**Metaphysics**

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**Metaphysics** is a traditional branch of [philosophy](https://en.wikipedia.org/wiki/Philosophy) concerned with explaining the fundamental nature of [being](https://en.wikipedia.org/wiki/Being) and the [world](https://en.wikipedia.org/wiki/World) that encompasses it, although the term is not easily defined. Traditionally, metaphysics attempts to answer two basic questions in the broadest possible terms:

1. Ultimately, what *is there*?
2. What *is it like*?

A person who studies metaphysics is called a *metaphysicist* or a *metaphysician*. The metaphysician attempts to clarify the fundamental notions by which people understand the world, e.g., [existence](https://en.wikipedia.org/wiki/Existence), [objects](https://en.wikipedia.org/wiki/Object_(philosophy)) and their [properties](https://en.wikipedia.org/wiki/Property_(philosophy)), [space](https://en.wikipedia.org/wiki/Space) and [time](https://en.wikipedia.org/wiki/Time), [cause and effect](https://en.wikipedia.org/wiki/Causality), and [possibility](https://en.wikipedia.org/wiki/Logical_possibility). A central branch of metaphysics is [ontology](https://en.wikipedia.org/wiki/Ontology), the investigation into the basic [categories of being](https://en.wikipedia.org/wiki/Category_of_being) and how they relate to each other. Another central branch of metaphysics is [cosmology](https://en.wikipedia.org/wiki/Cosmology_(metaphysics)), the study of the origin, fundamental structure, nature, and dynamics of the [universe](https://en.wikipedia.org/wiki/Universe). Some include [Epistemology](https://en.wikipedia.org/wiki/Epistemology) as another central focus of metaphysics, but this may be questioned.

Prior to the modern [history of science](https://en.wikipedia.org/wiki/History_of_science), scientific questions were addressed as a part of metaphysics known as [natural philosophy](https://en.wikipedia.org/wiki/Natural_philosophy). Originally, the term "science" ([Latin](https://en.wikipedia.org/wiki/Latin) *scientia*) simply meant "knowledge". The [scientific method](https://en.wikipedia.org/wiki/Scientific_method), however, transformed natural philosophy into an [empirical](https://en.wikipedia.org/wiki/Empirical) activity deriving from [experiment](https://en.wikipedia.org/wiki/Experiment) unlike the rest of philosophy. By the end of the 18th century, it had begun to be called "science" to distinguish it from philosophy. Thereafter, metaphysics denoted philosophical enquiry of a non-empirical character into the nature of existence. Some philosophers of science, such as the [neo-positivists](https://en.wikipedia.org/wiki/Logical_positivism), say that natural science rejects the study of metaphysics, while other philosophers of science strongly disagree.

**Etymology**

The word "metaphysics" derives from the [Greek](https://en.wikipedia.org/wiki/Ancient_Greek) words μετά ([*metá*](https://en.wikipedia.org/wiki/Meta), "beyond", "upon" or "after") and φυσικά (*physiká*, "physics"). It was first used as the title for several of Aristotle's works, because they were usually anthologized after the works on [physics](https://en.wikipedia.org/wiki/Physics_(Aristotle)) in complete editions. The prefix *meta-* ("after") indicates that these works come "after" the chapters on physics. However, Aristotle himself did not call the subject of these books "Metaphysics": he referred to it as "first philosophy." The editor of Aristotle's works, [Andronicus of Rhodes](https://en.wikipedia.org/wiki/Andronicus_of_Rhodes), is thought to have placed the books on first philosophy right after another work, *Physics*, and called them τὰ μετὰ τὰ φυσικὰ βιβλία (*ta meta ta physika biblia*) or "the books that come after the [books on] physics". This was misread by Latin [scholiasts](https://en.wiktionary.org/wiki/scholiast), who thought it meant "the science of what is beyond the physical".

However, once the name was given, the commentators sought to find intrinsic reasons for its appropriateness. For instance, it was understood to mean "the science of the world beyond nature" (*physis* in Greek), that is, the science of the immaterial. Again, it was understood to refer to the chronological or pedagogical order among our philosophical studies, so that the "metaphysical sciences" would mean "those that we study after having mastered the sciences that deal with the physical world" (St. Thomas Aquinas, *Expositio in librum Boethii De hebdomadibus*, V, 1).

There is a widespread use of the term in current popular literature which replicates this understanding, i.e. that the metaphysical equates to the non-physical: thus, "metaphysical healing" means healing by means of remedies that are not physical.

**Origins and nature of metaphysics**

Although the *word* "metaphysics" goes back to Aristotelean philosophy, Plato himself credited earlier philosophers with dealing with metaphysical questions. The first known philosopher, according to [Aristotle](https://en.wikipedia.org/wiki/Aristotle), is [Thales](https://en.wikipedia.org/wiki/Thales) of [Miletus](https://en.wikipedia.org/wiki/Miletus), who taught that all things derive from a single first cause or [*Arche*](https://en.wikipedia.org/wiki/Arche).

Metaphysics as a [discipline](https://en.wikipedia.org/wiki/Discipline) was a central part of academic inquiry and scholarly education even before the age of [Aristotle](https://en.wikipedia.org/wiki/Aristotle), who considered it "the Queen of Sciences." Its issues were consideredno less important than the other main formal subjects of [physical science](https://en.wikipedia.org/wiki/Physical_science), [medicine](https://en.wikipedia.org/wiki/Medicine), [mathematics](https://en.wikipedia.org/wiki/Mathematics), [poetics](https://en.wikipedia.org/wiki/Poetics) and [music](https://en.wikipedia.org/wiki/Music). Since the [beginning of modern philosophy](https://en.wikipedia.org/wiki/17th-century_philosophy) during the seventeenth century, problems that were not originally considered within the bounds of metaphysics have been added to its purview, while other problems considered metaphysical for centuries are now typically subjects of their own separate regions in philosophy, such as [philosophy of religion](https://en.wikipedia.org/wiki/Philosophy_of_religion), [philosophy of mind](https://en.wikipedia.org/wiki/Philosophy_of_mind), [philosophy of perception](https://en.wikipedia.org/wiki/Philosophy_of_perception), [philosophy of language](https://en.wikipedia.org/wiki/Philosophy_of_language), and [philosophy of science](https://en.wikipedia.org/wiki/Philosophy_of_science).

**Numbers**

Commentary from [Sir William Smith](https://en.wikipedia.org/wiki/William_Smith_(lexicographer)), [Dictionary of Greek and Roman Biography and Mythology](https://en.wikipedia.org/wiki/Dictionary_of_Greek_and_Roman_Biography_and_Mythology) (1870, p. 620).

[Pythagoras](https://en.wikipedia.org/wiki/Pythagoras) resembled greatly the philosophers of what is termed the [Ionic school](https://en.wikipedia.org/wiki/Ionian_School_(philosophy)), who undertook to solve by means of a single primordial principle the vague problem of the origin and constitution of the universe as a whole. But, as did [Anaximander](https://en.wikipedia.org/wiki/Anaximander), he abandoned the physical hypotheses of [Thales](https://en.wikipedia.org/wiki/Thales) and [Anaximenes](https://en.wikipedia.org/wiki/Anaximenes_of_Miletus), and passed from the province of physics to that of *metaphysics*, and his predilection for mathematical studies led him to trace the origin of all things to number, this theory being suggested, or at all events confirmed, by the observation of various numerical relations, or analogies to them, in the phenomena of the universe. "*Since of all things numbers are by nature the first, in numbers they (the Pythagoreans) thought they perceived many analogies to things that exist and are produced, more than in fire, and earth, and Avater; as that a certain affection of numbers was justice; a certain other affection, soul and intellect; another, opportunity; and of the rest, so to say, each in like manner; and moreover, seeing the affections and ratios of what pertains to harmony to consist in numbers, since other things seemed in their entire nature to be formed in the likeness of numbers, and in all nature numbers are the first, they supposed the elements of numbers to be the elements of all things*".

Brandis, who traces in the notices that remain more than one system, developed by different [Pythagoreans](https://en.wikipedia.org/wiki/Pythagoreans), according as they recognized in numbers the inherent basis of things, or only the patterns of them, considers that all started from the common conviction that it was in numbers and their relations that they were to find the absolutely certain principles of knowledge, and of the objects of it, and accordingly regarded the principles of numbers as the absolute principles of things; keeping true to the common maxim of the ancient philosophy, that like takes cognizance of like. Aristotle states the fundamental maxim of the Pythagoreans in various forms.

**Central questions**

Most positions that may be taken with regards to any of the following questions are endorsed by one or another notable philosopher. It often is difficult to frame the questions in a non-controversial manner.

**Being, existence, and reality**

The nature of Being is a perennial topic in metaphysics. For instance, [Parmenides](https://en.wikipedia.org/wiki/Parmenides) taught that reality was a single unchanging [Being](https://en.wikipedia.org/wiki/Being). The twentieth century philosopher [Heidegger](https://en.wikipedia.org/wiki/Heidegger) thought previous philosophers had lost sight of the question of Being (qua Being) in favor of the questions of beings (existing things), and that a return to the Parmenidean approach was needed. An [ontological catalogue](https://en.wikipedia.org/wiki/Ontological_catalogue) is an attempt to list the fundamental constituents of reality. The question of whether or not [existence](https://en.wikipedia.org/wiki/Existence) is a [predicate](https://en.wiktionary.org/wiki/predicate) has been discussed since the Early Modern period, not the least, in relation to the [ontological argument for the existence of God](https://en.wikipedia.org/wiki/Ontological_argument_for_the_existence_of_God). Existence, *that* something is, has been contrasted with [*essence*](https://en.wikipedia.org/wiki/Essence), the question of *what* something is. Reflections on the nature of the connection and distinction between existence and essence dates back to [Aristotle](https://en.wikipedia.org/wiki/Aristotle)'s *Metaphysics*, and later, found one of its most influential interpretations in the ontology of the eleventh century metaphysician [Avicenna](https://en.wikipedia.org/wiki/Avicenna) (Ibn Sina). Since existence without essence seems blank, it is associated with [nothingness](https://en.wikipedia.org/wiki/Nothingness) by philosophers such as Hegel.

**Empirical and conceptual objects**

**Objects and their properties**

*Further information:* [*Problem of universals*](https://en.wikipedia.org/wiki/Problem_of_universals)

The world seems to contain many individual things, both physical, such as apples, and abstract, such as love and the number 3; the former objects are called [particulars](https://en.wikipedia.org/wiki/Particular). **Particulars** are said to have attributes, e.g., size, shape, color, location, and two particulars may have some such attributes in common. Such attributes also are termed [Universals](https://en.wikipedia.org/wiki/Universals) or [Properties](https://en.wikipedia.org/wiki/Property_(philosophy)); the nature of these, and whether they have any real existence and if so, of what kind, is a long-standing issue, [realism](https://en.wikipedia.org/wiki/Philosophical_realism) and [nominalism](https://en.wikipedia.org/wiki/Nominalism) representing opposing views.

Metaphysicians concerned with questions about universals or particulars are interested in the nature of [objects](https://en.wikipedia.org/wiki/Object_(philosophy)) and their properties, and the relationship between the two. Some, e.g., [Plato](https://en.wikipedia.org/wiki/Plato), argue that properties are abstract objects, existing outside of [space](https://en.wikipedia.org/wiki/Space) and [time](https://en.wikipedia.org/wiki/Time), to which particular objects bear special relations. [David Armstrong](https://en.wikipedia.org/wiki/David_Malet_Armstrong) holds that universals exist in time and space, but only at their instantiation and their discovery is a function of science. Others maintain that particulars are a [bundle](https://en.wikipedia.org/wiki/Bundle_theory) or collection of properties (specifically, a bundle of properties they have).

Biological literature contains abundant references to [taxa](https://en.wikipedia.org/wiki/Taxon) (singular "taxon"), groups such as the [mammals](https://en.wikipedia.org/wiki/Mammal) or the [birds](https://en.wikipedia.org/wiki/Bird). Some authors claim (or at least presuppose) that taxa are real entities, that to say, that an animal is included in Mammalia (the scientific name for the mammal group), is to say that it bears a certain relation to Mammalia, an abstract object. Advocates of [phylogenetic nomenclature](https://en.wikipedia.org/wiki/Phylogenetic_nomenclature), a more nominalist view, oppose this reading; in their opinion, calling an animal a mammal is a shorthand way of saying that it is descended from the last common ancestor of, say, humans and platypuses.

**Cosmology and cosmogony**

*See also:* [*Cosmology (metaphysics)*](https://en.wikipedia.org/wiki/Cosmology_(metaphysics))

[**Metaphysical Cosmology**](https://en.wikipedia.org/wiki/Cosmology#Metaphysical_cosmology) is the branch of metaphysics that deals with the [world](https://en.wikipedia.org/wiki/World) as the totality of all [phenomena](https://en.wikipedia.org/wiki/Phenomena) in [space](https://en.wikipedia.org/wiki/Space) and [time](https://en.wikipedia.org/wiki/Time). Historically, it has had quite a broad scope, and in many cases was founded in religion. The ancient Greeks drew no distinction between this use and their model for the cosmos. However, in modern times it addresses questions about the [Universe](https://en.wikipedia.org/wiki/Universe) which are beyond the scope of the physical sciences. It is distinguished from religious cosmology in that it approaches these questions using philosophical methods (e.g. [dialectics](https://en.wikipedia.org/wiki/Dialectic)).

[**Cosmogony**](https://en.wikipedia.org/wiki/Cosmogony) deals specifically with the origin of the universe.

Modern metaphysical cosmology and cosmogony try to address questions such as:

* What is the origin of the Universe? What is its first cause? Is its existence necessary? (see [monism](https://en.wikipedia.org/wiki/Monism), [pantheism](https://en.wikipedia.org/wiki/Pantheism), [emanationism](https://en.wikipedia.org/wiki/Emanationism) and [creationism](https://en.wikipedia.org/wiki/Creationism))
* What are the ultimate material components of the Universe? (see [mechanism](https://en.wikipedia.org/wiki/Mechanism_(philosophy)), [dynamism](https://en.wikipedia.org/wiki/Dynamism_(metaphysics)), [hylomorphism](https://en.wikipedia.org/wiki/Hylomorphism), [atomism](https://en.wikipedia.org/wiki/Atomism))
* What is the ultimate reason for the existence of the Universe? Does the cosmos have a purpose? (see [teleology](https://en.wikipedia.org/wiki/Teleology))

**Determinism and free will**

*See also:* [*Determinism*](https://en.wikipedia.org/wiki/Determinism) *and* [*Free will*](https://en.wikipedia.org/wiki/Free_will)

[Determinism](https://en.wikipedia.org/wiki/Determinism) is the [philosophical](https://en.wikipedia.org/wiki/Philosophy) [proposition](https://en.wikipedia.org/wiki/Proposition) that every event, including human cognition, decision and action, is [causally](https://en.wikipedia.org/wiki/Causality) determined by an unbroken chain of prior occurrences. It holds that nothing happens that has not already been determined. The principal consequence of the deterministic claim is that it poses a challenge to the existence of [free will](https://en.wikipedia.org/wiki/Free_will).

The problem of [free will](https://en.wikipedia.org/wiki/Free_will) is the problem of whether rational agents exercise control over their own actions and decisions. Addressing this problem requires understanding the relation between freedom and causation, and determining whether the laws of nature are causally deterministic. Some philosophers, known as [Incompatibilists](https://en.wikipedia.org/wiki/Incompatibilism), view determinism and free will as [mutually exclusive](https://en.wikipedia.org/wiki/Mutually_exclusive). If they believe in determinism, they will therefore believe free will to be an illusion, a position known as *Hard Determinism*. Proponents range from [Baruch Spinoza](https://en.wikipedia.org/wiki/Baruch_Spinoza) to [Ted Honderich](https://en.wikipedia.org/wiki/Ted_Honderich).

Others, labeled [Compatibilists](https://en.wikipedia.org/wiki/Compatibilism) (or "Soft Determinists"), believe that the two ideas can be reconciled coherently. Adherents of this view include [Thomas Hobbes](https://en.wikipedia.org/wiki/Thomas_Hobbes) and many modern philosophers such as [John Martin Fischer](https://en.wikipedia.org/wiki/John_Martin_Fischer).

Incompatibilists who accept [free will](https://en.wikipedia.org/wiki/Free_will) but reject determinism are called [Libertarians](https://en.wikipedia.org/wiki/Libertarianism_(metaphysics)), a term not to be confused with the political sense. [Robert Kane](https://en.wikipedia.org/wiki/Robert_Kane_(philosopher)) and [Alvin Plantinga](https://en.wikipedia.org/wiki/Alvin_Plantinga) are modern defenders of this theory.

**Identity and change**

Main article: [Identity and change](https://en.wikipedia.org/wiki/Identity_and_change)

*See also:* [*Identity (philosophy)*](https://en.wikipedia.org/wiki/Identity_(philosophy)) *and* [*Philosophy of space and time*](https://en.wikipedia.org/wiki/Philosophy_of_space_and_time)

The Greeks took some extreme positions on the nature of change: [Parmenides](https://en.wikipedia.org/wiki/Parmenides) denied that change occurs at all, while [Heraclitus](https://en.wikipedia.org/wiki/Heraclitus) thought change was ubiquitous: "[Y]ou cannot step into the same river twice."

Identity, sometimes called [Numerical Identity](https://en.wikipedia.org/wiki/Numerical_identity), is the relation that a "thing" bears to itself, and which no "thing" bears to anything other than itself (cf. [sameness](https://en.wikipedia.org/wiki/Sameness)). According to [Leibniz](https://en.wikipedia.org/wiki/Gottfried_Leibniz), if some object ***x*** is identical to some object ***y***, then any property that ***x*** has, ***y*** will have as well. However, it seems, too, that objects can change over time. If one were to look at a tree one day, and the tree later lost a leaf, it would seem that one could still be looking at that same tree. Two rival theories to account for [the relationship between change and identity](https://en.wikipedia.org/wiki/Identity_and_change) are [Perdurantism](https://en.wikipedia.org/wiki/Perdurantism), which treats the tree as a series of tree-stages, and [Endurantism](https://en.wikipedia.org/wiki/Endurantism), which maintains that the tree—the same tree—is present at every stage in its history.

**Mind and matter**

*See also:* [*Matter*](https://en.wikipedia.org/wiki/Matter)*,* [*Materialism*](https://en.wikipedia.org/wiki/Materialism) *and* [*Philosophy of mind*](https://en.wikipedia.org/wiki/Philosophy_of_mind)

The nature of [matter](https://en.wikipedia.org/wiki/Hyle) was a problem in its own right in early philosophy. Aristotle himself introduced the idea of matter in general to the Western world, adapting the term [*hyle*](https://en.wikipedia.org/wiki/Hyle), which originally meant "lumber." Early debates centered on identifying a single underlying principle. Water was claimed by [Thales](https://en.wikipedia.org/wiki/Thales), air by [Anaximenes](https://en.wikipedia.org/wiki/Anaximenes_of_Miletus), [*Apeiron*](https://en.wikipedia.org/wiki/Apeiron_(cosmology)) (the Boundless) by Anaximander, fire by [Heraclitus](https://en.wikipedia.org/wiki/Heraclitus). [Democritus](https://en.wikipedia.org/wiki/Democritus), in conjunction with his mentor, [Leucippus](https://en.wikipedia.org/wiki/Leucippus), conceived of an [atomic](https://en.wikipedia.org/wiki/Atom) theory many centuries before it was accepted by modern science. It is worth noting, however, that the grounds necessary to ensure validity to the proposed theory's veridical nature were not scientific, but just as philosophical as those traditions espoused by Thales and Anaximander.

The nature of the [mind](https://en.wikipedia.org/wiki/Mind) and its relation to the [body](https://en.wikipedia.org/wiki/Human_body) has been seen as more of a problem as science has progressed in its mechanistic understanding of the brain and body. Proposed solutions often have ramifications about the nature of mind as a whole. [René Descartes](https://en.wikipedia.org/wiki/Ren%C3%A9_Descartes) proposed [substance dualism](https://en.wikipedia.org/wiki/Substance_dualism), a theory in which mind and body are essentially different, with the mind having some of the attributes traditionally assigned to the [soul](https://en.wikipedia.org/wiki/Soul_(spirit)), in the seventeenth century. This creates a conceptual puzzle about how the two interact (which has received some strange answers, such as [occasionalism](https://en.wikipedia.org/wiki/Occasionalism)). Evidence of a close relationship between brain and mind, such as the [Phineas Gage](https://en.wikipedia.org/wiki/Phineas_Gage) case, have made this form of dualism increasingly unpopular.

Another proposal discussing the mind-body problem is [idealism](https://en.wikipedia.org/wiki/Idealism), in which the material is sweepingly eliminated in favor of the mental. Idealists, such as [George Berkeley](https://en.wikipedia.org/wiki/George_Berkeley), claim that material objects do not exist unless perceived and only as perceptions. The "German idealists" such as [Fichte](https://en.wikipedia.org/wiki/Fichte), [Hegel](https://en.wikipedia.org/wiki/Hegel) and [Schopenhauer](https://en.wikipedia.org/wiki/Schopenhauer) took [Kant](https://en.wikipedia.org/wiki/Immanuel_Kant) as their starting-point, although it is debatable how much of an idealist Kant himself was. Idealism is also a common theme in Eastern philosophy. Related ideas are [panpsychism](https://en.wikipedia.org/wiki/Panpsychism) and [panexperientialism](https://en.wikipedia.org/wiki/Panexperientialism), which say everything *has* a mind rather than everything exists *in* a mind. [Alfred North Whitehead](https://en.wikipedia.org/wiki/Alfred_North_Whitehead) was a twentieth-century exponent of this approach.

[Idealism](https://en.wikipedia.org/wiki/Idealism) is a [monistic](https://en.wikipedia.org/wiki/Monism) theory which holds that there is a single universal substance or principle. [Neutral monism](https://en.wikipedia.org/wiki/Neutral_monism), associated in different forms with [Baruch Spinoza](https://en.wikipedia.org/wiki/Baruch_Spinoza) and [Bertrand Russell](https://en.wikipedia.org/wiki/Bertrand_Russell), seeks to be less extreme than idealism, and to avoid the problems of [substance dualism](https://en.wikipedia.org/wiki/Substance_dualism). It claims that existence consists of a single substance that in itself is neither mental nor physical, but is capable of mental and physical aspects or attributes – thus it implies a [dual-aspect theory](https://en.wikipedia.org/wiki/Dual-aspect_theory).

For the last one hundred years, the dominant metaphysics has without a doubt been [materialistic monism](https://en.wikipedia.org/wiki/Materialism). [Type identity theory](https://en.wikipedia.org/wiki/Identity_theory_of_mind), [token identity theory](https://en.wikipedia.org/wiki/Token_identity), [functionalism](https://en.wikipedia.org/wiki/Functionalism_(philosophy_of_mind)), [reductive physicalism](https://en.wikipedia.org/wiki/Reductive_physicalism), [nonreductive physicalism](https://en.wikipedia.org/wiki/Nonreductive_physicalism), [eliminative materialism](https://en.wikipedia.org/wiki/Eliminative_materialism), [anomalous monism](https://en.wikipedia.org/wiki/Anomalous_monism), [property dualism](https://en.wikipedia.org/wiki/Property_dualism), [epiphenomenalism](https://en.wikipedia.org/wiki/Epiphenomenalism) and [emergence](https://en.wikipedia.org/wiki/Emergence) are just some of the candidates for a scientifically informed account of the mind. (It should be noted that while many of these positions are dualisms, none of them are *substance* dualism.)

Prominent recent philosophers of mind include [David Armstrong](https://en.wikipedia.org/wiki/David_Malet_Armstrong), [Ned Block](https://en.wikipedia.org/wiki/Ned_Block), [David Chalmers](https://en.wikipedia.org/wiki/David_Chalmers), [Patricia](https://en.wikipedia.org/wiki/Patricia_Churchland) and [Paul Churchland](https://en.wikipedia.org/wiki/Paul_Churchland), [Donald Davidson](https://en.wikipedia.org/wiki/Donald_Davidson_(philosopher)), [Daniel Dennett](https://en.wikipedia.org/wiki/Daniel_Dennett), [Fred Dretske](https://en.wikipedia.org/wiki/Fred_Dretske), [Douglas Hofstadter](https://en.wikipedia.org/wiki/Douglas_Hofstadter), [Jerry Fodor](https://en.wikipedia.org/wiki/Jerry_Fodor), [David Lewis](https://en.wikipedia.org/wiki/David_Kellogg_Lewis), [Thomas Nagel](https://en.wikipedia.org/wiki/Thomas_Nagel), [Hilary Putnam](https://en.wikipedia.org/wiki/Hilary_Putnam), [John Searle](https://en.wikipedia.org/wiki/John_Searle), [John Smart](https://en.wikipedia.org/wiki/J._J._C._Smart), [Ludwig Wittgenstein](https://en.wikipedia.org/wiki/Ludwig_Wittgenstein), and [Fred Alan Wolf](https://en.wikipedia.org/wiki/Fred_Alan_Wolf).

**Necessity and possibility**

*See also:* [*Modal logic*](https://en.wikipedia.org/wiki/Modal_logic) *and* [*Modal realism*](https://en.wikipedia.org/wiki/Modal_realism)

Metaphysicians investigate questions about the ways the world could have been. [David Lewis](https://en.wikipedia.org/wiki/David_Kellogg_Lewis), in "On the Plurality of Worlds," endorsed a view called Concrete [Modal realism](https://en.wikipedia.org/wiki/Modal_realism), according to which facts about how things could have been are made true by other [concrete](https://en.wikipedia.org/wiki/Concrete_(philosophy)) worlds, just as in ours, in which things are different. Other philosophers, such as [Gottfried Leibniz](https://en.wikipedia.org/wiki/Gottfried_Leibniz), have dealt with the idea of possible worlds as well. The idea of necessity is that any necessary fact is true across all [possible worlds](https://en.wikipedia.org/wiki/Possible_world). A possible fact is true in some possible world, even if not in the actual world. For example, it is possible that cats could have had two tails, or that any particular [apple](https://en.wikipedia.org/wiki/Apple_(symbolism)) could have not existed. By contrast, certain propositions seem necessarily true, such as [analytic propositions](https://en.wikipedia.org/wiki/Analytic_proposition), e.g., "All bachelors are unmarried." The particular example of [analytic truth](https://en.wikipedia.org/wiki/Logical_truth) being necessary is not universally held among philosophers. A less controversial view might be that self-identity is necessary, as it seems fundamentally incoherent to claim that for any ***x***, it is not identical to itself; this is known as the *law of identity*, a putative "first principle". Aristotle describes the *principle of non-contradiction*, "It is impossible that the same quality should both belong and not belong to the same thing ... This is the most certain of all principles ... Wherefore they who demonstrate refer to this as an ultimate opinion. For it is by nature the source of all the other axioms."

**Religion and spirituality**

[Theology](https://en.wikipedia.org/wiki/Theology) is the study of a god or gods and the nature of the divine. Whether there is a god ([monotheism](https://en.wikipedia.org/wiki/Monotheism)), many gods ([polytheism](https://en.wikipedia.org/wiki/Polytheism)) or no gods ([atheism](https://en.wikipedia.org/wiki/Atheism)), or whether it is unknown or unknowable whether any gods exist ([agnosticism](https://en.wikipedia.org/wiki/Agnosticism); [apophatic theology](https://en.wikipedia.org/wiki/Apophatic_theology)), and whether a divine entity directly intervenes in the world ([theism](https://en.wikipedia.org/wiki/Theism)), or its sole function is to be the first cause of the universe ([deism](https://en.wikipedia.org/wiki/Deism)); these and whether a god or gods and the world are different (as in [panentheism](https://en.wikipedia.org/wiki/Panentheism) and [dualism](https://en.wikipedia.org/wiki/Dualism)), or are identical (as in [pantheism](https://en.wikipedia.org/wiki/Pantheism)), are some of the primary metaphysical questions concerning philosophy of religion.

Within the standard Western philosophical tradition, theology reached its peak under the [medieval](https://en.wikipedia.org/wiki/Medieval) school of thought known as [scholasticism](https://en.wikipedia.org/wiki/Scholasticism), which focused primarily on the metaphysical aspects of [Christianity](https://en.wikipedia.org/wiki/Christianity). The work of the scholastics is still an integral part of modern philosophy, with key figures such as [Thomas Aquinas](https://en.wikipedia.org/wiki/Thomas_Aquinas) still playing an important role in the [philosophy of religion](https://en.wikipedia.org/wiki/Philosophy_of_religion).

**Space and time**

*Further information:* [*Philosophy of space and time*](https://en.wikipedia.org/wiki/Philosophy_of_space_and_time)

In Book XI of the [Confessions](https://en.wikipedia.org/wiki/Confessions_(St._Augustine)), [Saint Augustine of Hippo](https://en.wikipedia.org/wiki/Augustine_of_Hippo) asked the fundamental question about the nature of time. A traditional [realist](https://en.wikipedia.org/wiki/Philosophical_realism) position in ontology is that time and space have existence apart from the human mind. [Idealists](https://en.wikipedia.org/wiki/Idealists), including [Kant](https://en.wikipedia.org/wiki/Immanuel_Kant), claim that space and time are mental constructs used to organize perceptions, or are otherwise surreal.

Suppose that one is sitting at a table, on which there is an apple; the apple exists in [space](https://en.wikipedia.org/wiki/Space) and in [time](https://en.wikipedia.org/wiki/Time), but what does this statement indicate? Could it be said, for example, that space resembles an invisible three-dimensional grid in which the apple is positioned? Suppose the apple, and all physical objects in the universe, were removed from existence entirely. Would space as an "invisible grid" still exist? [René Descartes](https://en.wikipedia.org/wiki/Ren%C3%A9_Descartes) and [Leibniz](https://en.wikipedia.org/wiki/Gottfried_Wilhelm_Leibniz) believed it would not, arguing that without physical objects, "space" would be meaningless because space is the framework upon which we understand how physical objects are related to each other. [Newton](https://en.wikipedia.org/wiki/Isaac_Newton), on the other hand, argued for an [absolute](https://en.wikipedia.org/wiki/Absolute_time_and_space) ["container" space](https://en.wikipedia.org/wiki/Container_space). The pendulum swung back to [relational space](https://en.wikipedia.org/wiki/Relational_space) with [Einstein](https://en.wikipedia.org/wiki/Einstein) and [Ernst Mach](https://en.wikipedia.org/wiki/Ernst_Mach).

While the absolute/relative debate, and the realism debate are equally applicable to time and space, time presents some special problems of its own. The *flow* of time has been denied in ancient times by [Parmenides](https://en.wikipedia.org/wiki/Parmenides) and more recently by [J. M. E. McTaggart](https://en.wikipedia.org/wiki/J._M._E._McTaggart) in his paper [*The Unreality of Time*](https://en.wikipedia.org/wiki/The_Unreality_of_Time).

The *direction* of time, also known as "[time's arrow](https://en.wikipedia.org/wiki/Arrow_of_time)", is also a puzzle, although physics is now driving the debate rather than philosophy. It appears that fundamental laws are time-reversible and the arrow of time must be an "[emergent](https://en.wikipedia.org/wiki/Emergentism)" phenomenon, perhaps explained by a statistical understanding of [thermodynamic entropy](https://en.wikipedia.org/wiki/Entropy_(arrow_of_time)).

Common sense tells us that objects *persist* across time, that there is some sense in which one is the same person one was yesterday, in which the oak is the same as the acorn, in which one perhaps even can step into the same river twice. Philosophers have developed two rival theories for how this happens, called "[endurantism](https://en.wikipedia.org/wiki/Endurantism)" and "[perdurantism](https://en.wikipedia.org/wiki/Perdurantism)". Broadly speaking, endurantists hold that a whole object exists at each moment of its history, and the same object exists at each moment. Perdurantists believe that objects are four-dimensional entities made up of a series of [temporal parts](https://en.wikipedia.org/wiki/Temporal_parts) resembling the frames of a [movie](https://en.wikipedia.org/wiki/Movie).

**The nature of metaphysics**

The phenomena into which metaphysics enquires are puzzling; that's why metaphysicians enquire into them. Yet the attempt to enquire into those phenomena also may seem puzzling. Take change over time. Objects are continually changing before our very eyes: it is hard to see how anything about the process could remain mysterious, or what more we could learn about change to dispel any mystery remaining. This puzzlement is apt to generate reflection on the nature of metaphysics itself: that is, metametaphysical reflection. Does metaphysics discover truths? If so, what does most of the work in making metaphysical discoveries true: the way the world is, or the way we use language? If not, is it because there simply are no truths of the sort the metaphysician seeks, or is it because there is no reliable method of finding them? Some philosophers, such as [Amie Thomasson](https://en.wikipedia.org/wiki/Amie_Thomasson), have argued that many metaphysical questions can be dissolved just by looking at the way we use words; others, such as [Ted Sider](https://en.wikipedia.org/wiki/Ted_Sider), have argued that metaphysical questions are substantive, and that we can make progress toward answering them by comparing theories according to a range of theoretical virtues inspired by the sciences, such as simplicity and explanatory power.

**Styles and methods of metaphysics**

* **Rational** versus **empirical**. [Rationalism](https://en.wikipedia.org/wiki/Rationalism) is a method or a theory "in which the criterion of the truth is not sensory but intellectual and deductive" (Bourke 263). Rationalist metaphysicians aim to deduce the nature of reality by armchair, [*a priori*](https://en.wikipedia.org/wiki/A_priori_and_a_posteriori) reasoning. [Empiricism](https://en.wikipedia.org/wiki/Empiricism) holds that the senses are the primary source of knowledge about the world.
* **Piecemeal** versus **systematic**. The "system building" style of metaphysics attempts to answer *all* the important questions in a comprehensive and coherent way, providing a [theory of everything](https://en.wikipedia.org/wiki/Theory_of_everything_(philosophy)) or complete picture of the world. The contrasting approach is to deal with problems one at a time.
* **Dogmatic** versus **critical**. Under the [scholastic](https://en.wikipedia.org/wiki/Scholasticism) approach of the Middle Ages, a number of themes and ideas were not open to be challenged. Kant and others thought this "dogmatism" should be replaced by a [critical](https://en.wikipedia.org/wiki/Critical_thinking) approach.
* **Individual** versus **collective**. Scholasticism and [Analytical philosophy](https://en.wikipedia.org/wiki/Analytical_philosophy) are examples of collaborative approaches to philosophy. Many other philosophers expounded individual visions.
* **Sparse** versus **abundant**. Should a metaphysical system posit very little, for the sake of simplicity, or very much, to capture more insights than would otherwise be possible?
* **Descriptive** versus **revisionary**. [Peter Strawson](https://en.wikipedia.org/wiki/Peter_Strawson) makes the distinction between descriptive metaphysics, which sets out to investigate our deepest assumptions, and revisionary metaphysics, which sets out to improve or rectify them.

**History and schools of metaphysics**

**Pre-Socratic metaphysics in Greece**

The first known philosopher, according to [Aristotle](https://en.wikipedia.org/wiki/Aristotle), is [Thales](https://en.wikipedia.org/wiki/Thales) of [Miletus](https://en.wikipedia.org/wiki/Miletus). Rejecting mythological and divine explanations, he sought a single first cause or [*Arche*](https://en.wikipedia.org/wiki/Arche) (origin or beginning) under which all phenomena could be explained, and concluded that this first cause was in fact moisture or water. Thales also taught that the world is harmonious, has a harmonious structure, and thus is intelligible to rational understanding. Other Miletians, such as [Anaximander](https://en.wikipedia.org/wiki/Anaximander) and [Anaximenes](https://en.wikipedia.org/wiki/Anaximenes_of_Miletus), also had a [monistic](https://en.wikipedia.org/wiki/Monism) conception of the first cause.

Another school was the [Eleatics](https://en.wikipedia.org/wiki/Eleatics), [Italy](https://en.wikipedia.org/wiki/Italy). The group was founded in the early fifth century BCE by [Parmenides](https://en.wikipedia.org/wiki/Parmenides), and included [Zeno of Elea](https://en.wikipedia.org/wiki/Zeno_of_Elea) and [Melissus of Samos](https://en.wikipedia.org/wiki/Melissus_of_Samos). Methodologically, the Eleatics were broadly rationalist, and took logical standards of clarity and necessity to be the criteria of [truth](https://en.wikipedia.org/wiki/Truth). Parmenides' chief doctrine was that reality is a single unchanging and universal Being. Zeno used [*reductio ad absurdum*](https://en.wikipedia.org/wiki/Reductio_ad_absurdum), to demonstrate the illusory nature of change and time in his [paradoxes](https://en.wikipedia.org/wiki/Zeno%27s_paradoxes).

[Heraclitus](https://en.wikipedia.org/wiki/Heraclitus) of [Ephesus](https://en.wikipedia.org/wiki/Ephesus), in contrast, made change central, teaching that "all things flow". His philosophy, expressed in brief aphorisms, is quite cryptic. For instance, he also taught the [unity of opposites](https://en.wikipedia.org/wiki/Unity_of_opposites).

[Democritus](https://en.wikipedia.org/wiki/Democritus) and his teacher [Leucippus](https://en.wikipedia.org/wiki/Leucippus), are known for formulating an [atomic theory](https://en.wikipedia.org/wiki/Atomic_theory) for the cosmos. They are considered forerunners of the scientific method.

**Socrates and Plato**

[Socrates](https://en.wikipedia.org/wiki/Socrates) is known for his [dialectic](https://en.wikipedia.org/wiki/Dialectic) or questioning approach to philosophy rather than a positive metaphysical doctrine.

His pupil, [Plato](https://en.wikipedia.org/wiki/Plato) is famous for his theory of [forms](https://en.wikipedia.org/wiki/Platonic_forms) (which he confusingly places in the mouth of Socrates in the dialogues he wrote to expound it). [Platonic realism](https://en.wikipedia.org/wiki/Platonic_realism) (also considered a form of idealism) is considered to be a solution to the [problem of universals](https://en.wikipedia.org/wiki/Problem_of_universals); i.e., what particular objects have in common is that they share a specific Form which is universal to all others of their respective kind.

The theory has a number of other aspects:

* Epistemological: knowledge of the Forms is more certain than mere sensory data.
* Ethical: The Form of the Good sets an objective standard for morality.
* Time and Change: The world of the Forms is eternal and unchanging. Time and change belong only to the lower sensory world. "Time is a moving image of Eternity".
* Abstract objects and mathematics: Numbers, geometrical figures, etc., exist mind-independently in the World of Forms.

Platonism developed into [Neoplatonism](https://en.wikipedia.org/wiki/Neoplatonism), a philosophy with a monotheistic and mystical flavor that survived well into the early Christian era.

**Aristotle**

Plato's pupil [Aristotle](https://en.wikipedia.org/wiki/Aristotle) wrote widely on almost every subject, including [metaphysics](https://en.wikipedia.org/wiki/Metaphysics_(Aristotle)). His solution to the problem of universals contrasts with Plato's. Whereas Platonic Forms exist in a separate realm, and may exist uninstantiated in visible things, Aristotelean essences "indwell" in particulars.

[Potentiality and Actuality](https://en.wikipedia.org/wiki/Potentiality_and_Actuality) are principles of a [dichotomy](https://en.wikipedia.org/wiki/Dichotomy) which [Aristotle](https://en.wikipedia.org/wiki/Aristotle) used throughout his philosophical works to analyze [motion](https://en.wikipedia.org/wiki/Motion_(physics)), [causality](https://en.wikipedia.org/wiki/Four_causes) and other issues.

The Aristotelean theory of change and causality stretches to [four causes](https://en.wikipedia.org/wiki/Four_causes): the material, formal, efficient and final. The efficient cause corresponds to what is now known as a cause *simpliciter*. Final causes are explicitly [teleological](https://en.wikipedia.org/wiki/Teleological), a concept now regarded as controversial in science. The Matter/Form dichotomy was to become highly influential in later philosophy as the substance/essence distinction.

The opening arguments in Aristotle's *Metaphysics*, Book I, revolve around the senses, knowledge, experience, theory, and wisdom. The first main focus in the Metaphysics is attempting to determine how intellect “advances from sensation through memory, experience, and art, to theoretical knowledge”. Aristotle claims that eyesight provides us with the capability to recognize and remember experiences, while sound allows us to learn.

**Scholasticism and the Middle Ages**

Between about 1100 and 1500, philosophy as a discipline took place as part of the [Catholic church](https://en.wikipedia.org/wiki/Catholic_church)'s teaching system, known as [scholasticism](https://en.wikipedia.org/wiki/Scholasticism). Scholastic philosophy took place within an established framework blending Christian theology with Aristotelean teachings. Although fundamental orthodoxies could not be challenged, there were nonetheless deep metaphysical disagreements, particularly over the [problem of universals](https://en.wikipedia.org/wiki/Problem_of_universals), which engaged [Duns Scotus](https://en.wikipedia.org/wiki/Duns_Scotus) and [Pierre Abelard](https://en.wikipedia.org/wiki/Pierre_Abelard). [William of Ockham](https://en.wikipedia.org/wiki/William_of_Ockham) is remembered for his principle of ontological parsimony.

**Rationalism and Continental Rationalism**

Main article: [Rationalism](https://en.wikipedia.org/wiki/Rationalism)

In the early modern period (17th and 18th centuries), the system-building *scope* of philosophy is often linked to the rationalist *method* of philosophy, that is the technique of deducing the nature of the world by pure reason. The scholastic concepts of substance and accident were employed.

* [Leibniz](https://en.wikipedia.org/wiki/Gottfried_Wilhelm_Leibniz) proposed in his [Monadology](https://en.wikipedia.org/wiki/Monadology) a plurality of non-interacting substances.
* [Descartes](https://en.wikipedia.org/wiki/Descartes) is famous for his [Dualism](https://en.wikipedia.org/wiki/Dualism) of material and mental substances.
* [Spinoza](https://en.wikipedia.org/wiki/Spinoza) believed reality was a [single substance](https://en.wikipedia.org/wiki/Monism) of God-or-nature.

**British empiricism**

[British empiricism](https://en.wikipedia.org/wiki/British_empiricism) marked something of a reaction to rationalist and system-building philosophy, or *speculative* metaphysics as it was pejoratively termed. The sceptic [David Hume](https://en.wikipedia.org/wiki/David_Hume) famously declared that most metaphysics should be consigned to the flames (see below). Hume was notorious among his contemporaries as one of the first philosophers to openly doubt religion, but is better known now for his [critique of causality](https://en.wikipedia.org/wiki/David_Hume#Causation). [John Stuart Mill](https://en.wikipedia.org/wiki/John_Stuart_Mill), [Thomas Reid](https://en.wikipedia.org/wiki/Thomas_Reid) and [John Locke](https://en.wikipedia.org/wiki/John_Locke) were less skeptical, embracing a more cautious style of metaphysics based on realism, [common sense](https://en.wikipedia.org/wiki/Common_sense) and science. Other philosophers, notably [George Berkeley](https://en.wikipedia.org/wiki/George_Berkeley) were led from empiricism to idealistic metaphysics.

**Kant**

[Immanuel Kant](https://en.wikipedia.org/wiki/Immanuel_Kant) attempted a grand synthesis and revision of the trends already mentioned: scholastic philosophy, systematic metaphysics, and skeptical empiricism, not to forget the burgeoning science of his day. As did the systems builders, he had an [overarching framework](https://en.wikipedia.org/wiki/Kantian_architectonics) in which all questions were to be addressed. Like Hume, who famously woke him from his 'dogmatic slumbers', he was suspicious of metaphysical speculation, and also places much emphasis on the limitations of the human mind.

Kant saw rationalist philosophers as aiming for a kind of metaphysical knowledge he defined as the [*synthetic apriori*](https://en.wikipedia.org/wiki/Analytical-synthetic_distinction)—that is knowledge that does not come from the senses (it is [a priori](https://en.wikipedia.org/wiki/A_priori_and_a_posteriori)) but is nonetheless about reality (synthetic). Inasmuch as it is about reality, it differs from abstract mathematical propositions (which he terms analytical apriori), and being apriori it is distinct from empirical, scientific knowledge (which he terms synthetic aposteriori). The only synthetic apriori knowledge we can have is of how our minds organize the data of the senses; that organizing framework is space and time, which for Kant have no mind-independent existence, but nonetheless operate uniformly in all humans. Apriori knowledge of space and time is all that remains of metaphysics as traditionally conceived. There *is* a reality beyond sensory data or phenomena, which he calls the realm of [noumena](https://en.wikipedia.org/wiki/Noumena); however, we cannot know it as it is in itself, but only as it appears to us. He allows himself to speculate that the origins of God, morality, and free will *might* exist in the noumenal realm, but these possibilities have to be set against its basic unknowability for humans. Although he saw himself as having disposed of metaphysics, in a sense, he has generally been regarded in retrospect as having a metaphysics of his own.

Nineteenth century philosophy was overwhelmingly influenced by Kant and his successors. [Schopenhauer](https://en.wikipedia.org/wiki/Schopenhauer), [Schelling](https://en.wikipedia.org/wiki/Friedrich_Wilhelm_Joseph_Schelling), [Fichte](https://en.wikipedia.org/wiki/Fichte) and [Hegel](https://en.wikipedia.org/wiki/Hegel) all purveyed their own panoramic versions of [German Idealism](https://en.wikipedia.org/wiki/German_Idealism), Kant's own caution about metaphysical speculation, and [refutation of idealism](https://en.wikipedia.org/wiki/Critique_of_Pure_Reason#The_Refutation_of_Idealism), having fallen by the wayside. The idealistic impulse continued into the early twentieth century with [British idealists](https://en.wikipedia.org/wiki/British_idealist) such as [F. H. Bradley](https://en.wikipedia.org/wiki/F._H._Bradley) and [J. M. E. McTaggart](https://en.wikipedia.org/wiki/J._M._E._McTaggart).

Followers of [Karl Marx](https://en.wikipedia.org/wiki/Karl_Marx) took Hegel's dialectic view of history and [re-fashioned it as materialism](https://en.wikipedia.org/wiki/Dialectical_materialism).

**Early analytical philosophy and positivism**

During the period when idealism was dominant in philosophy, science had been making great advances. The arrival of a new generation of scientifically minded philosophers led to a sharp decline in the popularity of idealism during the 1920s.

[Analytical philosophy](https://en.wikipedia.org/wiki/Analytical_philosophy) was spearheaded by [Bertrand Russell](https://en.wikipedia.org/wiki/Bertrand_Russell) and [G. E. Moore](https://en.wikipedia.org/wiki/G._E._Moore). Russell and [William James](https://en.wikipedia.org/wiki/William_James) tried to compromise between idealism and materialism with the theory of [neutral monism](https://en.wikipedia.org/wiki/Neutral_monism).

The early to mid-twentieth century philosophy also saw a trend to reject metaphysical questions as meaningless. The driving force behind this tendency was the philosophy of [Logical Positivism](https://en.wikipedia.org/wiki/Logical_Positivism) as espoused by the [Vienna Circle](https://en.wikipedia.org/wiki/Vienna_Circle).

At around the same time, the American pragmatists were steering a middle course between materialism and idealism. System-building metaphysics, with a fresh inspiration from science, was revived by [A. N. Whitehead](https://en.wikipedia.org/wiki/A._N._Whitehead) and [Charles Hartshorne](https://en.wikipedia.org/wiki/Charles_Hartshorne).

**Continental philosophy**

The forces that shaped analytical philosophy—the break with idealism, and the influence of science — were much less significant outside the English speaking world, although there was a shared turn toward language. Continental philosophy continued in a trajectory from post Kantianism.

The [phenomenology](https://en.wikipedia.org/wiki/Phenomenology_(philosophy)) of Husserl and others was intended as a collaborative project for the investigation of the features and structure of consciousness common to all humans, in line with Kant's basing his synthetic apriori on the uniform operation of consciousness. It was officially neutral with regards to ontology, but was nonetheless to spawn a number of metaphysical systems. [Brentano](https://en.wikipedia.org/wiki/Franz_Brentano)'s concept of [intentionality](https://en.wikipedia.org/wiki/Intentionality) would become widely influential, including on analytical philosophy.

[Heidegger](https://en.wikipedia.org/wiki/Heidegger), author of [Being and Time](https://en.wikipedia.org/wiki/Being_and_Time), saw himself as re-focusing on Being-qua-being, introducing the novel concept of [*Dasein*](https://en.wikipedia.org/wiki/Dasein) in the process. Classing himself an [existentialist](https://en.wikipedia.org/wiki/Existentialist), [Sartre](https://en.wikipedia.org/wiki/Sartre) wrote an extensive study of [*Being and Nothingness*](https://en.wikipedia.org/wiki/Being_and_Nothingness).

The [speculative realism](https://en.wikipedia.org/wiki/Speculative_realism) movement marks a return to full blooded realism.

**Process Metaphysics**

There are two fundamental aspects of everyday experience: change and persistence. Until recently, the Western philosophical tradition has arguably championed substance and persistence, with some notable exceptions however. According to process thinkers, novelty, flux and accident do matter, and sometimes they constitute the ultimate reality.

Lato sensu, process metaphysics is as old as Western philosophy, with figures such as Heraclitus, Plotinus, Duns Scotus, Leibniz, David Hume, Georg Wilhelm Friedrich Hegel, Friedrich Wilhelm Joseph von Schelling, Gustav Theodor Fechner, Friedrich Adolf Trendelenburg, Charles Renouvier, Karl Marx, Ernst Mach, Friedrich Wilhelm Nietzsche, Émile Boutroux, Henri Bergson, Samuel Alexander and Nicolas Berdyaev. It seemingly remains an open question whether major “Continental” figures such as the late Martin Heidegger, Maurice Merleau-Ponty, Gilles Deleuze, Michel Foucault, or Jacques Derrida should be included.

Stricto sensu, process metaphysics may be limited to the works of a few founding fathers: G. W. F. Hegel, Charles Sanders Peirce, William James, Henri Bergson, [A. N. Whitehead](https://en.wikipedia.org/wiki/Alfred_North_Whitehead), and John Dewey. From a European perspective, there was a very significant and early Whiteheadian influence on the works of outstanding scholars such as Émile Meyerson (1859–1933), Louis Couturat (1868–1914), Jean Wahl (1888–1974), Robin George Collingwood (1889–1943), Philippe Devaux (1902–1979), Hans Jonas (1903–1993), Dorothy M. Emmett (1904–2000), Maurice Merleau Ponty (1908–1961), Enzo Paci (1911–1976), Charlie Dunbar Broad (1887–1971), Wolfe Mays (1912–), Ilya Prigogine (1917–2003), Jules Vuillemin (1920–2001), Jean Ladrière (1921–), Gilles Deleuze (1925–1995), Wolfhart Pannenberg (1928–), and Reiner Wiehl (1929–2010).

**Later analytical philosophy**

While early analytic philosophy tended to reject metaphysical theorizing, under the influence of logical positivism, it was revived in the second half of the twentieth century. Philosophers such as [David K. Lewis](https://en.wikipedia.org/wiki/David_Lewis_(philosopher)) and [David Armstrong](https://en.wikipedia.org/wiki/David_Malet_Armstrong) developed elaborate theories on a range of topics such as universals, causation, possibility and necessity and abstract objects. However, the focus of analytical philosophy generally is away from the construction of all-encompassing systems and toward close analysis of individual ideas.

Among the developments that led to the revival of metaphysical theorizing were [Quine's](https://en.wikipedia.org/wiki/Willard_Van_Orman_Quine) attack on the [analytic-synthetic distinction](https://en.wikipedia.org/wiki/Analytic_proposition), which was generally taken to undermine [Carnap's](https://en.wikipedia.org/wiki/Rudolf_Carnap) distinction between existence questions internal to a framework and those external to it.

The philosophy of fiction, the problem of empty names, and the debate over existence's status as a property have all risen out of relative obscurity to become central concerns, while perennial issues such as free will, possible worlds, and the [philosophy of time](https://en.wikipedia.org/wiki/Philosophy_of_time) have had new life breathed into them.

**Rejections of metaphysics**

A number of individuals have suggested that much of metaphysics should be rejected. In the eighteenth century, David Hume took an extreme position, arguing that all genuine knowledge involves either mathematics or matters of fact and that metaphysics, which goes beyond these, is worthless. He concludes his [*Enquiry Concerning Human Understanding*](https://en.wikipedia.org/wiki/Enquiry_Concerning_Human_Understanding) with the statement:

If we take in our hand any volume; of divinity or school metaphysics, for instance; let us ask, *Does it contain any abstract reasoning concerning quantity or number?* No. *Does it contain any experimental reasoning concerning matter of fact and existence?* No. Commit it then to the flames: for it can contain nothing but sophistry and illusion.

In the 1930s, [A. J. Ayer](https://en.wikipedia.org/wiki/A._J._Ayer) and [Rudolf Carnap](https://en.wikipedia.org/wiki/Rudolf_Carnap) endorsed Hume's position; Carnap quoted the passage above. They argued that metaphysical statements are neither true nor false but meaningless since, according to their [verifiability theory of meaning](https://en.wikipedia.org/wiki/Verificationism), a statement is meaningful only if there can be empirical evidence for or against it. Thus, while Ayer rejected the monism of Spinoza, noted [above](https://en.wikipedia.org/wiki/Metaphysics#Mind_and_matter), he avoided a commitment to pluralism, the contrary position, by holding both views to be without meaning. Carnap took a similar line with the controversy over the reality of the external world.

Thirty-three years after Hume's *Enquiry* appeared, Immanuel Kant published his [*Critique of Pure Reason*](https://en.wikipedia.org/wiki/Critique_of_Pure_Reason). Although he followed Hume in rejecting much of previous metaphysics, he argued that there was still room for some [*synthetic a priori*](https://en.wikipedia.org/wiki/Analytic%E2%80%93synthetic_distinction) knowledge, concerned with matters of fact yet obtainable independent of experience. These included fundamental structures of space, time, and causality. He also argued for the freedom of the will and the existence of "things in themselves", the ultimate (but unknowable) objects of experience.

The logical atomist Ludwig Wittgenstein introduced the concept that metaphysics could be influenced by theories of [Aesthetics](https://en.wikipedia.org/wiki/Aesthetics), via [Logic](https://en.wikipedia.org/wiki/Logic), vis. a world composed of "atomical facts".

Arguing against such rejections, the Scholastic philosopher [Edward Feser](https://en.wikipedia.org/wiki/Edward_Feser) has observed that Hume’s critique of metaphysics, and specifically [Hume's fork](https://en.wikipedia.org/wiki/Hume%27s_fork), is “notoriously self-refuting” Feser argues that Hume’s fork itself is not a conceptual truth and is not empirically testable.

**Metaphysics in science**

Much recent work has been devoted to analyzing the role of metaphysics in scientific theorizing. [Alexandre Koyré](https://en.wikipedia.org/wiki/Alexandre_Koyr%C3%A9) led this movement, declaring in his book *Metaphysics and Measurement*, "It is not by following experiment, but by outstripping experiment, that the scientific mind makes progress." [Imre Lakatos](https://en.wikipedia.org/wiki/Imre_Lakatos) maintained that all scientific theories have a metaphysical "hard core" essential for the generation of hypotheses and theoretical assumptions. Thus, according to Lakatos, "scientific changes are connected with vast cataclysmic metaphysical revolutions."

An example from biology of Lakatos' thesis: [David Hull](https://en.wikipedia.org/wiki/David_Hull) has argued that changes in the ontological status of the species concept have been central in the development of biological thought from [Aristotle](https://en.wikipedia.org/wiki/Aristotle) through [Cuvier](https://en.wikipedia.org/wiki/Georges_Cuvier), [Lamarck](https://en.wikipedia.org/wiki/Jean-Baptiste_Lamarck), and [Darwin](https://en.wikipedia.org/wiki/Charles_Darwin). Darwin's ignorance of metaphysics made it more difficult for him to respond to his critics because he could not readily grasp the ways in which their underlying metaphysical views differed from his own.

In physics, new metaphysical ideas have arisen in connection with [quantum mechanics](https://en.wikipedia.org/wiki/Introduction_to_quantum_mechanics), where subatomic particles arguably do not have the same sort of individuality as the particulars with which philosophy has traditionally been concerned. Also, adherence to a deterministic metaphysics in the face of the challenge posed by the quantum-mechanical [uncertainty principle](https://en.wikipedia.org/wiki/Uncertainty_principle) led physicists such as [Albert Einstein](https://en.wikipedia.org/wiki/Albert_Einstein) to propose [alternative theories](https://en.wikipedia.org/wiki/Hidden_variable_theory) that retained determinism. [A. N. Whitehead](https://en.wikipedia.org/wiki/Alfred_North_Whitehead) is famous for creating a metaphysics inspired by electromagnetism and special relativity.

In chemistry, [Gilbert Newton Lewis](https://en.wikipedia.org/wiki/Gilbert_Newton_Lewis) addressed the nature of motion, arguing that an electron should not be said to move when it has none of the properties of motion.

Katherine Hawley notes that the metaphysics even of a widely accepted scientific theory may be challenged if it can be argued that the metaphysical presuppositions of the theory make no contribution to its predictive success.

**See also**

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|  | [***Philosophy portal***](https://en.wikipedia.org/wiki/Portal:Philosophy) |
|  | [***Metaphysics portal***](https://en.wikipedia.org/wiki/Portal:Metaphysics) |

* [Concerning existence of material things, and real distinction between mind and body (Descartes)](https://en.wikipedia.org/wiki/Meditations_on_First_Philosophy#Meditation_VI:_Concerning_the_Existence_of_Material_Things.2C_and_the_Real_Distinction_between_Mind_and_Body)
* [Epistemology](https://en.wikipedia.org/wiki/Epistemology)
* [Essence](https://en.wikipedia.org/wiki/Essence)
* [Logic](https://en.wikipedia.org/wiki/Logic)
* [Metaphilosophy](https://en.wikipedia.org/wiki/Metaphilosophy)
* [Metaethics](https://en.wikipedia.org/wiki/Metaethics)
* [Mind–body problem](https://en.wikipedia.org/wiki/Mind%E2%80%93body_problem)
* [Nihilism](https://en.wikipedia.org/wiki/Nihilism)
* [Ontology](https://en.wikipedia.org/wiki/Ontology)
* [Personal identity](https://en.wikipedia.org/wiki/Personal_identity)
* [Philosophical logic](https://en.wikipedia.org/wiki/Philosophical_logic)
* [Philosophical realism](https://en.wikipedia.org/wiki/Philosophical_realism)
* [Philosophical theology](https://en.wikipedia.org/wiki/Philosophical_theology)
* [Philosophy of Mathematics](https://en.wikipedia.org/wiki/Philosophy_of_Mathematics)
* [Philosophy of physics](https://en.wikipedia.org/wiki/Philosophy_of_physics)
* [Pluralism (philosophy of mind)](https://en.wikipedia.org/wiki/Pluralism_(philosophy_of_mind))
* [Process philosophy](https://en.wikipedia.org/wiki/Process_philosophy)
* [Substance theory](https://en.wikipedia.org/wiki/Substance_theory)
* [Underdetermination](https://en.wikipedia.org/wiki/Underdetermination)

This page was last modified on 28 June 2015, at 00:47.