property of the being of each thing which has been established in it.”[62]

However, this definition is merely a rendering of the medieval Latin translation of the work by Simone van Riet.[63] A modern translation of the original Arabic text states:

“Truth is also said of the veridical belief in the existence [of something].”[64]

Aquinas Reevaluating Avicenna, and also Augustine and Aristotle, Thomas Aquinas stated in his Disputed Questions on Truth:

A natural thing, being placed between two intellects, is called true insofar as it conforms to either. It is said to be true with respect to its conformity with the divine intellect insofar as it fulfills the end to which it was ordained by the divine intellect... With respect to its conformity with a human intellect, a thing is said to be true insofar as it is such as to cause a true estimate about itself.[65]

Thus, for Aquinas, the truth of the human intellect (logical truth) is based on the truth in things (ontological truth).[66] Following this, he wrote an elegant restatement of Aristotle’s view in his Summa I.16.1:

Veritas est adequantio intellectus et rei. (Truth is the conformity of the intellect to the things.)

Aquinas also said that real things participate in the act of being of the Creator God who is Subsistent Being, Intelligence, and Truth. Thus, these beings possess the light of intelligibility and are knowable. These things (beings; reality) are the foundation of the truth that is found in the human mind, when it acquires knowledge of things, first through the senses, then through the understanding and the judgement done by reason. For Aquinas, human intelligence (“intus”, within and “legere”, to read) has the capability to reach the essence and existence of things because it has a non-material, spiritual element, although some moral, educational, and other elements might interfere with its capability.

Changing concepts of truth in the Middle Ages

Richard Firth Green examined the concept of truth in the later Middle Ages in his A Crisis of Truth, and concludes that roughly during the reign of Richard II of England the very meaning of the concept changes. The idea of the oath, which was so much part and parcel of for instance Romance literature,[67] changes from a subjective concept to a more objective one (in Derek Pearsall’s summary).[68] Whereas truth (the “trouthe” of Sir Gawain and the Green Knight) was first “an ethical truth in which
truth is understood to reside in persons”, in Ricardian England it “transforms...into a political truth in which truth is understood to reside in documents”.

Modern age

**Kant** Immanuel Kant endorses a definition of truth along the lines of the correspondence theory of truth. Kant writes in the *Critique of Pure Reason*: “The nominal definition of truth, namely that it is the agreement of cognition with its object, is here granted and presupposed”. However, Kant denies that this correspondence definition of truth provides us with a test or criterion to establish which judgements are true. Kant states in his logic lectures:

“(…) Truth, it is said, consists in the agreement of cognition with its object. In consequence of this mere nominal definition, my cognition, to count as true, is supposed to agree with its object. Now I can compare the object with my cognition, however, only by cognizing it. Hence my cognition is supposed to confirm itself, which is far short of being sufficient for truth. For since the object is outside me, the cognition in me, all I can ever pass judgement on is whether my cognition of the object agrees with my cognition of the object. The ancients called such a circle in explanation a dielleon. And actually the logicians were always reproached with this mistake by the sceptics, who observed that with this definition of truth it is just as when someone makes a statement before a court and in doing so appeals to a witness with whom no one is acquainted, but who wants to establish his credibility by maintaining that the one who called him as witness is an honest man. The accusation was grounded, too. Only the solution of the indicated problem is impossible without qualification and for every man. (...)”

This passage makes use of his distinction between nominal and real definitions. A nominal definition explains the meaning of a linguistic expression. A real definition describes the essence of certain objects and enable us to determine whether any given item falls within the definition. Kant holds that the definition of truth is merely nominal and, therefore, we cannot employ it to establish which judgements are true. According to Kant, the ancient skeptics were critical of the logicians for holding that, by means of a merely nominal definition of truth, they can establish which judgements are true. They were trying to do something that is “impossible without qualification and for every man”.

**Hegel** Georg Hegel distanced his philosophy from psychology by presenting truth as being an external self-moving object instead of being related to inner, subjective thoughts. Hegel’s truth is analogous to the mechanics of a material body in motion under the influence of its own inner force. “Truth is its own self-movement within itself.” Teleological truth moves itself in the three-step form of dialectical triplicity toward the final goal of perfect, final, absolute truth. According to Hegel, the progression of philosophical truth is a resolution of past oppositions into increasingly more accurate approximations of absolute truth. Chalybäus used the terms “thesis”, “antithesis”, and “synthesis” to describe Hegel’s dialectical triplicity. The “thesis” consists of an incomplete historical movement. To resolve the incompleteness, an “antithesis” occurs which opposes the “thesis.” In turn, the “synthesis” appears when the “thesis” and “antithesis” become reconciled and a higher level of truth is obtained. This “synthesis” thereby becomes a “thesis,” which will again necessitate an “antithesis,” requiring a new “synthesis” until a final state is reached as the result of reason’s historical movement. History is the Absolute Spirit moving toward a goal. This historical progression will finally conclude itself when the Absolute Spirit understands its own infinite self at the very end of history. Absolute Spirit will then be the complete expression of an infinite God.

**Schopenhauer** For Arthur Schopenhauer, a judgment is a combination or separation of two or
**2.3. TRUTH**

more concepts. If a judgment is to be an expression of knowledge, it must have a sufficient reason or ground by which the judgment could be called true. *Truth is the reference of a judgment to something different from itself which is its sufficient reason (ground).* Judgments can have material, formal, transcendental, or metalogical truth. A judgment has *material* truth if its concepts are based on intuitive perceptions that are generated from sensations. If a judgment has its reason (ground) in another judgment, its truth is called logical or *formal*. If a judgment, of, for example, pure mathematics or pure science, is based on the forms (space, time, causality) of intuitive, empirical knowledge, then the judgment has *transcendental* truth.

**Kierkegaard**  
When Søren Kierkegaard, as his character Johannes Climacus, ends his writings: *My thesis was, subjectivity, heart felt is the truth*, he does not advocate for *subjectivism* in its extreme form (the theory that something is true simply because one believes it to be so), but rather that the objective approach to matters of personal truth cannot shed any light upon that which is most essential to a person’s life. Objective truths are concerned with the facts of a person’s being, while subjective truths are concerned with a person’s way of being. Kierkegaard agrees that objective truths for the study of subjects like mathematics, science, and history are relevant and necessary, but argues that objective truths do not shed any light on a person’s inner relationship to existence. At best, these truths can only provide a severely narrowed perspective that has little to do with one’s actual experience of life.[75]

While objective truths are final and static, subjective truths are continuing and dynamic. The truth of one’s existence is a living, inward, and subjective experience that is always in the process of becoming. The values, morals, and spiritual approaches a person adopts, while not denying the existence of objective truths of those beliefs, can only become truly known when they have been inwardly appropriated through subjective experience. Thus, Kierkegaard criticizes all systematic philosophies which attempt to know life or the truth of existence via theories and objective knowledge about reality. As Kierkegaard claims, human truth is something that is continually occurring, and a human being cannot find truth separate from the subjective experience of one’s own existing, defined by the values and fundamental essence that consist of one’s way of life.[76]

**Nietzsche**  
Friedrich Nietzsche believed the search for truth, or ‘the will to truth’, was a consequence of the *will to power* of philosophers. He thought that truth should be used as long as it promoted life and the *will to power*, and he thought untruth was better than truth if it had this life enhancement as a consequence. As he wrote in *Beyond Good and Evil*, “The falseness of a judgment is to us not necessarily an objection to a judgment... The question is to what extent it is life-advancing, life-preserving, species-preserving, perhaps even species-breeding...” (aphorism 4). He proposed the *will to power* as a truth only because, according to him, it was the most life-affirming and sincere perspective one could have.

Robert Wicks discusses Nietzsche’s basic view of truth as follows:

“(...) Some scholars regard Nietzsche’s 1873 unpublished essay, “On Truth and Lies in a Nonmoral Sense” ("Über Wahrheit und Lüge im außermoralischen Sinn") as a keystone in his thought. In this essay, Nietzsche rejects the idea of universal constants, and claims that what we call “truth” is only “a mobile army of metaphors, metonyms, and anthropomorphisms.” His view at this time is that arbitrariness completely prevails within human experience: concepts originate via the very artistic transference of nerve stimuli into images; “truth” is nothing more than the invention of fixed conventions for merely practical purposes, especially those of repre, security and consistence. (...)”[77]

**Whitehead**  
Alfred North Whitehead, a British mathematician who became an American philosopher, said: “There are no whole truths; all truths are half-truths. It is trying to treat them as whole truths that plays the devil”.[78]

The logical progression or connection of this line of thought is to conclude that truth can lie, since half-truths are deceptive and may lead to a false conclusion.

**Nishida**  
According to Kitaro Nishida, “knowledge of things in the world begins with the differentiation of unitary consciousness into knower and known and ends with self and things becoming one again. Such unification takes form not only in knowing but in the valuing (of truth) that directs knowing, the willing that directs action, and the feeling or emotive reach that directs sensing.”[79]

**Fromm**  
Erich Fromm finds that trying to discuss truth as “absolute truth” is sterile and that emphasis ought to be placed on “optimal truth”. He considers truth as stemming from the survival imperative of grasping one’s environment physically and intellectually, whereby young children instinctively seek truth so as to orient themselves in “a strange and powerful world”. The accuracy of their perceived approximation of the truth will therefore have direct consequences on their ability to deal with their environment. Fromm can be understood to define truth as a functional approximation of reality. His vision of optimal truth is described partly in “Man from Himself: An In-
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The dichotomy between ‘absolute = perfect’ and ‘relative = imperfect’ has been superseded in all fields of scientific thought, where “it is generally recognized that there is no absolute truth but nevertheless that there are objectively valid laws and principles.”

In that respect, “a scientifically or rationally valid statement means that the power of reason is applied to all the available data of observation without any of them being suppressed or falsified for the sake of a desired result”. The history of science is “a history of inadequate and incomplete statements, and every new insight makes possible the recognition of the inadequacies of previous propositions and offers a springboard for creating a more adequate formulation.”

As a result “the history of thought is the history of an ever-increasing approximation to the truth. Scientific knowledge is not absolute but optimal; it contains the optimum of truth attainable in a given historical period.” Fromm furthermore notes that “different cultures have emphasized various aspects of the truth” and that increasing interaction between cultures allows for these aspects to reconcile and integrate, increasing further the approximation to the truth.

**Foucault** Truth, says Michel Foucault, is problematic when any attempt is made to see truth as an “objective” quality. He prefers not to use the term truth itself but “Regimes of Truth”. In his historical investigations he found truth to be something that was itself a part of, or embedded within, a given power structure. Thus Foucault’s view shares much in common with the concepts of Nietzsche. Truth for Foucault is also something that shifts through various episteme throughout history.[80]

**Baudrillard** Jean Baudrillard considered truth to be largely simulated, that is pretending to have something, as opposed to dissimulation, pretending to not have something. He took his cue from iconoclasts who he claims knew that images of God demonstrated that God did not exist.[81] Baudrillard wrote in “Precession of the Simulacra”:

> The simulacrum is never that which conceals the truth—it is the truth which conceals that there is none. The simulacrum is true.
> —Ecclesiastes[82][83]

Some examples of simulacra that Baudrillard cited were: that prisons simulate the “truth” that society is free; scandals (e.g., Watergate) simulate that corruption is corrected; Disney simulates that the U.S. itself is an adult place. One must remember that though such examples seem extreme, such extremity is an important part of Baudrillard’s theory. For a less extreme example, consider how movies usually end with the bad being punished, humiliated, or otherwise failing, thus affirming for viewers the concept that the good end happily and the bad unhappily, a narrative which implies that the status quo and established power structures are largely legitimate.[81]

### 2.3.5 In medicine and psychiatry

There is controversy as to the truth value of a proposition made in bad faith self-deception, such as when a hypochondriac has a complaint with no physical symptom.[84]

### 2.3.6 In religion: omniscience

Main article: Omniscience

In a religious context, perfect knowledge of all truth about all things (omniscience) is regarded by some religions, particularly Buddhism (source?) and the Abrahamic religions (Christianity, Islam, and Judaism), as an attribute of a divine being.[85] In the Abrahamic view, God can exercise divine judgment, judging the dead on the basis of
perfect knowledge of their lives.\[86][87]

2.3.7 See also

- Aletheia
- Asha
- Belief
- Confirmation holism
- Contextualism
- Contradiction
- Degrees of truth
- Disposition
- Eclecticism
- Imagination
- Independence
- Interpretation
- Invariance
- Lie
- McNamara fallacy
- Normative science
- On truth and lies in a nonmoral sense
- Perspectivism
- Physical symbol system
- Public opinion
- Revision theory
- Relativism
- Religious truth
- Satya
- Slingshot argument
- Statistical independence
- Tautology (logic)
- Tautology (rhetoric)
- Truth prevails
- Truthness
- Truthlikeness
- Two truths doctrine
- Unity of the proposition
- Verisimilitude
- Veritas
- What is truth?

Major theorists

- Thomas Aquinas
- Aristotle
- J.L. Austin
- Brand Blanshard
- John Dewey
- Hartry Field
- Gottlob Frege
- Jürgen Habermas
- G. W. F. Hegel
- Martin Heidegger
- Augustine of Hippo
- Paul Horwich
- William James
- Harold Joachim
- Saul Kripke
- Friedrich Nietzsche
- Charles Sanders Peirce
- Plato
- Karl Popper
- W.V. Quine
- Frank P. Ramsey
- Bertrand Russell
- Arthur Schopenhauer
- Socrates
- P.F. Strawson
- Alfred Tarski
- Ludwig Wittgenstein

2.3.8 Notes


[6] https://books.google.com/books?id=V1f8KETLiXMC&pg=PA201&dq=%22%20we%20knowers%20of%20today%22&source=bl&ots=cW11a020&sig=978-0691144016&hl=en&sa=X&ved=0CCQ6AEwVChMlJ2MIa5s%25xVh%252g%25Ch2P%25w1h#v=onepage&q=%22%20we%20knowers%20of%20today%22&f=false

[7] https://books.google.com/books?id=swMu8j4D1SYC&pg=PA112&dq=%22%20we%20knowers%20of%20today%22&source=bl&ots=cW11a020&sig=978-0691144016&hl=en&sa=X&ved=0CCQ6AEwVChMlJ2MIa5s%25xVh%252g%25Ch2P%25w1h#v=onepage&q=%22%20we%20knowers%20of%20today%22&f=false


[9] Etymology, Online. “Online Etymology”.


[11] OED on true has “steadfast in adherence to a commander, to a principle or cause, to one’s promises, faith, etc.; firm in allegiance; faithful, loyal, constant, trusty; honest, honourable, upright, virtuous, trustworthy; free from deceit, sincere, truthful “ besides “comformity with fact: agreement with reality; accuracy, correctness, verity; consistent with fact; agreeing with the reality; representing the thing as it is; real, genuine; rightly answering to the description; properly so called; not counterfeit, spurious, or imaginary.”


[26] Immanuel Kant, for instance, assembled a controversial but quite coherent system in the early 19th century, whose validity and usefulness continues to be debated even today. Similarly, the systems of Leibniz and Spinoza are characteristic systems that are internally coherent but controversial in terms of their utility and validity.


[31] See, e.g., Habermas, Jürgen, Knowledge and Human Interests (English translation, 1972).


2.3. **TRUTH**


[41] Blackburn, Simon, and Simmons, Keith (eds., 1999), *Critique of Pure Rea-


[50] Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*

[51] Penelope Maddy; *Realism in Mathematics; Series: Claren
don Paperbacks; Paperback: 216 pages; Publisher: Oxford University Press, USA (October 15, 1992); ISBN 019824035X.


[66] “Veritas supra ens fundatur” (Truth is founded on being). *Disputed Questions on Truth*, 10, 2, reply to Obj. 3.


[70] Kant, Immanuel (1781/1787), *Critique of Pure Rea


[73] “Die Wahrheit ist die Bewegung ihrer an ihr selbst.” *The Phenomenology of Spirit*, Preface, ¶ 48


2.3.9 References


- Blackburn, Simon, and Simmons, Keith (eds., 1999), Truth, Oxford University Press, Oxford, UK. Includes papers by James, Ramsey, Russell, Tarski, and more recent work.


- Clifford, W.K. (1877), “The Ethics of Belief and Other Essays”. (Prometheus Books, 1999), infidels.org


- Harold P. Cooke

- Keisler, H.J.


- Black, William Heinemann


- Baudrillard, Jean. "Simulacra and Simulations", in Selected Writings, ed. Mark Poster, Stanford University Press, 1988; 166 ff


- "Absent a lesion or a physiological disturbance to account readily for the complaint, the complaint was likely to be regarded as male fide”, Post-Modern Reflections on the Ethics of Naming, The Ethics of Diagnosis Philosophy and Medicine, 1992, Volume 40, Section V, 275-300, George Khushf, springerlink.com


- The Ancient Egyptians thought that there was a last judgement by the gods similar in many ways to the Abrahamic one, but instead of omniscient knowledge of truth, the life of the dead person was evaluated by Weighing of the Heart, which would record good and bad deeds.

2.3.9 References


• James, William (1904), *A World of Pure Experience.*

• James, William (1907), *Pragmatism, A New Name for Some Old Ways of Thinking*, Popular Lectures on Philosophy, Longmans, Green, and Company, New York, NY.


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- Russell, Bertrand (1985), The Philosophy of Logical Atomism, David Pears (ed.), Open Court, La Salle, IL.


- Smart, Ninian (1969), The Religious Experience of Mankind, Charles Scribner’s Sons, New York, NY.


Reference works


2.3.10 External links

- An Introduction to Truth by Paul Newall, aimed at beginners.

- Internet Encyclopedia of Philosophy:
  - “Truth”
  - “Pluralist Theories of Truth”
  - “Truthmaker Theory”
  - “Prosentential Theory of Truth”

- Stanford Encyclopedia of Philosophy:
  - Truth
  - Coherence theory of truth
  - Correspondence theory of truth
  - Deflationary theory of truth
  - Identity theory of truth
  - Revision theory of truth
  - Tarski’s definition of truth
  - Axiomatic theories of truth

- Heidegger on Truth (Aletheia) as Unconcealment

- History of Truth: The Greek “Aletheia”

- History of Truth: The Latin “Veritas”
2.4 Criteria of truth

In epistemology, criteria of truth (or tests of truth) are standards and rules used to judge the accuracy of statements and claims. They are tools of verification. Understanding a philosophy's criteria of truth is fundamental to a clear evaluation of that philosophy. This necessity is driven by the varying, and conflicting, claims of different philosophies. The rules of logic have no ability to distinguish truth on their own. An individual must determine what standards distinguish truth from falsehood. Not all criteria are equally valid. Some standards are sufficient, while others are questionable.[1]

The criteria listed represent those most commonly used by scholars and the general public.[2] Jonathan Dolhenty states there seem to be only three functional, effective tests of truth. He lists these as the correspondence, coherence and pragmatic theories of truth.[3]

2.4.1 Authority

See also: Appeal to authority

The opinions of those with significant experience, highly trained or possessing an advanced degree are often considered a form of proof. Their knowledge and familiarity within a given field or area of knowledge command respect and allow their statements to be criteria of truth. A person may not simply declare themselves an authority, but rather must be properly qualified. Despite the wide respect given to expert testimony, it is not an infallible criterion. For example, multiple authorities may conflict in their claims and conclusions.[4]

2.4.2 Coherence

See also: Coherence theory of truth

Coherence refers to a consistent and overarching explanation for all facts. To be coherent, all pertinent facts must be arranged in a consistent and cohesive fashion as an integrated whole. The theory which most effectively reconciles all facts in this fashion may be considered most likely to be true. Coherence is the most potentially effective test of truth because it most adequately addresses all elements. The main limitation lies not in the standard, but in the human inability to acquire all facts of an experience. Only an omniscient mind could be aware of all of the relevant information. A scholar must accept this limitation and accept as true the most coherent explanation for the available facts. Coherence is difficult to dispute as a criterion of truth, since arguing against coherence is validating incoherence, which is inherently illogical.[5]

2.4.3 Consensus gentium

See also: Argumentum ad populum

Some view opinions held by all people to be valid criteria of truth. According to consensus gentium, the universal consent of all mankind, all humans holding a distinct belief proves it is true. There is some value in the criterion if it means innate truth, such as the laws of logic and mathematics. If it merely means agreement, as in a unanimous vote, its value is questionable. For example, general assent once held the earth was flat and that the sun revolved about the earth.[6]

2.4.4 Consistency (mere)

Mere consistency is when correct statements do not contradict, but are not necessarily related. Accordingly, an individual is consistent if he does not contradict himself. It is inadequate as a criterion because it treats facts in an isolated fashion without true cohesion and integration; nevertheless it remains a necessary condition for the truth of any argument, owing to the law of noncontradiction. The value of a proof largely lies in its ability to reconcile individual facts into a coherent whole.[7]

2.4.5 Consistency (strict)

 Strict consistency is when claims are connected in such a fashion that one statement follows from another. Formal logic and mathematical rules are exemplary examples of rigorous consistency. An example would be: if all As are Bs and all Bs are Cs, then all As are Cs. While this standard is of high value, it is limited. For example, the premises are a priori (or self-apparent), requiring another test of truth to employ this criterion. Additionally, strict consistency may produce results lacking coherence and completeness. While a philosophical system may demonstrate rigorous consistency with the facts it considers, all facts must be taken into consideration for an adequate criterion of truth, regardless of their detriment to any given system.[7]

2.4.6 Correspondence

See also: Correspondence theory of truth
See also: Scientific method

Correspondence is quite simply when a claim corresponds with its object. For example, the claim that the White House is in Washington, D.C. is true, if the White House is actually located in Washington. Correspondence is held by many philosophers to be the most valid of the criteria of truth. An idea which corresponds to its object is indeed true, but determining if the correspondence is per-
fect requires additional tests of truth. This indicates that correspondence is a perfectly valid definition of truth, but is not of itself a valid criterion of truth. An additional test beyond this “definition” is required to determine the precise degree of similarity between what is posited and what exists in objective reality.\[8\]

2.4.7 Custom

Most people consciously or unknowingly employ custom as a criterion of truth, based on the assumption that doing what is customary will prevent error. It is particularly applied in the determination of moral truth and reflected in the statement “when in Rome, do as the Romans do”. People stick closely to the principle of custom when they use common vernacular, wear common fashions and so forth; essentially, when they do what is popular. Custom is not considered a serious, or valid, test of truth. For example, public opinion polls do not determine truth.\[9\]

2.4.8 Emotions

Many people allow feeling to determine judgment, often in the face of contrary evidence or without even attempting to collect evidence and facts. They are implicitly accepting emotions as a criterion of truth. Most people will admit that feelings are not an adequate test for truth. For example, a seasoned businessman will put aside his emotions and search for the best available facts when making an investment. Similarly, scholars are trained to put aside such subjective judgments when evaluating knowledge.\[10\] Emotions are real, however, and thus must be considered within any social scientific system of coherence.

2.4.9 Instinct

The existence of distinct instincts has long been debated. Proponents of distinct instinct argue that we eat because of hunger, drink because of thirst, and so forth. Some have even argued for the existence of God based on this criterion, arguing that the object of every instinct has a referent in reality. The counterpoint of hunger is food; for thirst it is liquid; for the sex drive it is a mate. Instincts are not accepted as a reliable test because they are most often indistinct, variant and difficult to define. Additionally, universal instincts are so few that they offer little to the greater body of philosophy as a criterion.\[11\]

2.4.10 Intuition

Intuition is an assumed truth with an unknown, or possibly unexamined, source. It is a judgment that is not dependent on a rational examination of the facts. It is usually experienced as a sudden sensation and/or rush of thoughts that feel “right”. Many persons experience intuitive epiphanies which later prove to be true. Scholars have sometimes come upon valid theories and proofs while daydreaming or otherwise mentally occupied with something bearing no apparent relationship to the truth they seek to reveal. Intuition is at best a source for truths, rather than a criterion with which to evaluate them. Intuitive knowledge requires testing by means of other criteria of truth in order to confirm its accuracy.\[12\]

2.4.11 Majority rule

Majority rule is a statistical method of accepting assertions and proposals. In democratic systems, majority rule is used to determine group decisions, particularly those relating to personal morality and social behavior. Some systems divided into several oppositional factions may depend on mere plurality. While majority rule may make for a good democratic system, it is a poor determinant of truth, subject to the criticisms of the broad version of consensus gentium.\[6\]

2.4.12 Naïve Realism

Naïve Realism posits that only that which is directly observable by the human senses is true. First-hand observation determines the truth or falsity of a given statement. Naïve Realism is an insufficient criterion of truth. A host of natural phenomena are demonstrably true, but not observable by the unaided sense. For example, Naïve Realism would deny the existence of sounds beyond the range of human hearing and the existence of x-rays. Similarly, there are a number of sense experiments which show a disconnect between the perceived sensation and the reality of its cause.\[13\]

2.4.13 Pragmatic

See also: Pragmatic theory of truth
See also: Scientific method

If an idea works then it must be true, to the Pragmatist. The consequences of applying a concept reveal its truth value upon examination of the results. The full meaning of an idea is self-apparent in its application. For example, the therapeutic value and effect of penicillin in relation to infections is proven in its administration. Although Pragmatism is considered a valuable criterion, it must be used with caution and reservation, due to its potential for false positives. For example, a doctor may prescribe a patient medication for an illness, but it could later turn out that a placebo is equally effective. Thus, untrue concepts could appear to be working contrary to the purpose of the pragmatic test. However, it has validity as a test, particularly in the form William Ernest Hocking called
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"Negative Pragmatism". In essence, it states that ideas that do not work cannot possibly be true, though ideas which do work may or may not be true.[14]

2.4.14 Revelation

The principal distinction between intuition and revelation is that revelation has an assumed source: God (or another higher power). Revelation may be defined as truth emanating from God. Many religions fundamentally rely on revelation as a test of truth. This criterion is subject to the same criticisms as intuition. It may be a valid reference of truth for an individual, but it is inadequate for providing a coherent proof of the knowledge to others.[15]

2.4.15 Time

Time is a criterion commonly appealed to in debate, often referred to as "the test of time". This criterion posits that over time erroneous beliefs and logical errors will be revealed, while if the belief is true, the mere passage of time cannot adversely affect its validity. Time is an inadequate test for truth, since it is subject to similar flaws as custom and tradition (which are simply specific variations of the time factor). Many demonstrably false beliefs have endured for centuries and even millennia (e.g. vitalism). It is commonly rejected as a valid criterion. For example, most people will not convert to another faith simply because the other religion is centuries (or even millennia) older than their current beliefs.[16]

2.4.16 Tradition

Tradition, closely related to custom, is the standard stating that which is held for generations is true. Those accepting tradition argue that ideas gaining the loyalty multiple generations possesses a measure of credibility. Tradition possesses many of the same failings as custom. It is possible for falsehoods to be passed down from generation to generation, since tradition generally emphasizes repetition over critical evaluation.[9]

2.4.17 See also

- Conceptual framework
- List of cognitive biases
- Contextualism
- Fallibilism
- Anekantavada
- Exclusive disjunction
- Degrees of truth
- False dilemma
- Fuzzy logic
- Logical equality
- Logical value
- Multi-valued logic
- Propositional logic
- Relativism
- Principle of Bivalence

2.4.18 Footnotes


2.5 Theaetetus

The Theaetetus (/θiːəˈtɛtəs/; Greek: Θεαίτητος) is one of Plato's dialogues concerning the nature of knowledge, written circa 369 BC.

In this dialogue, Socrates and Theaetetus discuss three definitions of knowledge: knowledge as nothing but perception, knowledge as true judgment, and, finally, knowledge as a true judgment with an account. Each of these definitions is shown to be unsatisfactory.
Socrates declares Theaetetus will have benefited from discovering what he does not know, and that he may be better able to approach the topic in the future. The conversation ends with Socrates’ announcement that he has to go to court to face a criminal indictment.

### 2.5.1 The framing of the dialogue

The dialogue is framed by a brief scene in which Euclides tells his friend Terpsion that he has a written record of a dialogue between Socrates and Theaetetus, which occurred when Theaetetus was quite a young man. This dialogue is then read aloud to the two men by a slave boy in the employ of Euclides.

### 2.5.2 Midwife to knowledge

Socrates asks Theodorus if he knows of any geometry students who show particular promise. Theodorus assures him that he does, but that he does not want to over-praise the boy, lest anyone suspect he is in love with him. He says that the boy, Theaetetus, is a young Socrates looking alike, rather homely, with a snub-nose and protruding eyes. The two older men spot Theaetetus rubbing himself down with oil, and Theodorus reviews the facts about him, that he is intelligent, virile, and an orphan whose inheritance has been squandered by trustees.

Socrates tells Theaetetus that he cannot make out what knowledge is, and is looking for a simple formula for it. Theaetetus says he really has no idea how to answer the question, and Socrates tells him that he is there to help. Socrates says he has modelled his career after his midwife mother. She delivered babies and for his part, Socrates can tell when a young man is in the throes of trying to give birth to a thought. Socrates considers his philosophical work as midwifery (Maieutics). This method, later also called Socratic method, consists in eliciting knowledge by a series of questions and answers.

### 2.5.3 Philosophical labor

Socrates thinks that the idea that knowledge is perception must be identical in meaning, if not in actual words, to Protagoras’ famous maxim “Man is the measure of all things.” Socrates wrestles to confute the two ideas, and stir in for good measure a claim about Homer being the captain of a team of Heraclitan flux theorists. Socrates dictates a complete textbook of logical fallacies to the bewildered Theaetetus. When Socrates tells the child that he (Socrates) will later be smaller without losing an inch because Theaetetus will have grown relative to him, the child complains of dizziness (155c). In an often quoted line, Socrates says with delight that “wonder (thaumazein) belongs to the philosopher”. He admonishes the boy to be patient and bear with his questions, so that his hidden beliefs may be yanked out into the bright light of day.

### 2.5.4 Examining the offspring

When Socrates sums up what they have agreed on so far, it becomes problematic that knowledge is sense perception, for Socrates raises the question that “When the same wind blows, one of us feels cold and the other not?” As a result, he introduces the idea of Heraclitean flux to act as a defense to the wind objection. Heracliteanism shows that “Nothing is in itself just one thing...Everything is in a process of coming to be”. Thus as there is no fixed meaning in things, but they draw their meaning in a referential difference to other things, the wind objection can be incorporated into Theaetetus’s claim that “Knowledge is sense perception”. As a result, they can then continue their inquiry as to the truth of this claim. It is important to note that the Heraclitean doctrine of Flux is not the same as the Protagorean doctrine. The Protagorean is radical truth relativism whereas the Heraclitean is radical reality relativism. It serves as a supporting theory to the Protagorean interpretation of Theaetetus’s claim, in order that they might fully inquire as to the validity of this premise. Socrates admits that it is unfortunate that Protagoras is dead and cannot defend his idea against people such as himself. He says that the two of them are “trampling on his orphan” (164e) but the charge remains.

### 2.5.5 Abusing the “orphan” of Protagoras

Since Protagoras is dead, Socrates puts himself in the sophist’s shoes and tries to do him the favor of defending his idea (166a-168c). Socrates concedes that if Protagoras were still alive, he would have more to say in his own defense, and that they are now essentially mistreating “his orphan child.” Putting words in the dead sophist’s mouth, Socrates declares that Protagoras asserts with his maxim that all things are in motion and whatever seems to be the case, is the case for the perceiver, whether the individual or the state.

At the end of his speech, Socrates admits to Theodorus that Protagoras would have done a far better job of defending his own ideas. Theodorus tells Socrates that he must be kidding, that he has come to the task with boyish vigor. Theodorus does not claim to be a disciple of Protagoras, but states that he was a friend. Socrates invites Theodorus to put up a more vigorous defense of Protagoras, as he does not want it suggested that he has used the child’s timidity (of Theaetetus) to aid him in his argument against the doctrine of Protagoras (168d).

Socrates, not at all certain that he has not misrepresented Protagoras in making each man the measure of his own wisdom, presses Theodorus on the question of whether any follower of Protagoras (himself included) would contend that nobody thinks anyone else is wrong (170c). Theodorus proves to be helpless against Socrates’ arguments. He agrees that Protagoras concedes that those who disagree with him are correct (171a). In making Protagoras a complete epistemological relativist, where
every person’s individual perceptions are his reality and his truth, both Socrates and Theodorus paint Protagoras as maintaining an absurd position.

### 2.5.6 The absent-minded philosopher

Socrates then proceeds to explain why philosophers seem clumsy and stupid to the common lot of humanity. Socrates explains that philosophers are open to mockery because they are not concerned about what interests most people: they could not care less about the scandals in their neighbor’s house, the tracing of one’s ancestry to Heracles, and so on. In contrast, the philosopher is concerned with things that are, such as beauty and knowledge, which are “truly higher up”. It is here that Socrates draws the classic portrait of the absent-minded intellectual who cannot make his bed or cook a meal (175e). Socrates adds a big bifurcation to this speech, saying that there are only two kinds of lives to be lived: a divinely happy one, lived by righteous philosophers or a godless, miserable one, such as most people live (176-177). Socrates admits this was a digression that threatens to drown his original project, which was to define knowledge. Theodorus, the old geometer, tells Socrates that his truth, both Socrates and Theodorus paint Protagoras as maintaining an absurd position.

### 2.5.7 The men of flux

Socrates says that the men of flux, like Homer and Heracleitus, are really hard to talk to because you can’t pin them down. When you ask them a question, he says, they pluck from their quiver a little aphorism to let fly at you, and as you try to figure that one out, they wing another one at you. They leave nothing settled either in discourse, or in their own minds. Socrates adds that the opposite school of thought, that teaches of the “immovable whole” is just as hard to talk to (181a,b). Socrates says he met the father of the idea, Parmenides, when he was quite young, but does not want to get into another digression over it.

### 2.5.8 The mind as aviary

Perhaps the most delightful talk in the dialogue comes near the end, when Socrates compares the human mind to an aviary. Socrates draws the distinction between having and possessing; the former typically implies the latter, though on the other hand, one can possess something, such as a bird, without actually having it (with them at any moment)(199a). Socrates says that as a man goes hunting about in his mind for knowledge of something, he might grab hold of the wrong thing. He says that mistaking eleven for twelve is like going in for a pigeon and coming up with a dove (199b). Theaetetus joins in the game, and says that to complete the picture, you need to envision pieces of ignorance flying around in there with the birds. But if this is the case, how would you be able to distinguish between the birds representing real knowledge and the ones representing false ones? Are there other birds that represent this type of knowledge? Socrates comes to the conclusion that this is absurd and therefore he discards the aviary analogy.

### 2.5.9 Socrates and the Jury

After discarding the bird-cage analogy, Socrates and Theaetetus return to the definition of knowledge as ‘true judgement’ (200e). This, Theaetetus argues, is true because it is ‘free from mistakes’ (200e). However Socrates introduces an example of a jury in the law-courts, being persuaded of an opinion by a lawyer. This persuasion is not the same as knowing the truth, as all is produced is ‘conviction’ in judging whatever the lawyers want (201a). Although Theaetetus hopes it is possible the lawyer will be able to ‘persuade’ the jury of the truth (201b), Socrates is unsatisfied as if they are justly persuaded, they will have true knowledge. However, in Socrates’ belief, they cannot make a correct judgement as they would not have true knowledge (201c). With this conflict, Socrates decides that true judgement and knowledge must be different things.

### 2.5.10 Knowledge as judgment with an account

After distinguishing between knowledge and true judgement, Theaetetus recalls being told that true judgement ‘with an account (logos) equates to knowledge (201d). Things without an account are ‘unknowable’, while things with an account are ‘knowable’.

Socrates responds by telling of a dream, in which he overheard people talking of primary elements (201e). These primary elements can only be named, they cannot be thought of as existing or not - he gives examples of words like ‘itself, or that, each, alone or this’ (202a). While they can be added to other words, they by themselves are just a name. When these elements are added together, Socrates says that a ‘complex’ is formed (202b). The primary elements are ‘unaccountable and unknowable, but perceivable’ while the complexes are ‘knowable and expressible’ and so can be objects of ‘true judgement’ (202b). He concludes his dream by agreeing with Theaetetus that knowledge is ‘true judgement with an account’ (202c).

However, Socrates exposes some difficulties by examining letters. He takes the first two letters of his name, S and O to wonder if the syllable ‘So’ is knowable while the individual letters are not (203b-d). Theaetetus finds the idea strange, so Socrates deduces that in order to know the syllable, the letters must be known first (203e). Socrates proposes that the syllable can be a ‘single form’ produced from the letters. With this in mind, Socrates considers whether the ‘sum’ and the ‘whole’ are the same
CHAPTER 2. KNOWLEDGE

(204a). Theaetetus initially says they are not, but changes his mind in confusion when Socrates leads him through maths and the different ways of expressing the number six (204c-205b). After agreeing this, Socrates returns to the subject of syllables and letters to conclude from Theaetetus’ answers that syllables are different from letters and cannot contain letters (205b). Theaetetus admits this idea is ridiculous (205c). Socrates returns to talking about elements and complexes to propose that they are in the same class, as they have ‘no parts and [are] a single form’ (205d).

Socrates sums up this reversal by remarking that if anyone tries to tell them the complex is knowable and expressable while the element is the opposite, ‘we had better not listen to him’ (205e). He cites the example of a musician distinguishing individual notes (conceded to be elements of music) to propose that elements are ‘much more clearly known’ (206b).

Socrates proposes an account to be ‘making one’s thought apparent vocally by means of words and verbal expressions’ (206d). However, he wonders if that is so, everyone will be able to make judgement ‘with an account’ as they can all (except for the deaf and dumb) vocalize and express opinions on matters (206e). Socrates examines it further by suggesting that a man who can vocalize his judgement must be able to make reference to the primary elements of the subject (207a). Giving an example of defining a wagon by its individual parts (207a), agreement is reached that an account is ‘going through a thing element by element’ (207d). Socrates questions Theaetetus by drawing on his learning of how to write, and the idea that if you misplace individual elements (letters) of a name, that does not mean you have knowledge of it (208a). This finishes Socrates’ second definition of an account as ‘the way to the whole through the elements’ (208c). The third definition Socrates offers is ‘being able to tell some mark by which the object you are asked about differs from all other things’ (208c). Giving the example that the Sun is distinct for its brightness. However, this definition of an account fails as by getting to know the differentness of an object, you have to acquire knowledge about it. Thus the answer to the initial question ‘What is knowledge’ would be heavily circuitous - correct judgement accompanied by ‘knowledge’ of the differentness, which Socrates admits is ‘silly’ (210a).

2.5.12 Significant references in the dialogue

In this dialogue, Socrates refers to Epicharmus of Kos as “the prince of Comedy” and Homer as “the prince of Tragedy”, and both as “great masters of either kind of poetry”.[note 1] This is significant because it is one of the very few extant references in greater antiquity (Fourth century BC) to Epicharmus and his work. Another reference is in Plato’s Gorgias dialogue.

2.5.13 Notes

[1] “Summon the great masters of either kind of poetry—Epicharmus, the prince of Comedy, and Homer of Tragedy”, Theaetetus, by Plato, section §152e[1] (translation by Benjamin Jowett[2]). There is some variability in translation of the passage. Words like “king”, “chief”, “leader”, “master” are used in the place of “prince” in different translations. The basic Greek word in Plato is ἄκροι akroi from ἄκρος akros meaning topmost or high up. In this context it means “of a degree highest of its kind” or “consummate” (cf. Liddell & Scott, A Greek–English Lexicon).[3]

2.5.14 References

[2] Theaetetus, by Plato, section §152e, translation by Benjamin Jowett

2.5.15 Selected secondary literature

• Chappell, Timothy, “Reading Plato’s Theaetetus”, Hackett, 2004.

2.5.11 Conclusion

Socrates concludes the dialogue by announcing that all the two have produced is mere “wind-eggs” and that he must be getting on now to the courthouse to face his trial being brought against him by Meletus.
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2.5.16 External links

- Works related to *Theaetetus* at Wikisource
- The full text is available from Project Gutenberg or the Perseus Project in both Greek and English.
- Plato’s *Theaetetus* translated by Benjamin Jowett (Internet Archive, 1892, text page 193)
- Audiobook version of Plato’s *Theaetetus* translated by Benjamin Jowett (Internet Archive, LibriVox, 1892 translation)
- Plato on Knowledge in the *Theaetetus* entry by Timothy Chappell in the Stanford Encyclopedia of Philosophy
- Plato’s *Theaetetus* entry by Zina Giannopoulou in the Internet Encyclopedia of Philosophy
- Cornford, F. M., “Plato’s Theory of Knowledge” at googlebooks
- A Discussion of Theaetetus’ Contributions to Euclid’s Elements

2.6 Gettier problem

The Gettier problem is a philosophical question about whether a piece of information that happens to be true but that someone believes for invalid reasons, such as a faulty premise, counts as knowledge. It is named after American philosopher Edmund Gettier, who wrote about the problem in a three-page paper published in 1963, called “Is Justified True Belief Knowledge?” The paper refers to the concept of knowledge as justified true belief (JTB), credited to Plato, though Plato argued against this very account of knowledge in the *Theaetetus* (210a). In the paper, Gettier proposed two scenarios where the three criteria (justification, truth, and belief) seemed to be met, but where the majority of readers would not have felt that the result was knowledge due to the element of luck involved.

The term is sometimes used to cover any one of a category of thought experiments in contemporary epistemology that seem to repudiate a definition of knowledge as justified true belief.

The responses to Gettier’s paper have been numerous. While some rejected Gettier’s examples, many sought to adjust the JTB account of knowledge to lessen the impact of both Gettier’s own problems and other problems (collectively titled “Gettier problems”) created in their mould. Since 1963, experiments have also been conducted to determine whether the instinctive reactions of those presented with a Gettier problem are uniform or display language or genetic biases.

2.6.1 History

The question of what the conditions are that must be met for something to really qualify as “knowledge” is as old as philosophy itself, and is a constant theme of Plato’s dialogues, notably *Meno* (97a–98b). The more specific problem Gettier raises was also raised by Bertrand Russell in *Human knowledge: Its scope and limits*. In Russell’s stopped clock case, as modified by Israel Scheffler, Alice sees a clock that reads two o’clock. She believes it’s two o’clock, and that is true. However, unknown to Alice, the clock she’s looking at stopped twelve hours ago. So, she has an accidentally true, justified belief. Russell provides an answer of his own to the problem. Edmund Gettier’s formulation of the problem was important as it coincided with the rise of the sort of philosophical naturalism promoted by W.V.O. Quine and others, and was used as a justification for a shift towards externalist theories of justification. John L. Pollock and Joseph Cruz have stated that the Gettier problem has “fundamentally altered the character of contemporary epistemology” and has become “a central problem of epistemology since it poses a clear barrier to analyzing knowledge.”

According to the inherited lore of the epistemological tribe, the JTB [justified true belief] account enjoyed the status of epistemological orthodoxy until 1963, when it was shattered by Edmund Gettier... Of course there is an interesting historical irony here: it isn’t easy to find many really explicit statements of a JTB analysis of knowledge prior to Gettier. It is almost as if a distinguished critic created a tradition in the very act of destroying it.

Despite this, Plantinga does accept that some philosophers before Gettier have advanced a justified true belief account of knowledge, specifically C.I. Lewis and A.J. Ayer.

2.6.2 Knowledge as justified true belief

The JTB account of knowledge is the claim that knowledge can be conceptually analyzed as justified true belief — which is to say that the meaning of sentences such as “Smith knows that it rained today” can be given with the following set of necessary and sufficient conditions:

A subject S knows that a proposition P is true if and only if:

1. P is true, and
2. S believes that P is true, and
3. S is justified in believing that P is true
2.6.3 Gettier’s counterexamples

Gettier’s paper used counterexamples (see also Thought Experiment) to argue that there are cases of beliefs that are both true and justified—therefore satisfying all three conditions for knowledge on the JTB account—but that do not appear to be genuine cases of knowledge. Gettier, therefore, argued that his counterexamples show that the JTB account of knowledge is false—and thus, that a different conceptual analysis is needed to correctly track what we mean by “knowledge”.

Gettier’s case is based on two counterexamples to the JTB analysis. Both of them rely on the established claim (under JTB) that justification is preserved by entailment, and the further claim that such applies significantly, or can be applied there coherently to the “stipulation” attributed to Smith’s putative “belief” in the case of this particular counter-example: that is, that if Smith is justified in believing P, and Smith realizes that the truth of P entails the truth of Q, then Smith would also be justified in believing Q. Gettier calls these counterexamples “Case I” and “Case II”:

Case I

Suppose that Smith and Jones have applied for a certain job. And suppose that Smith has strong evidence for the following conjunctive proposition: (d) Jones is the man who will get the job, and Jones has ten coins in his pocket.

Smith’s evidence for (d) might be that the president of the company assured him that Jones would in the end be selected, and that he, Smith, had counted the coins in Jones’s pocket ten minutes ago. Proposition (d) entails: (e) The man who will get the job has ten coins in his pocket.

Let us suppose that Smith sees the entailment from (d) to (e), and accepts (e) on the grounds of (d), for which he has strong evidence. In this case, Smith is clearly justified in believing that (e) is true.

But imagine, further, that unknown to Smith, he himself, not Jones, will get the job. And, also, unknown to Smith, he himself has ten coins in his pocket. Proposition (e) is then true, though proposition (d), from which Smith inferred (e), is false. In our example, then, all of the following are true: (i) (e) is true, (ii) Smith believes that (e) is true, and (iii) Smith is justified in believing that (e) is true. But it is equally clear that Smith does not know that (e) is true; for (e) is true in virtue of the number of coins in Smith’s pocket, while Smith does not know how many coins are in Smith’s pocket, and bases his belief in (e) on a count of the coins in Jones’s pocket, whom he falsely believes to be the man who will get the job.

Case II

Smith, it is claimed by the hidden interlocutor, has a justified belief that “Jones owns a Ford”. Smith therefore (justifiably) concludes (by the rule of disjunction introduction) that “Jones owns a Ford, or Brown is in Barcelona”, even though Smith has no knowledge whatsoever about the location of Brown.

In fact, Jones does not own a Ford, but by sheer coincidence, Brown really is in Barcelona. Again, Smith had a belief that was true and justified, but not knowledge.

2.6.4 False premises

In both of Gettier’s actual examples, (see also counterfactual conditional), the justified true belief came about, if Smith’s purported claims are disputable, as the result of entailment (but see also material conditional) from justified false beliefs that “Jones will get the job” (in case I), and that “Jones owns a Ford” (in case II). This led some early responses to Gettier to conclude that the definition of knowledge could be easily adjusted, so that knowledge was justified true belief that does not depend on false premises.

2.6.5 More general Gettier-style problems

In an 1966 scenario known as ‘The sheep in the field’ Roderick Chisholm asks us to imagine that someone is standing outside a field looking at something that looks like a sheep (although in fact it is a dog disguised as a sheep). They believe there is a sheep in the field, and in fact they are right because there is a sheep behind the hill in the middle of the field. Hence, they have a justified true belief that there is a sheep in the field. But is that belief knowledge? A similar problem which seeks to be more plausible called the ‘Cow in the Field’ appears in Martin Cohen’s book 101 Philosophy Problems, where it is supposed that a Farmer checking up on his favourite cow confuses a piece of black and white paper caught up in a distant bush for his cow. However, since the animal actually is in the field, but hidden in a hollow, again, the Farmer has a justified, true belief which seems nonetheless not to qualify as ‘knowledge’. Another scenario by Brian Skyrms is ‘The Pyromaniac’, in which a struck match lights not for the reasons the pyromaniac imagines but because of some unknown ‘Q radiation’. A different perspective on the issue is given by Alvin Goldman
in the 'fake barns' scenario (crediting Carl Ginet with the example). In this one, a man is driving in the countryside, and sees what looks exactly like a barn. Accordingly, he thinks that he is seeing a barn. In fact, that is what he is doing. But what he does not know is that the neighborhood generally consists of many fake barns — barn facades designed to look exactly like real barns when viewed from the road, as in the case of a visit in the countryside by Catherine II of Russia, just to please her. Since if he had been looking at one of them, he would have been unable to tell the difference, his 'knowledge' that he was looking at a barn would seem to be poorly founded.

The 'no false premises' (or 'no false lemmas') solution which was proposed early in the discussion proved to be somewhat problematic, as more general Gettier-style problems were then constructed or contrived in which the justified true belief does not seem to be the result of a chain of reasoning from a justified false belief.

For example:

After arranging to meet with Mark for help with homework, Luke arrives at the appointed time and place. Walking into Mark’s office Luke clearly sees Mark at his desk; Luke immediately forms the belief ‘Mark is in the room. He can help me with my logic homework’. Luke is justified in his belief; he clearly sees Mark at his desk. In fact, it’s not Mark that Luke saw; it was a marvelous hologram, perfect in every respect, giving the appearance of Mark diligently grading papers at his desk. Nevertheless, Mark is in the room; he is crouched under his desk reading Frege. Luke’s belief that Mark is in the room is true (he is in the room, under his desk) and justified (Mark’s hologram is giving the appearance of Mark hard at work).

Again, it seems as though Luke does not ‘know’ that Mark is in the room, even though it is claimed he has a justified true belief that Mark is in the room, but it’s not nearly so clear that the perceptual belief that ‘Mark is in the room’ was inferred from any premises at all, let alone any false ones, nor led to significant conclusions on its own; Luke didn’t seem to be reasoning about anything; ‘Mark is in the room’ seems to have been part of what he seemed to see.

To save the ‘no false lemmas’ solution, one must logically say that Luke’s inference from sensory data does not count as a justified belief unless he consciously or unconsciously considers the possibilities of deception and self-deception. A justified version of Luke’s thought process, by that logic, might go like this:

1. That looks to me like Mark in the room.
2. No factor, right now, could deceive me on this point.
3. Therefore, I can safely ignore that possibility.
4. ‘Mark is in the room,’ (or, ‘I can safely treat that as Mark.’)

And the second line counts as a false premise. But by the previous argument, this suggests we have fewer justified beliefs than we think we do.

In another example, Matthew drives through an area that appears to have many barns. In fact it contains a great many realistic barn facades, perhaps made to help shoot a Hollywood movie ‘on location’. When Matthew looks at the one real barn along his route, he forms the allegedly justified true belief, ‘There’s a barn over there.’ But if he follows the strong requirement for justified belief, then his thought process will follow the previous mentioned steps exactly. A similar process appears in Robert A. Heinlein’s Stranger in a Strange Land as an example of Fair Witness behavior.

2.6.6 Other responses to Gettier

The Gettier problem is posed in terms of a problem in first-order logic, but the introduction into the discussion by Gettier of terms such as belief and knows moves the discussion into the field of epistemology. Here, the sound (true) arguments ascribed to Smith, then need also to be valid (believed) and convincing (justified) if they are to issue in real-world discussion about justified true belief. Gettier’s problem has attracted a range of responses. The different directions that these responses have taken are constrained by the structure of Gettier’s argument: if knowledge is solely justified true belief, then there cannot be any cases of justified true belief that are not also cases of knowledge; but Gettier claims that his counterexamples are cases of justified true belief without being cases of knowledge. Therefore, in this account, one is to either accept Gettier’s conclusion — and elucidate a new conceptual analysis for knowledge — or else deny one of Gettier’s two claims about his counterexamples (that is, either deny that Gettier cases are justified true beliefs, or else accept that Gettier cases are knowledge after all).

One response, therefore, is that in none of the above cases was the belief justified: it is impossible to justify anything which is not true. Under this interpretation the JTB definition of knowledge survives. The problem is now not to define knowledge but to define justification.

However, most contemporary epistemologists accept Gettier’s conclusion. Their responses to the Gettier problem, therefore, consist of trying to find alternative analyses of knowledge. They have struggled to discover and agree upon as a beginning any single notion of truth, or belief, or justifying which is wholly and obviously accepted. Truth, belief, and justifying have not yet been satisfactorily defined, so that JTB (justified true belief) may be defined satisfactorily is still problematical, on account or otherwise of Gettier’s examples. Gettier,
many years a professor at University of Massachusetts Amherst later also was interested in the epistemic logic of Hintikka, a Finnish philosopher at Boston University, who published Knowledge and Belief in 1962.

**Fourth condition (JTB+G) approaches**

The most common direction for this sort of response to take is what might be called a “JTB+G” analysis: that is, an analysis based on finding some fourth condition—a “no-Gettier-problem” condition—which, when added to the conditions of justification, truth, and belief, will yield a set of necessary and jointly sufficient conditions.

**Goldman’s causal theory** One such response is that of Alvin Goldman (1967), who suggested the addition of a causal condition: a subject’s belief is justified, for Goldman, only if the truth of a belief has caused the subject to have that belief (in the appropriate way); and for a justified true belief to count as knowledge, the subject must also be able to “correctly reconstruct” (mentally) that causal chain. Goldman’s analysis would rule out Gettier cases in that Smith’s beliefs are not caused by the truths of those beliefs; it is merely accidental that Smith’s beliefs in the Gettier cases happen to be true, or that the prediction made by Smith: “Jones will get the job” was true.

**Pragmatism** Pragmatism was developed as a philosophical doctrine by C.S. Peirce and William James (1842–1910). In Peirce’s view, truth is nominally defined as a sign’s correspondence to its object, and pragmatically defined as the ideal final opinion to which sufficient investigation would lead sooner or later. James’ epistemological model of truth was that which works in the way of belief, and a belief was true if in the long run it worked for all of us, and guided us expeditiously through our semihospitable world. Peirce argued that metaphysics could be cleaned up by a pragmatic approach.

Consider what effects that might conceivably have practical bearings you conceive the objects of your conception to have. Then, your conception of those effects is the whole of your conception of the object.\[^8\]

From a pragmatic viewpoint of the kind often ascribed to James, defining on a particular occasion whether a particular belief can rightly be said to be both true and justified is seen as no more than an exercise in pedantry, but being able to discern whether a belief led to fruitful outcomes is a fruitful enterprise. Peirce emphasized fallibilism, considered the assertion of absolute certainty a barrier to inquiry,\[^9\] and in 1901 defined truth as follows: “Truth is that concordance of an abstract statement with the ideal limit towards which endless investigation would tend to bring scientific belief, which concordance the abstract statement may possess by virtue of the confession of its inaccuracy and one-sidedness, and this confession is an essential ingredient of truth.”\[^10\] In other words, any unqualified assertion is likely to be at least a little wrong or, if right, still right for not entirely the right reasons. Therefore one is more veracious by being Socratic, including a recognition of one’s own ignorance and knowing one may be proved wrong. This is the case, even though in practical matters one sometimes must act, if one is to act at all, with decision and complete confidence.\[^11\]

**Lehrer-Paxson’s defeasibility condition** Keith Lehrer and Thomas Paxson (1969) proposed another response, by adding a defeasibility condition to the JTB analysis. On their account, knowledge is undefeated justified true belief — which is to say that a justified true belief counts as knowledge if and only if it is also the case that there is no further truth that, had the subject known it, would have defeated her present justification for the belief. (Thus, for example, Smith’s justification for believing that the person who will get the job has ten coins in his pocket is his justified belief that Jones will get the job, combined with his justified belief that Jones has ten coins in his pocket. But if Smith had known the truth that Jones will not get the job, that would have defeated the justification for his belief.) However, many critics (such as Marshall Swain [1974]) have argued that the notion of a defeater fact cannot be made precise enough to rule out the Gettier cases without also ruling out a priori cases of knowledge.

The difficulties involved in producing a viable fourth condition have led to claims that attempting to repair the JTB account is a deficient strategy. For example, one might argue that what the Gettier problem shows is not the need for a fourth independent condition in addition to the original three, but rather that the attempt to build up an account of knowing by conjoining a set of independent conditions was misguided from the outset. Those
who have adopted this approach generally argue that epistemological terms like justification, evidence, certainty, etc. should be analyzed in terms of a primitive notion of knowledge, rather than vice versa. Knowledge is understood as *factive*, that is, as embodying a sort of epistemological “tie” between a truth and a belief. The JTB account is then criticized for trying to get and encapsulate the factivity of knowledge “on the cheap,” as it were, or via a circular argument, by replacing an irreducible notion of factivity with the conjunction of some of the properties that accompany it (in particular, truth and justification). Of course, the introduction of irreducible primitives into a philosophical theory is always problematical (some would say a sign of desperation), and such anti-reductionist accounts are unlikely to please those who have other reasons to hold fast to the method behind JTB+G accounts.

Fred Dretske’s conclusive reasons and Robert Nozick’s truth-tracking

Fred Dretske (1971) developed an account of knowledge which he called “conclusive reasons”, revived by Robert Nozick as what he called the subjunctive or truth-tracking account (1981). Nozick’s formulation posits that proposition P is an instance of knowledge when:

1. p is true
2. S believes that p
3. if p were true, S would believe that p
4. if p weren’t true, S wouldn’t believe that p

Nozick’s definition is intended to preserve Goldman’s intuition that Gettier cases should be ruled out by disacknowledging “accidentally” true justified beliefs, but without risking the potentially onerous consequences of building a causal requirement into the analysis. This tactic though, invites the riposte that Nozick’s account merely hides the problem and does not solve it, for it leaves open the question of why Smith would not have had his belief if it had been false. The most promising answer seems to be that it is because Smith’s belief was *caused* by the truth of what he believes; but that puts us back in the causalist camp.

Criticisms and counter examples (notably the *Grandma* case) prompted a revision, which resulted in the alteration of (3) and (4) to limit themselves to the same method (i.e. vision):

1. p is true
2. S believes that p
3. if p were true, S (using M) would believe that p
4. if p weren’t true, S (using method M) wouldn’t believe that p

Saul Kripke has pointed out that this view remains problematic and uses a counterexample called the *Fake Barn Country example*, which describes a certain locality containing a number of fake barns or facades of barns. In the midst of these fake barns is one real barn, which is painted red. There is one more piece of crucial information for this example: the fake barns cannot be painted red. Jones is driving along the highway, looks up and happens to see the real barn, and so forms the belief

- I see a barn

Though Jones has gotten lucky, he could have just as easily been deceived and not have known it. Therefore it doesn’t fulfill premise 4, for if Jones saw a fake barn he wouldn’t have any idea it was a fake barn. So this is not knowledge.

An alternate example is if Jones looks up and forms the belief

- I see a red barn.

According to Nozick’s view this fulfills all four premises. Therefore this is knowledge, since Jones couldn’t have been wrong, since the fake barns cannot be painted red. This is a troubling account however, since it seems the first statement *I see a barn* can be inferred from *I see a red barn*; however by Nozick’s view the first belief is not knowledge and the second is knowledge.

Richard Kirkham’s skepticism

Richard Kirkham has proposed that it is best to start with a definition of knowledge so strong that giving a counterexample to it is logically impossible. Whether it can be weakened without becoming subject to a counterexample should then be checked. He concludes that there will always be a counterexample to any definition of knowledge in which the believer’s evidence does not logically necessitate the belief. Since in most cases the believer’s evidence does not necessitate a belief, Kirkham embraces skepticism about knowledge. He notes that a belief can still be rational even if it is not an item of knowledge. (see also: fallibilism)

Attempts to dissolve the problem

One might respond to Gettier by finding a way to avoid his conclusion(s) in the first place. However, it can hardly be argued that knowledge is justified true belief if there are cases that are justified true belief without being knowledge; thus, those who want to avoid Gettier’s conclusions have to find some way to defuse Gettier’s counterexamples. In order to do so, within the parameters of the particular counter-example or exemplar, they must then either accept that
1. Gettier’s cases are not really cases of justified true belief, or
2. Gettier’s cases really are cases of knowledge after all,

or, demonstrate a case in which it is possible to circumvent surrender to the exemplar by eliminating any necessity for it to be considered that JTB apply in just those areas that Gettier has rendered obscure, without thereby lessening the force of JTB to apply in those cases where it actually is crucial. Then, though Gettier’s cases stipulate that Smith has a certain belief and that his belief is true, it seems that in order to propose (1), one must argue that Gettier, (or, that is, the writer responsible for the particular form of words on this present occasion known as case (1), and who makes assertion’s about Smith’s “putative” beliefs), goes wrong because he has the wrong notion of justification. Such an argument often depends on an externalist account on which “justification” is understood in such a way that whether or not a belief is “justified” depends not just on the internal state of the believer, but also on how that internal state is related to the outside world. Externalist accounts typically are constructed such that Smith’s putative beliefs in Case I and Case II are not really justified (even though it seems to Smith that they are), because his beliefs are not lined up with the world in the right way, or that it is possible to show that it is invalid to assert that “Smith” has any significant “particular” belief at all, in terms of JTB or otherwise. Such accounts, of course, face the same burden as causalist responses to Gettier: they have to explain what sort of relationship between the world and the believer counts as a justificatory relationship.

Those who accept (2) are by far in the minority in analytic philosophy; generally those who are willing to accept it are those who have independent reasons to say that more things count as knowledge than the intuitions that led to the JTB account would acknowledge. Chief among these are epistemic minimalists such as Crispin Sartwell, who hold that all true belief, including both Gettier’s cases and lucky guesses, counts as knowledge.

In 2007, Łukasz Lozanski published The Gettier Problem No Longer a Problem in issue 63 of Philosophy Now, which argues that Gettier’s claims were unjustified.

### Experimental research

**Cross-cultural studies** Some recent work in the field of experimental philosophy has suggested that traditional intuitions about Gettier cases may actually vary cross-culturally. Jonathan Weinberg, Shaun Nichols and Stephen Stich conducted cross-cultural empirical studies in which participants were given examples of Gettier cases like the following:

Bob has a friend, Jill, who has driven a Buick for many years. Bob therefore thinks that Jill drives an American car. He is not aware, however, that her Buick has recently been stolen, and he is also not aware that Jill has replaced it with a Pontiac, which is a different kind of American car.

Participants were then asked:

**Does Bob really know that Jill drives an American car, or does he only believe it?**

While Western participants’ responses were exactly what would have been expected by reading the philosophical literature, (Bob only believes that Jill drives an American car), the majority of East Asian participants actually reported the opposite (Bob truly knows that Jill drives an American car). A subsequent study was conducted with participants from the Indian subcontinent, and even more strongly divergent intuitions about Gettier cases were found.[12] There are many possible explanations for these findings and they may originate in translation ambiguities over the words “justified”, “true”, “belief” and “knowledge” and possibly depend on the mother-tongue make-up of the survey respondents.

However, subsequent studies were unable to replicate these results for other Gettier cases.[13] One possible explanation of this fact is that East Asian subjects were less familiar with American car models than their Western counterparts.

### 2.6.7 Notes

2.7. RELIABILISM

Reliabilism, a category of theories in the philosophical discipline of epistemology, has been advanced as a theory of knowledge, both of justification and of knowledge. Process reliabilism has been used as an argument against philosophical skepticism, such as the brain in a vat thought experiment. Process reliabilism is a form of epistemic externalism. A broadly reliabilist theory of knowledge is roughly as follows:

One knows that \( p \) (\( p \) stands for any proposition—e.g., that the sky is blue) if and only if \( p \) is true, one believes that \( p \) is true, and one has arrived at the belief that \( p \) through some reliable process.

A broadly reliabilist theory of justified belief can be stated as follows:

One has a justified belief that \( p \) if, and only if, the belief is the result of a reliable process.

Moreover, a similar account can be given (and an elaborate version of this has been given by Alvin Plantinga) for such notions as 'warranted belief' or 'epistemically rational belief'.

Leading proponents of reliabilist theories of knowledge and justification have included Alvin Goldman, Marshall Swain, Kent Bach and more recently, Alvin Plantinga.

Goldman’s article “A Causal Theory of Knowing” (Journal of Philosophy, v. 64 (1967), pp. 357–372. also a broadly reliabilist theory of knowledge can be stated as follows:

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Leading proponents of reliabilist theories of knowledge and justification have included Alvin Goldman, Marshall Swain, Kent Bach and more recently, Alvin Plantinga.

Goldman’s article “A Causal Theory of Knowing” (Journal of Philosophy, v. 64 (1967), pp. 357–372) is generally credited as being the first full treatment of the theory, though D. M. Armstrong is also regarded as an important

2.6.9 External links

- Text of the article
- Gettier problem at PhilPapers
- The Analysis of Knowledge entry in the Stanford Encyclopedia of Philosophy
- Gettier problem at the Indiana Philosophy Ontology Project
- Gettier problem entry in the Internet Encyclopedia of Philosophy
- Safety Condition for Knowledge entry in the Internet Encyclopedia of Philosophy

2.6.8 References

One classical or traditional analysis of ‘knowledge’ is justified true belief. In order to have a valid claim of knowledge for any proposition, one must be justified in believing “p” and “p” must be true. Since Gettier\(^2\) proposed his counterexamples the traditional analysis has included the further claim that knowledge must be more than justified true belief. Reliabilist theories of knowledge are sometimes presented as an alternative to that theory; rather than justification, all that is required is that the belief be the product of a reliable process. But reliabilism need not be regarded as an alternative, but instead as a further explication of the traditional analysis. On this view, those who offer reliabilist theories of justification further analyze the ‘justification’ part of the traditional analysis of ‘knowledge’ in terms of reliable processes. Not all reliabilists agree with such accounts of justification, but some do.

2.7.1 Objections

Some find reliabilism of justification objectionable because it entails externalism, which is the view that one can have knowledge, or have a justified belief, despite not knowing (having “access” to) the evidence, or other circumstances, that make the belief justified. Most reliabilists maintain that a belief can be justified, or can constitute knowledge, even if the believer does not know about or understand the process that makes the belief reliable. In defending this view, reliabilists (and externalists generally) are apt to point to examples from simple acts of perception: if one sees a bird in the tree outside one’s window and thereby gains the belief that there is a bird in that tree, one might not at all understand the cognitive processes that account for one’s successful act of perception; nevertheless, it is the fact that the processes worked reliably that accounts for why one’s belief is justified. In short, one finds one holds a belief about the bird, and that belief is justified if any is, but one is not acquainted at all with the processes that led to the belief that justified one’s having it. Of course, internalists do not let the debate rest there; see externalism (epistemology).

Another of the most common objections to reliabilism, made first to Goldman’s reliable process theory of knowledge and later to other reliabilist theories, is the so-called generality problem.\(^3\) For any given justified belief (or instance of knowledge), one can easily identify many different (concurrently operating) “processes” from which the belief results. My belief that there is a bird in the tree outside my window might be accorded a result of the process of forming beliefs on the basis of sense-perception, of visual sense-perception, of visual sense-perception through non-opaque surfaces in daylight, and so forth, down to a variety of different very specifically described processes. Some of these processes might be statistically reliable, while others might not. It would no doubt be better to say, in any case, that we are choosing not which process to say resulted in the belief, but instead how to describe the process, out of the many different levels of generality on which it can be accurately described.

An objection in a similar line was formulated by Stephen Stich in The Fragmentation of Reason. Reliabilism usually considers that for generating justified beliefs a process needs to be reliable in a set of relevant possible scenarios. However, according to Stich, these scenarios are chosen in a culturally biased manner. Stich does not defend any alternative theory of knowledge or justification, but instead argues that all accounts of normative epistemic terms are culturally biased and instead only a pragmatic account can be given.

Another objection to reliabilism is called the new evil demon problem.\(^4\) The evil demon problem originally motivated skepticism, but can be resorted to object to reliabilist accounts as follows: If our experiences are controlled by an evil demon, it may be the case that we believe ourselves to be doing things that we are not doing. However, these beliefs are clearly justified. Robert Brandom has called for a clarification of the role of belief in reliabilist theories. Brandom is concerned that unless the role of belief is stressed, reliabilism may attribute knowledge to things that would otherwise be considered incapable of possessing it. Brandom gives the example of a parrot that has been trained to consistently respond to red visual stimuli by saying ‘that’s red’. The proposition is true, the mechanism that produced it is reliable, but Brandom is reluctant to say that the parrot knows it is seeing red because he thinks it cannot believe that it is. For Brandom, beliefs pertain to concepts: without the latter there can be no former. Concepts are products of the ‘game of giving and asking for reasons’. Hence, only those entities capable of reasoning, through language in a social context, can for Brandom believe and thus have knowledge. Brandom may be regarded as hybridising externalism and internalism, allowing knowledge to be accounted for by reliable external process so long as a knower possess some internal understanding of why the belief is reliable.

2.7.2 References

[1] Responding to Skepticism
2.8. INTERNALISM AND EXTERNALISM

2.8.1 Moral philosophy

Motivation

In contemporary moral philosophy, motivational internalism (or moral internalism) is the view that moral convictions (which are not necessarily beliefs, e.g. feelings of moral approval or disapproval) are intrinsically motivating. That is, the motivational internalist believes that there is an internal, necessary connection between one’s conviction that X ought to be done and one’s motivation to do X. Conversely, the motivational externalist (or moral externalist) claims that there is no necessary internal connection between moral convictions and moral motives.\(^1\) That is, there is no necessary connection between the conviction that X is wrong and the motivational drive not to do X. (The use of these terms has roots in W.D. Falk’s (1947) paper “Ought” and Motivation\(^2\)).

These views in moral psychology have various implications. In particular, if motivational internalism is true, then an amoralist is unintelligible (and metaphysically impossible). An amoralist is not simply someone who is immoral, rather it is someone who knows what the moral things to do are, yet is not motivated to do them. Such an agent is unintelligible to the motivational internalist, because moral judgments about the right thing to do have built into them corresponding motivations to do those things that are judged by the agent to be the moral things to do. On the other hand, an amoralist is entirely intelligible to the motivational externalist, because the motivational externalist thinks that moral judgments about the right thing to do not necessitate some motivation to do those things that are judged to be the right thing to do; rather, an independent desire—such as the desire to do the right thing—is required (Brink, 2003\(^3\)),(Rosati, 2006\(^4\)).

Reasons

There is also a distinction in ethics and action theory, largely made popular by Bernard Williams (1979, reprinted in 1981),\(^1\) concerning internal and external reasons for action. An internal reason is, roughly, something that one has in light of one’s own “subjective motivational set”---one’s own commitments, desires (or wants), goals, etc. On the other hand, an external reason is something that one has independent of one’s subjective motivational set. For example, suppose that Sally is going to drink a glass of poison, because she wants to commit suicide and believes that she can do so by drinking the poison. Sally has an internal reason to drink the poison, because she wants to commit suicide. However, one might say that she has an external reason not to drink the poison because, even though she wants to die, one ought not kill oneself no matter what—regardless of whether one wants to die.

Some philosophers embrace the existence of both kinds of reason, while others deny the existence of one or the other. For example, Bernard Williams (1981\(^1\)) argues that there are really only internal reasons for action. Such a view is called internalism about reasons (or reasons internalism). Externalism about reasons (or reasons externalism) is the denial of reasons internalism.\(^5\) It is the view that there are external reasons for action; that is, there are reasons for action that one can have even if the action is not part of one’s subjective motivational set.

Consider the following situation. Suppose that it’s against the moral law to steal from the poor, and Sasha knows this. However, Sasha doesn’t desire to follow the moral law, and there is currently a poor person next to him. Is it intelligible to say that Sasha has a reason to follow the moral law right now (to not steal from the poor person next to him), even though he doesn’t care to do so? The reasons externalist answers in the affirmative (“Yes, Sasha has a reason not to steal from that poor person.”), since he believes that one can have reasons for action even if one does not have the relevant desire. Conversely, the reasons internalist answers the question in the negative (“No, Sasha does not have a reason not to steal from that poor person, though others might.”). The reasons internalist claims that external reasons are unintelligible; one has a reason for action only if one has the relevant desire (that is, only internal reasons can be reasons for action). The reasons internalist claims the following: the moral facts are a reason for Sasha’s action not to steal from the
poor person next to him only if he currently wants to follow the moral law (or if not stealing from the poor person is a way to satisfy his other current goals—that is, part of what Williams calls his "subjective motivational set"). In short, the reasoning behind reasons internalism, according to Williams, is that reasons for action must be able to explain one's action; and only internal reasons can do this.

2.8.2 Epistemology

Justification

In contemporary epistemology, internalism about justification is the idea that everything necessary to provide justification for a belief must be immediately available to an agent's consciousness. Externalism in this context is the view that factors other than those internal to the believer can affect the justificatory status of a belief. One strand of externalism is reliabilism, and the causal theory of knowledge is sometimes considered to be another strand. It is important to distinguish internalism about justification from internalism about knowledge. An internalist about knowledge will likely hold that the conditions that distinguish mere true belief from knowledge are similarly internal to the individual's perspective or grounded in the subject's mental states. Whereas internalism about justification is a widely endorsed view, there is debate about knowledge internalism, due to Edmund Gettier and his Gettier-examples. These are claimed to show that knowledge is not simply justified true belief. In a short but influential paper published in 1963, Gettier produced examples that seemed to show that someone could be justified in believing something which is actually false, and inferring from it a further belief, this belief being coincidentally true. In this way, he claimed that someone could be justified in believing something true but nevertheless not be considered to have knowledge of that thing.

One line of argument in favor of externalism begins with the observation that if what justified our beliefs failed to eliminate significantly the risk of error, then it does not seem that knowledge would be attainable as it would appear that when our beliefs did happen to be correct, this would really be a matter of good fortune. While many will agree with this last claim, the argument seems inconclusive. Setting aside sceptical concerns about the possession of knowledge, Gettier cases have suggested the need to distinguish justification from warrant where warrant is that which distinguishes justified true belief from knowledge by eliminating the kind of accidentality often present in Gettier-type cases. Even if something must significantly reduce the risk of error, it is not clear why justification is what must fill the bill.

One of the more popular arguments for internalism begins with the observation, perhaps first due to Stewart Cohen, that when we imagine subjects completely cut off from their surroundings (thanks to a malicious Cartesian demon, perhaps) we do not think that in cutting these individuals off from their surroundings, these subjects cease to be rational in taking things to be as they appear. The 'new evil demon' argument for internalism (and against externalism) begins with the observation that individuals like us on the inside will be as justified as we are in believing what we believe. As it is part of the story that these individuals' beliefs are not produced by reliable mechanisms or backed by veridical perceptual experiences, the claim that the justification of our beliefs depends upon such things appears to be seriously challenged. Externalists have offered a variety of responses but there is no consensus among epistemologists as to whether these replies are successful (Cohen, 1984; Sosa, 1991).

As a response to skepticism

In responding to skepticism, Hilary Putnam (1982) claims that semantic externalism yields “an argument we can give that shows we are not brains in a vat (BIV).” (See also DeRose, 1999.) If semantic externalism is true, then the meaning of a word or sentence is not wholly determined by what individuals think those words mean. For example, semantic externalists maintain that the word “water” referred to the substance whose chemical composition is H₂O even before scientists had discovered that chemical composition. The fact that the substance out in the world we were calling “water” actually had that composition at least partially determined the meaning of the word. One way to use this in a response to skepticism is to apply the same strategy to the terms used in a skeptical argument in the following way (DeRose, 1999):

Either I am a BIV, or I am not a BIV.

If I am not a BIV, then when I say “I am not a BIV”, it is true.
If I am a BIV, then, when I say “I am not a BIV”, it is true (because “brain” and “vat” would only pick out the brains and vats being simulated, not real brains and real vats).

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My utterance of “I am not a BIV” is true.

To clarify how this argument is supposed to work: Imagine that there is brain in a vat, and a whole world is being simulated for it. Call the individual who is being deceived “Steve.” When Steve is given an experience of walking through a park, semantic externalism allows for his thought, “I am walking through a park” to be true so long as the simulated reality is one in which he is walking through a park. Similarly, what it takes for his thought, “I am a brain in a vat,” to be true is for the simulated reality to be one where he is a brain in a vat. But in the simulated reality, he is not a brain in a vat.
Apart from disputes over the success of the argument or the plausibility of the specific type of semantic externalism required for it to work, there is question as to what is gained by defeating the skeptical worry with this strategy. Skeptics can give new skeptical cases that wouldn’t be subject to the same response (e.g., one where the person was very recently turned into a brain in a vat, so that their words “brain” and “vat” still pick out real brains and vats, rather than simulated ones). Further, if even brains in vats can correctly believe “I am not a brain in a vat,” then the skeptic can still press us on how we know we are not in that situation (though the externalist will point out that it may be difficult for the skeptic to describe that situation).

Another attempt to use externalism to refute skepticism is done by Brueckner[11] and Warfield[12]. It involves the claim that our thoughts are about things, unlike a BIV’s thoughts, which cannot be about things (DeRose, 1999[10]).

2.8.3 Semantics

Semantic externalism comes in two varieties, depending on whether meaning is construed cognitively or linguistically. On a cognitive construal, externalism is the thesis that what concepts (or contents) are available to a thinker is determined by their environment, or their relation to their environment. On a linguistic construal, externalism is the thesis that the meaning of a word is environmentally determined. Likewise, one can construe semantic internalism in two ways, as a denial of either of these two theses.

Externalism and internalism in semantics is closely tied to the distinction in philosophy of mind concerning mental content, since the contents of one’s thoughts (specifically, intentional mental states) are usually taken to be semantic objects that are truth-evaluable.

See also:
- Linguistic turn and cognitive turn for more about the two construals of meaning
- Swamp man thought experiment
- Twin Earth thought experiment

2.8.4 Philosophy of mind

Within the context of the philosophy of mind, externalism is the theory that the contents of at least some of one’s mental states are dependent in part on their relationship to the external world or one’s environment.

The traditional discussion on externalism was centered around the semantic aspect of mental content. This is by no means the only meaning of externalism now. Externalism is now a broad collection of philosophical views considering all aspects of mental content and activity. There are various forms of externalism that consider either the content or the vehicles of the mind or both. Furthermore, externalism could be limited to cognition, or it could address broader issues of consciousness.

As to the traditional discussion on semantic externalism (often dubbed content externalism), some mental states, such as believing that water is wet, and fearing that the Queen has been insulted, have contents we can capture using ‘that’ clauses. The content externalist often appeal to observations found as early as Hilary Putnam’s seminal essay, “The Meaning of ‘Meaning’,” (1975).[9] Putnam stated that we can easily imagine pairs of individuals that are microphysical duplicates embedded in different surroundings who use the same words but mean different things when using them.

For example, suppose that Ike and Tina’s mothers are identical twins and that Ike and Tina are raised in isolation from one another in indistinguishable environments. When Ike says, “I want my mommy,” he expresses a want satisfied only if he is brought to his mommy. If we brought Tina’s mommy, Ike might not notice the difference, but he doesn’t get what he wants. It seems that what he wants and what he says when he says, “I want my mommy,” will be different from what Tina wants and what she says she wants when she says, “I want my mommy.”

Externalists say that if we assume competent speakers know what they think, and say what they think, the difference in what these two speakers mean corresponds to a difference in the thoughts of the two speakers that is not (necessarily) reflected by a difference in the internal make up of the speakers or thinkers. They urge us to move from externalism about meaning of the sort Putnam defended to externalism about contentful states of mind. The example pertains to singular terms, but has been extended to cover kind terms as well such as natural kinds (e.g., ‘water’) and for kinds of artifacts (e.g., ‘espresso maker’). There is no general agreement amongst content externalists as to the scope of the thesis.

Philosophers now tend to distinguish between wide content (externalist mental content) and narrow content (anti-externalist mental content). Some, then, align themselves as endorsing one view of content exclusively, or both. For example, Jerry Fodor (1980[13]) argues for narrow content (although he comes to reject that view in his 1995), while David Chalmers (2002)[14] argues for a two dimensional semantics according to which the contents of mental states can have both wide and narrow content.

Critics of the view have questioned the original thought experiments saying that the lessons that Putnam and later writers such as Tyler Burge (1979[15] 1982[16]) have urged us to draw can be resisted. Frank Jackson and John Searle, for example, have defended internalist accounts of thought content according to which the contents of our
thoughts are fixed by descriptions that pick out the individuals and kinds that our thoughts intuitively pertain to the sorts of things that we take them to. In the Ike/Tina example, one might agree that Ike’s thoughts pertain to Ike’s mother and that Tina’s thoughts pertain to Tina’s but insist that this is because Ike thinks of that woman as his mother and we can capture this by saying that he thinks of her as ‘the mother of the speaker’. This descriptive phrase will pick out one unique woman. Externalists claim this is implausible, as we would have to ascribe to Ike knowledge he wouldn’t need to successfully think about or refer to his mother.

Critics have also claimed that content externalists are committed to epistemological absurdities. Suppose that a speaker can have the concept of water we do only if the speaker lives in a world that contains H\textsubscript{2}O. It seems this speaker could know a priori that she thinks that water is wet. This is the thesis of privileged access. It also seems that she could know on the basis of simple thought experiments that she can only think that water is wet if she lives in a world that contains water. What would prevent her from putting these together and coming to know a priori that the world contains water? If we should say that no one could possibly know whether water exists a priori, it seems either we cannot know content externalism to be true on the basis of thought experiments or we cannot know what we are thinking without first looking into the world to see what it is like.

As mentioned, content externalism (limited to the semantic aspects) is only one among many other options offered by externalism by and large.

See also

- Externalism
- Twin Earth
- The extended mind

2.8.5 Historiography of science

Externalism in the historiography of science is the view that the history of science is due to its social context – the socio-political climate and the surrounding economy determines scientific progress. Internalism in the historiography of science claims that science is completely distinct from social influences and pure natural science can exist in any society and at any time given the intellectual capacity.

2.8.6 See also

- Dream argument
- Emic and etic
- Relativism

2.8.7 References


2.8.8 Further reading


2.8.9 External links

- Internalism and Externalism – (draft) by Alberto Voltolini.

- Internalism and Externalism in Epistemology entry in the Internet Encyclopedia of Philosophy

- Internalism and Externalism in the Philosophy of Mind and Language entry in the Internet Encyclopedia of Philosophy

- Semantic Internalism and Externalism – by Katalin Farkas

- Internalist Explorations of Meaning reading group at Harvard university, autumn 2007.
Chapter 3

Acquiring knowledge

3.1 A priori and a posteriori

For other uses, see a priori (disambiguation) and a posteriori (disambiguation).

The Latin phrases a priori (lit. “from the earlier”) and a posteriori (lit. “from the latter”) are philosophical terms of art popularized by Immanuel Kant's *Critique of Pure Reason* (first published in 1781, second edition in 1787), one of the most influential works in the history of philosophy. However, in their Latin forms they appear in Latin translations of Euclid's *Elements*, of about 300 BC, a work widely considered during the early European modern period as the model for precise thinking.

These terms are used with respect to reasoning (epistemology) to distinguish necessary conclusions from first premises (i.e., what must come before sense observation) from conclusions based on sense observation (which must follow it). Thus, the two kinds of knowledge, justification, or argument may be glossed:

- *A priori* knowledge or justification is independent of experience, as with mathematics (3+2=5), tautologies (“All bachelors are unmarried”), and deduction from pure reason (e.g., ontological proofs).
- *A posteriori* knowledge or justification is dependent on experience or empirical evidence, as with most aspects of science and personal knowledge.

There are many points of view on these two types of knowledge, and their relationship is one of the oldest problems in modern philosophy.

The terms a priori and a posteriori are primarily used as adjectives to modify the noun “knowledge” (for example, "a priori knowledge"). However, "a priori" is sometimes used to modify other nouns, such as “truth”. Philosophers also may use “apriority” and “aprioricity” as nouns to refer (approximately) to the quality of being "a priori". [4]

Although definitions and use of the terms have varied in the history of philosophy, they have consistently labeled two separate epistemological notions.

See also the related distinctions: deductive/inductive, analytic/synthetic, necessary/contingent.

3.1.1 Examples

The intuitive distinction between a priori and a posteriori knowledge (or justification) is best seen in examples.

**A priori** Consider the proposition, “If George V reigned at least four days, then he reigned more than three days.” This is something that one knows *a priori*, because it expresses a statement that one can derive by reason alone.

**A posteriori** Compare this with the proposition expressed by the sentence, “George V reigned from 1910 to 1936.” This is something that (if true) one must come to know *a posteriori*, because it expresses an empirical fact unknowable by reason alone.

3.1.2 Analyticity and necessity

**Relation to the analytic-synthetic**

For more details on this topic, see Analytic-synthetic distinction.

Several philosophers reacting to Kant sought to explain a priori knowledge without appealing to, as Paul Boghossian (MD) explains, “a special faculty ... that has never been described in satisfactory terms.” One theory, popular among the logical positivists of the early 20th century, is what Boghossian calls the “analytic explanation of the a priori.” The distinction between analytic and synthetic propositions was first introduced by Kant. While Kant’s original distinction was primarily drawn in terms of conceptual containment, the contemporary version of the distinction primarily involves, as the American philosopher W. V. O. Quine put it, the notions of “true by virtue of meanings and independently of fact.” Analytic propositions are thought to be true in virtue of their meaning alone, while a posteriori analytic propositions
are thought to be true in virtue of their meaning and certain facts about the world. According to the analytic explanation of the a priori, all a priori knowledge is analytic; so a priori knowledge need not require a special faculty of pure intuition, since it can be accounted for simply by one’s ability to understand the meaning of the proposition in question. In short, proponents of this explanation claimed to have reduced a dubious metaphysical faculty of pure reason to a legitimate linguistic notion of analyticity.

However, the analytic explanation of a priori knowledge has undergone several criticisms. Most notably, Quine argued that the analytic–synthetic distinction is illegitimate. Quine states: “But for all its a priori reasonableness, a boundary between analytic and synthetic statements simply has not been drawn. That there is such a distinction to be drawn at all is an unempirical dogma of empiricists, a metaphysical article of faith.”[7] While the soundness of Quine’s critique is highly disputed, it had a powerful effect on the project of explaining the a priori in terms of the analytic.

Relation to the necessary/contingent

The metaphysical distinction between necessary and contingent truths has also been related to a priori and a posteriori knowledge. A proposition that is necessarily true is one whose negation is self-contradictory (thus, it is said to be true in every possible world). Consider the proposition that all bachelors are unmarried. Its negation, the proposition that some bachelors are married, is incoherent, because the concept of being unmarried (or the meaning of the word “unmarried”) is part of the concept of being a bachelor (or part of the definition of the word “bachelor”).

Thus, the relationship between aprioricity, necessity, and analyticity is not easy to discern. However, most philosophers at least seem to agree that while the various distinctions may overlap, the notions are clearly not identical: the a priori/a posteriori distinction is epistemological, the analytic/synthetic distinction is linguistic, and the necessary/contingent distinction is metaphysical.[11] But, of course, nearly everyone agrees that if there were a posteriori necessary truths, it would mean the end of science as we know it.[12]

3.1.3 History

Early uses

The phrases “a priori” and “a posteriori” are Latin for “from what comes before” and “from what comes later” or, less literally, “[from first principles, but] before experience” and “after experience”). They appear in Latin translations of Euclid’s Elements, of about 300 BC, a work widely considered during the early European modern period as the model for precise thinking.

An early philosophical use of what might be considered a notion of a priori knowledge (though not called by that name) is Plato’s theory of recollection, related in the dialogue Meno (380 BC), according to which something like a priori knowledge is knowledge inherent, intrinsic in the human mind.

Albert of Saxony, a 14th-century logician wrote on both a priori and a posteriori.[13] George Berkeley, the Irish divine and philosopher outlined the distinction in A Treatise Concerning the Principles of Human Knowledge of 1710, though the terms were already well known by that time.
Immanuel Kant

The 18th-century German philosopher Immanuel Kant (1781) advocated a blend of rationalist and empiricist theories. Kant states, "although all our cognition begins with experience, it does not follow that it arises from experience."\(^{[14]}\) According to Kant, a priori cognition is transcendental, or based on the form of all possible experience, while a posteriori cognition is empirical, based on the content of experience. Kant states, "... it is quite possible that our empirical knowledge is a compound of that which we receive through impressions, and that which the faculty of cognition supplies from itself (sensuous impressions giving merely the faculty of cognition supplies from itself, and that which the empirical) is not entirely independent of the content of experience. And unlike the rationalists, Kant thinks that a priori knowledge is not purely empirical. Kant nominated and explored the possibility of a transcendental logic with which to consider the deduction of the a priori in its pure form. Space, time and causality are considered pure a priori intuitions. Kant reasoned that the pure a priori intuitions are established via his transcendental aesthetic and transcendental logic. He claimed that the human subject would not have the kind of experience that it has were these a priori forms not in some way constitutive of him as a human subject. For instance, a person would not experience the world as an orderly, rule-governed place unless time, space and causality were determinant functions in the form of perceptual faculties. I.E., there can be no experience in general without cause, space or time as particular determinants thereon. The claim is more formally known as Kant’s transcendental deduction and it is the central argument of his major work, the Critique of Pure Reason. The transcendental deduction argues that time, space and causality are ideal as much as real. In consideration of a possible logic of the a priori, this most famous of Kant’s deductions has made the successful attempt in the case for the fact of subjectivity, what constitutes subjectivity and what relation it holds with objectivity and the empirical.

Johann Fichte

After Kant’s death, a number of philosophers saw themselves as correcting and expanding his philosophy, leading to the various forms of German Idealism. One of these philosophers was Johann Fichte. His student (and critic), Arthur Schopenhauer, accused him of rejecting the distinction between a priori and a posteriori knowledge:... Fichte who, because the thing-in-itself had just been discredited, at once prepared a system without any thing-in-itself. Consequently, he rejected the assumption of anything that was not through and through merely our representation, and therefore let the knowing subject be all in all or at any rate produce everything from its own resources. For this purpose, he at once did away with the essential and most meritorious part of the Kantian doctrine, the distinction between a priori and a posteriori and thus that between the phenomenon and the thing-in-itself. For he declared everything to be a priori, naturally without any evidence for such a monstrous assertion; instead of these, he gave sophisms and even crazy sham demonstrations whose absurdity was concealed under the mask of profundity and of the incomprehensibility ostensibly arising therefrom. Moreover, he appealed boldly and openly to intellectual intuition, that is, really to inspiration.


3.1.4 See also

- Abductive reasoning
- A priori probability
- Contingency (philosophy)
- Deductive reasoning
- Inductive reasoning
- Tabula rasa

3.1.5 Notes

[1] In this pair of articles, Palmquist demonstrates that the context often determines how a particular proposition should be classified. A proposition that is synthetic a posteriori in one context might be analytic a priori in another.\(^{[10]}\)

3.1.6 Footnotes


[2] Galen Strawson has stated that an a priori argument is one in which “you can see that it is true just lying on your couch. You don’t have to get up off your couch and go outside and examine the way things are in the physical world. You don’t have to do any science.”\(^{[3]}\)
3.1.7 References


3.1.8 Further reading

- Descartes, René (1641). In Cottingham; et al., eds. Meditationes de prima philosophia, in qua Dei existentia et animes immoraltas demonstratur [Meditations on First Philosophy].
- Kant, Immanuel (1783). Prolegomena zu einer je- den künftigen Metaphysik [Prolegomena to any Future Metaphysics].
3.1.9 External links

- A priori and a posteriori entry in the *Stanford Encyclopedia of Philosophy*
- A priori and a posteriori at the Indiana Philosophy Ontology Project
- A priori and a posteriori at PhilPapers
- A priori and a posteriori entry in the *Internet Encyclopedia of Philosophy*
- A priori / a posteriori — in the Philosophical Dictionary online.
- “Rationalism vs. Empiricism” — an article by Peter Markie in the *Stanford Encyclopedia of Philosophy*.

3.2 Analytic-synthetic distinction

The *analytic–synthetic distinction* (also called the *analytic–synthetic dichotomy*) is a conceptual distinction, used primarily in philosophy to distinguish propositions (in particular, statements that are affirmative subject–predicate judgments) into two types: *analytic propositions* and *synthetic propositions*. Analytic propositions are true by virtue of their meaning, while synthetic propositions are true by how their meaning relates to the world.[1] However, philosophers have used the terms in very different ways. Furthermore, philosophers have debated whether there is a legitimate distinction.

3.2.1 Kant

**Conceptual containment**

The philosopher Immanuel Kant uses the terms “analytic” and “synthetic” to divide propositions into two types. Kant introduces the analytic–synthetic distinction in the Introduction to his *Critique of Pure Reason* (1781/1998, A6–7/B10–11). There, he restricts his attention to statements that are affirmative subject–predicate judgments, and defines “analytic proposition” and “synthetic proposition” as follows:

- **analytic proposition**: a proposition whose predicate concept is contained in its subject concept
- **synthetic proposition**: a proposition whose predicate concept is not contained in its subject concept but related

Examples of analytic propositions, on Kant’s definition, include:

- “All bachelors are unmarried.”
- “All triangles have three sides.”
- “All creatures with hearts have kidneys.”

Kant’s own example is:

- “All bodies are heavy,” (A7/B11)

Each of these statements is an affirmative subject–predicate judgment, and, in each, the predicate concept is contained within the subject concept. The concept “bachelor” contains the concept “unmarried”; the concept “unmarried” is part of the definition of the concept “bachelor.” Likewise, for “triangle” and “has three sides,” and so on.

Examples of synthetic propositions, on Kant’s definition, include:

- “All bachelors are unhappy.”
- “All creatures with hearts have kidneys.”

Kant’s own example is:

- “All bodies are heavy,” (A7/B11)

As with the previous examples classified as analytic propositions, each of these new statements is an affirmative subject–predicate judgment. However, in none of
these cases does the subject concept contain the predicate concept. The concept “bachelor” does not contain the concept “unhappy”; “unhappy” is not a part of the definition of “bachelor.” The same is true for “creatures with hearts” and “have kidneys”; even if every creature with a heart also has kidneys, the concept “creature with a heart” does not contain the concept “has kidneys.”

Kant’s version and the a priori / a posteriori distinction

Main article: A priori and a posteriori

In the Introduction to the Critique of Pure Reason, Kant contrasts his distinction between analytic and synthetic propositions with another distinction, the distinction between a priori and a posteriori propositions. He defines these terms as follows:

- **a priori proposition**: a proposition whose justification does not rely upon experience. Moreover, the proposition can be validated by experience, but is not grounded in experience. Therefore, it is logically necessary.

- **a posteriori proposition**: a proposition whose justification does rely upon experience. The proposition is validated by, and grounded in, experience. Therefore, it is logically contingent.

Examples of a priori propositions include:

- “All bachelors are unmarried.”
- “$7 + 5 = 12.$”

The justification of these propositions does not depend upon experience: One need not consult experience to determine whether all bachelors are unmarried, nor whether $7 + 5 = 12$. (Of course, as Kant would grant, experience is required to understand the concepts “bachelor,” “unmarried,” “$7$”, “$+$” and so forth. However, the a priori/a posteriori distinction as employed here by Kant refers not to the origins of the concepts but to the justification of the propositions. Once we have the concepts, experience is no longer necessary.)

Examples of a posteriori propositions include:

- “All bachelors are unhappy.”
- “Tables exist.”

Both of these propositions are a posteriori: Any justification of them would require one’s experience.

The analytic/synthetic distinction and the a priori/a posteriori distinction together yield four types of propositions:

1. analytic a priori
2. synthetic a priori
3. analytic a posteriori
4. synthetic a posteriori

Kant says the third type is self-contradictory, so he discusses only the remaining three types as components of his epistemological framework.

The ease of knowing analytic propositions

Part of Kant’s argument in the Introduction to the Critique of Pure Reason involves arguing that there is no problem figuring out how knowledge of analytic propositions is possible. To know an analytic proposition, Kant argued, one need not consult experience. Instead, one need merely to take the subject and “extract from it, in accordance with the principle of contradiction, the required predicate...” (A7/B12) In analytic propositions, the predicate concept is contained in the subject concept. Thus, to know an analytic proposition is true, one need merely examine the concept of the subject. If one finds the predicate contained in the subject, the judgment is true.

Thus, for example, one need not consult experience to determine whether “All bachelors are unmarried” is true. One need merely examine the subject concept (“bachelors”) and see if the predicate concept “unmarried” is contained in it. And in fact, it is: “unmarried” is a part of the definition of “bachelor,” and so is contained within it. Thus the proposition “All bachelors are unmarried” can be known to be true without consulting experience.

It follows from this, Kant argued, first: All analytic propositions are a priori; there are no a posteriori analytic propositions. It follows, second: There is no problem understanding how we can know analytic propositions. We can know them because we just need to consult our concepts in order to determine that they are true.

The possibility of metaphysics

After ruling out the possibility of analytic a posteriori propositions, and explaining how we can obtain knowledge of analytic a priori propositions, Kant also explains how we can obtain knowledge of synthetic a priori propositions. That leaves only the question of how knowledge of synthetic a priori propositions is possible. This question is exceedingly important, Kant maintains, because all important metaphysical knowledge is of synthetic a priori propositions. If it is impossible to determine which synthetic a priori propositions are true, he argues, then metaphysics as a discipline is impossible. The remainder of the Critique of Pure Reason is devoted to examining whether and how knowledge of synthetic a priori propositions is possible.
3.2.2 Logical positivists

Frege and Carnap revise the Kantian definition

Over a hundred years later, a group of philosophers took interest in Kant and his distinction between analytic and synthetic propositions: the logical positivists.

Part of Kant’s examination of the possibility of synthetic a priori knowledge involved the examination of mathematical propositions, such as

- “7 + 5 = 12” (B15–16)
- “The shortest distance between two points is a straight line.” (B16–17)

Kant maintained that mathematical propositions such as these are synthetic a priori propositions, and that we know them. That they are synthetic, he thought, is obvious: The concept “equal to 12” is not contained within the concept “7 + 5.” And the concept “straight line” is not contained within the concept “the shortest distance between two points.” (B15–17) From this, Kant concluded that we have knowledge of synthetic a priori propositions. He went on to maintain that it is extremely important to determine how such knowledge is possible.

Gottlob Frege’s notion of analyticity included a number of logical properties and relations beyond containment: symmetry, transitivity, antonymy, or negation and so on. He had a strong emphasis on formality, in particular formal definition, and also emphasized the idea of substitution of synonymous terms. “All bachelors are unmarried” can be expanded out with the formal definition of bachelor as “unmarried man” to form “All unmarried men are unmarried,” which is recognizable as tautologous and therefore analytic from its logical form: any statement of the form “All X that are (F and G) are F”. This expanded idea of analyticity was able to show that all Kant’s examples of arithmetical and geometrical truths are analytical a priori truths and not synthetic a priori truths.

Thanks to Frege’s logical semantics, particularly his concept of analyticity, arithmetic truths like “7+5=12” are no longer synthetic a priori but analytical a priori truths in Carnap’s extended sense of “analytic”.

Hence logical empiricists are not subject to Kant’s criticism of Hume for throwing out mathematics along with metaphysics.[2]

(Here “logical empiricist” is a synonym for “logical positivist”.)

The origin of the logical positivist’s distinction

The logical positivists agreed with Kant that we have knowledge of mathematical truths, and further that mathematical propositions are a priori. However, they did not believe that any complex metaphysics, such as the type Kant supplied, are necessary to explain our knowledge of mathematical truths. Instead, the logical positivists maintained that our knowledge of judgments like “all bachelors are unmarried” and our knowledge of mathematics (and logic) are in the basic sense the same: all proceeded from our knowledge of the meanings of terms or the conventions of language.

Since empiricism had always asserted that all knowledge is based on experience, this assertion had to include knowledge in mathematics. On the other hand, we believed that with respect to this problem the rationalists had been right in rejecting the old empiricist view that the truth of “2+2=4” is contingent on the observation of facts, a view that would lead to the unacceptable consequence that an arithmetical statement might possibly be refuted tomorrow by new experiences. Our solution, based upon Wittgenstein’s conception, consisted in asserting the thesis of empiricism only for factual truth. By contrast, the truths of logic and mathematics are not in need of confirmation by observations, because they do not state anything about the world of facts, they hold for any possible combination of facts.[3][4]

— Rudolf Carnap, Autobiography: §10: Semantics, p. 64

Logical positivist definitions

Thus the logical positivists drew a new distinction, and, inheriting the terms from Kant, named it the “analytic/synthetic distinction.”[5] They provided many different definitions, such as the following:

1. **analytic proposition**: a proposition whose truth depends solely on the meaning of its terms

2. **analytic proposition**: a proposition that is true (or false) by definition

3. **analytic proposition**: a proposition that is made true (or false) solely by the conventions of language

(While the logical positivists believed that the only necessarily true propositions were analytic, they did not define “analytic proposition” as “necessarily true proposition” or “propo­sition that is true in all possible worlds.”)

Synthetic propositions were then defined as:

- **synthetic proposition**: a proposition that is not analytic
These definitions applied to all propositions, regardless of whether they were of subject–predicate form. Thus, under these definitions, the proposition “It is raining or it is not raining,” was classified as analytic, while under Kant’s definitions it was neither analytic nor synthetic. And the proposition “7 + 5 = 12” was classified as analytic, while under Kant’s definitions it was synthetic.

### 3.2.3 Two-dimensionalism

Two-dimensionalism is an approach to semantics in analytic philosophy. It is a theory of how to determine the sense and reference of a word and the truth-value of a sentence. It is intended to resolve a puzzle that has plagued philosophy for some time, namely: How is it possible to discover empirically that a necessary truth is true?

Two-dimensionalism provides an analysis of the semantics of words and sentences that makes sense of this possibility. The theory was first developed by Robert Stalnaker, but it has been advocated by numerous philosophers since, including David Chalmers and Berit Brogaard.

Any given sentence, for example, the words,

> “Water is H₂O”

is taken to express two distinct propositions, often referred to as a primary intension and a secondary intension, which together compose its meaning.[6]

The primary intension of a word or sentence is its sense, i.e., is the idea or method by which we find its referent. The primary intension of “water” might be a description, such as watery stuff. The thing picked out by the primary intension of “water” could have been otherwise. For example, on some other world where the inhabitants take “water” to mean watery stuff, but, where the chemical make-up of watery stuff is not H₂O, it is not the case that water is H₂O for that world.

The secondary intension of “water” is whatever thing “water” happens to pick out in this world, whatever that world happens to be. So if we assign “water” the primary intension watery stuff then the secondary intension of “water” is H₂O, since H₂O is watery stuff in this world. The secondary intension of “water” in our world is H₂O, which is H₂O in every world because unlike watery stuff it is impossible for H₂O to be other than H₂O. When considered according to its secondary intension, “Water is H₂O” is true in every world.

If two-dimensionalism is workable it solves some very important problems in the philosophy of language. Saul Kripke has argued that “Water is H₂O” is an example of the necessary a posteriori, since we had to discover that water was H₂O, but given that it is true, it cannot be false. It would be absurd to claim that something that is water is not H₂O, for these are known to be identical.

### 3.2.4 Quine’s criticisms

See also: Willard Van Orman Quine § Rejection of the analytic–synthetic distinction and Two Dogmas of Empiricism § Analyticity and circularity

Rudolf Carnap was a strong proponent of the distinction between what he called “internal questions,” questions entertained within a “framework” (like a mathematical theory), and “external questions,” questions posed outside any framework – posed before the adoption of any framework.[7][8][9] The “internal” questions could be of two types: logical (or analytic, or logically true) and factual (empirical, that is, matters of observation interpreted using terms from a framework). The “external” questions were also of two types: those that were confused pseudo-questions (“one disguised in the form of a theoretical question”) and those that could be re-interpreted as practical, pragmatic questions about whether a framework under consideration was “more or less expedient, fruitful, conducive to the aim for which the language is intended.”[7] The adjective “synthetic” was not used by Carnap in his 1950 work: Empiricism, Semantics, and Ontology.[7] Carnap did define a “synthetic truth” in his work Meaning and Necessity: a sentence that is true, but not simply because “the semantical rules of the system suffice for establishing its truth”.[10]

The notion of a synthetic truth is something true both because of what it means and because of the way the world is, whereas analytic truths are true in virtue of meaning alone. Thus, what Carnap calls internal factual statements (as opposed to internal logical statements) could be taken as being also synthetic truths because they require observations, but some external statements also could be “synthetic” statements and Carnap would be doubtful about their status. The analytic–synthetic argument therefore is not identical with the internal–external distinction.[11]

In 1951, W.V. Quine published the essay “Two Dogmas of Empiricism” in which he argued that the analytic–synthetic distinction is untenable.[12] The argument at bottom is that there are no “analytic” truths, but all truths involve an empirical aspect. In the first paragraph, Quine takes the distinction to be the following:

- analytic propositions – propositions grounded in meanings, independent of matters of fact.
- synthetic propositions – propositions grounded in fact.

Quine’s position denying the analytic/synthetic distinction is summarized as follows:

> It is obvious that truth in general depends on both language and extralinguistic fact. ... Thus one is tempted to suppose in general that
the truth of a statement is somehow analyzable into a linguistic component and a factual component. Given this supposition, it next seems reasonable that in some statements the factual component should be null; and these are the analytic statements. But, for all its *a priori* reasonableness, a boundary between analytic and synthetic statements simply has not been drawn. That there is such a distinction to be drawn at all is an unempirical dogma of empiricists, a metaphysical article of faith.\[13\]

— Willard v. O. Quine, Two dogmas of empiricism, p. 64

To summarize Quine's argument, the notion of an analytic proposition requires a notion of synonymy, but establishing synonymy inevitably leads to matters of fact—synthetic propositions. Thus, there is no non-circular (and so no tenable) way to ground the notion of analytic propositions.

While Quine's rejection of the analytic–synthetic distinction is widely known, the precise argument for the rejection and its status is highly debated in contemporary philosophy. However, some (for example, Boghossian\[14\]) argue that Quine's rejection of the distinction is still widely accepted among philosophers, even if for poor reasons.

Responses

Paul Grice and P. F. Strawson criticized “Two Dogmas” in their (1956) article “In Defense of a Dogma.”\[15\] Among other things, they argue that Quine's skepticism about synonyms leads to a skepticism about meaning. If statements can have meanings, then it would make sense to ask “What does it mean?”. If it makes sense to ask “What does it mean?”, then synonymy can be defined as follows: Two sentences are synonymous if and only if the true answer of the question “What does it mean?” asked of one of them is the true answer to the same question asked of the other. They also draw the conclusion that discussion about correct or incorrect translations would be impossible given Quine's argument. Four years after Grice and Strawson published their paper, Quine’s book *Word and Object* was released. In the book Quine presented his theory of indeterminacy of translation.

In “Speech acts,” John R. Searle argues that from the difficulties encountered in trying to explicate analyticity by appeal to specific criteria, it does not follow that the notion itself is void.\[16\] Considering the way which we would test any proposed list of criteria, which is by comparing their extension to the set of analytic statements, it would follow that any explication of what analyticity means presupposes that we already have at our disposal a working notion of analyticity.

In "Two Dogmas' revisited,” Hilary Putnam argues that Quine is attacking two different notions.\[17\]

It seems to me there is as gross a distinction between 'All bachelors are unmarried' and 'There is a book on this table' as between any two things in this world, or at any rate, between any two linguistic expressions in the world.\[18\]

— Hilary Putnam, Philosophical papers, p. 36

Analytic truth defined as a true statement derivable from a tautology by putting synonyms for synonyms is near Kant's account of analytic truth as a truth whose negation is a contradiction. Analytic truth defined as a truth confirmed no matter what, however, is closer to one of the traditional accounts of *a priori*. While the first four sections of Quine’s paper concern analyticity, the last two concern a priority. Putnam considers the argument in the two last sections as independent of the first four, and at the same time as Putnam criticizes Quine, he also emphasizes his historical importance as the first top rank philosopher to both reject the notion of a priority and sketch a methodology without it.\[19\]

Jerrold Katz, a onetime associate of Noam Chomsky's, countered the arguments of *Two Dogmas* directly by trying to define analyticity non-circularly on the syntactical features of sentences.\[20\][21][22]

In his book *Philosophical Analysis in the Twentieth Century, Volume 1: The Dawn of Analysis*, Scott Soames has pointed out that Quine’s circularity argument needs two of the logical positivists’ central theses to be effective.\[23\]

All necessary (and all *a priori*) truths are analytic

Analyticity is needed to explain and legitimate necessity.

It is only when these two theses are accepted that Quine’s argument holds. It is not a problem that the notion of necessity is presupposed by the notion of analyticity if necessity can be explained without analyticity. According to Soames, both theses were accepted by most philosophers when Quine published *Two Dogmas*. Today however, Soames holds both statements to be antiquated. He says: “Very few philosophers today would accept either [of these assertions], both of which now seem decidedly antique.”\[23\]

3.2.5 See also

- Holophrastic indeterminacy
- Internal–external distinction
• Sense and reference
• Two-dimensionalism

3.2.6 Footnotes


3.2.7 References and further reading


CHAPTER 3. ACQUIRING KNOWLEDGE


3.2.8 External links

- Analytic–synthetic distinction at PhilPapers
- Analytic–synthetic distinction entry in the Stanford Encyclopedia of Philosophy
- Analytic–synthetic distinction at the Indiana Philosophy Ontology Project
- Analytic–synthetic distinction entry in the Internet Encyclopedia of Philosophy
- Willard Van Orman Quine: The Analytic/Synthetic Distinction entry in the Internet Encyclopedia of Philosophy

3.3 Empiricism

This article is about the field of philosophy. For the album by Borknagar, see Empiricism (album). Empiricism is a theory that states that knowledge comes only or primarily from sensory experience.[3] One of several views of epistemology, the study of human knowledge, along with rationalism and skepticism, empiricism emphasizes the role of experience and evidence, especially sensory experience, in the formation of ideas, over the notion of innate ideas or traditions.[2] Empiricists may argue however that traditions (or customs) arise due to relations of previous sense experiences.[3]

Empiricism in the philosophy of science emphasizes evidence, especially as discovered in experiments. It is a fundamental part of the scientific method that all hypotheses and theories must be tested against observations of the natural world rather than resting solely on a priori reasoning, intuition, or revelation.

Empiricism, often used by natural scientists, says that “knowledge is based on experience” and that “knowledge is tentative and probabilistic, subject to continued revision and falsification.”[4] One of the epistemological tenets is that sensory experience creates knowledge. The scientific method, including experiments and validated measurement tools, guides empirical research.

3.3.1 Etymology

The English term “empirical” derives from the Greek word ἐμπειρία, which is cognate with and translates to the Latin experientia, from which we derive the word “experience” and the related “experiment”. The term was used by the Empiric school of ancient Greek medical practitioners, who rejected the three doctrines of the Dogmatic school, preferring to rely on the observation of “phenomena”.5

3.3.2 History
3.3. EMPIRICISM

Background

Main article: Empirical method

A central concept in science and the scientific method is that it must be empirically based on the evidence of the senses. Both natural and social sciences use working hypotheses that are testable by observation and experiment. The term semi-empirical is sometimes used to describe theoretical methods that make use of basic axioms, established scientific laws, and previous experimental results in order to engage in reasoned model building and theoretical inquiry.

Philosophical empiricists hold no knowledge to be properly inferred or deduced unless it is derived from one’s sense-based experience.[6] This view is commonly contrasted with rationalism, which states that knowledge may be derived from reason independently of the senses. For example John Locke held that some knowledge (e.g. knowledge of God’s existence) could be arrived at through intuition and reasoning alone. Similarly Robert Boyle, a prominent advocate of the experimental method, held that we have innate ideas.[7][8] The main continental rationalists (Descartes, Spinoza, and Leibniz) were also advocates of the empirical “scientific method”.[9][10]

Early empiricism

Vaisheshika darshana founded by ancient Indian philosopher Kanada accepted perception and inference as only two reliable sources of knowledge. This is enumerated in his work Vaiśeṣika Sūtra.

The notion of tabula rasa (“clean slate” or “blank tablet”) connotes a view of mind as an originally blank or empty recorder (Locke used the words “white paper”) on which experience leaves marks. This denies that humans have innate ideas. The image dates back to Aristotle:

A drawing of Ibn Sina (Avicenna) from 1271

During the middle ages Aristotle’s theory of tabula rasa was developed by Islamic philosophers starting with Al Farabi, developing into an elaborate theory by Avicenna[14] and demonstrated as a thought experiment by Ibn Tufail.[15] For Avicenna (Ibn Sina), for example, the tabula rasa is a pure potentiality that is actualized through education, and knowledge is attained through “empirical familiarity with objects in this world from which one abstracts universal concepts” developed through a “syllogistic method of reasoning in which observations lead to propositional statements which when compounded lead to further abstract concepts”. The
intellect itself develops from a material intellect (al-‘aql al-hayulani), which is a potentiality “that can acquire knowledge to the active intellect (al-‘aql al-fā‘il), the state of the human intellect in conjunction with the perfect source of knowledge”.[14] So the immaterial “active intellect”, separate from any individual person, is still essential for understanding to occur.

In the 12th century CE the Andalusian Muslim philosopher and novelist Abu Bakr Ibn Tufail (known as “Abubacer” or “Ebn Tophai” in the West) included the theory of tabula rasa as a thought experiment in his Arabic philosophical novel, Hayy ibn Yaqdhan in which he depicted the development of the mind of a feral child “from a tabula rasa to that of an adult, in complete isolation from society” on a desert island, through experience alone. The Latin translation of his philosophical novel, entitled Philosophus Autodidactus, published by Edward Pococke the Younger in 1671, had an influence on John Locke’s formulation of tabula rasa in An Essay Concerning Human Understanding.[15]

A similar Islamic theological novel, Theologus Autodidactus, was written by the Arab theologian and physician Ibn al-Nafis in the 13th century. It also dealt with the theme of empiricism through the story of a feral child on a desert island, but departed from its predecessor by depicting the development of the protagonist’s mind through contact with society rather than in isolation from society.[16]

During the 13th century Thomas Aquinas adopted the Aristotelian position that the senses are essential to mind into scholasticism. Bonaventure (1221–1274), one of Aquinas’ strongest intellectual opponents, offered some of the strongest arguments in favour of the Platonic idea of the mind.

**Renaissance Italy**

In the late renaissance various writers began to question the medieval and classical understanding of knowledge acquisition in a more fundamental way. In political and historical writing Niccolò Machiavelli and his friend Francesco Guicciardini initiated a new realistic style of writing. Machiavelli in particular was scornful of writers on politics who judged everything in comparison to mental ideals and demanded that people should study the “effectual truth” instead. Their contemporary, Leonardo da Vinci (1452–1519) said, “If you find from your own experience that something is a fact and it contradicts what some authority has written down, then you must abandon the authority and base your reasoning on your own findings.”[17]

The decidedly anti-Aristotelian and anti-clerical music theorist Vincenzo Galilei (ca. 1520–1591), father of Galileo and the inventor of monody, made use of the method in successfully solving musical problems, firstly, of tuning such as the relationship of pitch to string tension and mass in stringed instruments, and to volume of air in wind instruments; and secondly to composition, by his various suggestions to composers in his Dialogo della musica antica e moderna (Florence, 1581). The Italian word he used for “experiment” was esperienza. It is known that he was the essential pedagogical influence upon the young Galileo, his eldest son (cf. Coelho, ed. Music and Science in the Age of Galileo Galilei), arguably one of the most influential empiricists in history. Vincenzo, through his tuning research, found the underlying truth at the heart of the misunderstood myth of ‘Pythagoras’ hammers’ (the square of the numbers concerned yielded those musical intervals, not the actual numbers, as believed), and through this and other discoveries that demonstrated the fallibility of traditional authorities, a radically empirical attitude developed, passed on to Galileo, which regarded “experience and demonstration” as the sine qua non of valid rational enquiry.

**British empiricism**

British empiricism, though it was not a term used at the time, derives from the 17th century period of early modern philosophy and modern science. The term became useful in order to describe differences perceived between two of its founders Francis Bacon, described as empiricist, and René Descartes, who is described as a rationalist. Thomas Hobbes and Baruch Spinoza, in the next generation, are often also described as an empiricist and a rationalist respectively. John Locke, George Berkeley, and David Hume were the primary exponents of empiricism in the 18th century Enlightenment, with Locke being the person who is normally known as the founder of empiricism as such.

In response to the early-to-mid-17th century "continental rationalism" John Locke (1632–1704) proposed in An Essay Concerning Human Understanding (1689) a very influential view wherein the only knowledge humans can have is a posteriori, i.e., based upon experience. Locke is famously attributed with holding the proposition that the human mind is a tabula rasa, a “blank tablet”, in Locke’s words “white paper”, on which the experiences derived from sense impressions as a person’s life proceeds are written. There are two sources of our ideas: sensation and reflection. In both cases, a distinction is made between simple and complex ideas. The former are unanalysable, and are broken down into primary and secondary qualities. Primary qualities are essential for the object in question to be what it is. Without specific primary qualities, an object would not be what it is. For example, an apple is an apple because of the arrangement of its atomic structure. If an apple was structured differently, it would cease to be an apple. Secondary qualities are the sensory information we can perceive from its primary qualities. For example, an apple can be perceived in various colours, sizes, and textures but it is still identified as an apple. Therefore its primary qualities dictate what the object essen-
3.3. EMPIRICISM

Initially is, while its secondary qualities define its attributes. Complex ideas combine simple ones, and divide into substances, modes, and relations. According to Locke, our knowledge of things is a perception of ideas that are in accordance or discordance with each other, which is very different from the quest for certainty of Descartes.

Bishop George Berkeley

A generation later, the Irish Anglican bishop, George Berkeley (1685–1753), determined that Locke’s view immediately opened a door that would lead to eventual atheism. In response to Locke, he put forth in his *Treatise Concerning the Principles of Human Knowledge* (1710) an important challenge to empiricism in which things only exist either as a result of their being perceived, or by virtue of the fact that they are an entity doing the perceiving. (For Berkeley, God fills in for humans by doing the perceiving whenever humans are not around to do it). In his text *Alciphron*, Berkeley maintained that any order humans may see in nature is the language or handwriting of God. Berkeley’s approach to empiricism would later come to be called subjective idealism.

The Scottish philosopher David Hume (1711–1776) responded to Berkeley’s criticisms of Locke, as well as other differences between early modern philosophers, and moved empiricism to a new level of skepticism. Hume argued in keeping with the empiricist view that all knowledge derives from sense experience, but he accepted that this has implications not normally acceptable to philosophers. He wrote for example, “Locke divides all arguments into demonstrative and probable. On this view, we must say that it is only probable that all men must die or that the sun will rise to-morrow, because neither of these can be demonstrated. But to conform our language more to common use, we ought to divide arguments into demonstrations, proofs, and probabilities—by ‘proofs’ meaning arguments from experience that leave no room for doubt or opposition.” And,

“I believe the most general and most popular explication of this matter, is to say [See Mr. Locke, chapter of power,], that finding from experience, that there are several new productions in matter, such as the motions and variations of body, and concluding that there must somewhere be a power capable of producing them, we arrive at last by this reasoning at the idea of power and efficacy. But to be convinced that this explication is more popular than philosophical, we need but reflect on two very obvious principles. First, that reason alone can never give rise to any original idea, and secondly, that reason, as distinguished from experience, can never make us conclude, that a cause or productive quality is absolutely requisite to every beginning of existence. Both these considerations have been sufficiently explained: and therefore shall not at present be any farther insisted on.” — Hume Section XIV “of the idea of necessary connexion in *A Treatise of Human Nature*

Hume divided all of human knowledge into two categories: relations of ideas and matters of fact (see also Kant’s analytic-synthetic distinction). Mathematical and logical propositions (e.g. “that the square of the hypotenuse is equal to the sum of the squares of the two sides”) are examples of the first, while propositions involving some contingent observation of the world (e.g. “the sun rises in the East”) are examples of the second. All of people’s “ideas”, in turn, are derived from their “impressions”. For Hume, an “impression” corresponds roughly with what we call a sensation. To remember or to imagine such impressions is to have an “idea”. Ideas are therefore the faint copies of sensations.

Hume maintained that all knowledge, even the most basic beliefs about the natural world, cannot be conclusively established by reason. Rather, he maintained, our beliefs are more a result of accumulated habits, developed in response to accumulated sense experiences. Among his many arguments Hume also added another important slant to the debate about scientific method — that of the problem of induction. Hume argued that it requires inductive reasoning to arrive at the premises for the principle of inductive reasoning, and therefore the justification for inductive reasoning is a circular argument. Among Hume’s conclusions regarding the problem of induction is that there is no certainty that the future will resemble the past. Thus, as a simple instance posed by Hume, we
cannot know with certainty by inductive reasoning that the sun will continue to rise in the East, but instead come to expect it to do so because it has repeatedly done so in the past.[23]

Hume concluded that such things as belief in an external world and belief in the existence of the self were not rationally justifiable. According to Hume these beliefs were to be accepted nonetheless because of their profound basis in instinct and custom. Hume’s lasting legacy, however, was the doubt that his skeptical arguments cast on the legitimacy of inductive reasoning, allowing many skeptics who followed to cast similar doubt.

Phenomenalism

Main article: Phenomenalism

Most of Hume’s followers have disagreed with his conclusion that belief in an external world is rationally unjustifiable, contending that Hume’s own principles implicitly contained the rational justification for such a belief, that is, beyond being content to let the issue rest on human instinct, custom and habit.[24] According to an extreme empiricist theory known as phenomenalism, anticipated by the arguments of both Hume and George Berkeley, a physical object is a kind of construction out of our experiences.[25] Phenomenalism is the view that physical objects, properties, events (whatever is physical) are reducible to mental objects, properties, events. Ultimately, only mental objects, properties, events, exist — hence the closely related term subjective idealism. By the phenomenalistic line of thinking, to have a visual experience of a real physical thing is to have an experience of a certain kind of group of experiences. This type of set of experiences possesses a constancy and coherence that is lacking in the set of experiences of which hallucinations, for example, are a part. As John Stuart Mill put it in the mid-19th century, matter is the “permanent possibility of sensation”. [26] Mill’s empiricism went a significant step beyond Hume in still another respect: in maintaining that induction is necessary for all meaningful knowledge including mathematics. As summarized by D.W. Hamlin:

[Mill] claimed that mathematical truths were merely very highly confirmed generalizations from experience; mathematical inference, generally conceived as deductive [and a priori] in nature, Mill set down as founded on induction. Thus, in Mill’s philosophy there was no real place for knowledge based on relations of ideas. In his view logical and mathematical necessity is psychological; we are merely unable to conceive any other possibilities than those that logical and mathematical propositions assert. This is perhaps the most extreme version of empiricism known, but it has not found many defenders.[20]

Mill’s empiricism thus held that knowledge of any kind is not from direct experience but an inductive inference from direct experience.[27] The problems other philosophers have had with Mill’s position center around the following issues: Firstly, Mill’s formulation encounters difficulty when it describes what direct experience is by differentiating only between actual and possible sensations. This misses some key discussion concerning conditions under which such “groups of permanent possibilities of sensation” might exist in the first place. Berkeley put God in that gap; the phenomenalists, including Mill, essentially left the question unanswered. In the end, lacking an acknowledgement of an aspect of “reality” that goes beyond mere “possibilities of sensation”, such a position leads to a version of subjective idealism. Questions of how floor beams continue to support a floor while unobserved, how trees continue to grow while unobserved and untouched by human hands, etc., remain unanswered, and perhaps unanswerable in these terms.[20][28] Secondly, Mill’s formulation leaves open the unsettling possibility that the “gap-filling entities are purely possibilities and not actualities at all”. [28] Thirdly, Mill’s position, by calling mathematics merely another species of inductive inference, misapprehends mathematics. It fails to fully consider the structure and method of mathematical science, the products of which are arrived at through an internally consistent deductive set of procedures which do not, either today or at the time Mill wrote, fall under the agreed meaning of induction.[20][28][29]

The phenomenalist phase of post-Humean empiricism ended by the 1940s, for by that time it had become obvious that statements about physical things could not be
3.3. EMPIRICISM

translated into statements about actual and possible sense data.\[30\] If a physical object statement is to be translatable into a sense-data statement, the former must be at least deducible from the latter. But it came to be realized that there is no finite set of statements about actual and possible sense-data from which we can deduce even a single physical-object statement. Remember that the translating or paraphrasing statement must be couched in terms of normal observers in normal conditions of observation. There is, however, no finite set of statements that are couched in purely sensory terms and can express the satisfaction of the condition of the presence of a normal observer. According to phenomenalism, to say that a normal observer is present is to make the hypothetical statement that were a doctor to inspect the observer, the observer would appear to the doctor to be normal. But, of course, the doctor himself must be a normal observer. If we are to specify this doctor’s normality in sensory terms, we must make reference to a second doctor who, when inspecting the sense organs of the first doctor, would himself have to have the sense data a normal observer has when inspecting the sense organs of a subject who is a normal observer. And if we are to specify in sensory terms that the second doctor is a normal observer, we must refer to a third doctor, and so on (also see the third man).\[31\]\[32\]

Logical empiricism

Main article: Logical positivism

Logical empiricism (also logical positivism or neopositivism) was an early 20th-century attempt to synthesize the essential ideas of British empiricism (e.g. a strong emphasis on sensory experience as the basis for knowledge) with certain insights from mathematical logic that had been developed by Gottlob Frege and Ludwig Wittgenstein. Some of the key figures in this movement were Otto Neurath, Moritz Schlick and the rest of the Vienna Circle, along with A.J. Ayer, Rudolf Carnap and Hans Reichenbach.

The neopositivists subscribed to a notion of philosophy as the conceptual clarification of the methods, insights and discoveries of the sciences. They saw in the logical symbolism elaborated by Frege (1848–1925) and Bertrand Russell (1872–1970) a powerful instrument that could rationally reconstruct all scientific discourse into an ideal, logically perfect, language that would be free of the ambiguities and deformations of natural language. This gave rise to what they saw as metaphysical pseudo-problems and other conceptual confusions. By combining Frege’s thesis that all mathematical truths are logical with the early Wittgenstein’s idea that all logical truths are mere linguistic tautologies, they arrived at a twofold classification of all propositions: the analytic (a priori) and the synthetic (a posteriori).\[33\] On this basis, they formulated a strong principle of demarcation between sentences that have sense and those that do not: the so-called verification principle. Any sentence that is not purely logical, or is unverifiable is devoid of meaning. As a result, most metaphysical, ethical, aesthetic and other traditional philosophical problems came to be considered pseudoproblems.\[34\]

In the extreme empiricism of the neopositivists—at least before the 1930s—any genuinely synthetic assertion must be reducible to an ultimate assertion (or set of ultimate assertions) that expresses direct observations or perceptions. In later years, Carnap and Neurath abandoned this sort of phenomenalism in favor of a rational reconstruction of knowledge into the language of an objective spatio-temporal physics. That is, instead of translating sentences about physical objects into sense-data, such sentences were to be translated into so-called protocol sentences, for example, “X at location Y and at time T observes such and such.”\[35\] The central theses of logical positivism (verificationism, the analytic-synthetic distinction, reductionism, etc.) came under sharp attack after World War II by thinkers such as Nelson Goodman, W.V. Quine, Hilary Putnam, Karl Popper, and Richard Rorty. By the late 1960s, it had become evident to most philosophers that the movement had pretty much run its course, though its influence is still significant among contemporary analytic philosophers such as Michael Dummett and other anti-realists.

Pragmatism

In the late 19th and early 20th century several forms of pragmatic philosophy arose. The ideas of pragmatism, in its various forms, developed mainly from discussions between Charles Sanders Peirce and William James when both men were at Harvard in the 1870s. James popularized the term “pragmatism”, giving Peirce full credit for its patrimony, but Peirce later demurred from the tangents that the movement was taking, and redubbed what he regarded as the original idea with the name of “pragmaticism”. Along with its pragmatic theory of truth, this perspective integrates the basic insights of empirical (experience-based) and rational (concept-based) thinking.

Charles Peirce (1839–1914) was highly influential in laying the groundwork for today’s empirical scientific method. Although Peirce severely criticized many elements of Descartes’ peculiar brand of rationalism, he did not reject rationalism outright. Indeed, he concurred with the main ideas of rationalism, most importantly the idea that rational concepts can be meaningful and the idea that rational concepts necessarily go beyond the data given by empirical observation. In later years he even emphasized the concept-driven side of the then ongoing debate between strict empiricism and strict rationalism, in part to counterbalance the excesses to which some of his cohorts had taken pragmatism under the “data-driven” strict-empiricist view.
Among Peirce’s major contributions was to place inductive reasoning and deductive reasoning in a complementary rather than competitive mode, the latter of which had been the primary trend among the educated since David Hume wrote a century before. To this, Peirce added the concept of abductive reasoning. The combined three forms of reasoning serve as a primary conceptual foundation for the empirically based scientific method today. Peirce’s approach “presupposes that (1) the objects of knowledge are real things, (2) the characters (properties) of real things do not depend on our perceptions of them, and (3) everyone who has sufficient experience of real things will agree on the truth about them. According to Peirce’s doctrine of fallibilism, the conclusions of science are always tentative. The rationality of the scientific method does not depend on the certainty of its conclusions, but on its self-corrective character: by continued application of the method science can detect and correct its own mistakes, and thus eventually lead to the discovery of truth”.[36]

In his Harvard “Lectures on Pragmatism” (1903), Peirce enumerated what he called the “three cotary propositions of pragmatism” (L: cos. cotis whetstone), saying that they “put the edge on the maxim of pragmatism”. First among these he listed the peripatetic-thomist observation mentioned above, but he further observed that this link between sensory perception and intellectual conception is a two-way street. That is, it can be taken to say that whatever we find in the intellect is also incipiently in the senses. Hence, if theories are theory-laden then so are the senses, and perception itself can be seen as a species of abductive inference, its difference being that it is beyond control and hence beyond critique – in a word, incorrigible. This in no way conflicts with the fallibility and revisability of scientific concepts, since it is only the immediate percept in its unique individuality or “thiness” – what the Scholastics called its haecceity – that stands beyond control and correction. Scientific concepts, on the other hand, are general in nature, and transient sensations do in another sense find correction within them. This notion of perception as abduction has received periodic revivals in artificial intelligence and cognitive science research, most recently for instance with the work of Irvin Rock on indirect perception.[37][38]

Around the beginning of the 20th century, William James (1842–1910) coined the term “radical empiricism” to describe an offshoot of his form of pragmatism, which he argued could be dealt with separately from his pragmatism – though in fact the two concepts are intertwined in James’s published lectures. James maintained that the empirically observed “directly apprehended universe needs ... no extraneous trans-empirical connective support”,[39] by which he meant to rule out the perception that there can be any value added by seeking supernatural explanations for natural phenomena. James’s “radical empiricism” is thus not radical in the context of the term “empiricism”, but is instead fairly consistent with the modern use of the term “empirical”. (His method of argument in arriving at this view, however, still readily encounters debate within philosophy even today.)
John Dewey (1859–1952) modified James’ pragmatism to form a theory known as instrumentalism. The role of sense experience in Dewey’s theory is crucial, in that he saw experience as unified totality of things through which everything else is interrelated. Dewey’s basic thought, in accordance with empiricism was that reality is determined by past experience. Therefore, humans adapt their past experiences of things to perform experiments upon and test the pragmatic values of such experience. The value of such experience is measured experientially and scientifically, and the results of such tests generate ideas that serve as instruments for future experimentation. In physical sciences as in ethics, thus, ideas in Dewey’s system retain their empiricist flavour in that they are only known a posteriori.

3.3.3 See also

3.3.4 Endnotes

3.3.5 References

- Aristotle, *Posterior Analytics*.
- Dewey, John (1906), *Studies in Logical Theory*.
- James, William (1911), *The Meaning of Truth*.

3.4. RATIONALISM


- Rescher, Nicholas (1985), *The Heritage of Logical Positivism*, University Press of America, Lanham, MD.


- Sorabji, Richard (1972), *Aristotle on Memory*.


3.3.6 External links

- Rationalism vs. Empiricism entry in the *Stanford Encyclopedia of Philosophy*

- Rationalism vs. Empiricism at the Indiana Philosophy Ontology Project

- Empiricism on *In Our Time* at the BBC. (listen now)

- Empiricism

- Theory of Knowledge: An Introduction to Empiricism

- Empiricist Man

3.4 Rationalism

This article is about the philosophical method, position, theory, or view. For other uses, see Rationalism (disambiguation).

In epistemology, rationalism is the view that “regards reason as the chief source and test of knowledge”[41] or “any view appealing to reason as a source of knowledge or justification”. More formally, rationalism is defined as a methodology or a theory “in which the criterion of the truth is not sensory but intellectual and deductive".[3] Rationalists believe reality has an intrinsically logical structure. Because of this, rationalists argue that certain truths exist and that the intellect can directly grasp these truths. That is to say, rationalists assert that certain rational principles exist in logic, mathematics, ethics, and metaphysics that are so fundamentally true that denying them causes one to fall into contradiction. Rationalists have such a high confidence in reason that empirical proof and physical evidence are unnecessary to ascertain truth – in other words, “there are significant ways in which our concepts and knowledge are gained independently of sense experience”.[6] Because of this belief, empiricism is one of rationalism’s greatest rivals.

Different degrees of emphasis on this method or theory lead to a range of rationalist standpoints, from the moderate position “that reason has precedence over other ways of acquiring knowledge” to the more extreme position that reason is “the unique path to knowledge”.[5] Given a pre-modern understanding of reason, rationalism is identical to philosophy, the Socratic life of inquiry, or the zetetic (skeptical) clear interpretation of authority (open to the underlying or essential cause of things as they appear to our sense of certainty). In recent decades, Leo Strauss sought to revive “Classical Political Rationalism” as a discipline that understands the task of reasoning, not as foundational, but as maieutic. Rationalism should not be confused with rationality, nor with rationalization.
In politics, Rationalism, since the Enlightenment, historically emphasized a “politics of reason” centered upon rational choice, utilitarianism, secularism, and irreligion – the latter aspect’s antitheism later ameliorated by utilitarian adoption of pluralistic rationalist methods practicable regardless of religious or irreligious ideology.

In this regard, the philosopher John Cottingham noted how rationalism, a methodology, became socially conflated with atheism: In the past, particularly in the 17th and 18th centuries, the term ‘rationalist’ was often used to refer to free thinkers of an anti-clerical and anti-religious outlook, and for a time the word acquired a distinctly pejorative force (thus in 1670 Sanderson spoke disparagingly of ‘a mere rationalist, that is to say in plain English an atheist of the late edition...’). The use of the label ‘rationalist’ to characterize a world outlook which has no place for the supernatural is becoming less popular today; terms like ‘humanist’ or ‘materialist’ seem largely to have taken its place. But the old usage still survives.

3.4.1 Philosophical usage

Rationalism is often contrasted with empiricism. Taken very broadly these views are not mutually exclusive, since a philosopher can be both rationalist and empiricist.

Taken to extremes, the empiricist view holds that all ideas come to us a posteriori, that is to say, through experience; either through the external senses or through such inner sensations as pain and gratification. The empiricist essentially believes that knowledge is based on or derived directly from experience. The rationalist believes we come to knowledge a priori – through the use of logic – and is thus independent of sensory experience. In other words, as Galen Strawson once wrote, “you can see that it is true just lying on your couch. You don’t have to get up off your couch and go outside and examine the way things are in the physical world. You don’t have to do any science.”[10] Between both philosophies, the issue at hand is the fundamental source of human knowledge and the proper techniques for verifying what we think we know. Whereas both philosophies are under the umbrella of epistemology, their argument lies in the understanding of the warrant, which is under the wider epistemic umbrella of the theory of justification.

Theory of justification

Main article: Theory of justification

The theory of justification is the part of epistemology that attempts to understand the justification of propositions and beliefs. Epistemologists are concerned with various epistemic features of belief, which include the ideas of justification, warrant, rationality, and probability. Of these four terms, the term that has been most widely used and discussed by the early 21st century is “warrant”. Loosely speaking, justification is the reason that someone (probably) holds a belief.

If “A” makes a claim, and “B” then casts doubt on it, “A”’s next move would normally be to provide justification. The precise method one uses to provide justification is where the lines are drawn between rationalism and empiricism (among other philosophical views). Much of the debate in these fields are focused on analyzing the nature of knowledge and how it relates to connected notions such as truth, belief, and justification.

Theses of rationalism

At its core, rationalism consists of three basic claims. For one to consider themselves a rationalist, they must adopt at least one of these three claims: The Intuition/Deduction Thesis, The Innate Knowledge Thesis, or The Innate Concept Thesis. In addition, rationalists can choose to adopt the claims of Indispensability of Reason and or the Superiority of Reason – although one can be a rationalist without adopting either thesis.

The intuition/deduction thesis Main articles: Intuition (philosophy) and Deductive reasoning

Rationale: “Some propositions in a particular subject area, S, are knowable by us by intuition alone; still others are knowable by being deduced from intuited propositions.”[11]

Generally speaking, intuition is a priori knowledge or experiential belief characterized by its immediacy; a form of rational insight. We simply just “see” something in such a way as to give us a warranted belief. Beyond that, the nature of intuition is hotly debated.

In the same way, generally speaking, deduction is the process of reasoning from one or more general premises to reach a logically certain conclusion. Using valid arguments, we can deduce from intuited premises.

For example, when we combine both concepts, we can intuit that the number three is prime and that it is greater than two. We then deduce from this knowledge that there is a prime number greater than two. Thus, it can be said that intuition and deduction combined to provide us with a priori knowledge – we gained this knowledge independently of sense experience.

Empiricists such as David Hume have been willing to accept this thesis for describing the relationships among our own concepts.[11] In this sense, empiricists argue that we are allowed to intuit and deduce truths from knowledge that has been obtained a posteriori.

By injecting different subjects into the Intuition/Deduction thesis, we are able to generate different arguments. Most rationalists agree mathematics is
knowable by applying the intuition and deduction. Some go further to include ethical truths into the category of things knowable by intuition and deduction. Furthermore, some rationalists also claim metaphysics is knowable in this thesis.

In addition to different subjects, rationalists sometimes vary the strength of their claims by adjusting their understanding of the warrant. Some rationalists understand warranted beliefs to be beyond even the slightest doubt; others are more conservative and understand the warrant to be belief beyond a reasonable doubt.

Rationalists also have different understanding and claims involving the connection between intuition and truth. Some rationalists claim that intuition is infallible and that anything we intuit to be true is as such. More contemporary rationalists accept that intuition is not always a source of certain knowledge – thus allowing for the possibility of a deceiver who might cause the rationalist to intuit a false proposition in the same way a third party could cause the rationalist to have perceptions of nonexistent objects.

Naturally, the more subjects the rationalists claim to be knowable by the Intuition/Deduction thesis, the more certain they are of their warranted beliefs, and the more strictly they adhere to the infallibility of intuition, the more controversial their truths or claims and the more radical their rationalism.[11]

To argue in favor of this thesis, Gottfried Wilhelm Leibniz, a prominent German philosopher, says, “The senses, although they are necessary for all our actual knowledge, are not sufficient to give us the whole of it, since the senses never give anything but instances, that is to say particular or individual truths. Now all the instances which confirm a general truth, however numerous they may be, are not sufficient to establish the universal necessity of this same truth, for it does not follow that what happened before will happen in the same way again. … From which it appears that necessary truths, such as we find in pure mathematics, and particularly in arithmetic and geometry, must have principles whose proof does not depend on instances, nor consequently on the testimony of the senses, although without the senses it would never have occurred to us to think of them…”[12]

**The innate concept thesis**

**Rationale:** "We have knowledge of some truths in a particular subject area, S, as part of our rational nature."

The Innate Knowledge thesis is similar to the Intuition/Deduction thesis in the regard that both theses claim knowledge is gained a priori. The two theses go their separate ways when describing how that knowledge is gained. As the name, and the rationale, suggests, the Innate Knowledge thesis claims knowledge is simply part of our rational nature. Experiences can trigger a process that allows this knowledge to come into our consciousness, but the experiences don’t provide us with the knowledge itself. The knowledge has been with us since the beginning and the experience simply brought into focus, in the same way a photographer can bring the background of a picture into focus by changing the aperture of the lens. The background was always there, just not in focus.

This thesis targets a problem with the nature of inquiry originally postulated by Plato in *Meno*. Here, Plato asks about inquiry; how do we gain knowledge of a theorem in geometry? We inquire into the matter. Yet, knowledge by inquiry seems impossible.[14] In other words, “If we already have the knowledge, there is no place for inquiry. If we lack the knowledge, we don’t know what we are seeking and cannot recognize it when we find it. Either way we cannot gain knowledge of the theorem by inquiry. Yet, we do know some theorems.”[13] The Innate Knowledge thesis offers a solution to this paradox. By claiming that knowledge is already with us, either consciously or unconsciously, a rationalist claims we don’t really “learn” things in the traditional usage of the word, but rather that we simply bring to light what we already know.

**The innate knowledge thesis**

**Rationale:** "We have some of the concepts we employ in a particular subject area, S, as part of our rational nature."

Similar to the Innate Knowledge thesis, the Innate Concept thesis suggests that some concepts are simply part of our rational nature. These concepts are a priori in nature and sense experience is irrelevant to determining the nature of these concepts (though, sense experience can help bring the concepts to our conscious mind).

Some philosophers, such as John Locke (who is considered one of the most influential thinkers of the Enlightenment and an empiricist) argue that the Innate Knowledge thesis and the Innate Concept thesis are the same.[16] Other philosophers, such as Peter Carruthers, argue that the two theses are distinct from one another. As with the other theses covered under rationalisms’ umbrella, the types and number of concepts a philosopher claims to be innate, the more controversial and radical their position; “the more a concept seems removed from experience and the mental operations we can perform on experience the more plausibly it may be claimed to be innate. Since we do not experience perfect triangles but do experience pain, our concept of the former is a more promising candidate for being innate than our concept of the latter.[15]

In his book, *Meditations on First Philosophy*, René Descartes postulates three classifications for our ideas when he says, “Among my ideas, some appear to be innate, some to be adventitious, and others to have been invented by me. My understanding of what a thing is, what truth is, and what thought is, seems to derive simply from my own nature. But my hearing a noise, as I do now, or seeing the sun, or feeling the fire, comes from things which are located outside me, or so I have hitherto judged. Lastly, sirens, hippogriffs and the like are
my own invention.”[18]

Adventitious ideas are those concepts that we gain through sense experiences, ideas such as the sensation of heat, because they originate from outside sources; transmitting their own likeness rather than something else and something you simply cannot will away. Ideas invented by us, such as those found in mythology, legends, and fairy tales are created by us from other ideas we possess. Lastly, innate ideas, such as our ideas of perfection, are those ideas we have as a result of mental processes that are beyond what experience can directly or indirectly provide.

Gottfried Wilhelm Leibniz defends the idea of innate concepts by suggesting the mind plays a role in determining the nature of concepts, to explain this, he likens the mind to a block of marble in the New Essays on Human Understanding. “This is why I have taken as an illustration a block of veined marble, rather than a wholly uniform block or blank tablets, that is to say what is called tabula rasa in the language of the philosophers. For if the soul were like those blank tablets, truths would be in us in the same way as the figure of Hercules is in a block of marble. when the marble is completely indifferent whether it receives this or some other figure. But if there were veins in the stone which marked out the figure of Hercules rather than other figures, this stone would be more determined thereto, and Hercules would be as it were in some manner innate in it, although labour would be needed to uncover the veins, and to clear them by polishing, and by cutting away what prevents them from appearing. It is in this way that ideas and truths are innate in us, like natural inclinations and dispositions, natural habits or potentialities, and not like activities, although these potentialities are always accompanied by some activities which correspond to them, though they are often imperceptible.”[19]

The other two theses The three aforementioned theses of Intuition/Deduction, Innate Knowledge, and Innate Concept are the cornerstones of rationalism. To be considered a rationalist, one must adopt at least one of those three claims. The following two theses are traditionally adopted by rationalists, but they aren’t essential to the rationalist’s position.

The Indispensability of Reason Thesis has the following rationale, “The knowledge we gain in subject area, S, by intuition and deduction, as well as the ideas and instances of knowledge in S that are innate to us, could not have been gained by us through sense experience.”[4] In short, this thesis claims that experience cannot provide what we gain from reason.

The Superiority of Reason Thesis has the following rationale, “The knowledge we gain in subject area S by intuition and deduction or have innately is superior to any knowledge gained by sense experience”. [4] In other words, this thesis claims reason is superior to experience as a source for knowledge.

In addition to the following claims, rationalists often adopt similar stances on other aspects of philosophy. Most rationalists reject skepticism for the areas of knowledge they claim are knowable a priori. Naturally, when you claim some truths are innately known to us, one must reject skepticism in relation to those truths. Especially for rationalists who adopt the Intuition/Deduction thesis, the idea of epistemic foundationalism tends to crop up. This is the view that we know some truths without basing our belief in them on any others and that we then use this foundational knowledge to know more truths.[1]

3.4.2 Background

Rationalism - as an appeal to human reason as a way of obtaining knowledge - has a philosophical history dating from antiquity. The analytical nature of much of philosophical enquiry, the awareness of apparently a priori domains of knowledge such as mathematics, combined with the emphasis of obtaining knowledge through the use of rational faculties (commonly rejecting, for example, direct revelation) have made rationalist themes very prevalent in the history of philosophy.

Since the Enlightenment, rationalism is usually associated with the introduction of mathematical methods into philosophy as seen in the works of Descartes, Leibniz, and Spinoza.[3] This is commonly called continental rationalism, because it was predominant in the continental schools of Europe, whereas in Britain empiricism dominated.

Even then, the distinction between rationalists and empiricists was drawn at a later period and would not have been recognized by the philosophers involved. Also, the distinction between the two philosophies is not as clear cut as is sometimes suggested; for example, Descartes and Locke have similar views about the nature of human ideas.[4]

Proponents of some varieties of rationalism argue that, starting with foundational basic principles, like the axioms of geometry, one could deductively derive the rest of all possible knowledge. The philosophers who held this view most clearly were Baruch Spinoza and Gottfried Leibniz, whose attempts to grapple with the epistemological and metaphysical problems raised by Descartes led to a development of the fundamental approach of rationalism. Both Spinoza and Leibniz asserted that, in principle, all knowledge, including scientific knowledge, could be gained through the use of reason alone, though they both observed that this was not possible in practice for human beings except in specific areas such as mathematics. On the other hand, Leibniz admitted in his book Monadology that “we are all mere Empirics in three fourths of our actions.”[5]

3.4.3 History
3.4. RATIONALISM

Rationalist philosophy from antiquity

Because of the complicated nature of rationalist thinking, the nature of philosophy, and the understanding that humans are aware of knowledge available only through the use of rational thought, many of the great philosophers from antiquity laid down the foundation for rationalism though they themselves weren’t rationalists as we understand the concept today.

Pythagoras (570–495 BCE)  Main article: Pythagoras

Pythagoras was one of the first Western philosophers to stress rationalist insight.[20] He is often revered as a great mathematician, mystic and scientist, but he is best known for the Pythagorean theorem, which bears his name, and for discovering the mathematical relationship between the length of strings on lute bear and the pitches of the notes. Pythagoras believed these harmonies reflected the ultimate nature of reality. He summed up the implied metaphysical rationalism in the words “All is number.” It is probable that he had caught the rationalist’s vision, later seen by Galileo (1564–1642), of a world governed throughout by mathematically formulable laws.”[20] It has been said that he was the first man to call himself a philosopher, or lover of wisdom.[21]

Plato (427–347 BCE)  Main article: Plato

Plato also held rational insight to a very high standard, as is seen in his works such as Meno and The Republic. Plato taught on the Theory of Forms (or the Theory of Ideas)[22][23][24] which asserts that non-material abstract (but substantial) forms (or ideas), and not the material world of change known to us through sensation, possess the highest and most fundamental kind of reality.[25] Plato’s forms are accessible only to reason and not to sense.[20] In fact, it is said that Plato admired reason, especially in geometry, so highly that he had the phrase “Let no one ignorant of geometry enter” inscribed over the door to his academy.[26]

Aristotle (384–322 BCE)  Main article: Aristotle

Aristotle has a process of reasoning similar to that of Plato’s, though he ultimately disagreed with the specifics of Plato’s forms. Aristotle’s great contribution to rationalist thinking comes from his use of syllogistic logic. Aristotle defines syllogism as “a discourse in which certain (specific) things having been supposed, something different from the things supposed results of necessity because these things are so.”[27] Despite this very general definition, Aristotle limits himself to categorical syllogisms which consist of three categorical propositions in his work Prior Analytics.[28] These included categorical modal syllogisms.[29]

Post-Aristotle  Though the three great Greek philosophers disagreed with one another on specific points, they all agreed that rational thought could bring to light knowledge that was self-evident – information that humans otherwise couldn’t know without the use of reason. After Aristotle’s death, Western rationalistic thought was generally characterized by its application to theology, such as in the works of the Islamic philosopher Avicenna and Jewish philosopher and theologian Maimonides. One notable event in the Western timeline was the philosophy of St. Thomas Aquinas who attempted to merge Greek rationalism and Christian revelation in the thirteenth-century.[20]

Modern rationalism

René Descartes (1596–1650)  Main article: René Descartes

Descartes was the first of the modern rationalists and has been dubbed the ‘Father of Modern Philosophy.’ Much subsequent Western philosophy is a response to his writings,[30][31][32] which are studied closely to this day. Descartes thought that only knowledge of eternal truths – including the truths of mathematics, and the epistemological and metaphysical foundations of the sciences – could be attained by reason alone; other knowledge, the knowledge of physics, required experience of the world, aided by the scientific method. He also argued that although dreams appear as real as sense experience, these dreams cannot provide persons with knowledge. Also, since conscious sense experience can be the cause of illusions, then sense experience itself can be doubtable. As a result, Descartes deduced that a rational pursuit of truth should doubt every belief about reality. He elaborated these beliefs in such works as Discourse on Method, Meditations on First Philosophy, and Principles of Philosophy. Descartes developed a method to attain truths according to which nothing that cannot be recognised by the intellect (or reason) can be classified as knowledge. These truths are gained “without any sensory experience,” according to Descartes. Truths that are attained by reason are broken down into elements that intuition can grasp, which, through a purely deductive process, will result in clear truths about reality.

Descartes therefore argued, as a result of his method, that reason alone determined knowledge, and that this could be done independently of the senses. For instance, his famous dictum, cogito ergo sum or “I think, therefore I am”, is a conclusion reached a priori i.e., prior to any kind of experience on the matter. The simple meaning is that doubting one’s existence, in and of itself, proves that an “I” exists to do the thinking. In other words, doubting one’s own doubting is absurd.[33] This was, for Descartes,
an irrefutable principle upon which to ground all forms of other knowledge. Descartes posited a metaphysical dualism, distinguishing between the substances of the human body ("res extensa") and the mind or soul ("res cogitans"). This crucial distinction would be left unresolved and lead to what is known as the mind-body problem, since the two substances in the Cartesian system are independent of each other and irreducible.

Baruch Spinoza (1632–1677) Main article: Philosophy of Spinoza

The philosophy of Baruch Spinoza is a systematic, logical, rational philosophy developed in seventeenth-century Europe.[34][35][36] Spinoza’s philosophy is a system of ideas constructed upon basic building blocks with an internal consistency with which he tried to answer life’s major questions and in which he proposed that “God exists only philosophically.”[36][37] He was heavily influenced by Descartes,[38] Euclid[37] and Thomas Hobbes,[38] as well as theologians in the Jewish philosophical tradition such as Maimonides.[38] But his work was in many respects a departure from the Judeo-Christian tradition. Many of Spinoza’s ideas continue to vex thinkers today and many of his principles, particularly regarding the emotions, have implications for modern approaches to psychology. To this day, many important thinkers have found Spinoza’s “geometrical method”[36] difficult to comprehend: Goethe admitted that he found this concept confusing. His magnum opus, Ethics, contains unresolved obscurities and has a forbidding mathematical structure modeled on Euclid’s geometry.[37] Spinoza’s philosophy attracted believers such as Albert Einstein[39] and much intellectual attention.[40][41][42][43][44]

Gottfried Leibniz (1646–1716) Main article: Gottfried Leibniz

Leibniz was the last of the great Rationalists who contributed heavily to other fields such as metaphysics, epistemology, logic, mathematics, physics, jurisprudence, and the philosophy of religion; he is also considered to be one of the last “universal geniuses.”[45] He did not develop his system, however, independently of these advances. Leibniz rejected Cartesian dualism and denied the existence of a material world. In Leibniz’s view there are infinitely many simple substances, which he called “monads” (possibly taking the term from the work of Anne Conway).

Leibniz developed his theory of monads in response to both Descartes and Spinoza, because the rejection of their visions forced him to arrive at his own solution. Monads are the fundamental unit of reality, according to Leibniz, constituting both inanimate and animate objects. These units of reality represent the universe, though they are not subject to the laws of causality or space (which he called “well-founded phenomena”). Leibniz, therefore, introduced his principle of pre-established harmony to account for apparent causality in the world.

Immanuel Kant (1724–1804) Main article: Immanuel Kant

Kant is one of the central figures of modern philosophy, and set the terms by which all subsequent thinkers have had to grapple. He argued that human perception structures natural laws, and that reason is the source of morality. His thought continues to hold a major influence in contemporary thought, especially in fields such as metaphysics, epistemology, ethics, political philosophy, and aesthetics.[46] Kant named his branch of epistemology Transcendental Idealism, and he first laid out these views in his famous work The Critique of Pure Reason. In it he argued that there were fundamental problems with both rationalist and empiricist dogma. To the rationalists he argued, broadly, that pure reason is flawed when it goes beyond its limits and claims to know those things that are necessarily beyond the realm of all possible experience: the existence of God, free will, and the immortality of the human soul. Kant referred to these objects as “The Thing in Itself” and goes on to argue that their status as objects beyond all possible experience by definition means we cannot know them. To the empiricist he argued that while it is correct that experience is fundamentally necessary for human knowledge, reason is necessary for processing that experience into coherent thought. He therefore concludes that both reason and experience are necessary for human knowledge. In the same way, Kant also argued that it was wrong to regard thought as mere analysis. In Kant’s views, a priori concepts do exist, but if they are to lead to the amplification of knowledge, they must be brought into relation with empirical data”.[47]
3.4. RATIONALISM

- Idealism
- Innatism
- Irrationalism
- Positivism
- Logical positivism
- Logical truth
- Natural philosophy
- Nature versus nurture
- Nominalism
- Objectivity (philosophy)
- Objectivity (science)
- Panrationalism
- Philosophical realism
- Philosophy of Spinoza
- Poverty of the stimulus
- Platonic realism
- Pluralistic Rationalism
- Psychological nativism
- Rationalist International
- Rational mysticism
- Rationality and power
- Tabula rasa

3.4.5 References

Citations

[1] Encyclopedia Britannica: Rationalism


[14] Meno, 80d–e


[16] Locke, Concerning Human Understanding. Book I, Ch. III, par. 20


[18] René Descartes AT VII 37–8; CSM II 26


[22] Modern English textbooks and translations prefer “theory of Form” to “theory of Ideas,” but the latter has a long and respected tradition starting with Cicero and continuing in German philosophy until present, and some English philosophers prefer this in English too. See W D Ross, Plato’s Theory of Ideas (1951) and this reference site.

[23] The name of this aspect of Plato’s thought is not modern and has not been extracted from certain dialogues by modern scholars. The term was used at least as early as Diogenes Laertius, who called it (Plato’s) “Theory of Forms:” Πλάτων ἐν τῇ περὶ τῶν ἰδεῶν ὑπολήψει..., “Plato”. Lives of Eminent Philosophers. Book III. pp. 15.
Plato uses many different words for what is traditionally called form in English translations and idea in German and Latin translations (Cicero). These include ἰδέα, morphe, eldos, and paradigmata, but also γένος, physis, and oassia. He also uses expressions such as τὸ τῆς, “the x itself” or καθ’ auto “in itself.” See Christian Schäfer: Idee/Form/Gestalt/Wesen, in Platon-Lexikon, Darmstadt 2007, p. 157.

Forms (usually given a capital F) were properties or essences of things, treated as non-material abstract, but substantial, entities. They were eternal, changeless, supremely real, and independent of ordinary objects that had their being and properties by ‘participating’ in them. Plato’s theory of forms (or ideas)

Frequently Asked Questions about Plato – Bernard SUZANNE

Aristotle, Prior Analytics, 24b18–20

Stanford Encyclopedia of Philosophy: Ancient Logic Aristotle Non-Modal Syllogistic

Stanford Encyclopedia of Philosophy: Ancient Logic Aristotle Modal Logic


Heidegger [1938] (2002) p. 76 “Descartes… that which he himself founded… modern (and that means, at the same time, Western) metaphysics.”


Encyclopedia Britannia: Epistemological rationalism in modern philosophies


Kelley L. Ross (1999). “Baruch Spinoza (1632–1677)”. History of Philosophy As I See It. Retrieved 2009-12-07. While for Spinoza all is God and all is Nature, the active/passive dualism enables us to restore, if we wish, something more like the traditional terms. Natura Naturans is the most God-like side of God, eternal, unchanging, and invisible, while Natura Naturata is the most Nature-like side of God, transient, changing, and visible.

Anthony Gottlieb (July 18, 1999). “God Exists, Philosophically”. The New York Times: Books. Retrieved 2009-12-07. Spinoza, a Dutch Jewish thinker of the 17th century, not only preached a philosophy of tolerance and benevolence but actually succeeded in living it. He was reviled in his own day and long afterward for his supposed atheism, yet even his enemies were forced to admit that he lived a saintly life.


Michael LeBuffe (book reviewer) (2006-11-05). “Spinoza’s Ethics: An Introduction, by Steven Nadler”. University of Notre Dame. Retrieved 2009-12-07. Spinoza’s Ethics is a recent addition to Cambridge’s Introductions to Key Philosophical Texts, a series developed for the purpose of helping readers with no specific background knowledge to begin the study of important works of Western philosophy...


Excerpt from the Encyclopedia Britannica

Primary sources
3.5 Constructivist epistemology

Constructivist epistemology is a branch in philosophy of science maintaining that natural science consists of mental constructs that are constructed with the aim of explaining sensory experience (or measurements) of the natural world. According to it, scientific knowledge is constructed by the scientific community, who seek to measure and construct models of the natural world.

3.5.1 Tenets

According to constructivists the world is independent of human minds, but knowledge of the world is always a human and social construction. Constructivism opposes the philosophy of objectivism, which embraces the belief that a human can come to know the truth about the natural world not mediated by scientific approximations, with different degrees of validity and accuracy.

According to constructivists there is no single valid methodology in science, but rather a diversity of useful methods.

3.5.2 Origin of the term

The term originates from psychology, education and social constructivism. The expression “constructivist epistemology” was first used by Jean Piaget, 1967, with plural form in the famous article from the “Encyclopédie de la Pléiade” Logique et connaissance scientifique or “Logic and Scientific knowledge”, an important text for epistemology. He refers directly to the mathematician Brouwer and his radical constructivism.

Constructionism and constructivism are often used interchangeably, but should not be. Constructionism is an approach to learning that was developed by Papert; the approach was greatly influenced by his work with Piaget, but it is very different. Constructionism involves the creation of a product to show learning. It is believed by constructivists that representations of physical and biological reality, including race, sexuality, and gender, as well as tables, chairs and atoms are socially constructed. Kant, G.H. and Marx were among the first to suggest such an ambitious expansion of the power of ideas to inform the material realities of people’s lives.

3.5.3 History

Constructivism stems from a number of philosophies. For instance, early development can be attributed to the thought of Greek philosophers such as Heraclitus (Everything flows, nothing stands still), Protagoras (Man is the measure of all things). Protagoras is clearly represented by Plato and hence the tradition as a relativist. The
Pyrrhonist sceptics have also been so interpreted. (Although this is more contentious.)

Following the Renaissance and the Enlightenment, with the phenomenology and the event, Kant gives a decisive contradiction to Cartesians’ epistemology that has grown since Descartes despite Giambattista Vico calling in *Scienza nuova* (“New Science”) in 1725 that “the norm of the truth is to have made it”. The Enlightenment’s claim of the universality of Reason as the only true source of knowledge generated a Romantic reaction involving an emphasis on the separate natures of races, species, sexes and types of human.

- **Gaston Bachelard**, who is known for his physics psychoanalysis and the definition of an “epistemologic obstacle” that can disturb a changing of scientific paradigm as the one that occurred between classical mechanics and Einstein’s relativism, opens the teleological way with “The meditation on the object takes the form of the project”. In the following famous saying, he insists that the ways in which questions are posed determines the trajectory of scientific movement, before summarizing “nothing is given, all is constructed”: “And, irrespective of what one might assume, in the life of a science, problems do not arise by themselves. It is precisely this that marks out a problem as being of the true scientific spirit: all knowledge is in response to a question. If there were no question, there would be no scientific knowledge. Nothing proceeds from itself. Nothing is given. All is constructed.”. Gaston Bachelard (*La formation de l’esprit scientifique*, 1934). While quantum mechanics is starting to grow, Gaston Bachelard makes a call for a new science in *Le nouvel esprit scientifique* (The New Scientific Spirit).

- **Paul Valéry**, French poet (20th century) reminds us of the importance of representations and action: “We have always sought explanations when it was only representations that we could seek to invent”, “My hand feels touched as well as it touches; reality says this, and nothing more”.

- This link with action, which could be called a “philosophy of action”, was well represented by Spanish poet Antonio Machado: *Caminante, no hay camino, se hace camino al andar*.

- **Ludwik Fleck** establishes scientific constructivism by introducing the notions of thought collective (*Denkkollektiv*), and thought style (*Denksstil*), through which the evolution of science is much more understandable, because the research objects can be described in terms of the assumptions (thought style) that are shared for practical but also inherently social reasons, or just because any thought collective tends to preserve itself. These notions have been drawn upon by Thomas Kuhn.

- **Norbert Wiener** gives another defense of teleology in 1943 *Behavior, Intention and Teleology* and is one of the creators of cybernetics.

- **Jean Piaget**, after the creation in 1955 of the International Centre for Genetic Epistemology in Geneva, first uses the expression “constructivist epistemologies” (see above). According to **Ernst von Glasersfeld**, Jean Piaget is “the great pioneer of the constructivist theory of knowing” (in *An Exposition of Constructivism: Why Some Like it Radical*, 1990) and “the most prolific constructivist in our century” (in *Aspects of Radical Constructivism*, 1996).

- **J. L. Austin** is associated with the view that speech is not only passively describing a given reality, but it can change the (social) reality to which it is applied through speech acts.

- **Herbert A. Simon** called « The sciences of the artificial » these new sciences (cybernetics, cognitive sciences, decision and organisation sciences) that, because of the abstraction of their object (information, communication, decision), cannot match with the classical epistemology and its experimental method and refutability.


- **Paul Watzlawick**, who supervised in 1984 the publication of *Invented Reality: How Do We Know What We Believe We Know?* (Contributions to constructivism).

- **Ernst von Glasersfeld**, who has promoted since the end of the 70s radical constructivism (see below).


- **Mioara Mugur-Schächter** who is also a quantum mechanics specialist.

- **Jean-Louis Le Moigne** for his encyclopedic work on constructivist epistemology and his General Systems theory (see “Le Moigne’s Defense of Constructivism” by Ernst von Glasersfeld).

- **Niklas Luhmann** who developed “operative constructivism” in the course of developing his theory of autopoietic social systems, drawing on the works of (among others) Bachelard, Valéry, Bateson, von Foerster, von Glasersfeld and Morin.
3.5.4 Constructivism and sciences

Social constructivism in sociology

Main article: Social constructionism

One version of social constructivism contends that categories of knowledge and reality are actively created by social relationships and interactions. These interactions also alter the way in which scientific episteme is organized.

Social activity presupposes human beings inhabiting shared forms of life, and in the case of social construction, utilizing semiotic resources (meaning-making and signifying) with reference to social structures and institutions. Several traditions use the term Social Constructivism: psychology (after Lev Vygotsky), sociology (after Peter Berger and Thomas Luckmann, themselves influenced by Alfred Schütz), sociology of knowledge (David Bloor), sociology of mathematics (Sal Restivo), philosophy of mathematics (Paul Ernest). Ludwig Wittgenstein’s later philosophy can be seen as a foundation for Social Constructivism, with its key theoretical concepts of language games embedded in forms of life.

Constructivism in philosophy of science

Thomas Kuhn argued that changes in scientists’ views of reality not only contain subjective elements, but result from group dynamics, “revolutions” in scientific practice and changes in “paradigms”. As an example, Kuhn suggested that the Sun-centric Copernican “revolution” replaced the Earth-centric views of Ptolemy not because of empirical failures, but because of a new “paradigm” that exerted control over what scientists felt to be the more fruitful way to pursue their goals.

“But paradigm debates are not really about relative problem-solving ability, though for good reasons they are usually couched in those terms. Instead, the issue is which paradigm should in future guide research on problems many of which neither competitor can yet claim to resolve completely. A decision between alternate ways of practicing science is called for, and in the circumstances that decision must be based less on past achievement than on future promise.... A decision of that kind can only be made on faith.” — Thomas Kuhn, The Structure of Scientific Revolutions, pp 157-8

The view of reality as accessible only through models was called model-dependent realism by Stephen Hawking and Leonard Mlodinow. While not rejecting an independent reality, model-dependent realism says that we can know only an approximation of it provided by the intermediary of models. These models evolve over time as guided by scientific inspiration and experiment.

In the field of the social sciences, constructivism as an epistemology urges that researchers reflect upon the paradigms that may be underpinning their research, and in the light of this that they become more open to consider other ways of interpreting any results of the research. Furthermore, the focus is on presenting results as negotiable constructs rather than as models that aim to “represent” social realities more or less accurately. Norma Romm in her book Accountability in Social Research (2001) argues that social researchers can earn trust from participants and wider audiences insofar as they adopt this orientation and invite inputs from others regarding their inquiry practices and the results thereof.

Constructivism and psychology

Main article: Constructivism (psychological school)

In psychology, constructivism refers to many schools of thought that, though extraordinarily different in their techniques (applied in fields such as education and psychotherapy), are all connected by a common critique of previous standard approaches, and by shared assumptions about the active constructive nature of human knowledge. In particular, the critique is aimed at the “associationist” postulate of empiricism, “by which the mind is conceived as a passive system that gathers its contents from its environment and, through the act of knowing, produces a copy of the order of reality.”

In contrast, “constructivism is an epistemological premise grounded on the assertion that, in the act of knowing, it is the human mind that actively gives meaning and order to reality to which it is responding.” The constructivist psychologies theorize about and investigate how human beings create systems for meaningfully understanding their worlds and experiences.

Constructivism and education

Main article: Constructivism (learning theory)

Joe L. Kincheloe has published numerous social and educational books on critical constructivism (2001, 2005, 2008), a version of constructivist epistemology that places emphasis on the exaggerated influence of political and cultural power in the construction of knowledge, consciousness, and views of reality. In the contemporary mediated electronic era, Kincheloe argues, dominant modes of power have never exerted such influence on human affairs. Coming from a critical pedagogical perspective, Kincheloe argues that understanding a critical constructivist epistemology is central to becoming an edu-
cated person and to the institution of just social change. Kincheloe’s characteristics of critical constructivism:

- Knowledge is socially constructed: World and information co-construct one another
- Consciousness is a social construction
- Political struggles: Power plays an exaggerated role in the production of knowledge and consciousness
- The necessity of understanding consciousness—even though it does not lend itself to traditional reductionistic modes of measurability
- The importance of uniting logic and emotion in the process of knowledge and producing knowledge
- The inseparability of the knower and the known
- The centrality of the perspectives of oppressed peoples—the value of the insights of those who have suffered as the result of existing social arrangements
- The existence of multiple realities: Making sense of a world far more complex that we originally imagined
- Becoming humble knowledge workers: Understanding our location in the tangled web of reality
- Standpoint epistemology: Locating ourselves in the web of reality, we are better equipped to produce our own knowledges
- Constructing practical knowledge for critical social action
- Complexity: Overcoming reductionism
- Knowledge is always entrenched in a larger process
- The centrality of interpretation: Critical hermeneutics
- The new frontier of classroom knowledge: Personal experiences intersecting with pluriversal information
- Constructing new ways of being human: Critical ontology

**Constructivist trends**

**Cultural constructivism**

Cultural constructivism asserts that knowledge and reality are a product of their cultural context, meaning that two independent cultures will likely form different observational methodologies. For instance, Western cultures generally rely on objects for scientific descriptions; by contrast, some Native American cultures rely on events for descriptions. These are two distinct ways of constructing reality based on external artifacts.

**Radical constructivism**

Ernst von Glasersfeld was a prominent proponent of radical constructivism. This claims that knowledge is not a commodity which is transported from one mind into another. Rather, it is up to the individual to “link up” specific interpretations of experiences and ideas with their own reference of what is possible and viable. That is, the process of constructing knowledge, of understanding, is dependent on the individual’s subjective interpretation of their active experience, not what “actually” occurs. Understanding and acting are seen by radical constructivists not as dualistic processes, but “circularly conjoined”.[9]

**Constructivist Foundations** is a free online journal publishing peer reviewed articles on radical constructivism by researchers from multiple domains.

See also: Francisco Varela, Humberto Maturana and Heinz von Foerster

**Critical constructivism**

A series of articles published in the journal *Critical Inquiry* (1991) served as a manifesto for the movement of critical constructivism in various disciplines, including the natural sciences. Not only truth and reality, but also “evidence”, “document”, “experience”, “fact”, “proof”, and other central categories of empirical research (in physics, biology, statistics, history, law, etc.) reveal their contingent character as a social and ideological construction. Thus, a “realist” or “rationalist” interpretation is subjected to criticism. Kincheloe’s political and pedagogical notion (above) has emerged as a central articulation of the concept.

While recognizing the constructedness of reality, many representatives of this critical paradigm deny philosophy the task of the creative construction of reality. They eagerly criticize realistic judgments, but they do not move beyond analytic procedures based on subtle tautologies. They thus remain in the critical paradigm and consider it to be a standard of scientific philosophy per se.

**Constructivism and postmodernism**

For some, social constructionism can be seen as a source of the postmodern movement, and has been influential in the field of cultural studies. Some have gone so far as to attribute the rise of cultural studies (the cultural turn) to social constructionism.

From a realist’s point of view, both postmodernism and constructivism can be seen as relativist theories.
3.5. CONSTRUCTIVIST EPISTEMOLOGY

Genetic epistemology

Main article: Genetic epistemology

James Mark Baldwin invented this expression, which was later popularized by Jean Piaget. From 1955 to 1980, Piaget was Director of the International Centre for Genetic Epistemology in Geneva.

3.5.6 Quotations

- Verum esse ipsum factum, Giambattista Vico
  “the norm of the truth is to have made it,” or
  “the true is precisely what is made”

- Verum et factum convertuntur, Giambattista Vico
  “the true and the made are convertible”

- Et, quoi qu’on en dise, dans la vie scientifique, les problèmes ne se posent pas d’eux-mêmes. C’est précisément ce sens du problème qui donne la marque du véritable esprit scientifique. Pour un esprit scientifique, toute connaissance est une réponse à une question. S’il n’y a pas eu de question, il ne peut y avoir de connaissance scientifique. Rien ne va de soi. Rien n’est donné. Tout est construit, Gaston Bachelard (La formation de l’esprit scientifique, 1934)
  “And, irrespective of what one might assume, in the sciences, problems do not arise by themselves. It is, precisely, because all problems are posed that they embody the scientific spirit. If there were no question, there would be no scientific knowledge. Nothing proceeds from itself. Nothing is given. All is constructed.”

- On a toujours cherché des explications quand c’était des représentations qu’on pouvait seulement essayer d’inventer, Paul Valéry
  “We have always sought explanations when it was only representations that we could seek to invent”

- Ma main se sent touchée aussi bien qu’elle touche ; réel veut dire cela, et rien de plus, Paul Valéry
  “My hand feels touched as well as it touches; real means this, and nothing more”

- Intelligence organizes the world by organizing itself, Jean Piaget in “La construction du réel chez l’enfant” (1937)

- “If the natives are in different worlds, how come we can shoot them?” Stephen Stich

- “I was once accused by Rene Thom of being a constructivist, which I understand was worse than being called an empiricist; I replied that I took pride in it” Sydney Brenner 2010

3.5.7 Criticisms

Numerous criticisms have been leveled at Constructivist epistemology. The most common one is that it either explicitly advocates or implicitly reduces to relativism. This is because it takes the concept of truth to be a socially “constructed” (and thereby socially relative) one. This leads to the charge of self-refutation: if what is to be regarded as “true” is relative to a particular social formation, then this very conception of truth must itself be only regarded as being “true” in this society. In another social formation, it may well be false. If so, then social constructivism itself would be false in that social formation. Further, one could then say that social constructivism could be both true and false simultaneously.

Another criticism of constructivism is that it holds that the concepts of two different social formations be entirely different and incommensurate. This being the case, it is impossible to make comparative judgements about statements made according to each worldview. This is because the criteria of judgement will themselves have to be based on some worldview or other. If this is the case, then it brings into question how communication between them about the truth or falsity of any given statement could be established.

Social Constructivists often argue that constructivism is liberating because it either (1) enables oppressed groups to reconstruct “the World” in accordance with their own interests rather than according to the interests of dominant groups in society, or (2) compels people to respect the alternative worldviews of oppressed groups because there is no way of judging them to be inferior to dominant worldviews. As the Wittgensteinian philosopher Gavin Kitching argues, however, constructivists usually implicitly presuppose a deterministic view of language which severely constrains the minds and use of words by members of societies: they are not just “constructed” by language on this view, but are literally “determined” by it. Kitching notes the contradiction here: somehow the advocate of constructivism is not similarly constrained. While other individuals are controlled by
CHAPTER 3. ACQUIRING KNOWLEDGE

the dominant concepts of society, the advocate of constructivism can transcend these concepts and see through them.

3.5.8 See also

- Constructivism in international relations
- Western Marxism
- Metacognition
- Model-dependent realism
- Personal construct psychology
- Consensus reality
- Constructivism
- Social constructivism
- Epistemology
- Map–territory relation

3.5.9 References

[3] National Science Foundation. Award Abstract #8751190, Constructionism: A New Opportunity for Elementary Science Education
[6] Stephen Hawking, Leonard Mlodinow (2011). The Grand Design. Random House Digital, Inc. p. 8. ISBN 0553907077. We shall adopt an approach that we call model-dependent realism. It is based on the idea that our brains interpret the input from our sensory organs by making a model of the world. When such a model is successful at explaining events, we tend to attribute to it, and to the elements and concepts that constitute it, the quality of reality or absolute truth. But there may be different ways in which one could model the same physical situation, with each employing different fundamental elements and concepts. If two such ...theories or models accurately predict the same events, one cannot be said to be more real than the other; rather we are free to use whichever model is the most convenient.

3.5.10 Further reading

- Edgar Morin 1986, La Méthode, Tome 3, La Connaissance de la connaissance.


• Paul Watzlawick 1984. *Invented Reality: How Do We Know What We Believe We Know?* (Contributions to constructivism), W W. Norton.


### 3.6 Regress argument

The *regress argument* (also known as the *diallelus* (Latin < Greek *di allelon* “through or by means of one another”)) is a problem in epistemology and, in general, a problem in any situation where a statement has to be justified.[1][2][3]

According to this argument, any proposition requires a justification. However, any justification itself requires support. This means that any proposition whatsoever can be endlessly (infinitely) questioned.

#### 3.6.1 Origin

The argument is usually attributed to Sextus Empiricus, and has been restated by Agrippa as part of what has become known as "Agrippa’s trilemma". The argument can be seen as a response to the suggestion in Plato's *Theaetetus* that knowledge is justified true belief.

#### 3.6.2 Structure

Assuming that knowledge is justified true belief, then:

1. Suppose that P is some piece of knowledge. Then P is a justified true belief.
2. The only thing that can justify P is another statement – let’s call it P₁; so P₁ justifies P.
3. But if P₁ is to be a satisfactory justification for P, then we must know that P₁.
4. But for P₁ to be known, it must also be a justified true belief.
5. *That* justification will be another statement - let’s call it P₂; so P₂ justifies P₁.
6. But if P₂ is to be a satisfactory justification for P₁, then we must *know* that P₂ is true.
7. But for P₂ to count as knowledge, it must itself be a justified true belief.
8. *That* justification will in turn be another statement - let’s call it P₃; so P₃ justifies P₂.
9. *and so on, ad infinitum.*

#### 3.6.3 Responses

The above presents us with three possible counter-arguments: some statements do not need justification; the chain of reasoning loops back on itself; or the sequence never finishes.

**Foundationalism**

Perhaps the chain begins with a belief that is justified, but which is not justified by another belief. Such beliefs are called basic beliefs. In this solution, which is called foundationalism, all beliefs are justified by basic beliefs. Foundationalism seeks to escape the regress argument by claiming that there are some beliefs for which it is improper to ask for a justification. (See also *a priori*.) This would be a claim that some things (basic beliefs) are true in and of themselves.

Foundationalism is the belief that a chain of justification begins with a belief that is justified, but which is not justified by another belief. Thus, a belief is justified if and only if:

1. it is a basic/foundational belief, or
2. it is justified by a basic belief
3. it is justified by a chain of beliefs that is ultimately justified by a basic belief or beliefs.

### 3.5.11 External links

- Journal of Constructivist Psychology
- Radical Constructivism
- Constructivist Foundations

### 3.6.11 Origin

The regress argument (also known as the dichelous (Latin < Greek *di allelon* “through or by means of one another”) is a problem in epistemology and, in general, a problem in any situation where a statement has to be justified.\[1]\[2]\[3]
Foundationalism can be compared to a building. Ordinary individual beliefs occupy the upper stories of the building; basic, or foundational beliefs are down in the basement, in the foundation of the building, holding everything else up. In a similar way, individual beliefs, say about economics or ethics, rest on more basic beliefs, say about the nature of human beings; and those rest on still more basic beliefs, say about the mind; and in the end the entire system rests on a set of basic beliefs which are not justified by other beliefs.

Coherentism

Alternatively, the chain of reasoning may loop around on itself, forming a circle. In this case, the justification of any statement is used, perhaps after a long chain of reasoning, in justifying itself, and the argument is circular. This is a version of coherentism.

Coherentism is the belief that an idea is justified if and only if it is part of a coherent system of mutually supporting beliefs (i.e., beliefs that support each other). In effect Coherentism denies that justification can only take the form of a chain. Coherentism replaces the chain with a holistic web.

The most common objection to naïve Coherentism is that it relies on the idea that circular justification is acceptable. In this view, P ultimately supports P, begging the question. Coherentists reply that it is not just P that is supporting P, but P along with the totality of the other statements in the whole system of belief.

Coherentism accepts any belief that is part of a coherent system of beliefs. In contrast, P can cohere with P₁ and P₂ without P, P₁ or P₂ being true. Instead, Coherentists might say that it is very unlikely that the whole system would be both untrue and consistent, and that if some part of the system was untrue, it would almost certainly be inconsistent with some other part of the system.

A third objection is that some beliefs arise from experience and not from other beliefs. An example is that one is looking into a room which is totally dark. The lights turn on momentarily and one sees a white canopy bed in the room. The belief that there is a white canopy bed in this room is based entirely on experience and not on any other belief. Of course other possibilities exist, such as that the white canopy bed is entirely an illusion or that one is hallucinating, but the belief remains well-justified. Coherentists might respond that the belief which supports the belief that there is a white canopy bed in this room is that one saw the bed, however briefly. This appears to be an immediate qualifier which does not depend on other beliefs, and thus seems to prove that Coherentism is not true because beliefs can be justified by concepts other than beliefs. But others have argued that the experience of seeing the bed is indeed dependent on other beliefs, about what a bed, a canopy and so on, actually look like.

Another objection is that the rule demanding “coherence” in a system of ideas seems to be an unjustified belief.

Infinitism

Infinitism argues that the chain can go on forever. Critics argue that this means there is never adequate justification for any statement in the chain.

Skepticism

Skeptics reject the three above responses and argue that beliefs cannot be justified as beyond doubt. Note that many skeptics do not deny that things may appear in a certain way. However, such sense impressions cannot, in the skeptical view, be used to find beliefs that cannot be doubted. Also, skeptics do not deny that, for example, many laws of nature give the appearance of working or that doing certain things give the appearance of producing pleasure/pain or even that reason and logic seem to be useful tools. Skepticism is in this view valuable since it encourages continued investigation.[4]

3.6.4 Synthesized approaches

Common sense

The method of common sense espoused by such philosophers as Thomas Reid and G. E. Moore points out that whenever we investigate anything at all, whenever we start thinking about some subject, we have to make assumptions. When one tries to support one’s assumptions with reasons, one must make yet more assumptions. Since it is inevitable that we will make some assumptions, why not assume those things that are most obvious: the matters of common sense that no one ever seriously doubts.

“Common sense” here does not mean old adages like “Chicken soup is good for colds” but statements about the background in which our experiences occur. Examples would be “Human beings typically have two eyes, two ears, two hands, two feet”, or “The world has a ground and a sky” or “Plants and animals come in a wide variety of sizes and colors” or “I am conscious and alive right now”. These are all the absolutely most obvious sorts of claims that one could possibly make; and, said Reid and Moore, these are the claims that make up common sense.

This view can be seen as either a version of foundationalism, with common sense statements taking the role of basic statements, or as a version of Coherentism. In this case, commonsense statements are statements that are so crucial to keeping the account coherent that they are all but impossible to deny.

If the method of common sense is correct, then philosophers may take the principles of common sense for
granted. They do not need criteria in order to judge whether a proposition is true or not. They can also take some justifications for granted, according to common sense. They can get around Sextus’ problem of the criterion because there is no infinite regress or circle of reasoning, because the buck stops with (see also idiom) the principles of common sense.

**Critical philosophy**

Another escape from the diallelus is critical philosophy, which denies that beliefs should ever be justified at all. Rather, the job of philosophers is to subject all beliefs (including beliefs about truth criteria) to criticism, attempting to discredit them rather than justifying them. Then, these philosophers say, it is rational to act on those beliefs that have best withstood criticism, whether or not they meet any specific criterion of truth. Karl Popper expanded on this idea to include a quantitative measurement he called verisimilitude, or truth-likeness. He showed that even if one could never justify a particular claim, one can compare the verisimilitude of two competing claims by criticism to judge which is superior to the other.

**Pragmatism**

The pragmatist philosopher William James suggests that, ultimately, everyone settles at some level of explanation based on one’s personal preferences that fit the particular individual’s psychological needs. People select whatever level of explanation fits their needs, and things other than logic and reason determine those needs. In The Sentiment of Rationality, James compares the philosopher, who insists on a high degree of justification, and the boor, who accepts or rejects ideals without much thought:

> The philosopher’s logical tranquillity is thus in essence no other than the boor’s. They differ only as to the point at which each refuses to let further considerations upset the absolute-ness of the data he assumes.

**3.6.5 See also**

- Epistemology
- Münchhausen trilemma
- Plato’s *Theaetetus*
- Problem of the criterion

**3.6.6 References**

[3] University of Reading
[4] skepticism on *Stanford Encyclopedia of Philosophy*
Chapter 4
What do people know?

4.1 Philosophical skepticism

For a general discussion of skepticism, see Skepticism.

Philosophical skepticism (UK spelling scepticism; from Greek σκέψις skepsis, “inquiry”) is both a philosophical school of thought and a method that crosses disciplines and cultures.

It is generally agreed that knowledge requires justification. It is not enough to have a true belief; one must also have good reasons for that belief. Skeptics claim that it is not possible to have an adequate justification.

Skepticism is not a single position but covers a range of different positions. In the ancient world there were two main skeptical traditions. Academic skepticism took the dogmatic position that knowledge was not possible; Pyrrhonian skeptics refused to take a dogmatic position on any issue—including skepticism. Radical skepticism ends in the paradoxical claim that one cannot know anything—including that one cannot know about knowing anything.

Skepticism can be classified according to its scope. Local skepticism involves being skeptical about particular areas of knowledge, e.g. moral skepticism, skepticism about the external world, or skepticism about other minds, whereas global skepticism is skeptical about the possibility of any knowledge at all.

Skepticism can also be classified according to its method. In the Western tradition there are two basic approaches to skepticism.[1] Cartesian skepticism, named somewhat misleadingly after René Descartes who was not a skeptic but used some traditional skeptical arguments in his Meditations to help establish his rationalist approach to knowledge, attempts to show that any proposed knowledge claim can be doubted. Agrippan skepticism focuses on the process of justification rather than the possibility of doubt. According to this view there are three ways in which one might attempt to justify a claim but none of them are adequate. One can keep on providing further justification but this leads to an infinite regress; one can stop at a dogmatic assertion; or one can argue in a circle.

Philosophical skepticism is distinguished from methodological skepticism in that philosophical skepticism is an approach that questions the possibility of certainty in knowledge, whereas methodological skepticism is an approach that subjects all knowledge claims to scrutiny with the goal of sorting out true from false claims.

From the perspective of cognitive science, a philosophically skeptical attitude can be considered as either low valence or ambivalence.[2]

4.1.1 History

Ancient Eastern Skepticism

Ajñana Main article: Ajñana

Ajñana were the sceptical school of ancient Indian philosophy. It was a śramaṇa movement and a major rival of early Buddhism and Jainism. They have been recorded in Buddhist and Jain texts. They held that it was impossible to obtain knowledge of metaphysical nature or ascertain the truth value of philosophical propositions; and even if knowledge was possible, it was useless and disadvantageous for final salvation.

Buddhism Buddhist skepticism (Zen Buddhism) is not concerned with whether a thing exists or not. The Zen masters would answer questions “koans” with seemingly unrelated responses such as hitting the student. This would serve as a means of pulling the student back from the confusion of intellectual pontification, and into a direct experience. Since in Zen, all there is a direct experience, which cannot be explained or clarified beyond the experience itself, this answers the question.

- Buddha is said to have touched the earth at the time of his enlightenment so that it could witness his enlightenment. In this way, Buddhism does not claim that knowledge is unattainable.
- Buddhism places less emphasis on truth and knowledge than western philosophical skepticism. In-
stead, it emphasizes the goal of Bodhi, which, although often translated as enlightenment, does not imply truth or knowledge.

- At least in its manifestation of Nagarjuna’s texts that form the core of Madhyamaka, the anti-essentialist aspect of Buddhism makes it an anti-philosophy. From that stance, truth exists solely within the contexts that assert them.

Cārvāka philosophy The Cārvāka (Sanskrit: चार्वाक) school of skepticism, also known as Lokāyata, is a distinct branch of Indian philosophy. The school is named after Cārvāka, author of the Bārhaspatyāsūtras and was founded in approximately 500 BC. Cārvāka is classified as a “heterodox” (nāstika) system, characterized as a materialistic and atheistic school of thought.

Jain Philosophy of Anekantavada and Syadavada

Main articles: Anekantavada and Syadvada

Anekāntavāda also known as the principle of relative pluralism, is one of the basic principles of Jainism. According to this, the truth or the reality is perceived differently from different points of view, and that no single point of view is the complete truth.[3][4] Jain doctrine states that, an object has infinite modes of existence and manifestation, due to inherent limitations of the humans. Anekāntavāda is literally the doctrine of non-onesidedness or manifoldness; it is often translated as “non-absolutism”. Syādvāda is the theory of conditioned predication which provides an expression to anekānta by recommending that epithet “Syād” be attached to every expression.[5] Syādvāda is not only an extension of Anekānta ontology, but a separate system of logic capable of standing on its own force. As reality is complex, no single proposition can express the nature of reality fully. Thus the term “syād” should be prefixed before each proposition giving it a conditional point of view and thus removing any dogmatism in the statement.[4] The seven propositions also known as saptabhangi are[6]

1. Syād-asti – “in some ways it is”;
2. syād-nāsti - “in some ways it is not”;
3. syād-asti-nāsti - “in some ways it is and it is not”;
4. syād-asti-avaktavyah - “in some ways it is and it is indescribable”;
5. syād-nāsti-avaktavyah - “in some ways it is not and it is indescribable”;
6. syād-asti-nāsti-avaktavyah - “in some ways it is, it is not and it is indescribable”;
7. syād-avaktavyah - “in some ways it is indescribable”

Each of these seven propositions examines the complex and multifaceted reality from a relative point of view of time, space, substance and mode. To ignore the complexity of the objects is to commit the fallacy of dogmatism. For a rigorous logical and mathematical interpretation see M. K. Jain, Logic of evidence-based inference propositions, Current Science, 1663–1672, 100.

Chinese philosophy In China, the preeminent Daoist work Zhuangzi, attributed to 4th century BC philosopher Zhuangzi during the Hundred Schools of Thought period, is skeptical in nature and provides also two famous skeptical paradoxes, “The Happiness of Fish” and “Zhuangzi dreamed he was a butterfly”.

Wang Chong introduced a form of naturalism based on a rational critique of the superstition that was overtaking Confucianism and Daoism in the 1st century CE. His neo-Daoist philosophy was based on a secular, rational practice not unlike the scientific method.

Islam In Islamic theology and Islamic philosophy, the scholar Al-Ghazali (1058–1111) is considered a pioneer of methodic doubt and skepticism.[8] His 11th century book titled The Incoherence of the Philosophers marks a major turn in Islamic epistemology, as Ghazali effectively discovered a methodic form of philosophical skepticism that would not be commonly seen in the West until René Descartes, George Berkeley and David Hume. The encounter with skepticism led Ghazali to embrace a form of theological occasionalism, or the belief that all causal events and interactions are not the product of material conjunctions but rather the immediate and present will of God. While he himself was a critic of the philosophers, Ghazali was a master in the art of philosophy and had immensely studied the field. After such a long education in philosophy, as well as a long process of reflection, he had criticized the philosophical method.

The autobiography Ghazali wrote towards the end of his life, The Deliverance From Error (Al-munqidh min al-dalāl; several English translations[9]) is considered a work of major importance.[9] In it, Ghazali recounts how, once a crisis of epistemological skepticism was resolved by “a light which God Most High cast into my breast...the key to most knowledge,”[10] he studied and mastered the arguments of Kalam, Islamic philosophy, and Ismailism. Though appreciating what was valid in the first two of these, at least, he determined that all three approaches were inadequate and found ultimate value only in the mystical experience and spiritual insight (Spiritual intuitive thought – Firasa and Nur) he attained as a result of following Sufi practices. William James, in Varieties of Religious Experience, considered the autobiography an important document for “the purely literary student who would like to become acquainted with the inwardness of reli-
gions other than the Christian”, comparing it to recorded personal religious confessions and autobiographical literature in the Christian tradition.\[11\]

Scholars have noted the similarities between Descartes’ *Discourse on Method* and Ghazali’s work\[7\] and the writer George Henry Lewes went even further by claiming that “had any translation of it [The Revival of Religious Sciences] in the days of Descartes existed, everyone would have cried out against the plagiarism.”\[12\]

### Ancient Western Skepticism

The Western tradition of systematic skepticism goes back at least as far as Pyrrho of Elis (b. circa 360 BCE). However, “The 5th century sophists develop forms of debate which are ancestors of skeptical argumentation. They take pride in arguing in a persuasive fashion for both sides of an issue.”\[13\] There were many disputes that could be found within the philosophical schools of his day, and according to a later account of his life by his student Timon of Phlius, Pyrrho extolled a way to become happy and tranquil.

Timon is reported as telling us that in order to be happy, one must pay attention to three connected questions: first, what are things like by nature? second, how should we be disposed towards things (given our answer to the first question)? and third, what will be the outcome for those who adopt the disposition recommended in the answer to the second question?\[14\]

In considering what things are like by nature, Pyrrho “Believing that equal arguments can be offered on both sides of any proposition, ... dismissed the search for truth as a vain endeavour.”\[15\] Given this, Pyrrho says that “sense experience and beliefs ... are in fact neither true nor false.” His words seem to suggest that verifiability is a necessary condition of truth. For our attitude towards things, Pyrrho is reported as saying that since our sense experiences and beliefs are neither true nor false, “therefore, we ought not to put our trust in them, but be without beliefs, disinclined to take a stand one way or the other, and steadfast in this attitude.” This attitude to life would eventually lead the skeptic to a state of *ataraxia*, or freedom from distress and worry.\[16\]

Pyrrho and his school were not actually “skeptics” in the later sense of the word. They had the goal of *ataraxia* (*ataraxia* - peace of mind), and pitted one dogmatic philosophy against the next to undermine belief in the whole philosophic enterprise. The idea was to produce in the student a state of aversion towards what the Pyrrhonists considered arbitrary and inconsequential babble. Since no one can observe or otherwise experience causation, external world (its “externality”), ultimate purpose of the universe or life, justice, divinity, soul, etc., they declared no need to believe in such things. The Pyrrhonists pointed out that, despite claims that such notions were necessary, some people “ignorant” of them get by just fine before learning about them. They further noted that science does not require belief and that faith in intelligible realities is different from pragmatic convention for the sake of experiment. For each intuitive notion (e.g. the existence of an external world), the Pyrrhonists cited a contrary opinion to negate it. They added that consensus indicates neither truth nor even probability. For example, the earth is round, and it would remain so even if everyone believed it were flat. The opposite might also be the case.

The goal of this critique, which Pyrrho’s followers realized would ultimately subvert even their own method, was to cultivate a distrust of all grand talk. They expected philosophy to collapse into itself. How far in this direction the Pyrrhonean commitment extended is a matter of debate. The Pyrrhonists confessed a belief in appearances, e.g. in hot and cold, grief and joy. It is impossible to deny, they admitted, that one seems to be in pain or seems to touch a piece of wood. Their world, thus, was completely phenomenological. An accomplished Pyrrhonist could, ideally, live as well as a dogmatist but with the added benefit of not worrying about truth and falsity, right and wrong, God’s will, and so forth.

Later thinkers took up Pyrrho’s approach and extended it into modern skepticism. In the process, a split appeared within the movement, never too large or well liked among the literati to begin with. In the Academic skepticism of the New or Middle Academy, Arcesilaus (c. 315 – 241 BCE) and Carneades (c. 213–129 BCE) argued from Stoic premises that the Stoics were actually committed to denying the possibility of knowledge, but seemed to maintain nothing themselves, but Clitomachus, a student of Carneades, interpreted his teacher’s philosophy as suggesting an early probabilistic account of knowledge. The Roman politican and philosopher, Cicero, also seems to have been a supporter of the probabilistic position attributed to the Middle Academy, even if the return to a more dogmatic orientation of that school was already beginning to take place.

Diogenes Laërtius lists ten modes of reasoning which Pyrrhonists thought justified their position:\[17\]

1. Some things give animals pleasure which give other animals pain. What is useful to one animal is harmful to another.
2. Each human has a different assortment of preferences, abilities and interests.
3. Each sense gives a different impression of the same object.
4. There is no reason to think one is sane while others are insane—the opposite could be true.
5. Cultures disagree regarding beauty, truth, goodness, religion, life and justice.
6. There is no consistency in perception. (His examples were that the color purple will show different tints depending on the lighting, a person looks different between noon and sunset, and a very heavy rock on land is lighter when in water)

7. The senses can be shown to be deceptive. (From a distance, the square tower looks round and the sun looks small)

8. Things that strengthen in moderation will weaken when taken in excess, like wine and food.

9. When a thing is rare, it surprises people. When a thing is common, it does not surprise people.

10. Inter-relations among things are of course relative, and by themselves are unknowable. (i.e. to know ‘father’ you must know ‘son,’ but to know ‘son’ you must know ‘father.’ Neither can be known by itself.)

In the centuries to come, the words Academician and Pyrrhonist would often be used to mean generally skeptical, often ignoring historical changes and distinctions between denial of knowledge and avoidance of belief, between degree of belief and absolute belief, and between possibility and probability.

Sextus Empiricus Sextus Empiricus (c. 200 CE), the main authority for Pyrrhonian skepticism, worked outside the Academy, which by his time had ceased to be a skeptical or probabilistic school, and argued in a different direction, incorporating aspects of empiricism into the basis for evaluating knowledge, but without the insistence on experience as the absolute standard of it. Sextus’ empiricism was limited to the “absolute minimum” already mentioned — that there seem to be appearances. He developed this basic thought of Pyrrho’s into lengthy arguments, most of them directed against Stoics and Epicureans, but also the Academic skeptics. The common anti-skeptical argument is that if one knows nothing, one cannot know that one knows nothing, and so may know something after all. It is worth noting that such an argument only succeeds against the complete denial of the possibility of knowledge. Considering dogmatic the claims both to know and not to know, Sextus and his followers claimed neither. Instead, despite the apparent conflict with the goal of ataraxia, they claimed to continue searching for something that might be knowable.

Empiricus, as the most systematic and dogmatic author of the works by Hellenistic sceptics which have survived, noted that there are at least ten modes of skepticism. These modes may be broken down into three categories: one may be skeptical of the subjective perceiver, of the objective world, and the relation between perceiver and the world. His arguments are as follows.

Subjectively, both the powers of the senses and of reasoning may vary among different people. And since knowledge is a product of one or the other, and since neither are reliable, knowledge would seem to be in trouble. For instance, a color-blind person sees the world quite differently from everyone else. Moreover, one cannot even give preference on the basis of the power of reason, i.e., by treating the rational animal as a carrier of greater knowledge than the irrational animal, since the irrational animal is still adept at navigating their environment, which suggests the ability to “know” about some aspects of the environment.

Secondly, the personality of the individual might also have an impact on what they observe, since (it is argued) preferences are based on sense-impressions, differences in preferences can be attributed to differences in the way that people are affected by the object. (Empiricus:56)

Third, the perceptions of each individual sense seemingly have nothing in common with the other senses: i.e., the color “red” has little to do with the feeling of touching a red object. This is manifest when our senses “disagree” with each other: for example, a mirage presents certain visible features, but is not responsive to any other kind of sense. In that case, our other senses defeat the impressions of sight. But one may also be lacking enough powers of sense to understand the world in its entirety: if one had an extra sense, then one might know of things in a way that the present five senses are unable to advise us of. Given that our senses can be shown to be unreliable by appealing to other senses, and so our senses may be incomplete (relative to some more perfect sense that one lacks), then it follows that all of our senses may be unreliable. (Empiricus:58)

Fourth, our circumstances when one perceives anything may be either natural or unnatural, i.e., one may be either in a state of wakefulness or sleep. But it is entirely possible that things in the world really are exactly as they appear to be to those in unnatural states (i.e., if everything were an elaborate dream). (Empiricus:59)

One can have reasons for doubt that are based on the relationship between objective “facts” and subjective experience. The positions, distances, and places of objects would seem to affect how they are perceived by the person: for instance, the portico may appear tapered when viewed from one end, but symmetrical when viewed at the other; and these features are different. Because they are different features, to believe the object has both properties at the same time is to believe it has two contradictory properties. Since this is absurd, one must suspend judgment about what properties it possesses due to the contradictory experiences. (Empiricus:63)

One may also observe that the things one perceives are, in a sense, polluted by experience. Any given perception—say, of a chair—will always be perceived within some context or other (i.e., next to a table, on a mat, etc.) Since this is the case, one often only speaks of ideas as they occur in the context of the other things that are paired with it, and therefore, one can never know of the true nature of the thing, but only how it appears to us in context. (Empiricus: 64)
Along the same lines, the skeptic may insist that all things are relative, by arguing that:

1. Absolute appearances either differ from relative appearances, or they do not.
2. If absolutes do not differ from relatives, then they are themselves relative.
3. But if absolutes do differ from relatives, then they are relative, because all things that differ must differ from something; and to “differ” from something is to be relative to something. (Empiricus:67)

Finally, one has reason to disbelieve that one knows anything by looking at problems in understanding objects by themselves. Things, when taken individually, may appear to be very different from when they are in mass quantities: for instance, the shavings of a goat’s horn are white when taken alone, yet the horn intact is black.

4.1.2 Schools of philosophical skepticism

Philosophical skepticism begins with the claim that the skeptic currently does not have knowledge. Some adherents maintain that knowledge is, in theory, possible. It could be argued that Socrates held that view. He appears to have thought that if people continue to ask questions they might eventually come to have knowledge; but that they did not have it yet. Some skeptics have gone further and claimed that true knowledge is impossible, for example the Academic school in Ancient Greece well after the time of Carneades. A third skeptical approach would be neither to accept nor reject the possibility of knowledge.

Skepticism can be either about everything or about particular areas. A ‘global’ skeptic argues that he does not absolutely know anything to be either true or false. Academic global skepticism has great difficulty in supporting this claim while maintaining philosophical rigor, since it seems to require that nothing can be known — except for the knowledge that nothing can be known, though in its probabilistic form it can use and support the notion of weight of evidence. Thus, some probabilists avoid extreme skepticism by maintaining that they merely are ‘reasonably certain’ (or ‘largely believe’) some things are real or true. As for using probabilistic arguments to defend skepticism, in a sense this enlarges or increases scepticism, while the defence of empiricism by Empiricus weakens skepticism and strengthens dogmatism by alleging that sensory appearances are beyond doubt. Much later, Kant would re-define “dogmatism” to make indirect realism about the external world seem objectionable. While many Hellenists, outside of Empiricus, would maintain that everyone who is not sceptical about everything is a dogmatist, this position would seem too extreme for most later philosophers.

Nevertheless, A Pyrrhonian global skeptic labors under no such modern constraint, since he only alleged that he, personally, did not know anything and made no statement about the possibility of knowledge. Nor did Arcesilaus feel bound, since he merely corrected Socrates’s “I only know that I know nothing” by adding “I don’t even know that”, thus more fully rejecting dogmatism.

Local skeptics deny that people do or can have knowledge of a particular area. They may be skeptical about the possibility of one form of knowledge without doubting other forms. Different kinds of local skepticism may emerge, depending on the area. A person may doubt the truth value of different types of journalism, for example, depending on the types of media they trust.

In Islamic philosophy, skepticism was established by Al-Ghazali (1058–1111), known in the West as “Algazel”, as part of the Ash’ari school of Islamic theology. Francisco Sanches’s That Nothing is Known (published in 1581 as Quod nihil scitur) is one of the crucial texts of Renaissance skepticism.19

4.1.3 Epistemology and skepticism

Skepticism, as an epistemological argument, poses the question of whether knowledge, in the first place, is possible. Skeptics argue that the belief in something does not necessarily justify an assertion of knowledge of it. In this, skeptics oppose dogmatic foundationalism, which states that there have to be some basic positions that are self-justified or beyond justification, without reference to others. (One example of such foundationalism may be found in Spinoza’s Ethics.) The skeptical response to this can take several approaches. First, claiming that “basic positions” must exist amounts to the logical fallacy of argument from ignorance combined with the slippery slope.

Among other arguments, skeptics used Agrippa’s trilemma, named after Agrippa the Sceptic, to claim no certain belief could be achieved. Foundationalists have used the same trilemma as a justification for demanding the validity of basic beliefs. This skeptical approach is rarely taken to its pyrrhonian extreme by most practitioners. Several modifications have arisen over the years, including the following:

Fictionalism would not claim to have knowledge but will adhere to conclusions on some criterion such as utility, aesthetics, or other personal criteria without claiming that any conclusion is actually “true”.

Philosophical fideism (as opposed to religious Fideism) would assert the truth of some propositions, but does so without asserting certainty.

Some forms of pragmatism would accept utility as a provisional guide to truth but not necessarily a universal decision-maker.

There are two different categories of epistemological skepticism, which can be referred to as mitigated and
4.1. PHILOSOPHICAL SKEPTICISM

unmitigated skepticism. The two forms are contrasting but are still true forms of skepticism. Mitigated skepticism does not accept “strong” or “strict” knowledge claims but does, however, approve specific weaker ones. These weaker claims can be assigned the title of “virtual knowledge”, but must be to justified belief. Unmitigated skepticism rejects both claims of virtual knowledge and strong knowledge.[20] Characterising knowledge as strong, weak, virtual or genuine can be determined differently depending on a person’s viewpoint as well as their characterisation of knowledge.[20]

The “philosophical” skepticism of Kant and its influence on classical German philosophy

Immanuel Kant (1724–1804) tried to provide a ground for empirical science against David Hume’s skeptical treatment of the notion of cause and effect. Hume (1711–1776) argued that for the notion of cause and effect no analysis is possible which is also acceptable to the empiricist program primarily outlined by John Locke (1632–1704).[21] But, Kant’s attempt to give a ground to knowledge in the empirical sciences at the same time cut off the possibility of knowledge of any other knowledge, especially what Kant called “metaphysical knowledge”. So, for Kant, empirical science was legitimate, but metaphysics and philosophy was mostly illegitimate. The most important exception to this demarcation of the legitimate from the illegitimate was ethics, the principles of which Kant argued can be known by pure reason without appeal to the principles required for empirical knowledge. Thus, with respect to metaphysics and philosophy in general (ethics being the exception), Kant was a skeptic. This skepticism as well as the explicit skepticism of G. E. Schulze[22] gave rise to a robust discussion of skepticism in classical German philosophy, especially by Hegel.[23] Kant’s idea was that the real world (the noumenon or thing-in-itself) was inaccessible to human reason (though the empirical world of nature can be known to human understanding) and therefore we can never know anything about the ultimate reality of the world. Hegel argued against Kant that although Kant was right that using what Hegel called “finite” concepts or “the understanding” precluded knowledge of reality, we were not constrained to use only “finite” concepts and could actually acquire knowledge of reality using “infinite concepts” that arise from self-consciousness.[24]

Criticism of skepticism

Most philosophies have weaknesses and can be criticized and this is a general principle of progression in philosophy.[25] The philosophy of skepticism asserts that no truth is knowable[26] or only probable.[27] Some say the scientific method also asserts probable findings, because the number of cases tested is always limited and they constitute perceptual observations.[28] Another criticism is the proposition that “no truth is knowable” is knowably true is contradictory.[29] The here is one hand argument is also another relatively simple criticism that reverses the skeptic’s proposals and supports common sense.

Pierre Le Morvan (2011) has distinguished between three broad philosophical approaches to skepticism. The first he calls the “Foil Approach.” According to the latter, skepticism is treated as a problem to be solved, or challenge to be met, or threat to be parried; skepticism’s value on this view, insofar as it is deemed to have one, accrues from its role as a foil contrastively illuminating what is required for knowledge and justified belief. The second he calls the “Bypass Approach” according to which skepticism is bypassed as a central concern of epistemology. Le Morvan advocates a third approach—he dubs it the “Health Approach”—that explores when skepticism is healthy and when it is not, or when it is virtuous and when it is vicious.

4.1.4 Skeptical hypotheses

A skeptical hypothesis is a hypothetical situation which can be used in an argument for skepticism about a particular claim or class of claims. Usually the hypothesis posits the existence of a deceptive power that deceives our senses and undermines the justification of knowledge otherwise accepted as justified. Skeptical hypotheses have received much attention in modern Western philosophy. The first skeptical hypothesis in modern Western philosophy appears in René Descartes’ Meditations on First Philosophy. At the end of the first Meditation Descartes writes: “I will suppose... that some evil demon of the utmost power and cunning has employed all his energies to deceive me.”

- The “Brain in a vat” hypothesis is cast in scientific terms. It supposes that one might be a disembodied brain kept alive in a vat, and fed false sensory signals, by a mad scientist.
- The “Dream argument” of Descartes and Zhuangzi supposes reality to be indistinguishable from a dream.
- Descartes’ Evil demon is a being “as clever and deceitful as he is powerful, who has directed his entire effort to misleading me.”
- The five minute hypothesis (or omphalos hypothesis or Last Thursdayism) suggests that the world was created recently together with records and traces indicating a greater age.
- The Simulated reality hypothesis or “Matrix hypothesis” suggest that everyone, or even the entire universe, might be inside a computer simulation or virtual reality.
4.1.5  See also

- Ajñana
- Anti-realism
- Benson Mates
- Brain in a vat
- David Hume
- Dream argument
- Five minute hypothesis
- Münchhausen trilemma
- Nihilism
- Problem of the criterion
- Problem of induction
- Pseudoskepticism
- Pyrrho
- Pyrrhonism
- Sextus Empiricus
- Simulated reality
- Solipsism
- Trivialism (opposite of skepticism)

4.1.6  References


4.2. FALLIBILISM


[27] Popkin, p. 205

[28] Popkin, p. 230

[29] Kreeft p. 373

4.1.7 Further reading


4.1.8 External links

- Skepticism entry by Peter Klein in the Stanford Encyclopedia of Philosophy

- Ancient Greek Skepticism entry in the Internet Encyclopedia of Philosophy

- Contemporary Skepticism entry in the Internet Encyclopedia of Philosophy

- Responses to skepticism by Keith DeRose


- Classical Skepticism by Peter Suber

- Review and summary of Skepticism and the Veil of Perception by Michael Huemer

4.2 Fallibilism

“Fallible” redirects here. For the song by Blues Traveler, see Four (Blues Traveler album).

Fallibilism (from Medieval Latin: fallibilis, “liable to err”) is the philosophical principle that human beings could be wrong about their beliefs, expectations, or their understanding of the world, and yet still be justified in holding their incorrect beliefs.

4.2.1 Usage

In the most commonly used sense of the term, fallibilism consists of being open to new evidence that would contradict some previously held position or belief, and in the recognition that “any claim justified today may need to be revised or withdrawn in light of new evidence, new arguments, and new experiences.”[1] This position is taken for granted in the natural sciences.}[2]
In another sense, it refers to the consciousness of “the degree to which our interpretations, valuations, our practices, and traditions are temporally indexed” and subject to (possibly arbitrary) historical flux and change. Such “time-responsive” fallibilism consists of an openness to the confirmation of a possibility that one anticipates or expects in the future.[3]

Some fallibilists argue that absolute certainty about knowledge is impossible.

Unlike skepticism, fallibilism does not imply the need to abandon our knowledge; we need not have logically conclusive justifications for what we know. Rather, it is an admission that, because empirical knowledge can be revised by further observation, any of the things we take as knowledge might possibly turn out to be false. Some fallibilists make an exception for things that are axiomatically true (such as mathematical and logical knowledge). Others remain fallibilists about these as well, on the basis that, even if these axiomatic systems are in a sense infallible, we are still capable of error when working with these systems. The critical rationalist Hans Albert argues that it is impossible to prove any truth with certainty, even in logic and mathematics. This argument is called the Münchhausen trilemma.

4.2.2 Proponents

As a formal doctrine, fallibilism is most strongly associated with Charles Sanders Peirce, John Dewey, and other pragmatists, who use it in their attacks on foundationalism. However, it is already present in the views of ancient philosophers that were adherents of philosophical skepticism, including the philosopher Pyrrho. Fallibilism is related to Pyrrhonian Skepticism, in that Pyrrhonists of history are sometimes referred to as fallibilists, and modern fallibilists as Pyrrhonists.[4][5]

Another proponent of fallibilism is Karl Popper, who builds his theory of knowledge, critical rationalism, on falsifiability. Fallibilism has been employed by Willard Van Orman Quine to attack, among other things, the distinction between analytic and synthetic statements.

4.2.3 Moral fallibilism

Moral fallibilism is a specific subset of the broader epistemological fallibilism outlined above. In the debate between moral subjectivism and moral objectivism, moral fallibilism holds out a third plausible stance: that objectively true moral standards may exist, but that they cannot be reliably or conclusively determined by humans. This avoids the problems associated with the flexibility of subjectivism by retaining the idea that morality is not a matter of mere opinion, whilst accounting for the conflict between differing objective moralities. Notable proponents of such views are Isaiah Berlin (value pluralism) and Bernard Williams (perspectivism). The view that human beings could be wrong about their moral beliefs, and yet still be justified in holding their incorrect beliefs, underpins quasi-realistic theories of ethics, such as Iain King’s Quasi-utilitarianism; and was expounded by philosopher J. L. Mackie.

4.2.4 Criticism

Some critics of epistemological fallibilism claim that it rests on an axiom that there is no absolute knowledge (sometimes expressed as the contradiction “This much is certain: nothing is certain”). But this was shown early on by Popper and others to be a misconception: fallibilism requires no such assumption, and makes no claims — indeed its method has no interest in — demonstrating such a statement.[6]

4.2.5 See also

- Infallibility
- Logical holism
- Perspectivism
- Probabilism
- Problem of induction
- Underdetermination

4.2.6 References


4.2.7 Further reading

- Charles S. Peirce: Selected Writings, ed. by Philip P. Wiener (Dover, 1980)
- Charles S. Peirce and the Philosophy of Science, ed. by Edward C. Moore (Alabama, 1993)
4.2. FALLIBILISM


- Fallibilism entry in the *Internet Encyclopedia of Philosophy*
Chapter 5

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