

Mind–body problem

The **mind–body problem** is a philosophical problem concerning the relationship between thought and consciousness in the human mind, and the body.^{[1][2]}

It is not obvious how the concept of the mind and the concept of the body relate. For example, feelings of sadness (which are mental events) cause people to cry (which is a physical state of the body). Finding a joke funny (a mental event) causes one to laugh (another bodily state). Feelings of pain (in the mind) cause avoidance behaviours (in the body), and so on.

Similarly, changing the chemistry of the body (and the brain especially) via drugs (such as antipsychotics, SSRIs, or alcohol) can change one's state of mind in nontrivial ways. Alternatively, therapeutic interventions like cognitive behavioral therapy can change cognition in ways that have downstream effects on the bodily health.

In general, the *existence* of these mind–body connections seems unproblematic. Issues arise, however, once one considers what exactly we should make of these relations from a metaphysical or scientific perspective. Such reflections quickly raise a number of questions like:

- Are the mind and body two distinct entities, or a single entity?
- If the mind and body are two distinct entities, do the two of them causally interact?
- Is it possible for these two distinct entities to causally interact?
- What is the nature of this interaction?
- Can this interaction ever be an object of empirical study?
- If the mind and body are a single entity, then are mental events explicable in terms of physical events, or vice versa?
- Is the relation between mental and physical events something that arises *de novo* at a certain point in development?

These and other questions that discuss the relation between mind and body are questions that all fall under the banner of the 'mind–body problem'.

Mind–body interaction and mental causation

Philosophers David L. Robb and John F. Heil introduce mental causation in terms of the mind–body problem of interaction:

Mind–body interaction has a central place in our pretheoretic conception of agency. Indeed, mental causation often figures explicitly in formulations of the mind–body problem. Some philosophers insist that the very notion of psychological explanation turns on the intelligibility of mental causation. If your mind and its states, such as your beliefs and desires, were causally



René Descartes' illustration of mind–body dualism. Descartes believed inputs were passed on by the sensory organs to the epiphysis in the brain and from there to the immaterial spirit.

isolated from your bodily behavior, then what goes on in your mind could not explain what you do. If psychological explanation goes, so do the closely related notions of agency and moral responsibility. Clearly, a good deal rides on a satisfactory solution to the problem of mental causation [and] there is more than one way in which puzzles about the mind's "causal relevance" to behavior (and to the physical world more generally) can arise.

[René Descartes] set the agenda for subsequent discussions of the mind–body relation. According to Descartes, minds and bodies are distinct kinds of "substance". Bodies, he held, are spatially extended substances, incapable of feeling or thought; minds, in contrast, are unextended, thinking, feeling substances. If minds and bodies are radically different kinds of substance, however, it is not easy to see how they "could" causally interact. Princess Elizabeth of Bohemia puts it forcefully to him in a 1643 letter:

how the human soul can determine the movement of the animal spirits in the body so as to perform voluntary acts—being as it is merely a conscious substance. For the determination of movement seems always to come about from the moving body's being propelled—to depend on the kind of impulse it gets from what sets it in motion, or again, on the nature and shape of this latter thing's surface. Now the first two conditions involve contact, and the third involves that the impelling thing has extension; but you utterly exclude extension from your notion of soul, and contact seems to me incompatible with a thing's being immaterial...

Elizabeth is expressing the prevailing mechanistic view as to how causation of bodies works. Causal relations countenanced by contemporary physics can take several forms, not all of which are of the push–pull variety.^[3]

—David Robb and John Heil, "Mental Causation" in *The Stanford Encyclopedia of Philosophy*

Contemporary neurophilosopher Georg Northoff suggests that mental causation is compatible with classical formal and final causality.^[4]

Biologist, theoretical neuroscientist and philosopher, Walter J. Freeman, suggests that explaining mind–body interaction in terms of "circular causation" is more relevant than linear causation.^[5]

In neuroscience, much has been learned about correlations between brain activity and subjective, conscious experiences. Many suggest that neuroscience will ultimately explain consciousness: "...consciousness is a biological process that will eventually be explained in terms of molecular signaling pathways used by interacting populations of nerve cells..."^[6] However, this view has been criticized because *consciousness* has yet to be shown to be a *process*,^[7] and the "hard problem" of relating consciousness directly to brain activity remains elusive.^[8]

Cognitive science today gets increasingly interested in the embodiment of human perception, thinking, and action. Abstract information processing models are no longer accepted as satisfactory accounts of the human mind. Interest has shifted to interactions between the material human body and its surroundings and to the way in which such interactions shape the mind. Proponents of this approach have expressed the hope that it will ultimately dissolve the Cartesian

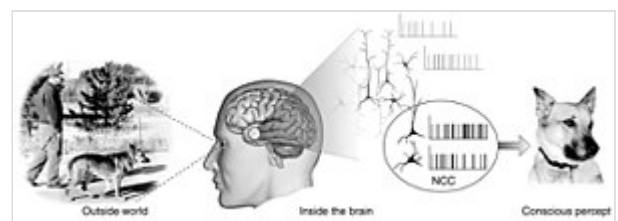
divide between the immaterial mind and the material existence of human beings (Damasio, 1994; Gallagher, 2005). A topic that seems particularly promising for providing a bridge across the mind–body cleavage is the study of bodily actions, which are neither reflexive reactions to external stimuli nor indications of mental states, which have only arbitrary relationships to the motor features of the action (e.g., pressing a button for making a choice response). The shape, timing, and effects of such actions are inseparable from their meaning. One might say that they are loaded with mental content, which cannot be appreciated other than by studying their material features. Imitation, communicative gesturing, and tool use are examples of these kinds of actions.^[9]

—Georg Goldenberg, "How the Mind Moves the Body: Lessons From Apraxia" in *Oxford Handbook of Human Action*

Since 1927, at the Solvay Conference in Austria, European physicists of the late 19th and early 20th centuries realized that the interpretations of their experiments with light and electricity required a different theory to explain why light behaves both as a wave and particle. The implications were profound. The usual empirical model of explaining natural phenomena could not account for this duality of matter and non-matter. In a significant way, this has brought back the conversation on the mind–body duality.^[10]

Neural correlates

The *neural correlates of consciousness* "are the smallest set of brain mechanisms and events sufficient for some specific conscious feeling, as elemental as the color red or as complex as the sensual, mysterious, and primeval sensation evoked when looking at [a] jungle scene..."^[12] Neuroscientists use empirical approaches to discover neural correlates of subjective phenomena.^[13]



The neuronal correlates of consciousness constitute the smallest set of neural events and structures sufficient for a given conscious percept or explicit memory. This case involves synchronized action potentials in neocortical pyramidal neurons.^[11]

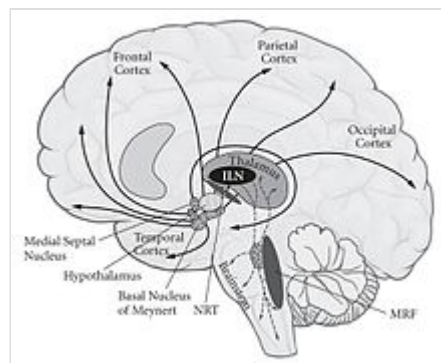
Neurobiology and neurophilosophy

A science of consciousness must explain the exact relationship between subjective conscious mental states and brain states formed by electrochemical interactions in the body, the so-called hard problem of consciousness.^[14] Neurobiology studies the connection scientifically, as do neuropsychology and neuropsychiatry. *Neurophilosophy* is the interdisciplinary study of neuroscience and philosophy of mind. In this pursuit, neurophilosophers, such as Patricia Churchland,^{[15][16]} Paul Churchland^[17] and Daniel Dennett,^{[18][19]} have focused primarily on the body rather than the mind. In this context, neuronal correlates may be viewed as causing consciousness, where consciousness can be thought of as an undefined property that depends upon this complex, adaptive, and highly interconnected biological system.^[20] However, it's unknown if discovering and characterizing neural correlates may eventually provide a theory of consciousness that can explain the first-person experience of these "systems", and determine whether other systems of equal complexity lack such features.

The massive parallelism of neural networks allows redundant populations of neurons to mediate the same or similar percepts. Nonetheless, it is assumed that every subjective state will have associated neural correlates, which can be manipulated to artificially inhibit or induce the subject's experience of that conscious state. The growing ability of neuroscientists to manipulate neurons using methods from molecular biology in combination with optical tools^[21] was achieved by the development of behavioral and organic models that are amenable to large-scale genomic analysis and manipulation. Non-human analysis such as this, in combination with imaging of the human brain, have contributed to a robust and increasingly predictive theoretical framework.

Arousal and content

There are two common but distinct dimensions of the term *consciousness*,^[23] one involving *arousal* and *states of consciousness* and the other involving *content of consciousness* and *conscious states*. To be conscious of something, the brain must be in a relatively high state of arousal (sometimes called *vigilance*), whether awake or in REM sleep. Brain arousal level fluctuates in a circadian rhythm but these natural cycles may be influenced by lack of sleep, alcohol and other drugs, physical exertion, etc. Arousal can be measured behaviorally by the signal amplitude required to trigger a given reaction (for example, the sound level that causes a subject to turn and look toward the source). High arousal states involve conscious states that feature specific perceptual content, planning and recollection or even fantasy. Clinicians use scoring systems such as the Glasgow Coma Scale to assess the level of arousal in patients with *impaired states of consciousness* such as the comatose state, the persistent vegetative state, and the minimally conscious state. Here, "state" refers to different amounts of externalized, physical consciousness: ranging from a total absence in coma, persistent vegetative state and general anesthesia, to a fluctuating, minimally conscious state, such as sleep walking and epileptic seizure.^[24]



Midline structures in the brainstem and thalamus necessary to regulate the level of brain arousal. Small, bilateral lesions in many of these nuclei cause a global loss of consciousness.^[22]

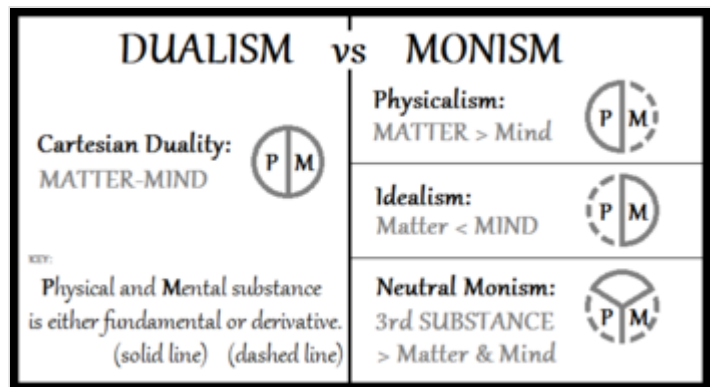
Many nuclei with distinct chemical signatures in the thalamus, midbrain and pons must function for a subject to be in a sufficient state of brain arousal to experience anything at all. These nuclei therefore belong to the enabling factors for consciousness. Conversely it is likely that the specific content of any particular conscious sensation is mediated by particular neurons in the cortex and their associated satellite structures, including the amygdala, thalamus, claustrum and the basal ganglia.

Theoretical frameworks

A variety of approaches have been proposed. Most are either dualist or monist. Dualism maintains a rigid distinction between the realms of mind and matter. Monism maintains that there is only one unifying reality as in neutral or substance or essence, in terms of which everything can be explained.

Each of these categories contains numerous variants. The two main forms of dualism are substance dualism, which holds that the mind is formed of a distinct type of substance not governed by the laws of physics, and property dualism, which holds that mental properties involving conscious experience are fundamental properties, alongside the fundamental properties identified by a completed physics. The three main forms of

monism are physicalism, which holds that the mind consists of matter organized in a particular way; idealism, which holds that only thought truly exists and matter is merely a representation of mental processes; and neutral monism, which holds that both mind and matter are aspects of a distinct essence that is itself identical to neither of them. Psychophysical parallelism is a third possible alternative regarding the relation between mind and body, between interaction (dualism) and one-sided action (monism).^[25]



Different approaches toward resolving the mind-body problem

Several philosophical perspectives that have sought to escape the problem by rejecting the mind-body dichotomy have been developed. The historical materialism of Karl Marx and subsequent writers, itself a form of physicalism, held that consciousness was engendered by the material contingencies of one's environment.^[26] An explicit rejection of the dichotomy is found in French structuralism, and is a position that generally characterized post-war Continental philosophy.^[27]

An ancient model of the mind known as the Five-Aggregate Model, described in the Buddhist teachings, explains the mind as continuously changing sense impressions and mental phenomena.^[28] Considering this model, it is possible to understand that it is the constantly changing sense impressions and mental phenomena (i.e., the mind) that experience/analyze all external phenomena in the world as well as all internal phenomena including the body anatomy, the nervous system as well as the organ brain. This conceptualization leads to two levels of analyses: (i) analyses conducted from a third-person perspective on how the brain works, and (ii) analyzing the moment-to-moment manifestation of an individual's mind-stream (analyses conducted from a first-person perspective). Considering the latter, the manifestation of the mind-stream is described as happening in every person all the time, even in a scientist who analyzes various phenomena in the world, including analyzing and hypothesizing about the organ brain.^[28]

Dualism

The following is a very brief account of some contributions to the mind-body problem.

Interactionism

The viewpoint of interactionism suggests that the mind and body are two separate substances, but that each can affect the other.^[29] This interaction between the mind and body was first put forward by the philosopher René Descartes. Descartes believed that the mind was non-physical and permeated the entire body, but that the mind and body interacted via the pineal gland.^{[30][31]} This theory has changed throughout the years, and in the 20th century its main adherents were the philosopher of science Karl Popper and the neurophysiologist John Carew Eccles.^{[32][33]} A more recent and popular version of Interactionism is the viewpoint of emergentism.^[29] This perspective states that mental states are a result of the brain states, and that the mental events can then influence the brain, resulting in a two way communication between the mind and body.^[29]

The absence of an empirically identifiable meeting point between the non-physical mind (if there is such a thing) and its physical extension (if there is such a thing) has been raised as a criticism of interactionist dualism. This criticism has led many modern philosophers of mind to maintain that the mind is not something separate from the body.^[34] These approaches have been particularly influential in the sciences, particularly in the fields of sociobiology, computer science, evolutionary psychology, and the neurosciences.^{[35][36][37][38]}

Epiphenomenalism

The viewpoint of epiphenomenalism suggests that the physical brain can cause mental events in the mind, but that the mind cannot interact with the brain at all; stating that mental occurrences are simply a side effect of the brain's processes.^[29] This viewpoint explains that while one's body may react to them feeling joy, fear, or sadness, that the emotion does not cause the physical response. Rather, it explains that joy, fear, sadness, and all bodily reactions are caused by chemicals and their interaction with the body.^[39]

Psychophysical parallelism

The viewpoint of psychophysical parallelism suggests that the mind and body are entirely independent from one another. Furthermore, this viewpoint states that both mental and physical stimuli and reactions are experienced simultaneously by both the mind and body, however, there is no interaction nor communication between the two.^{[29][40]}

Double aspectism

Double aspectism is an extension of psychophysical parallelism which also suggests that the mind and body cannot interact, nor can they be separated.^[29] Baruch Spinoza and Gustav Fechner were two of the notable users of double aspectism, however, Fechner later expanded upon it to form the branch of psychophysics in an attempt to prove the relationship of the mind and body.^[41]

Pre-established harmony

The viewpoint of pre-established harmony is another offshoot of psychophysical parallelism which suggests that mental events and bodily events are separate and distinct, but that they are both coordinated by an external agent, an example of such an agent could be God.^[29] A notable adherent to the idea of pre-established harmony is Gottfried Wilhelm von Leibniz in his theory of Monadology.^[42] His explanation of pre-established harmony relied heavily upon God as the external agent who coordinated the mental and bodily events of all things in the beginning.^[43]

Gottfried Wilhelm Leibniz's theory of **pre-established harmony** (French: *harmonie préétablie*) is a philosophical theory about causation under which every "substance" affects only itself, but all the substances (both bodies and minds) in the world nevertheless seem to causally interact with each other because they have been programmed by God in advance to "harmonize" with each other. Leibniz's term for these substances was "monads", which he described in a popular work (*Monadology* §7) as "windowless".

The concept of pre-established harmony can be understood by considering an event with both seemingly mental and physical aspects. For example, consider saying 'ouch' after stubbing one's toe. There are two general ways to describe this event: in terms of mental events (where the conscious sensation of pain *caused* one to say 'ouch') and in terms of physical events (where neural firings in one's toe, carried to the brain, are

what caused one to say 'ouch'). The main task of the mind–body problem is figuring out how these mental events (the feeling of pain) and physical events (the nerve firings) relate. Leibniz's pre-established harmony attempts to answer this puzzle, by saying that mental and physical events are not genuinely related in any causal sense, but only seem to interact due to psycho-physical fine-tuning.

Leibniz's theory is best known as a solution to the mind–body problem of how mind can interact with the body. Leibniz rejected the idea of physical bodies affecting each other, and explained *all* physical causation in this way.

Under pre-established harmony, the preprogramming of each mind must be extremely complex, since only it causes its own thoughts or actions, for as long as it exists. To appear to interact, each substance's "program" must contain a description of either the entire universe, or of how the object behaves at all times during all interactions that appear to occur.

An example:

An apple falls on Alice's head, apparently causing the experience of pain in her mind. In fact, the apple does not cause the pain—the pain is caused by some previous state of Alice's mind. If Alice then seems to shake her hand in anger, it is not actually her mind that causes this, but some previous state of her hand.

Note that if a mind behaves as a windowless monad, there is no need for any other object to exist to create that mind's sense perceptions, leading to a solipsistic universe that consists only of that mind. Leibniz seems to admit this in his *Discourse on Metaphysics*, section 14. However, he claims that his principle of harmony, according to which God creates the best and most harmonious world possible, dictates that the perceptions (internal states) of each monad "expresses" the world in its entirety, and the world expressed by the monad actually exists. Although Leibniz says that each monad is "windowless", he also claims that it functions as a "mirror" of the entire created universe.

On occasion, Leibniz styled himself as "the author of the system of pre-established harmony".^[44]

Immanuel Kant's professor Martin Knutzen regarded pre-established harmony as "the pillow for the lazy mind".^[45]

In his sixth *Metaphysical Meditation*, Descartes talked about a "coordinated disposition of created things set up by God", shortly after having identified "nature in its general aspect" with God himself. His conception of the relationship between God and his normative nature actualized in the existing world recalls both the pre-established harmony of Leibniz and the Deus sive Natura of Baruch Spinoza.^[46]

Occasionalism

The viewpoint of Occasionalism is another offshoot of psychophysical parallelism, however, the major difference is that the mind and body have some indirect interaction. Occasionalism suggests that the mind and body are separate and distinct, but that they interact through divine intervention.^[29] Nicolas Malebranche was one of the main contributors to this idea, using it as a way to address his disagreements with Descartes' view of the mind–body problem.^[47] In Malebranche's occasionalism, he viewed thoughts as a wish for the body to move, which was then fulfilled by God causing the body to act.^[47]

Historical background

The problem was popularized by René Descartes in the 17th century, which resulted in Cartesian dualism, also by pre-Aristotelian philosophers,^{[48][49]} in Avicennian philosophy,^[50] and in earlier Asian traditions.

The Buddha

The Buddha (480–400 B.C.E.), founder of Buddhism, described the mind and the body as depending on each other in a way that two sheaves of reeds were to stand leaning against one another^[51] and taught that the world consists of mind and matter which work together, interdependently. Buddhist teachings describe the mind as manifesting from moment to moment, one thought moment at a time as a fast flowing stream.^[28] The components that make up the mind are known as the five aggregates (i.e., material form, feelings, perception, volition, and sensory consciousness), which arise and pass away continuously. The arising and passing of these aggregates in the present moment is described as being influenced by five causal laws: biological laws, psychological laws, physical laws, volitional laws, and universal laws.^[28] The Buddhist practice of mindfulness involves attending to this constantly changing mind-stream.

Ultimately, the Buddha's philosophy is that both mind and forms are conditionally arising qualities of an ever-changing universe in which, when nirvāna is attained, all phenomenal experience ceases to exist.^[52] According to the anattā doctrine of the Buddha, the conceptual self is a mere mental construct of an individual entity and is basically an impermanent illusion, sustained by form, sensation, perception, thought and consciousness.^[53] The Buddha argued that mentally clinging to any views will result in delusion and stress,^[54] since, according to the Buddha, a real self (conceptual self, being the basis of standpoints and views) cannot be found when the mind has clarity.

Plato

Plato (429–347 B.C.E.) believed that the material world is a shadow of a higher reality that consists of concepts he called Forms. According to Plato, objects in our everyday world "participate in" these Forms, which confer identity and meaning to material objects. For example, a circle drawn in the sand would be a circle only because it participates in the concept of an ideal circle that exists somewhere in the world of Forms. He argued that, as the body is from the material world, the soul is from the world of Forms and is thus immortal. He believed the soul was temporarily united with the body and would only be separated at death, when it, if pure, would return to the world of Forms; otherwise, reincarnation follows. Since the soul does not exist in time and space, as the body does, it can access universal truths. For Plato, ideas (or Forms) are the true reality, and are experienced by the soul. The body is for Plato empty in that it cannot access the abstract reality of the world; it can only experience shadows. This is determined by Plato's essentially rationalistic epistemology.^[55]

Aristotle

For Aristotle (384–322 BC) *mind* is a faculty of the *soul*.^{[56][57]} Regarding the soul, he said:

It is not necessary to ask whether soul and body are one, just as it is not necessary to ask whether the wax and its shape are one, nor generally whether the matter of each thing and that of which it is the matter are one. For even if one and being are spoken of in several ways, what is properly so spoken of is the actuality.

In the end, Aristotle saw the relation between soul and body as uncomplicated, in the same way that it is uncomplicated that a cubical shape is a property of a toy building block. The soul is a property exhibited by the body, one among many. Moreover, Aristotle proposed that when the body perishes, so does the soul, just as the shape of a building block disappears with destruction of the block.^[58]

Medieval Aristotelianism

Working in the Aristotelian-influenced tradition of Thomism, Thomas Aquinas (1225–1274), like Aristotle, believed that the mind and the body are one, like a seal and wax; therefore, it is pointless to ask whether or not they are one. However, (referring to "mind" as "the soul") he asserted that the soul persists after the death of the body in spite of their unity, calling the soul "this particular thing". Since his view was primarily theological rather than philosophical, it is impossible to fit it neatly within either the category of physicalism or dualism.^[59]

Influences of Eastern monotheistic religions

In religious philosophy of Eastern monotheism, dualism denotes a binary opposition of an idea that contains two essential parts. The first formal concept of a "mind–body" split may be found in the divinity–secularity dualism of the ancient Persian religion of Zoroastrianism around the mid-fifth century BC. Gnosticism is a modern name for a variety of ancient dualistic ideas inspired by Judaism popular in the first and second century AD. These ideas later seem to have been incorporated into Galen's "tripartite soul"^[60] that led into both the Christian sentiments^[61] expressed in the later Augustinian theodicy and Avicenna's Platonism in Islamic Philosophy.

Descartes

René Descartes (1596–1650) believed that mind exerted control over the brain *via* the pineal gland:

My view is that this gland is the principal seat of the soul, and the place in which all our thoughts are formed.^[62]

—René Descartes, *Treatise of Man*

[The] mechanism of our body is so constructed that simply by this gland's being moved in any way by the soul or by any other cause, it drives the surrounding spirits towards the pores of the brain, which direct them through the nerves to the muscles; and in this way the gland makes the spirits move the limbs.^[63]

—René Descartes, *Passions of the Soul*

His posited relation between mind and body is called Cartesian dualism or substance dualism. He held that *mind* was distinct from *matter*, but could influence matter. How such an interaction could be exerted remains a contentious issue.

Kant

For Kant (1724–1804) beyond *mind* and *matter* there exists a world of *a priori* forms, which are seen as necessary preconditions for understanding. Some of these forms, space and time being examples, today seem to be pre-programmed in the brain.

...whatever it is that impinges on us from the mind-independent world does not come located in a spatial or a temporal matrix,...The mind has two pure forms of intuition built into it to allow it to... organize this 'manifold of raw intuition'.^[64]

—Andrew Brook, *Kant's view of the mind and consciousness of self: Transcendental aesthetic*

Kant views the mind–body interaction as taking place through forces that may be of different kinds for mind and body.^[65]

Huxley

For Huxley (1825–1895) the conscious mind was a by-product of the brain that has no influence upon the brain, a so-called epiphenomenon.

On the epiphenomenalist view, mental events play no causal role. Huxley, who held the view, compared mental events to a steam whistle that contributes nothing to the work of a locomotive.^[66]

—William Robinson, *Epiphenomenalism*

Whitehead

A. N. Whitehead advocated a sophisticated form of panpsychism that has been called by David Ray Griffin panexperientialism.^[67]

Popper

For Popper (1902–1994) there are *three* aspects of the mind–body problem: the worlds of matter, mind, and of the creations of the mind, such as mathematics. In his view, the third-world creations of the mind could be interpreted by the second-world mind and used to affect the first-world of matter. An example might be radio, an example of the interpretation of the third-world (Maxwell's electromagnetic theory) by the second-world mind to suggest modifications of the external first world.

The body–mind problem is the question of whether and how our thought processes in World 2 are bound up with brain events in World 1. ...I would argue that the first and oldest of these attempted solutions is the only one that deserves to be taken seriously [namely]: World 2 and World 1 interact, so that when someone reads a book or listens to a lecture, brain events occur that *act* upon the World 2 of the reader's or listener's thoughts; and conversely, when a mathematician follows a proof, his World 2 *acts* upon his brain and thus upon World 1. This, then, is the thesis of body–mind interaction.^[68]

Ryle

With his 1949 book, *The Concept of Mind*, Gilbert Ryle "was seen to have put the final nail in the coffin of Cartesian dualism".^[69]

In the chapter "Descartes' Myth," Ryle introduces "the dogma of the Ghost in the machine" to describe the philosophical concept of the mind as an entity separate from the body:

I hope to prove that it is entirely false, and false not in detail but in principle. It is not merely an assemblage of particular mistakes. It is one big mistake and a mistake of a special kind. It is, namely, a category mistake.

Searle

For Searle (b. 1932) the mind–body problem is a false dichotomy; that is, mind is a perfectly ordinary aspect of the brain. Searle proposed Biological naturalism in 1980.

According to Searle then, there is no more a mind–body problem than there is a macro–micro economics problem. They are different levels of description of the same set of phenomena. [...] But Searle is careful to maintain that the mental – the domain of qualitative experience and understanding – is autonomous and has no counterpart on the microlevel; any redescription of these macroscopic features amounts to a kind of evisceration, ...^[70]

—Joshua Rust, *John Searle*

See also

- Bodymind
- Chinese room
- Cognitive closure (philosophy)
- Cognitive neuroscience
- Connectionism
- Consciousness in animals
- Downward causation
- *Descartes' Error*
- Embodied cognition
- Existentialism
- Explanatory gap
- Free will
- Ideasthesia
- Namarupa (Buddhist concept)
- Neuroscience of free will
- Philosophical zombie
- Philosophy of artificial intelligence

- [Pluralism](#)
- [Problem of other minds](#)
- [Reductionism](#)
- [Sacred–profane dichotomy](#)
- [Sentience](#)
- [Strange loop \(self-reflective thoughts\)](#)
- [The Mind's I \(book on the subject\)](#)
- [Turing test](#)
- [Vertiginous question](#)
- [William H. Poteat](#)

References

1. "Dualism" (<https://plato.stanford.edu/entries/dualism/>). *The Stanford Encyclopedia of Philosophy*. Metaphysics Research Lab, Stanford University. 2020.
2. Georgiev, Danko D. (2020). "Quantum information theoretic approach to the mind–brain problem". *Progress in Biophysics and Molecular Biology*. **158**: 16–32. arXiv:2012.07836 (<https://arxiv.org/abs/2012.07836>). doi:10.1016/j.pbiomolbio.2020.08.002 (<https://doi.org/10.1016%2Fj.pbiomolbio.2020.08.002>). PMID 32822698 (<https://pubmed.ncbi.nlm.nih.gov/32822698>). S2CID 221237249 (<https://api.semanticscholar.org/CorpusID:221237249>). "The mind-brain problem is to explain how the unobservable conscious mind and the observable brain relate to each other: do they interact or does one unilaterally generate the other?"
3. Robb, David; Heil, John (2009). "Mental Causation" (<http://plato.stanford.edu/archives/sum2009/entries/mental-causation/>). In Edward N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy* (Summer 2009 ed.).
4. Georg Northoff (2004). *Philosophy of the Brain: The Brain Problem* (<https://books.google.com/books?id=CJq4QDixlg0C&pg=PT148>) (Volume 52 of *Advances in Consciousness Research* ed.). John Benjamins Publishing. pp. 137–139. ISBN 978-1588114174. "The restriction of causality to 'efficient causality' lead to the neglect of 'goal-orientation' since it was no longer necessary within [that] framework. Not considering 'goal-orientation' resulted in the neglect of 'embedment' and the consequential presupposition of 'isolation' with separation between brain, body, and environment. Neglecting 'embedment' lead to the equation of perception/action with sensory impression/movement which could be well accounted for by 'efficient causality'. Accordingly, since dominated by 'efficient causality', **qualia** and intentionality, as related to perception/action rather than to sensory impression/movement, were excluded from science and consequently regarded [as] purely philosophical problems. Analogous to 'final causes', 'formal causes' were eliminated as well. 'Efficient causality' is not compatible with 'embedded coding' [which] is necessarily tied with 'formal causality' and 'final causality'... Finally, the possibility of mental causation remains incompatible with 'efficient causality'. It can, however, be properly described by 'formal and final causality'."
5. Walter J Freeman (2009). "Consciousness, intentionality and causality" (<https://books.google.com/books?id=G5CaTnNksgkC&pg=PA4>). In Susan Pockett; WP Banks; Shaun Gallagher (eds.). *Does Consciousness Cause Behavior?*. MIT Press. pp. 4–5, 88–90. ISBN 978-0262512572.
6. Eric R. Kandel (2007). *In Search of Memory: The Emergence of a New Science of Mind* (<https://books.google.com/books?id=PFnRwWXzypgC&pg=PA9>). WW Norton. p. 9. ISBN 978-0393329377.

7. Oswald Hanfling (2002). *Wittgenstein and the Human Form of Life* (<https://books.google.com/books?id=TRikWPqy-JgC&pg=PA108>). Psychology Press. pp. 108–109. ISBN 978-0415256452.
8. A term attributed to David Chalmers by Eugene O Mills (1999). "Giving up on the hard problem of consciousness" (<https://books.google.com/books?id=t4KNDxjsj7fcC&pg=PA109>). In Jonathan Shear (ed.). *Explaining Consciousness: The Hard Problem*. MIT Press. p. 109. ISBN 978-0262692212.
9. Goldenberg, Georg (2008). "Chapter 7, How the Mind Moves the Body: Lessons From Apraxia" (<https://books.google.com/books?id=zFP1AZYINmcC&pg=PA136>). In Morsella, E.; Bargh, J.A.; Gollwitzer, P.M. (eds.). *Oxford Handbook of Human Action*. Social Cognition and Social Neuroscience. Oxford University Press, USA. p. 136. ISBN 9780195309980. LCCN 2008004997 (<https://lcn.loc.gov/2008004997>).
10. Gilder, L. (2009). *The Age of Entanglement: When Quantum Physics was Reborn* (<https://books.google.com/books?id=5i4isqpu-l8C>). Vintage Books. ISBN 978-1-4000-9526-1. Retrieved November 11, 2021.
11. Christof Koch (2004). "Figure 1.1: Neuronal correlates of consciousness" (<https://books.google.com/books?id=7L9qAAAAMAAJ&q=%22the+neuronal+correlates+of+consciousness%22>). *The Quest for Consciousness: A Neurobiological Approach*. Englewood, Colorado: Roberts & Company Publishers. p. 16. ISBN 978-0974707709.
12. Christof Koch (2004). "Chapter 5: What are the neuronal correlates of consciousness?" (<https://books.google.com/books?id=7L9qAAAAMAAJ&q=%22minimal+set+of+neural+events%22>). *The Quest for Consciousness: A Neurobiological Approach*. Englewood, Colorado: Roberts & Company Publishers. pp. xvi, 97, 104. ISBN 978-0974707709.
13. See here (<http://www.klab.caltech.edu/~koch/glossary.html>) Archived (<https://web.archive.org/web/20130313192029/http://www.klab.caltech.edu/~koch/glossary.html>) 2013-03-13 at the Wayback Machine for a glossary of related terms.
14. Kandel, Eric R. (2007). *In search of memory: The emergence of a new science of mind* (<https://books.google.com/books?id=PFnRwWXzypgC&pg=PA382>). W. W. Norton & Company. p. 382. ISBN 978-0393329377.
15. Churchland, Patricia Smith (2002). *Brain-Wise: Studies in Neurophilosophy* (<https://books.google.com/books?id=vGY1BkA-gyYC&pg=PA476>). Bradford Books. MIT Press. ISBN 9780262532006. LCCN 2002066024 (<https://lcn.loc.gov/2002066024>).
16. Churchland, Patricia Smith (1989). *Neurophilosophy: Toward a Unified Science of the Mind–Brain* (<https://books.google.com/books?id=hAeFMFW3rDUC&pg=PA548>). Computational Models of Cognition and Perception. MIT Press. ISBN 9780262530859. LCCN 85023706 (<https://lcn.loc.gov/85023706>).
17. Churchland, Paul (2007). *Neurophilosophy at Work* (<https://books.google.com/books?id=ZeaS6XEga6wC>). Cambridge University Press. pp. viii–ix. ISBN 9780521864725. LCCN 2006014487 (<https://lcn.loc.gov/2006014487>).
18. Dennett, Daniel C. (1986). *Content and Consciousness* (<https://books.google.com/books?id=Sc1rzruVz2QC&pg=PA2>). International Library of Philosophy. Taylor & Francis. ISBN 9780415104319. LCCN 72436737 (<https://lcn.loc.gov/72436737>).
19. Dennett, Daniel C. (1997). *Kinds of Minds: Toward an Understanding of Consciousness* (<https://books.google.com/books?id=nrtchsJKQeAC&pg=PA189>). Science Masters Series. Basic Books. ISBN 9780465073511. LCCN 96164655 (<https://lcn.loc.gov/96164655>).
20. Squire, Larry R. (2008). *Fundamental neuroscience* (<https://archive.org/details/fundamentalneuro00lrsq>) (3rd ed.). Academic Press. p. 1223 (<https://archive.org/details/fundamentalneuro00lrsq/page/n1243>). ISBN 978-0-12-374019-9.

21. Adamantidis A.R.; Zhang F.; Aravanis A.M.; Deisseroth K.; de Lecea L. (2007). "Neural substrates of awakening probed with optogenetic control of hypocretin neurons" (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6744371>). *Nature*. **450** (7168): 420–4. Bibcode:2007Natur.450..420A (<https://ui.adsabs.harvard.edu/abs/2007Natur.450..420A>). doi:10.1038/nature06310 (<https://doi.org/10.1038%2Fnature06310>). PMC 6744371 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6744371>). PMID 17943086 (<https://pubmed.ncbi.nlm.nih.gov/17943086>).
22. Christof Koch (2004). "Figure 5.1 The Cholinergic Enabling System" (<https://books.google.com/books?id=7L9qAAAAMAAJ&q=%22The+Cholinergic+Enabling+System%22>). *The Quest for Consciousness: A Neurobiological Approach*. Englewood, Colorado: Roberts & Company Publishers. p. 91. ISBN 978-0974707709. Also see Chapter 5, available on line.
23. Zeman, A. (2001). "Consciousness" (<https://doi.org/10.1093%2Fbrain%2F124.7.1263>). *Brain*. **124** (7): 1263–1289. doi:10.1093/brain/124.7.1263 (<https://doi.org/10.1093%2Fbrain%2F124.7.1263>). PMID 11408323 (<https://pubmed.ncbi.nlm.nih.gov/11408323>).
24. Schiff, Nicholas D. (November 2004), "The neurology of impaired consciousness: Challenges for cognitive neuroscience.", in Gazzaniga, Michael S. (ed.), *The Cognitive Neurosciences* (<https://archive.org/details/cognitiveneurosc0000unse>) (3rd ed.), MIT Press, ISBN 978-0-262-07254-0
25. Chisholm, Hugh, ed. (1911). "Parallelism, Psychophysical" (https://en.wikisource.org/wiki/1911_Encyclop%C3%A6dia_Britannica/Parallelism,_Psychophysical). *Encyclopædia Britannica*. Vol. 20 (11th ed.). Cambridge University Press. p. 762.
26. K. Marx, A Contribution to the Critique of Political Economy, Progress Publishers, Moscow, 1977, with some notes by R. Rojas.
27. Bryan S. Turner (2008). *The Body and Society: Explorations in Social Theory* (<https://books.google.com/books?id=FYKjzsc6SkAC>) (3rd ed.). Sage Publications. p. 78. ISBN 978-1412929875. "...a rejection of any dualism between mind and body, and a consequent insistence on the argument that the body is never simply a physical object but always an embodiment of consciousness."
28. Karunamuni N.D. (May 2015). "The Five-Aggregate Model of the Mind" (<https://doi.org/10.1177%2F2158244015583860>). *SAGE Open*. **5** (2): 215824401558386. doi:10.1177/2158244015583860 (<https://doi.org/10.1177%2F2158244015583860>).
29. Hergenhahn, Baldwin R. (2009). *An Introduction to the History of Psychology, Sixth Edition*. Belmont, CA: Cengage Learning. p. 18. ISBN 978-0-495-50621-8.
30. Hergenhahn, Baldwin, R (2009). *An Introduction to the History of Psychology, Sixth Edition*. Belmont, CA: Cengage Learning. pp. 121–122. ISBN 978-0-495-50621-8.
31. "Interactionism Philosophy" (<https://www.britannica.com/topic/interactionism>). *Encyclopaedia Britannica Online*. Retrieved 17 July 2020.
32. Popper, Karl R. (1977). *The self and its brain: an argument for interactionism*. Springer International. ISBN 0-415-05898-8. OCLC 180195035 (<https://www.worldcat.org/oclc/180195035>).
33. Eccles, John C. (1994), "The Self and Its Brain: The Ultimate Synthesis", *How the SELF Controls Its BRAIN*, Berlin, Heidelberg: Springer Berlin Heidelberg, pp. 167–183, doi:10.1007/978-3-642-49224-2_10 (https://doi.org/10.1007%2F978-3-642-49224-2_10), ISBN 978-3-642-49226-6
34. Kim, Jaegwan (1995). "Emergent properties" (<https://books.google.com/books?id=sl4YAAAAIAAJ&q=editions:qiO-uKvXxpQC>). In Honderich, Ted (ed.). *Oxford Companion to Philosophy*. Oxford: Oxford University Press. p. 240. ISBN 9780198661320.
35. Pinel, J. (2009). *Psychobiology* (<https://books.google.com/books?id=eW1FAQAIAAJ>) (7th ed.). Pearson/Allyn and Bacon. ISBN 978-0205548927.

36. LeDoux, J. (2002). *The Synaptic Self: How Our Brains Become Who We Are* (<https://books.google.com/books?id=3Zpr6NOy5tsC>). Viking Penguin. ISBN 978-88-7078-795-5.
37. Russell, S. & Norvig, P. (2010). *Artificial Intelligence: A Modern Approach* (<https://books.google.com/books?id=8jZBksh-bUMC>) (3rd ed.). Prentice Hall. ISBN 978-0136042594.
38. Dawkins, R. (2006). *The Selfish Gene* (<https://books.google.com/books?id=0ICKantUfvoC>) (3rd ed.). Oxford University Press. ISBN 978-0199291144.
39. Walter, Sven. "Epiphenomenalism" (<https://www.iep.utm.edu/epiphenol/#H2>). *Internet Encyclopedia of Philosophy*. University of Bielefeld. Retrieved 17 July 2020.
40. Broad, C.D. (2014-06-03). *The Mind and its Place in Nature*. doi:10.4324/9781315824147 (<https://doi.org/10.4324%2F9781315824147>). ISBN 9781315824147.
41. Hergenhahn, Baldwin R. (2013). *An Introduction to the History of Psychology, Seventh Edition* (https://books.google.com/books?id=6-FchL0K_ioC&q=psychophysics&pg=PA240). Cengage Learning. pp. 240–241. ISBN 978-1-133-95809-3.
42. Leibniz, Gottfried Wilhelm. (2016). *La Monadologie*. BnF-P. ISBN 978-2-346-03192-4. OCLC 1041048644 (<https://www.worldcat.org/oclc/1041048644>).
43. Hergenhahn, Baldwin R. (2009). *An Introduction to the History of Psychology, Sixth Edition*. Belmont, CA: Cengage Learning. pp. 186–188. ISBN 978-0-495-50621-8.
44. *Leibniz Philosophischen Schriften* hrsg. C. Gerhardt, Bd VI 539, 546; and also the New Essays
45. Porter, Burton (2010). *What the Tortoise Taught Us: The Story of Philosophy*. Rowman & Littlefield Publishers. p. 133.
46. Cuttingham, John (June 1, 2013). "II—John Cottingham: Descartes and Darwin: Reflections on the Sixth Meditation" (<https://academic.oup.com/aristoteliansupp/article/87/1/259/1774803>) (pdf). *Aristotelian Society Supplementary Volume*. 87 (1). Oxford University Press: 268. doi:10.1111/j.1467-8349.2013.00229.x (<https://doi.org/10.1111%2Fj.1467-8349.2013.00229.x>). ISSN 0309-7013 (<https://www.worldcat.org/issn/0309-7013>). OCLC 5884450451 (<https://www.worldcat.org/oclc/5884450451>). Retrieved April 30, 2021.
47. Hergenhahn, Baldwin R. (2009). *An Introduction to the History of Psychology, Sixth Edition*. Belmont, CA: Cengage Learning. p. 185. ISBN 978-0-495-50621-8.
48. Robert M. Young (1996). "The mind–body problem" (<http://human-nature.com/rmyoung/papers/pap102h.html>). In RC Olby; GN Cantor; JR Christie; MJS Hodges (eds.). *Companion to the History of Modern Science* (Paperback reprint of Routledge 1990 ed.). Taylor and Francis. pp. 702–11. ISBN 978-0415145787. Archived (<https://web.archive.org/web/20070614061431/http://human-nature.com/rmyoung/papers/pap102h.html>) from the original on 2007-06-14.
49. Robinson, Howard (Nov 3, 2011). "Dualism" (<http://plato.stanford.edu/archives/win2011/entries/dualism/>). In Edward N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy (Winter 2011 Edition)*.
50. Henrik Lagerlund (2010). "Introduction" (<https://books.google.com/books?id=IV-dcQAACAAJ>). In Henrik Lagerlund (ed.). *Forming the Mind: Essays on the Internal Senses and the Mind/Body Problem from Avicenna to the Medical Enlightenment* (Paperback reprint of 2007 ed.). Springer Science+Business Media. p. 3. ISBN 978-9048175307.
51. Nalakalapiyo Sutta: Sheaves of Reeds (<http://www.accesstoinsight.org/tipitaka/sn/sn12/sn12.067.than.html>) Archived (<https://web.archive.org/web/20160503051913/http://www.accesstoinsight.org/tipitaka/sn/sn12/sn12.067.than.html>) 2016-05-03 at the Wayback Machine
52. Rohitassa Sutta: To Rohitassa (<http://www.accesstoinsight.org/tipitaka/an/an04/an04.045.than.html>) Archived (<https://web.archive.org/web/20110512204617/http://www.accesstoinsight.org/tipitaka/an/an04/an04.045.than.html>) 2011-05-12 at the Wayback Machine

53. [The Five Aggregates: A Study Guide](http://www.accesstoinsight.org/lib/study/khandha.html) (<http://www.accesstoinsight.org/lib/study/khandha.html>) Archived (<https://web.archive.org/web/20020917193707/http://www.accesstoinsight.org/lib/study/khandha.html>) 2002-09-17 at the [Wayback Machine](#)
54. [Sabbasava Sutta: All the Fermentations](http://www.accesstoinsight.org/tipitaka/mn/mn.002.than.html) (<http://www.accesstoinsight.org/tipitaka/mn/mn.002.than.html>) Archived (<https://web.archive.org/web/20060625214552/http://www.accesstoinsight.org/tipitaka/mn/mn.002.than.html>) 2006-06-25 at the [Wayback Machine](#)
55. Nelson, Alan, ed. (2005). "A Companion to Rationalism". Oxford, UK: Blackwell Publishing Ltd. pp. xiv–xvi. doi:10.1111/b.9781405109093.2005.00003.x (<https://doi.org/10.1111%2Fb.9781405109093.2005.00003.x>) (inactive 31 January 2024). ISBN 978-1-4051-0909-3. {{cite book}}: Missing or empty |title= (help)
56. [Gendlin 2012b](#), p. 121–122
432a1-2

**Hence the soul is as the hand is; for
the hand is a tool of tools, and
the nous is a form of forms**
(ὥστε ἡ ψυχὴ ὡσπερ ἡ χεὶρ ἐστίν· καὶ γὰρ ἡ χεὶρ ὄργανόν
ἐστὶν ὀργάνων)

Aristotle now lets this aspect of nous and hand define a new term which he does not use anywhere else, so far as I know. The hand is “a tool of tools.” The nous is a “form of forms.” The hand and the soul are unique in this respect. Let us see further what this means.

Aristotle seems to say that the nous is a form, but on closer inspection we find that it is not, or at least not the usual kind. Nous is a maker of forms. A “form of forms” is like a tool of tools, like a living body's organ that makes tools. Nous is certainly not itself the sort of form that it makes. The hand is not a made tool (it would have to be made by yet another hand).

In Greek “tool” and “organ” are the same word. So we see: “In the phrase “tool of tools” the first use of the word stands for a living organ, the second for an artificially made tool. In II-4 he says “all natural bodies are tools (organs) of the soul's,” (both as food and as material from which to make tools). In English we would say that the **hand is the organ of tools.**

57. [Hicks 1907](https://archive.org/stream/aristotledeanima005947mbp#page/n629/mode/2up), p. 542 (<https://archive.org/stream/aristotledeanima005947mbp#page/n629/mode/2up>)
431b230–432a14. To sum up: the soul is in a manner the universe of things, which is made up of things sensible and things intelligible: and knowledge is in a manner identical with its object, the intelligible; sense with its object, the sensible. This statement calls for further explanation. Sense and knowledge, whether potential or actual, are distributed over things potential or actual, as the case may be. In the soul, again, the sensitive faculty and the cognitive faculty are potentially their respective objects. These objects must therefore exist in the soul, not indeed as concrete wholes, form and matter combined, which is impossible: it must be the *forms* of things which exist in the soul. Thus within the soul intellect is the form of forms, i.e. of intelligible forms, and sense the form of sensibles, precisely as in the body the hand is the instrument of instruments, i.e. the instrument by which other instruments are acquired.
58. Shields, Christopher (2011). "Aristotle's Psychology" (<http://plato.stanford.edu/archives/spr2011/entries/aristotle-psychology/>). In Edward N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy* (Spring 2011 Edition).
59. McInerney, Ralph; O'Callaghan, John (Summer 2018). "Saint Thomas Aquinas" (<https://plato.stanford.edu/archives/sum2018/entries/aquinas/>). *The Stanford Encyclopedia of Philosophy*. Retrieved 7 November 2018.

60. Researchgate:Galen and the tripartite soul (<http://www.earlychristianwritings.com/galen.html>) Archived (<https://web.archive.org/web/20170531173126/http://www.earlychristianwritings.com/galen.html>) 2017-05-31 at the [Wayback Machine](#)
61. Early Christian writings:Galen (<http://www.earlychristianwritings.com/galen.html>) Archived (<https://web.archive.org/web/20170531173126/http://www.earlychristianwritings.com/galen.html>) 2017-05-31 at the [Wayback Machine](#)
62. Lokhorst, Gert-Jan (Nov 5, 2008). "Descartes and the Pineal Gland" (<http://plato.stanford.edu/archives/sum2011/entries/pineal-gland/>). In Edward N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy (Summer 2011 Edition)*. Lokhorst quotes Descartes in his *Treatise of Man*
63. Lokhorst, Gert-Jan (Nov 5, 2008). "Descartes and the Pineal Gland" (<http://plato.stanford.edu/archives/sum2011/entries/pineal-gland/>). In Edward N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy (Summer 2011 Edition)*. Lokhorst quotes Descartes in his *Passions of the Soul*
64. Brook, Andrew (October 20, 2008). "Kant's View of the Mind and Consciousness of Self" (<http://plato.stanford.edu/archives/win2011/entries/kant-mind/>). In Edward N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy (Winter 2011 Edition)*.
65. Eric Watkins (2004). "Causality in context" (<https://books.google.com/books?id=XlIsaGoHshoC&pg=PA108>). *Kant and the Metaphysics of Causality*. Cambridge University Press. p. 108. ISBN 978-0521543613.
66. Robinson, William (January 27, 2011). "Epiphenomenalism" (<http://plato.stanford.edu/archives/sum2012/entries/epiphenomenalism/>). In Edward N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy (Summer 2012 Edition)*. Vol. 1. pp. 539–547. doi:10.1002/wcs.19 (<https://doi.org/10.1002/wcs.19>). PMID 26271501 (<https://pubmed.ncbi.nlm.nih.gov/26271501>). S2CID 239938469 (<https://api.semanticscholar.org/CorpusID:239938469>).
67. See, e.g., Ronny Desmet and Michel Weber (edited by), *Whitehead. The Algebra of Metaphysics. Applied Process Metaphysics Summer Institute Memorandum* (https://www.academia.edu/279940/Whitehead._The_Algebra_of_Metaphysics) Archived (https://web.archive.org/web/20170727230542/http://www.academia.edu/279940/Whitehead._The_Algebra_of_Metaphysics) 2017-07-27 at the [Wayback Machine](#), Louvain-la-Neuve, Éditions Chromatika, 2010 (ISBN 978-2-930517-08-7).
68. Karl Raimund Popper (1999). "Notes of a realist on the body–mind problem" (<https://books.google.com/books?id=Pa3cZYwdq28C&pg=PA269>). *All Life is Problem Solving (A lecture given in Mannheim, 8 May 1972 ed.)*. Psychology Press. pp. 29 ff. ISBN 978-0415174862. "The body–mind relationship...includes the problem of man's position in the physical world...'World 1'. The world of conscious human processes I shall call 'World 2', and the world of the objective creations of the human mind I shall call 'World 3'."
69. Tanney, Julia (December 18, 2007). "Gilbert Ryle" (<https://plato.stanford.edu/entries/ryle/>). *Stanford Encyclopedia of Philosophy*. Retrieved May 2, 2021.
70. Joshua Rust (2009). *John Searle* (<https://books.google.com/books?id=9CWdaJq-apUC&pg=PA28>). Continuum International Publishing Group. pp. 27–28. ISBN 978-0826497529.


Bibliography

- Bunge, Mario (2014). *The Mind–Body Problem: A Psychobiological Approach* (<https://books.google.com/books?id=AnKoBQAAQBAJ>). Elsevier. ISBN 978-1-4831-5012-3.
- Feigl, Herbert (1958). "The 'Mental' and the 'Physical' " (<http://ditext.com/feigl/mp/mp.html>). In Feigl, Herbert; Scriven, Michael; Maxwell, Grover (eds.). *Concepts, Theories, and the Mind–*

Body Problem. Minnesota Studies in the Philosophy of Science. Vol. 2. Minneapolis: University of Minnesota Press. pp. 370–457.

- Gendlin, E. T. (2012). "Line by Line translation on Aristotle's De Anima, Books I and II" (http://www.focusing.org/aristotle/Ae_Bk_1-2.pdf) (PDF).
- Gendlin, E. T. (2012). "Line by Line translation on Aristotle's De Anima, Book III" (http://www.focusing.org/aristotle/Ae_Bk_3.pdf) (PDF).
- Hicks, R. D. (1907). *Aristotle, De Anima* (<https://archive.org/stream/aristotledeanima005947m/bp>). Cambridge University Press.
- Kim, J. (1995). "Mind–Body Problem", *Oxford Companion to Philosophy*. Ted Honderich (ed.). Oxford: Oxford University Press.
- Jaegwon Kim (2010). *Essays in the Metaphysics of Mind* (<https://books.google.com/books?id=Ms6gBG-o65MC>). Oxford University Press. ISBN 978-0-19-162506-0.
- Massimini, M.; Tononi, G. (2018). Sizing up Consciousness: Towards an Objective Measure of the Capacity for Experience. Oxford University Press.
- Turner, Bryan S. (1996). *The Body and Society: Exploration in Social Theory* (https://books.google.com/books?id=K_8WxOqOWtMC).

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 - The Mind/Body Problem (<https://www.bbc.co.uk/programmes/p003k9b8>), BBC Radio 4 discussion with Anthony Grayling, Julian Baggini & Sue James (*In Our Time*, Jan. 13, 2005)
-

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