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RICHARD LANDES

MIND-BODY THEORIES

Mind-body theories are putative solutions to the mind-body problem. The mind-body problem is that of stating the exact relation between the mind and the body, or, more narrowly, between the mind and the brain. Most of the theories of the mind-body relation exist also as metaphysical theories of reality as a whole. While debates over the mind-body problem can seem intractable, science offers at least two promising lines of research. On the one hand, parts of the mind-body problem arise in research in artificial intelligence and might be solved by a better understanding of the relations between hardware and software. On the other hand, the study of emergence in biological systems may illuminate the mind-body relation.

Mind-body dualism

Dualism, or mind-body dualism, is the theory that both minds and brains exist, and no mind is a brain and no brain is a mind, nor is a mind any part of a brain or a brain any part of a mind. Hinduism and non-Advaitic Vedanta entail mind-body dualism because if the soul migrates through distinct incarnations then it is something that can exist independently of the body. If the fusion of *atman* with *Brahman* preserves *atman*'s individuality, then *atman* can exist without the existence of a human body.

The earliest Western philosopher to endorse dualism was the pre-Socratic Pythagoras (c. 569–475 B.C.E.). He inherited the ancient Egyptian religious doctrine that a nonphysical part of the person survives death, and he believed in the reincarnation of the soul. If Plato (c. 427–347 B.C.E.) is not correctly read as an idealist, then he was a mind-body dualist. In his dialogue *The Phaedo* especially, Socrates advanced arguments for the conclusion that the soul survives bodily death. Aristotle (384–322 B.C.E.) held that the soul is the "form" of the human body. He was nevertheless a mind-body dualist because he insisted that the intellectual part of the soul is immortal, even though he offered functionalist or materialist accounts of affective and sensory faculties.

Orthodox Christianity is not mind-body dualist in that human immortality consists in the hope of bodily resurrection, or the living again of the

MIND-BODY DUALISM

See DUALISM; MIND-BODY THEORIES; SELF

whole person by the grace of God, not in the immortality of a disembodied soul. Although the term *soul* is sometimes used in the Old and New Testaments it does not there explicitly denote an immaterial mental substance that could exist whether or not the body exists. The soul in this strong metaphysical sense was introduced into Christianity during the fourth and fifth centuries by Augustine of Hippo who, believing Platonism and Christianity mutually consistent and true, sought to fuse them into a single philosophical system. Augustine's synthesis accounts for the subsequent Christian belief in mind-body dualism even though a guarantee of the immortality of the soul would seem to make the hope of resurrection redundant. On the other hand, it might be that some resurrection can only be one's own resurrection if one is or one has a soul. If that is right, the immortality of the soul is a logical presupposition of the truth of Christianity.

The seventeenth-century French philosopher and mathematician René Descartes (1596–1650) argues in his *Meditations* (1641) that the only fact of which he can be certain is that he exists. The evidence of the senses, the truths of mathematics, and the whole physical world are ultimately dubitable, but his own existence cannot be doubted, because if he doubts, then he exists. On these premises Descartes concludes that he is a thing that thinks and that does not depend on the physical world, which includes his own body. Cartesian dualism is the view that each person is essentially a substantial soul that is distinct from the body.

Materialism

Materialism is the theory that the mind is the brain, or nothing over and above the brain. The ancient Greek atomist Democritus maintains that there exist only atoms and the void. Atoms are indivisible material particles and the void is the infinite empty space in which atoms are in motion. If atomism is true, then everything is either an atom or reducible to atoms. If there are minds or mental states then they are reducible to atoms and if atoms are physical then minds are physical.

Thomas Hobbes, the seventeenth-century English political theorist and philosopher, was a foundationalist about geometry: Unless the statements of geometry are true then no statement can be true. Geometry is the mathematics of space so it follows

that everything is spatial. If everything spatial is physical then everything is physical, and so materialism is true. Hobbes has an account of how people come to be misled into dualism or otherwise believing in nonphysical realities. Because a mind does not seem to be straightforwardly a physical object, people falsely assume it is a nonphysical object, but this is an abstraction caused by thinking away just some material properties, notably solidity. Hobbes thinks that if people think of anything they can only think of it as physical. One thinks of a ghost as having certain physical properties, perhaps extension and indeterminate shape. This sort of criticism of putative nonphysical realities was later adopted in the 1930s by the Vienna Circle, who sought to replace religion by natural science.

The mind-brain identity theory was influential from the mid-1950s into the 1980s. The main claim of the British philosopher U.T. Place's seminal 1956 paper "Is Consciousness a Brain Process?" is that consciousness is strictly or numerically identical with a physical process in the brain. The identity in question is a contingent and *a posteriori* one, not a necessary and *a priori* one. Place's claim is not to have proved that consciousness is a brain process, but to have removed *a priori* philosophical objections to it as a scientific hypothesis.

Idealism

Idealism is the theory that only minds exist and that physical objects, including the human body, are dependent on minds or consciousness for their existence. Although nondualistic, Vedanta entails the idealist doctrine that only subjective centers of experience exist and the empirical world is only an appearance. The first systematic thinker who could be construed as an idealist is the pre-Socratic monist Parmenides of Elea in the sixth and fifth centuries B.C.E. Parmenides believed that only what can be thought exists.

Plato insists that the Forms (*eidos*) are non-physical types or essences that exist independently not only of space and time but the human mind. However, the Forms are in principle graspable by the human mind given appropriate training, and the soul "participates" in them before birth and after death. To the extent that the Forms are ideal, Plato is an idealist because he thinks the empirical world depends upon the Forms for its existence.

The third-century neo-Platonist philosopher Plotinus (205–270 C.E.) is plausibly construed as an idealist because he maintains that the empirical world is ultimately an emanation of the One, which is at least nonphysical and spiritual and possesses mental properties.

The eighteenth-century Anglo-Irish Bishop George Berkeley argues that it makes no sense to claim that physical objects exist independently of the possibility of thinking of them or perceiving them. He also argues that the concept of matter, or a physical substratum of which the properties of a physical object are properties, is incoherent.

The German philosopher Immanuel Kant (1724–1804) is usually read as an idealist because his own name for his philosophy was *transcendental idealism*. However, transcendental idealism is the epistemological doctrine that humans are cognitively constituted in such a way that people may only know things as they appear to them, not as they really are in themselves. People are psychologically equipped to formulate philosophical questions but not to answer them. There are no metaphysical propositions because putative claims about a reality beyond space and time are neither true nor false. So the word *idealism* in transcendental idealism is best read as *antirealism*. In so far as a solution to the mind-body problem may be extracted from Kant's *Critique of Pure Reason* (1781), it entails a repudiation of Cartesian mind-body dualism for misusing the category "substance" outside space and time, and an implicit endorsement of the construction of the mental-physical distinction out of a prior monism of phenomena.

It is in the writings of Kant's successors Johann Gottlieb Fichte (1762–1814) and Friedrich Wilhelm Joseph von Schelling (1775–1854) that transcendental idealism becomes a kind of idealism. Georg Wilhelm Friedrich Hegel's (1770–1831) Absolute Idealism is the doctrine that the multiplicity of kinds and degrees of consciousness are ultimately aspects or shapes (*Gestalten*) of the one ultimate cosmic consciousness called *Geist*. On this thesis, which is partly Brahmanist and partly neo-Platonist, the distinction between mental and physical ultimately depends on *Geist*.

Logical behaviorism

Logical (or analytical) behaviorism is the theory that minds can be reduced to publicly observable

bodily behavior. According to this theory, any statement about minds or mental states may be translated into a claim or set of claims about actual or possible bodily behavior that is in principle observable. Logical behaviorism is a reduction of the inner to the outer, the subjective to the objective, the private to the public, the first person singular to the third person singular.

The German-born American positivist philosopher Carl Gustav Hempel (1905–1997) is a logical behaviorist in this defined sense. Austrian philosopher Ludwig Wittgenstein (1889–1951) and British philosopher Gilbert Ryle (1900–1976) offer subtle analyses of the uses of ordinary psychological language designed to show that seemingly Cartesian or introspective language in fact takes on its meaning from shared uses in a public world. In particular, Wittgenstein argues in his Private Language Argument in *Philosophical Investigations* (1953) that there have to be public third-person criteria for psychological ascriptions. Mental concepts cannot take on meaning by a kind of private ostensive definition, a sort of inner private labeling of one's own sensations. In that case, there would be no criterion for the correctness of a putative ascription: There would be nothing it would consist in for the ascription to be true or false. It follows that there are no logically private psychological ascriptions, and mental terms do not take on meaning only from one's own case.

Nevertheless, Wittgenstein would strongly resist being called a behaviorist. Ryle, who in *The Concept of Mind* (1949) argues that the myth of Cartesianism does not have to be true in order for people's psychological vocabulary to be meaningful, was not wholly uncomfortable with the label.

Functionalism

Functionalism is the theory that a mind is a set of states essentially causally related to sensory inputs, behavioral outputs, and one another. Functionalism may be partly understood as an attempt to overcome certain shortcomings of logical behaviorism. Behavior seems neither necessary nor sufficient for mentality. It is not sufficient because it does not follow from the fact that someone behaves in a particular way that they are in a particular mental state. Behavior is not necessary for mentality because from the fact that a person is in a particular mental state it does not follow that they

behave in a particular way. Mind does not seem to be behavior. Mind seems to be the inner cause of behavior. The contemporary philosophers David Lewis and Hilary Putnam have argued that being in a mental state is being in a functional state, a state caused by sensory inputs and causing behavioral outputs. Functionalism does not entail a view about the intrinsic nature of a mental state, so in a sense avoids the mind-body problem. However, with the addition of just one extra premise—only physical events may be causes or effects—functionalism is a kind of materialism. Functionalism is consistent with the assumption of cognitive science that a person is best viewed as an information processing system.

Double aspect theories

According to double aspect theories, mind and body are two aspects of some jointly presupposed reality that is intrinsically neither mental nor physical. Dutch-Jewish philosopher Baruch Spinoza (1632–1677) argued that reality has two essential properties: thought and extension, or consciousness and physical size. The totality of what *is* could appropriately be called “God” or “Nature” (*deus sive natura*). As parts of the whole, human minds and bodies are two aspects of an underlying reality. Thought cannot exist without extension, nor extension without thought. As in many double aspect theories, this raises the question of what the underlying reality is if it is allegedly neither mental nor physical. Spinoza’s answer is existence or being. However, the concept of existence or being has proved recalcitrant to analysis by philosophers from the ancient Greek Parmenides to Martin Heidegger in the twentieth century.

Bertrand Russell (1872–1970) endorsed two kinds of double aspect theories at different stages of his intellectual career. He endorsed the empiricist view that mind and matter are logical constructions of sense data: the contents of sensory experience as they are directly given. Intrinsically, mind and matter are neither mental nor physical. In *An Outline of Philosophy* (1927) Russell argues that there can be no distinction between mental and physical unless fundamentally there exist events that are not clearly mental or physical. In particular the smallest events postulated by science have no intrinsic mental properties and, on Russell’s endorsement of the De Broglie/Shrödinger view of matter, are nonmaterial constituents of matter.

Peter Strawson argues in *Individuals* (1959) that the concept of a person is primitive with regard to the distinction between mind and body. Unless humans are already possessed of the concept of the person as a whole, they are not in a position to draw a mind-body distinction. There is a considerable class of predicates that are not clearly only mental or only physical, for example “is smiling,” or “is running.”

The philosopher and psychologist William James (1842–1910) invented the term *neutral monism* for the view that there are items neither mental nor physical that are ontologically or epistemologically prior to the distinction between mind and matter.

Phenomenology

Phenomenology offers ways of marking the distinction between mental and physical, and diagnoses of how the mind-body problem is thinkable. Phenomenology is the description of appearances just as they are given to consciousness. Assumptions about their objective reality or causal relations are suspended or bracketed by an *epoché* (Greek: suspension of judgement). The ambition of phenomenology is to show how knowledge, including all scientific, religious, and philosophical knowledge is possible. The philosopher Edmund Husserl (1859–1938) grounded knowledge in the transcendental ego, a subjective source of experience that one’s own being ultimately consists in, even after ontological commitment to the empirical human being has been suspended by the *epoché*. The transcendental ego is purportedly neither mental nor physical, and phenomenology is purportedly prior to the drawing of that distinction. However, the construction of the world out of acts of consciousness on some interpretations entails idealism and Husserl sometimes called his own philosophy *transcendental idealism*. As is the case with Kant, however, the claim that consciousness of an object is necessary and sufficient for the objective givenness of that object does not appear to entail that the object is dependent on consciousness for its existence. Husserl’s teacher and phenomenological predecessor, the Austrian philosopher and psychologist Franz Brentano (1838–1917), argued that the essence of consciousness is intentionality directedness towards an object.

Twentieth century phenomenologists Heidegger, Maurice Merleau-Ponty, and Jean Paul Sartre all reject the *epoche* and the transcendental ego and argue that the mental-physical distinction is dependent on the fundamental existential category *being-in-the-world*.

Conclusion

The mind-body problem cannot be solved scientifically. The brain is billions of atoms in motion in empty space. No amount of empirical observation and experimental testing will explain how awareness is generated by matter in motion. Although it is obvious that ordinary mental states depend empirically on the brain, their subjective interiority of those same states is scientifically inexplicable. The uniqueness of one's own mind is ultimately explicable only if we are souls.

See also ARTIFICIAL INTELLIGENCE; CONSCIOUSNESS STUDIES; DESCARTES, RENÉ; EMERGENCE; EXPERIENCE, RELIGIOUS; COGNITIVE AND NEUROPHYSIOLOGICAL ASPECTS; FUNCTIONALISM; IDEALISM; MATERIALISM; MIND-BODY THEORIES; MIND-BRAIN INTERACTION; NEUROSCIENCES; PLATO

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MIND-BRAIN INTERACTION

That psychophysical interaction occurs seems obvious. How it occurs seems inexplicable. It is a presupposition of common sense but *prima facie* inconsistent with science that mental events cause physical events and physical events cause mental events. If a commander's decision is a cause of an air strike, then a physical event has a mental cause. If eating overripe cheese causes vivid dreams, then a mental event has a physical cause. However, if the physical universe is a closed deterministic system, then any physical event is caused by distinct physical events sufficient for its occurrence. If physical causes are sufficient for physical effects, then nothing else is necessary, so no mental cause is necessary for any physical event to happen. It follows that mental causation is redundant in the physical universe.

The Third Law of Thermodynamics states that the quantity of energy in the universe is constant. If there were mental causation, extra energy would be introduced into the universe, so if the Third Law of Thermodynamics is true there is no mental causation.

It is just as scientifically inexplicable how mind, consciousness, or awareness could be produced by the brain. The brain is the most complex object known to exist. Nevertheless, for all its neurological complexity, the brain is only billions and