2 Cartesian Dualism

2.1 Science and Philosophy

We all take ourselves and our fellow human beings to have minds. But what exactly is it to have a mind? The question is one with which philosophers and non-philosophers have struggled throughout recorded history. According to some, minds are spiritual entities, souls that temporarily reside in bodies, entering at birth (or maybe at conception) and departing on death. Indeed, death is just a soul’s taking leave of a body. Others imagine the relation between minds and bodies to be more intimate. Minds, they hold, are not entities. Minds resemble fists or laps: a mind is present when a body is organized in a particular way, and absent otherwise. A mind ceases to exist on the death of the body because the body’s internal structure breaks down. Still others hold that minds are indeed entities, physical entities: minds are brains.

The aim of this chapter is to make a start at sorting out some of these competing views and thus to make clear what precisely is at stake when you ask what minds are. You will discover that the issues are rarely clear cut. This is scarcely surprising. Puzzles posed by the investigation of minds are some of the deepest in philosophy. In the end, you might find no proffered solution entirely satisfactory. Even if that is so, you will at least have a better understanding of the attractions and liabilities inherent in different ways of regarding minds.

Having said this, I want to head off one natural line of response. A common attitude toward philosophy is that philosophers never answer questions, but merely pose them. Scientists, in contrast, are in the business of delivering answers. Questions, the answers to which elude science, questions that seem scientifically unanswerable, are often dismissed as ‘merely philosophical’. It is but a short step from this deflationary depiction of philosophy to the notion that, where philosophy is concerned, there are no settled truths: every opinion is as good as any other.

This conception of philosophy and its relation to science is inadequate, naïve, and, in the end, self-defeating. What eludes science need not be unsettled. The state of the universe immediately preceding the Big Bang,
for instance, might be forever unknowable. We are, it seems, evidentially cut off from that state. It would be absurd to conclude, however, that there was no such state, or that every claim concerning its character is as good as every other. Similarly, from the fact that philosophers often disagree as to the status of minds, it does not follow that minds have no definite status or that 'anything goes' when discussing the mind.

As you will see in the chapters ahead, questions that arise in the philosophy of mind are rarely susceptible to straightforward empirical answers. (An empirical question is one decidable, at least in principle, by observation or experiment.) Although experimental results tell against some conceptions of the mind's nature, most competing traditional accounts of the mind are consistent with whatever empirical evidence anyone now possesses or might conceivably possess in the future. The philosophical question concerns what you are to make of this evidence. And here your guide cannot be purely scientific. Science provides an assortment of frameworks for representing empirical findings, but no strictly scientific principles tell you how to interpret or make sense of those findings. For that, you must rely on 'common sense' and on philosophy.

This does not mean that empirical evidence supports specific philosophical theories. Rather, the activity of sorting through scientific findings and reconciling these with ordinary experience, and with a constellation of beliefs you have adopted on the basis of other findings, is a kind of philosophizing: philosophers are not the only philosophers. Card-carrying philosophers are just those who do their philosophizing self-consciously.

2.2 Descartes's Dualism

A natural starting point is an influential conception of mind advanced by René Descartes. Descartes held that minds and bodies are 'substances' of distinct kinds that, in the case of living human beings, happen to be intimately related. Human beings are compound entities, entities made up of coupled mental and material substances.

This dualism of substances (subsequently labeled Cartesian dualism) nowadays strikes most philosophers and scientists interested in the mind as hopelessly misguided. Until quite recently, it was widely supposed that the source of the notorious mind–body problem — the problem of how minds and bodies could causally interact — stemmed from the acceptance of the Cartesian picture: a solution to the problem could be had by rejecting dualism. As you will see, this diagnosis has not panned out. Nevertheless, you can begin to develop an appreciation of the mind–body problem by examining Descartes's approach to the mind.

As a preliminary, think about some prima facie differences between mental and material objects and states. First, material objects are spatial; they occupy a region of space, excluding other bodies from that region; they have a particular shape, and they exhibit spatial dimensions. Mental objects — thoughts and sensations, for instance — are apparently nonspatial. What is the size and shape of your desire for a Whopper? Might your thinking of Texas be a centimeter long? Such questions evidently make no sense.

You might suppose that bodily sensations — some of them at least — have definite spatial locations. A pain in your left big toe is, after all, in your left big toe. (Does this mean it is big-toe-shaped?) But is this quite right? Consider the phenomenon of 'phantom pain': a phenomenon well known to Descartes and his contemporaries. Amputees often seem to undergo experiences of pains in their amputated limbs. Your big toe could be amputated, and you still might continue to experience the very same kind of throbbing pain you experienced prior to its amputation, and this pain might seem to you to be in a region at the end of your foot once occupied by your big toe.

This suggests that, although you experience pains and other sensations as occurring in various bodily locations, it need not follow that sensory experiences occur at those locations. Following Descartes, you might say that an experience of pain-in-your-left-big-toe is a kind of experience. Such an experience differs qualitatively from an experience of pain-in-your-right-big-toe. There is no reason to think — and indeed good reason not to think — that such experiences must be located where they are felt to be located — or even that they have any definite location at all. Mental states, then, unlike material states, appear to be distinctively nonspatial. This, at any rate, is Descartes's conclusion.

A second important difference between the mental and the material is qualitative. Think of the qualities of your experience of a pain in your big toe. You might find these qualities difficult to describe, but that need not temper your awareness of them. Now ask yourself whether you would ever expect to encounter these qualities in a material object. A neuroscientist observing your nervous system while you are experiencing pain will observe nothing qualitatively resembling your pain. Indeed, the possibility seems to make no sense.

The point can be summed up as follows. Qualities of conscious experiences appear to be nothing at all like qualities of material objects. More significantly, they are apparently altogether unlike the qualities of any conceivable material object. The natural conclusion to draw is that mental qualities differ in kind from material qualities. Thus, mental qualities are not qualities of material objects.

A third distinction between the mental and the material is partly epistemological — that is, it concerns the character of our knowledge of such things. The knowledge you have of your own states of mind is direct, immediate, and unchallengeable in a way that your knowledge of material objects is not. Philosophers sometimes put this by saying that you have 'privileged access' to your own states of mind. Descartes himself believed that this knowledge was incorrigible: your thoughts about your current states of mind could not fail to be true. He believed, as well, that the contents of our own minds were 'transparent' to us. In consequence, Descartes can be taken to embrace both
1. **Transparency**: if you are in a particular state of mind, you know you are in that state; and

2. **Incorrigibility**: if you think you are in a particular state of mind, you are in that state; being in a mental state is thinking that you are in that state.

The Cartesian notion that the mind is ‘transparent’ might strike you as implausible. Freud long ago provided convincing reasons to suppose that particular states of mind could be consciously inaccessible. Today cognitive scientists routinely assume that all sorts of mental states and operations are inaccessible to consciousness. Social psychologists take delight in showing us that we are often poor judges as to what we really believe or want.

You could accept all this, however, without jettisoning Descartes’ central insight. The access you have to your own states of mind is distinctive, if not infallible. You entertain thoughts and experience pains self-consciously. An observer, even an observer armed with a brain-scanning device, could only infer the occurrence in you of such goings-on. Your access to your own states of mind is direct and unmediated, anyone else’s access to your states of mind is invariably indirect, mediated by observations of what you say or do.

Philosophers put this by saying that states of mind are ‘private’. They are ‘directly available’ only by the person (or creature) to which they belong; outsiders can only infer others’ mental states from their material effects. You can tell me what you are thinking, or I can guess it from the expression on your face. Neuroscientists might eventually be able to work out what you are thinking by observing patterns of neurological activities in your brain. Another’s awareness of your mental life, however, is never direct in the way yours appears to be. A neuroscientist’s inferences about your states of mind would be indirect, on a par with inferences about falling air pressure based on barometer readings.

The situation is very different for material objects and material properties and states. If mental items are necessarily private, material things are necessarily public. When it comes to a material object, or the state of a material object, if you are in a position to observe it, then anyone else could observe it as well by taking up your observational standpoint. The type of ‘asymmetry of access’ characteristic of minds is entirely absent.

Again, this suggests that minds and material bodies are very different kinds of entity. Descartes offers an explanation for this difference: minds and material bodies are distinct kinds of substance. A mental substance possesses properties that could not be possessed by any material substance, and a material substance possesses properties no mental substance could possess. Indeed, according to Descartes, there is no overlap in the properties possessed by mental and material substances.

Before taking up Descartes’s view in more detail, it might be useful to chart the three differences between the mental and the material just mentioned (Figure 2.1). In later chapters, I shall reopen discussion of these distinctions. For the present, however, let us accept them as they stand and notice what follows.

### Figure 2.1

#### Material Bodies
- Spatial
- Material qualities
- Public

#### Minds
- Nonspatial
- Distinctly mental qualities
- Private

### 2.3 Substances, Attributes, Modes

Descartes assumes, as many philosophers have been inclined to assume, that the world is made up of substances. A substance is not, as the term might suggest, a kind of stuff like water, or butter, or paint. Descartes, following tradition, regards substances as individual, self-standing objects. The desk at which I am now sitting is, in this traditional sense, a substance, as is the pen I hold in my hand, the tree outside my window, and the bird nesting in its branches. These substances are complex: each is made up of other substances, their parts. My desk is made up of pieces of wood, organized in a particular way. Each of these pieces of wood (and each of the screws holding them together) is a substance in its own right. Similarly, the pen, the tree, and the bird are all made up of parts that are themselves substances. And, of course, these substances are themselves made up of distinct substances. (A natural question to ask is whether every substance is made up of parts, each of which is a distinct substance.) Substances, note, are individuals — ‘particulars’ in the jargon of philosophers — as distinct from classes, types, or kinds of thing. This bird and this tree are substances, but the class of birds is a class, not a substance; beech and oak are species of substance, not substances.

Substances are to be contrasted, on the one hand, with nonsubstantial individuals, and, on the other hand with properties. Nonsubstantial individuals include ‘concrete’ items such as events and ‘abstract’ entities such as sets and numbers. An event (a particular chicken crossing a particular road on a particular occasion, for instance) could be regarded as a dated, nonrepeatable particular. In this respect, events resemble substances. Just as two exactly similar peas in a pod are nevertheless distinct peas, so you reading this sentence now is one event, and your reading the very same sentence tomorrow is a distinct event. You might think of events as changes substances undergo. Finally, substances and events are concrete particulars as distinct from ‘abstract entities’ such as sets and numbers: the set of cows, the number two.

Properties are had or possessed (or ‘instituated’) by substances. Think of an ordinary substance, a particular red billiard ball. You can distinguish the ball’s redness from its sphericity and its mass. In so doing, you consider three of the ball’s properties. Similarly, you can distinguish the ball, as bearer of these properties, from its properties. On the view I am associating with Descartes, the ball is a substance that possesses a number of properties
including redness, sphericity, and a definite mass. Properties and substances are correlative, the one requiring the other. You could not peel off an object's properties and leave a bare unproportioned substance. Nor could properties float free of substances and persist on their own. Some philosophers have argued that substances are nothing more than collections or bundles of properties. This is not Descartes's view, however; nor is it a view that will play a role in what follows.

I have mentioned substances and properties. Descartes, in fact, speaks not of properties, but of 'attributes' and 'modes'. An attribute is what makes a substance the basic kind of substance it is. A material (or physical) I shall use the terms interchangeably) substance is a substance characterized by the attribute of extension: an extended substance. Extension is, roughly, spatiality. Thus, a material substance is a substance that occupies a definite spatial region at any given time and possesses a definite shape and size. The particular shape and size possessed by material substances are modes of extension, ways of being extended. What you would ordinarily think of as properties of everyday material objects are, for Descartes, modes of extension.

On this conception, a billiard ball's sphericity is a mode of extension; its sphericity is the way it is shaped. What of the billiard ball's color? Here Descartes contends that the distinctive visual experience you have when you look at a red billiard ball does not resemble the feature of the ball that produces this experience in us. That feature might be the texture of the ball's surface, a texture that reflects light in a particular way so as to look red. Texture—the arrangement of micro-particles making up an object's surface—is another mode of extension, another way the ball is extended, another material property.

2.4 The Metaphysics of Cartesian Dualism

Descartes puts the attribute-mode distinction to work by supposing that each basic kind of substance is characterized by one, and only one, distinctive attribute. A material substance is a substance characterized by the attribute of extension, a substance extended in various ways. A mental substance, in contrast, is a substance characterized by a very different attribute, the attribute of thought. Descartes gives the term 'thought;' a broader sense than we would today. Anything you might count in everyday life as a state of mind—a sensation, an image, an emotion, a belief, a desire—is a mode of thought, a way of thinking, a mental property. (In another respect, Descartes's conception of thought is narrower than ours. Descartes appears not to countenance the possibility of nonconscious thought.)

Putting all this together, you are now in a position to understand Cartesian dualism. Bodies are material substances, substances characterized by the attribute of extension. Every material body is extended in various ways; every material body possesses various material properties. Minds, too, are substances, but not material substances. Minds are characterized by the attribute of thought; minds possess distinctively mental properties.

One more step is required to yield dualism. Every substance possesses just one definite attribute. If a substance is characterized by the attribute of extension (and so is extended in various ways), it could not be a thinking substance, one characterized by the attribute of thought. Similarly, if a substance is characterized by the attribute of thought (and thus possesses various mental properties, various modes of thought: feelings, images, beliefs), it could not be extended, it could not be characterized by the attribute of extension. Thought and extension mutually exclude one another. It follows that no extended substance thinks, and no thinking substance is extended. Minds are thinking substances and bodies are extended substances, so minds are distinct from bodies.

Descartes embraces this conclusion, but he does not deny that minds and bodies are, as they clearly seem to be, intimately related. Think for a moment, as Descartes does, of the mind as the I: the ego, the self. You are related in an especially intimate way to a particular body, your body. When that body's finger comes too near the flame of a candle you feel pain. When my body's finger goes near the flame, in contrast, you feel no pain, although I do. When you decide to get up and walk across the room, it is your body that moves, not mine. To be sure you can control my body. You can ask me to get up and walk across the room, or order me to do so at gunpoint, or tie a rope around me and drag me across the room. In so doing, however, your decision affects my body only indirectly, only by way of some movement of your body. Movements of your own body (your tongue and vocal cords, or your limbs) seem, in contrast, largely under your immediate voluntary control.

Descartes's picture—the Cartesian picture—is one according to which the world consists of two kinds of substance: material substances and mental substances. Material substances are extended and unthinking; mental substances think, but are unextended. Each mental substance bears an especially intimate relation to some particular material substance. (Or at any rate this is the arrangement with which we are most familiar. According to Descartes it might be possible for a mental substance to persist after the demise of the material substance it once animated: you might survive the death of your body.) Mental and material substances, although utterly distinct, interact causally. Your body is guided by your plans and decisions. Your mind receives signals from your body in the form of sensory experiences that provide you with information about the state of your body and, indirectly, information concerning the state of the world outside your body. The world causally impinges on your mind by way of your senses: your eyes, ears, nose, and your sense of touch.

The Cartesian picture is straightforward. Imagine that you sit on a tack planted in your chair by a malicious practical joker. Your sitting on the tack (a material event involving a pair of material substances, the tack and your body) gives rise to a distinctive sensation of pain (a mental event). This sensation or feeling in turn generates another mental event, a desire to leap upwards, and this desire brings about a leaping (Figure 2.2).
On the face of it, Cartesian dualism accords nicely with common sense. You see yourself as having a body, but as distinct from your body in at least the following sense. You can apparently conceive of your body’s changing dramatically, or ceasing to exist altogether, while you continue to exist: Kafka’s Gregor Samsa awoke one morning to discover he had metamorphosed into a large cockroach. Tabloids are fond of cases in which people report ‘out of body’ experiences, and cases in which minds move from one body to another are a staple of science fiction.

True, you speak of yourself as ‘having a mind’ — and, for that matter, you speak of changing your mind. But, while you can perhaps imagine your body’s being destroyed while you remain, it is less clear that you could coherently imagine your surviving the demise of your mind or self. You can imagine that you or your mind ceases to exist while your body continues to exist (in a vegetative state perhaps), but that is another matter. You might be able to imagine cases in which you swap bodies, but it seems to make no sense to suppose that you could swap minds or selves. ‘Changing your mind’ is not akin to changing a lightbulb, not a matter of exchanging one mind for another, but a matter of revising your beliefs. When a chastened Scrooge becomes ‘a new person’, he does not swap selves, but alters his attitudes.

In addition to meshing with a commonsense conception of the self, Cartesian dualism also promises a reconciliation of our scientific picture of the universe with ordinary experience. Science tells us — or at any rate physics apparently tells us — that the universe consists of microscopic, colorless particles jumbled together to form familiar middle-sized objects. Our experience of the universe is quite different. Your visual experience of the red billiard ball is not an experience of a colorless spherical jumble. Sounds are vibrations in a medium (air or water, for instance). Yet your experience of a performance of an Offenbach overture differs qualitatively from anything science seems likely to turn up in its investigation of the physical universe. Dualism makes sense of this apparent bifurcation. Material bodies are nothing more than collections of minute, silent, colorless objects interacting in space over time.

Such interactions, however, produce in the mind ‘Technicolor’ experiences sporting lively qualities quite unlike the qualities of any material object.

Qualities of our experiences (at bottom, distinctive modes of thought) appear to differ dramatically from the qualities of material bodies (modes of extension). Despite these apparent differences, however, Descartes holds that experiential qualities and material qualities co-vary. One result of this co-variation is that qualities of experiences can serve as reliable signs or indicators of qualities of material objects and events. Red objects look red, not because they are made up of red particles, but because (let us suppose) they have a particular kind of surface texture. Red objects share this texture, or at any rate share properties that structure light so as to produce, in observers, characteristic experiences of redness.

2.5 Mind–Body Interaction

We seem, then, following Descartes, to be in a position to account for apparently dramatic qualitative differences between our experiences and objects experienced, and for our capacity to infer qualities of the world from qualities of our experiences. Further, we can accommodate our own everyday view of ourselves as housed in, but in some way distinct from, our bodies. All this is to the good. Unfortunately, Cartesian dualism comes at a price, a price few philosophers, even in Descartes’s day, have been prepared to pay.

One difficulty, which was immediately obvious to Descartes’s contemporaries, is a difficulty that Descartes himself understood keenly. Central to Descartes’s view is the idea that minds and bodies causally interact. But if minds and bodies are utterly different kinds of substance, it is hard to see how such causal interaction could possibly occur. Minds or selves, you will recall, are immaterial thinking, but unextended, substances. Material bodies, in contrast, are extended but unthinking. How could entities of such wholly different kinds affect one another causally? How could an event in an immaterial mind bring about a material effect? How could a physical event beget a change in an immaterial mind? The metaphysical distance Descartes places between minds and material bodies would seem to preclude causal interaction.

Here is how Princess Elizabeth of Bohemia put it in a letter to Descartes: ‘It would be easier for me to attribute matter and extension to the soul than to attribute to an immaterial body the capacity to move and be moved by a [material] body’ (see Kenny 1970, 140). The difficulty is acute for Descartes for a number of reasons. First, Descartes agrees with many of his contemporaries that motion is transmitted via direct physical contact. If the mind is an immaterial substance, how could it make contact with a physical body? How could a physical body come into contact with a mind?

Second, Descartes’s thinks of causation on the model of transference. ‘Nothing’, he says, ‘can be in an effect that is not in the cause.’ If a moving body imparts motion to another body causing it to move, the first body
cannot impart more motion than it already possesses. If minds and bodies share no properties, however, how could a mind impart any property to a body, or a body impart any property to a mind?

A Cartesian might concede the difficulty but contend that causal relations between a mental and a material substance are sui generis: mental—material causation is not a species of causation of the sort we encounter in the course of investigating material universe. How could it be? Science looks only at interactions among material substances, and these, Descartes thinks, involve spatial contact. Minds are nonspatial, however. So mental—physical causal interaction would have to be something quite different.

Such a response leads us from the frying pan into the fire. Modern science is premised on the assumption that the material universe is a causally closed system: every event in the material universe is caused by some other material event (if it is caused by any event) and has, as effects, only material events. (The parenthetical rider allows us to leave room for the possibility of uncaused, spontaneous events such as the decay of a radium atom.)

You could reformulate this idea in terms of explanation: an explanation citing all of the material causes of a material event is a complete causal explanation of an event. If a scientist finds a kind of event, something going on at the sub-atomic level, say, that appears to have no material cause, the scientist does not then post an immaterial cause. Rather, the scientist looks more closely for some previously unsuspected material cause, or assumes that the event was spontaneous, that is uncaused.

A commitment to the causally closed nature of the universe is reflected in physics by conservation principles. Mass and energy are convertible, but the total amount of mass—energy is constant. Mind—body interaction threatens to violate conservation. Intervention from the 'outside' by a mind would increase total energy without a compensating loss of mass, and mass—energy would be lost were material bodies to affect minds.

The notion that the material universe is causally closed is related to our conception of natural law. Natural laws govern causal relations among material events. Such laws differ from laws passed by legislative bodies. A natural law is exceptionless: it could not be violated in the way a traffic law could be. An object that behaves in an odd or unexpected way nevertheless perfectly conforms to natural law. Evidence that an object's behavior violates a given natural law is evidence that, either 'hidden variables', unidentified material causes, are at work, or that what we had thought was a law is not.

Return now to Descartes's supposition that minds are nonmaterial substances capable of initiating events in the material universe. This supposition would oblige scientists to give up the idea that the material universe is causally self-contained. To see why this is so, imagine how causal interaction between mental and material substances might work. Suppose your mind acts on your body by instigating changes in a certain region of your brain. Descartes himself speculated that minds might be linked to bodies by way of the pineal gland, a small structure near the center of the brain.

Minire alterations in the motions of particles in the pineal gland radiated throughout the body via the nervous system producing muscular contractions and ultimately overt bodily motions.

Pretend for a moment that Descartes was right: your mind influences your body via your pineal gland. Your pineal gland is made of microscopic particles that operate in accord with physical law. If your mind is to initiate a causal sequence in your pineal gland, then, it will have to affect in some way the behavior of these micro-constituents. Its influencing the behavior of micro-constituents, however, would appear to require intervention in their behavior, hence violation of the laws governing the micro-constituents — an impossibility if you take the material universe to be causally self-contained and laws of nature to be inviolable.

(Descartes endorses the conservation of motion, not energy or mass—energy: motion, he thinks, can be transformed, as when particles change direction, so long as the total amount of motion is conserved. On such a view, the pineal gland might influence material particles, not by introducing motion, but by altering the trajectories of particles. Unfortunately for Descartes, this suggestion is undermined by subsequent conceptions of conservation.)

You might think that physics provides an out here, a way the mind could influence the body without violating laws governing its material constituents. Suppose, as the quantum theory suggests, laws governing those constituents are ultimately probabilistic or statistical in character. Imagine that a micro-system's being in a certain state, \( S_1 \), causes the system subsequently to go into state \( S_2 \), but only with a certain probability: there is a 65% probability that a particular micro-system in state \( S_1 \) will evolve into state \( S_2 \) (during a certain period of time).

Now, imagine that you – a mental substance – decide to wave to a friend. You initiate a particular change in your body by making it the case that a particular \( S_2 \) micro-system in your pineal gland goes into state \( S_2 \). (Imagine that when the constituents of such states 'line up' in this way, the result is a signal sent to your right arm that causes a series of muscle contractions and ultimately a waving motion of your arm. Here you have decided to wave, and subsequently wave.) In this way, you, a mental substance, seem capable of making yourself felt in the material universe without in any sense violating laws governing material bodies. After all, sometimes when your pineal gland is in state \( S_1 \), it goes into \( S_2 \), sometimes not. Your mind's causing your pineal gland to go into \( S_2 \) is consistent with this fact.

Consider a sequence of tosses of a fair coin, one that lands heads about half the time. When you toss the coin on a particular occasion, you snap your thumb in a characteristic way sending the coin tumbling through the air in a trajectory that leads it eventually to land on the ground, heads side up. Suppose that there is a completely deterministic basis for the coin's landing as it does on this occasion: given features of the coin, the character of the movement of your thumb, the location and composition of the surface on
which the coin lands, and so on. The coin is bound to land heads. Of course you are ignorant of most of these factors. You can only guess how the coin will land on each toss. You might express this ignorance by saying that, on any given occasion, the probability that the coin will land heads is 50%.

Imagine now an outsider who occasionally intervenes in the system by focusing a strong electromagnetic beam on the coin ensuring that it lands heads or that it lands tails. The outsider might do this infrequently and in a statistically undetectable manner: when you evaluate the relative frequency with which the coin landed heads over a long series of tosses, that frequency approaches 50%. The outsider, then, intervenes, but in a way that does not detectably alter the statistical likelihood that the coin will land heads whenever it is tossed, and does not reveal itself when you examine the coin’s behavior over time. The outsider ‘changes’ some heads tosses to tails, some tails tosses to heads. Perhaps this is how the mind affects the body.

This example misses the mark. It misconstrues the nature of statistical or probabilistic causation as it might be thought to apply to the basic constituents of the material universe. If probabilities are written into fundamental laws of nature, these probabilities are not the result of our ignorance in the face of the complexity of physical systems, nor do they simply express statistical frequencies. The probabilities are, as it were, built into the fundamental entities. In the imaginary case we are considering, it is an intrinsic—built-in—feature of an S₁ micro-system that it is 65% likely to go into state S₂ (during a particular interval). This does not imply that 65% of S₁ systems go into S₂. It is consistent with this imaginary law that the relative frequency of S₁ to S₂ transitions is much less or much greater than 65%. In fact it is possible, although of course highly unlikely, that no S₁ system ever goes into state S₂.

If you imagine a force from outside nature intervening in a physical transaction governed by a statistical law, then you must imagine the force as somehow altering the probabilities that hold for the physical system in question: if the probabilities are not affected, then it is hard to understand what the alleged intervention amounts to. But if these probabilities are built into the system, then their being altered would amount to a ‘violation’ of physical law.

To grasp this point, it is important to see that the kinds of statistical law thought to govern the elementary constituents of the universe exclude so-called hidden variables. That is, the probabilistic character of these laws is not due to the intervention of some factor the nature of which you might be ignorant of. It is, rather, irreducible, ineliminable, grounded in the nature of the elementary entities themselves. If the mind intervenes in the operation of the material universe in a way that is statistically undetectable, it does not follow that no ‘violation’ of physical law has occurred. Genuine intervention would require minds to affect in some way the propensity of particular S₁ systems to go into state S₂. And that would necessitate alterations in the character of S₁ systems, alterations the occurrence of which would constitute ‘violations’ of natural law.

Here is another possibility. Although mental events do not alter S₁, they might, on occasion, prevent S₁ from manifesting itself by going into S₂—in the way you might prevent a fragile vase from shattering when it is dropped by catching it before it hits the floor. Selective ‘blockings’ of this sort, if suitably fine-grained and strategically placed, might account for the effects of thoughts on bodily goings-on.

Again, it is hard to see how anything like this could work without violating science’s conception of the material universe as causally self-contained. (I shall return to propensities—or, as I prefer, dispositions—and their manifestations in more detail in subsequent chapters.)

One further difficulty for Descartes’s conception of mind–body interaction is worth mentioning. Cartesian minds are wholly nonspatial. This means that they have no shape or size. Shape and size are spatial properties, and could be possessed only by an extended substance. But if minds are truly nonspatial, they are not locatable in space: minds have no spatial location. In that case, however, what connects a particular mind with a particular body? This is what Jaegwon Kim calls the ‘pairing problem’ (Kim 2001). You might think of your mind as being in your body, or even inside your head, but this could not be so for a Cartesian mind. Your mind is no more in your body than it is in my body. What, then, is the source of its apparently intimate connection to your body? It is not easy to see how Descartes could respond.

### 2.6 A Causally Closed Universe

Of course it is possible that immaterial Cartesian minds do intervene in the material universe. It is possible that the material universe is not in fact causally closed and that natural law is subject to contravention. The argument against Cartesian dualism is not that minds do not intervene, therefore dualism must be false. Such an argument would beg the question against Descartes. The argument, rather, is founded on considerations of plausibility. If you accept Cartesian dualism, you must suppose that immaterial minds sometimes intervene in the operation of the material universe. It is hard to see how this could be possible, even on Descartes’s own terms.

It might be possible to massage Descartes’s principles so as to make the theory internally consistent, but the problem remains. Cartesian-style interactionism conflicts with a fundamental presumption of modern science, a presumption we have excellent independent reasons to accept. To the extent that you regard the intervention of nonmaterial minds in the material universe as implausible, you should regard Cartesian interactive dualism as implausible.

Even if you are prepared to abandon the idea that the material universe is a causally closed system, even if you are prepared to allow events originating outside the material universe to have material effects, problems remain. Assume that Descartes is right about the nature of minds and bodies, and assume that minds and bodies causally interact. How, on Descartes’s own terms, is this supposed to work? If causation requires that whatever is present in an effect be present in its cause, then how could mental substances interact with material substances if these have no properties in common? The idea
that mind–body causation is sui generis, that it differs from causation in the material universe is just to label a problem, not to solve it.

Or so it would seem. Arguments of this sort are scarcely conclusive. Metaphysical arguments rarely are. You might fairly ask, however, who bears the burden of proof here. The Cartesian dualist offers you an account of mind that fits nicely with much of what you antecedently believe about the universe and with everyday experience. The account has the disadvantage of being both internally dodgy (it makes mind–body interaction hard to credit on its own terms) and implying something (that the physical universe is not causally closed) we have few reasons to believe, and many reasons to doubt. It is up to the Cartesian, then, to show that competing accounts of mind suffer equally serious defects. You will be in a better position to evaluate the Cartesian’s prospects when you have examined the alternatives.

Suggested Reading

Substance dualism is given scant attention in contemporary philosophy of mind. The focus has been, instead, on ‘property dualism’, a view according to which the mental and the physical are not distinguishable kinds of substance, but distinct families of properties (Chapter 1). Dualisms of this sort have troubles of their own, and have been much discussed in recent years. I have elected to dwell on substance dualism here partly in hopes of encouraging a fresh look at a range of well-worn issues. Descartes is probably wrong, but he is not stupidly wrong.


E. J. Lowe defends a version of substance dualism in Subjects of Experience (1996). Lowe argues that minds are simple substances distinct from bodies that house them and with which they interact, but with an important caveat: minds are not immaterial substances. The position is discussed in some detail in Heil (2004, chapter 4).

3 Descartes’s Legacy

3.1 Dualism without Interaction: Parallelism

Cartesian dualism stumbles in attempting to accommodate mind–body interaction. Minds and bodies evidently interact causally. Your decisions lead you to act and so to move your body in particular ways. The material world impinging on your body gives rise to conscious sensory experiences. As you have discovered, however, it is hard to see how such interaction could occur if minds are unextended, nonmaterial substances and bodies are extended, material substances.

Some of Descartes’s successors sought to massage dualism so as to resolve the problem of mind–body interaction while preserving what you might regard as Descartes’s core insights. What would happen, for instance, if you simply dropped the requirement of causal interaction? In so doing, you would move to a doctrine called ‘psycho-physical parallelism’ or, for short, ‘parallelism’. Gottfried Wilhelm von Leibniz (1646–1716) is perhaps the best known proponent of parallelism, although my focus here will not be on Leibniz’s considered view but on a simpler alternative.

A proponent of parallelism accepts Descartes’s bifurcation of the world into extended material substances and unextended mental substances. Parallelists deny, however, that mental and material substances interact causally. This appears to fly in the face of ordinary experience. It seems obvious that goings-on in your mind affect your body, and through it, the material universe beyond your body. It seems no less clear that events and objects in the universe have an impact on your mind by way of their effects on your body.

Consider again your sitting on a tack planted by a practical joker. You sit on the tack, experience a sharp, painful sensation, and leap from your chair. This sequence of events includes both mental and material events that are, to all appearances, causally related. A defender of parallelism, in contrast, insists that these appearances are deceptive. The parallelist’s picture is captured by Figure 3.1 (compare Figure 2.2).

Minds, parallelists grant, appear to interact with the material universe, but this appearance is a mere appearance. Sequences of events involving minds,