Initiative and the Role of Conscious Will in Voluntary Action' (1985) and commentaries accompanying this paper. See also Daniel Wegner's 'Précis of The Illusion of Conscious Will' (2004). Alfred Mele's 'Free Will and Science' (2011) discusses this and related empirical work purporting to show that some conscious states are epiphenomenal.

4 Behaviorism

4.1 Moving Away from Dualism

Chapter 2 began with an examination of Descartes's contention that minds and material bodies are distinct kinds of substance, distinct things. Chapter 3 took up an assortment of related views, each of which could be spun out from a Cartesian starting point by rejecting or modifying one or another of its trademark components. This chapter and the chapter to follow, explore two materialist accounts of the mind.

Materialists deny that the universe includes both mental and material substances. Every substance is a material substance, every property a material property. Minds are fashioned from the same kind of elementary component that makes up rocks, trees, and stars. If you took fundamental particles and arranged them one way, the result would be a granite boulder; differently arranged, the outcome would be a theoretical physicist. The mind is not a separate, nonmaterial entity, but only matter, suitably organized.

Materialism has a long history. Democritus (c. 460–370 BC) described the universe as a fleeting arrangement of atoms swirling in the void. Hobbes (1588–1679) and La Mettrie (1707–51) argued that mental phenomena were nothing more than mechanical interactions among material components of animate creatures. On such a view, plants and animals, including human beings, would be complex machines. Nowadays, materialism of one stripe or another is more often than not simply taken for granted; in David Lewis's words, materialism is non-negotiable. In any case, the belief that minds are just brains is evidently widespread. Francis Crick's recent characterization of this as 'the astonishing hypothesis' flies in the face of my own experience with undergraduate philosophy students who often seem happy to use 'mind' and 'brain' interchangeably.

Although many philosophers would, if pressed, describe themselves as materialists, materialism is not a single unified doctrine, but a family of divergent doctrines. Indeed, disagreements among materialists tend to overshadow their common rejection of dualism. More significantly for our purposes, dissatisfaction with various materialist precepts has led to a revival of interest in forms of dualism. Surprisingly, much of this renewed interest
has been spawned by work in the neurosciences, where difficulties in reconciling characteristics of complex material systems with characteristics of conscious experiences are especially acute (for discussion, see Chapter 10).

In this chapter, the focus will be on one important and influential precursor to the contemporary debate: behaviorism. The label ‘behaviorism’ has been used to designate both a philosophical doctrine and a once prominent research program in psychology. Although both philosophical and psychological behaviorism have common roots, they bear at best a superficial resemblance to one another. (Verificationism, the view that the meaning of empirical claims is exhausted by their ‘verification conditions’, served as an important source of inspiration for both sorts of behaviorism.)

Philosophical behaviorism is associated with a thesis about the nature of mind and the meanings of mental terms. Psychological behaviorism emerged from an influential conception of scientific method as applied to psychology. Psychological behaviorism dominated experimental work in psychology in the mid-twentieth century until it was eclipsed by the ‘information-processing’ model, a model inspired both by the sense that the behaviorist model was hopelessly inadequate and by the advent of the computer machine.

Distinguishing between philosophical and psychological behaviorism brings to the foreground the relation philosophy bears to the empirical sciences, including psychology. Science professes to have little use for philosophy. For their part, philosophers commonly defer to scientists when their interests intersect. This suggests a well-defined division of labor. Matters are not so straightforward, however. For better or worse, philosophers have had an important part in shaping conceptions of mentality that guide empirical investigators. At the same time, philosophers have periodically reevaluated their theories in light of what are taken to be advances in psychology and neuroscience. One result is that philosophical influences on empirical theorizing can find their way back into philosophy. When this happens, a philosophical thesis can gain an undeserved air of empirical respectability in the minds of philosophers eager to embrace the pronouncements of scientists.

Thus, philosophers impressed by behaviorism in psychology largely failed to appreciate the extent to which the behaviorist conception of mind was the product of a contentious philosophical conception of scientific method. Ironically, the roots of that conception lay in a positivist tradition that many of these same philosophers would have found unappealing. One lesson is that it is a mistake for philosophers of mind — or their students! — to accept uncritically, or at face value, claims issuing from psychology or the neurosciences purporting to bear on traditional issues in the philosophy of mind.

4.2 Historical and Philosophical Background

Until the twentieth century, scientific study of the mind was assumed to revolve around the study of conscious states and processes. Subjects in psychological experiments (most often the experimenters themselves or their students) were trained to ‘introspect’, and report in detail on features of their conscious experiences under various conditions. In this milieu, mental imagery and subtle qualities of sensory episodes had a central place.

At the same time, psychologists were concerned to integrate the study of the mind with the study of the brain. No one could doubt that occurrences in the brain and nervous system were intimately connected to mental goings-on. The difficulty was to understand precisely the nature of this connection. It is tempting to think that minds (or selves; I shall continue to use the terms interchangeably, without intending to suggest that they are synonymous) are nothing more than brains. Properties of brains, however, seem to differ importantly from properties of minds. When you undergo a conscious experience, you are vividly aware of characteristics of that experience. When you examine a living brain, the characteristics you observe appear to be utterly different. These differences are reflected in differences in the vocabularies used to describe conscious experiences and brains or states of brains.

Think what it is like to have a headache. Now imagine that you are able to peer into the brain of someone suffering a headache. What you observe, even aided by instruments that reveal the brain’s fine structure, is quite unlike what the headache victim feels. Imagine a neuroscientist, intimately familiar with the physiology of headache, but who has never experienced a headache. There is, it would seem, something the scientist lacks knowledge of, some characteristic the scientist has not encountered and could not encounter simply by inspecting the brains of headache sufferers. This characteristic — what it is like to have a headache — would appear not to be a neurological characteristic. When you look at the matter this way, it is hard to avoid concluding that mental characteristics are not brain characteristics: minds are not brains.

How could minds be brains? You evidently enjoy a kind of privileged introspective ‘access’ to your conscious experiences that others could never have. Your experiences are ‘private’. Your awareness of them is direct and authoritative; a neuroscientist’s awareness of those same experiences is, in contrast, indirect, inferential and subject to correction. When you have a headache, form an image of your grandmother, or decide to comb your hair, you are in a position to recognize immediately, without the benefit of evidence or observation, that you have a headache, that you are imagining your grandmother, or that you have decided to comb your hair. An observer could only infer your state of mind by monitoring your behavior (including your linguistic behavior: the observer could interrogate you).

All this is exactly what you would expect were dualism true. But dualism, or at any rate Cartesian dualism, apparently leads to a bifurcation of the study of intelligent, sentient agents. You can study the biology and physiology of such agents, but in so doing you would be ignoring their minds; or you could study their minds, at least indirectly, ignoring their material makeup.
Now, however, you confront an all-too-familiar difficulty. Science is limited to the pursuit of knowledge concerning objective, 'public' states of affairs. A state of affairs is objective if it can be apprehended from more than one standpoint, by more than one observer. The contents of your mind, however, are observable (if that is the right word) only by you. The objective, scientific route to those contents is through observations of what you say and do. This appears to place minds themselves outside the realm of respectable scientific inquiry. Scientists can study brains. This might lead scientists to conclude that particular kinds of neurological goings-on are correlated with, or in some way responsible for, particular kinds of mental goings-on. Knowledge of such correlations would enable scientists reliably to infer states of mind by observing brain activity. But scientists would not be observing or measuring those states of mind themselves, except in their own case, except when they 'introspected'.

4.3 Other Minds

Once you start down this road, you might come to doubt that states of mind — as distinct from their physiological correlates — are a fit subject for scientific examination. Eventually, the very idea that science is in a position even to establish correlations between mental occurrences and goings-on in the nervous system can come to be doubted. Imagine that, every time you have a particular kind of experience — every time you see a certain shade of red, for instance, the red of a ripe tomato — your brain goes into a particular state, S. Further, whenever your brain goes into state S, you experience that very shade of red. (You might go into state S because you are looking at a tomato, or because you are dreaming that you are looking at a tomato, or because your brain is being artificially stimulated by an implanted electrode with the result that you hallucinate a tomato.) It looks as though there must be a correlation between experiences of this kind and neural states of kind S.

Suppose, now, you observe my brain in state S. I announce that I am experiencing a certain shade of red, a shade I describe as the red of a ripe tomato. It might seem that this provides further evidence of the correlation already observed in your own case. But does it? In your own case, you have access both to the mental state and to its neural correlate. When you observe me, however, you have access only to my neurological condition and to my report as to what I am experiencing. What gives you the right to assume that my mental state resembles yours?

True, I describe my experience just as you describe yours. We agree that we are experiencing the color of ripe tomatoes. But, of course, this is how we have each been taught to characterize our respective experiences. I have a particular kind of visual experience when I view a ripe tomato in bright sunlight. I describe this experience as the kind of experience I have when I view a ripe tomato in bright sunlight. You have a particular kind of experience when you view a ripe tomato under similar observational conditions.

And you have learned to describe this experience as the kind of experience you have when you view a ripe tomato in bright sunlight. But what entitles either of us to say that the experiences so described are similar? Perhaps the experience you have is like the experience I would have were I to view a lime in bright sunlight — your red is my green! Our descriptions perfectly coincide, but our respective states of mind differ qualitatively.

Attempts to correlate kinds of neurological goings-on and kinds of mental occurrences boil down to correlations of neurological goings-on and first-person descriptions or reports of mental occurrences. You learn to describe the qualities of your states of mind by reference to publicly observable objects that typically evoke them. And this leaves open the possibility that, while your descriptions match others', the states to which they apply are wildly different qualitatively.

This might seem an idle worry, a 'purely philosophical' possibility. But ask yourself: what earthly reason do you have for thinking that your states of mind qualitatively resemble the states of mind of others? It is not as though you have observed others' states of mind and discovered they match yours. You lack even a single example of such a match. Might you infer inductively from characteristics of your own case to the characteristics of others? (Inductive inference is probabilistic: reasoning from the characteristics of a sample of a population to characteristics of the population as a whole.) But canons of inductive reasoning prescribe inferences from a single individual case to a whole population unless it is already clear that the individual is representative of the population. If you assume that characteristics of your states of mind are representative, however, you are assuming precisely what you set out to establish!

The problem we have stumbled upon is the old 'problem of other minds'. Granted you can know your own mind, how do you know the minds of others? Indeed, once you put it this way, you can see that the problem is really much worse than you might have expected. How could you know that others have minds at all? What grounds have you to suppose that they have conscious experiences? Yes, others behave in ways similar to the ways you behave; they insist they have pains, images, feelings, and thoughts. But what reason might you have for supposing that they do? You cannot observe others' states of mind. Nor do you have remotely adequate inductive grounds for inferring that they enjoy a mental life from what you can observe about them.

A recent twist on this venerable puzzle introduces the possibility of philosophical 'zombies'. Philosophical zombies, as distinct from cinematic zombies, are not the 'undead', not creatures who stagger about menacing the living. Philosophical zombies are creatures identical to us in every material respect, but altogether lacking conscious experiences. The apparent conceivability of zombies has convinced some philosophers that there is an unbridgeable 'explanatory gap' between material qualities and the qualities of conscious experience. ('This is a topic to which I shall return in § 10.4.)
You are likely to be growing impatient with this line of reasoning. Of course we know that others have mental lives similar to ours in many ways — and different as well: it is also possible to know that! Well and good. But it is hard to see how this confidence could be justified so long as you accept the notion that minds and their contents are private affairs, impervious to public scrutiny.

4.4 The Beetle in the Box

Perhaps, as so often the case in philosophy, our starting point is what is responsible for our predicament. Perhaps we have been led down the garden path by a faulty conception of mind inherited from Descartes. If we begin to question that conception, we might see our way clear to a solution to the problem, a solution that better fits our unshakeable confidence that others have minds and that their states of mind resemble ours.

Wittgenstein (1889–1951), in his *Philosophical Investigations* (1953), § 293, offers a compelling analogy:

Suppose everyone had a box with something in it: we call it a ‘beetle’. No one can look into anyone else’s box, and everyone says he knows what a beetle is only by looking at his beetle. — Here it is quite possible for everyone to have something different in his box. One might even imagine such a thing constantly changing.

The example is meant to evoke the familiar depiction of the relation you bear to your own and others’ states of mind, a depiction taken for granted in the previous discussions: your states of mind are ‘private’ objects to which only you have access.

Wittgenstein argues against this picture, not by presenting considerations that imply its falsity, but by showing that accepting it leads to a paradoxical result: if this is the relation you bear to your own and others’ states of mind, then you would have no way of so much as referring to them.

Suppose the word ‘beetle’ had a use in these people’s language? — If so it would not be used as the name of a thing. The thing in the box has no place in the language-game at all; not even as a something: for the box might even be empty. — No, one can ‘divide through’ by the thing in the box; it cancels out, whatever it is. That is to say, if we construe the grammar of the expression of sensation on the model of ‘object and designation’ the object drops out of consideration as irrelevant.

What is Wittgenstein’s point? You report that your box contains a beetle. Your report is perfectly apt. You have been taught to use the word ‘beetle’ in this way. Imagine, now, that the object in your box is, in fact, very different from the object in your box: were you and I to compare the objects, this would be obvious — although of course we could never be in a position to compare them. I report that my box contains a beetle. In so doing, I am using the word ‘beetle’ exactly as I have been taught to use it. My utterance, like yours, is perfectly correct. You and I both report that our respective boxes contain beetles. Is either of us mistaken?

No, says Wittgenstein. In the imagined situation, the word ‘beetle’ is used in such a way that it makes no difference what is inside anyone’s box. ‘Beetle’, in the imagined dialect, means, roughly, whatever is in the box. To wonder whether your beetle resembles my beetle is to misunderstand the use of ‘beetle’. It is to treat ‘beetle’ as though it named or designated a particular kind of object or entity. But ‘beetle’ is used in such a way that ‘the object drops out of consideration as irrelevant’.

Wittgenstein’s point is not merely a linguistic one. Any thoughts you might harbor that you would express using the word ‘beetle’, are similarly constrained. Those thoughts turn out not to concern some particular kind of entity. Differently put: if the word ‘beetle’ does not refer to entities of a particular sort, then neither do thoughts naturally expressible using ‘beetle’. In this regard, your beetle is no different from mine.

How is the beetle analogy meant to be extended to states of mind? As a child, you react in various ways to your surroundings. On some occasions, you whimper and rub your head. Adults tell you that you have what is called a headache. Others are similarly taught to use ‘headache’. Does ‘headache’ designate a kind of entity or state?

Maybe not. Maybe when you tell me that you have a headache, you are not picking out any definite thing or private condition at all (think of the beetle), but merely *evincing* your headache. You have been trained or conditioned in a particular way. When you are moved to whimper and rub your head, you are, as a result of this training, moved as well to utter the words ‘I have a headache’. When you ascribe a headache to me, you are saying no more than that I am in a kind of state that leads me to whimper, rub my head, and perhaps to utter ‘I have a headache’. The private qualitative character of that state, if there is one, could differ in each of its instances. It might continually change, or even, in some cases (zombies?), be altogether absent. The function of the word ‘headache’ is not to designate a private, qualitatively distinctive entity or episode, however. This ‘drops out of consideration as irrelevant’. Your headache, like your beetle, is no different from mine.

Suppose this story of our use of ‘headache’ is applied to our mental vocabulary generally. Suppose that mental terms are not in fact used to name or designate kinds of entity or qualitatively similar private episodes as Descartes would have it. Their role is altogether different. In that case, the question whether the state you designate by the experience I have when I view a ripe tomato in bright sunlight’ qualitatively matches the state I designate when I use the same expression, could not so much as arise. To raise the question is to mischaracterize the use of mental terminology, and thus to speak nonsense!
4.5 Philosophical Behaviorism

This line of reasoning supports what I have been calling philosophical behaviorism. (A caveat: philosophers usually characterized as behaviorists have rarely applied the label to themselves.) Philosophical behaviorists hold that so long as we treat minds and bodies as distinct entities we err in a fundamental way. Minds are not entities at all, nor Cartesian substances, nor brains. And mental episodes are not going on 'inside' such entities. Philosophers have been attracted to the Cartesian picture only because they have been misled by what Wittgenstein calls the 'grammar' of our language.

According to Wittgenstein, words owe their significance to 'language games' we have learned to play with them. An appropriate understanding of any word (hence the concept the word expresses) requires a grasp of its role in these language games. So long as we deploy our language in everyday life we steer clear of logical puzzles. When we engage in philosophy, however, we are apt to be misled by the fact that 'mind', like 'brain' or 'tomato', is a substantive noun. We reason that 'mind' must designate a kind of entity, and that what we call thoughts, sensations, and feelings refer to qualitative states or modes of this entity. We can avoid confusion, only by looking carefully at the way our words are actually deployed in ordinary circumstances.

This prescription is intended by Wittgenstein to apply to philosophy generally. Philosophical problems arise 'when language goes on holiday', when we lose touch with the way words are actually used. In our everyday interactions with one another, we are not in the least puzzled by our capacity to know how others feel or what they are thinking. The philosophical problem of other minds arises when we wrench 'mind', 'thought', 'feeling', 'sensation', and their cognates from the contexts in which they are naturally deployed, put a special interpretation on them, and then boggle at the puzzles that result.

Gilbert Ryle (1900–76) extends Wittgenstein's point. According to Ryle, the supposition that minds are kinds of entity amounts to a 'category mistake': 'it represents the facts of mental life as if they belonged to one logical type or category ... when actually they belong to another' (1949, 16). Suppose you take a visitor, Jack, on a tour of your university. You stroll through the grounds; you show Jack various academic and administrative buildings; you take Jack to the library; you introduce him to students and to members of the faculty. When you are done, you ask whether there is anything else he would like to see. Jack replies: 'Yes. You've shown me the grounds, academic and administrative buildings, the library, students, and faculty; but you haven't shown me the university. I'd like to see that.' Jack's confusion reflects a category mistake. He has taken the term 'university' to designate something similar to, but distinct from, those things he has seen already.

If Jack persisted in the belief that 'university' designates such an entity despite failing ever to encounter it, he might come to imagine that the entity in question is a spectral, immaterial edifice. An analogous mistake, says Ryle, encourages Cartesian dualism. You begin with the idea that minds are entities. But when you examine all the obvious candidate entities -- bodies and brains, for instance -- you fail to find mentality. If minds are entities, then, they must be entities of a special sort, nonmaterial entities. You come to see the mind, in Ryle's colorful phrase, as a ghost in the machine.

But, Ryle holds, the mistake was made at the outset. Minds are not entities at all, ghostly or otherwise, a fact we should immediately appreciate if only we kept firmly before us the way 'mind' functions in ordinary English.

The theoretically interesting category mistakes are those made by people who are perfectly competent to apply concepts, at least in the situations with which they are familiar, but are still liable in their abstract thinking to allocate those concepts to logical types to which they do not belong.

(Ryle 1949, 17)

At the risk of confusing matters by piling analogies on top of analogies, an example of Wittgenstein's might help here. Suppose you look into the cab of a locomotive (or the cockpit of a jetliner). You see levers, knobs, buttons, and switches. Each of these operates in a particular way (some are turned, some slide back and forth, some are pushed or pulled), and each has a particular function in the locomotive's (or jetliner's) operation. You would be misled if you assumed that levers or knobs with similar shapes all had similar functions. In the same way, the fact that 'mind' is a substantive noun, or that we speak of 'states of mind' should not lead us to assume that 'mind' functions to designate particular kinds of entity, and that states of mind are states of such entities.

If 'mind', like 'university, does not function as the name a particular kind of material or immaterial (ghostly) entity, how does it function? If the concept of mind is not the concept of an entity, of what is it the concept?

According to Wittgenstein and Ryle, minds are ascribed to creatures with a capacity to comport themselves intelligently. A creature possesses a mind, not in virtue of being equipped with a peculiar kind of internal organ, material or immaterial, but in virtue of being the sort of creature capable of engaging in behavior that exhibits a measure of spontaneity and a relatively complex organization.

The point here is not to downgrade the brain. No one could doubt that brains are required for intelligent behavior. The point rather is to move beyond the idea that minds are organs, distinctive kinds of entity, and states of mind are states of such organs: minds are not brains, nor are they entities distinct from, but somehow intimately related to, brains. States of mind -- headaches, intentions, beliefs -- are possessed by intelligent creatures in virtue of what they do or would do. Your believing there is a bear in your path, for instance, is not a matter of your being in a particular sort
of inner state. Your believing there is a bear in your path is your taking (or being disposed to take) appropriate evasive measures, your asserting (or being disposed to assert) to 'there is a bear in the path', and the like. Your intending to attend the World Series is a matter of your being moved to purchase tickets, arranging for transportation, announcing 'I'm going to the World Series', and so on. (In Chapter 8, you will encounter Daniel Dennett's updated version of this view.)

4.6 Dispositions

Philosophical behaviorists hold that agents are correctly describable as having states of mind, not only in virtue of what those agents do, but also, and crucially, in virtue of what the agents would do, what they are disposed to do. If you have a headache, you might be disposed to whimper, rub your head, seek out aspirin, and announce when prompted, 'I have a headache'. You might do none of these things, however. Imagine, for instance, that you thought it ill-mannered to speak of one's afflictions. In that case, although you are disposed to behave in particular ways, you do not actually behave in those ways.

But now we are confronted with a new question. What is it to be 'disposed' to behave in a particular way? What are dispositions? A fragile vase possesses a disposition to shatter. In shattering - when struck forcefully with a tire iron, for instance - this disposition is manifested. A salt crystal possesses a disposition to dissolve in water. In dissolving upon being placed in water, it manifests its solubility. An object could possess a disposition, however, without ever manifesting that disposition. A fragile glass need never shatter; a salt crystal need never dissolve.

I shall have more to say about dispositions in later chapters (see especially §§ 12.6–12.8). For the moment, it is important only to appreciate that any plausible version of philosophical behaviorism requires their introduction. Among other things, dispositions take up the slack between what you do and what you would do. You do, presumably, what you are disposed to do; but you could be disposed to do many things you never do because the opportunity to do them does not arise or because you are more strongly disposed to do something else. You might be disposed to act bravely when faced with danger, but pass your life in tranquil surroundings. That need not detract from your bravery. Of course if you never manifest your bravery, acquaintances would have no reason to think you brave - nor, for that matter, need you have any inkling that you possess this virtue. Similarly, you would have no reason to think that a particular unfamiliar substance was water soluble if its solubility were never manifested, if it never actually dissolved, even if the occasion should arise: a salt crystal disposed to dissolve in water might fail to dissolve if the water is already saturated. Finally, you might act in ways consistent with your possession of a particular disposition, but not because you were so disposed. You might, for instance, be brave but

stand your ground, not owing to your bravery, but because you are unaware of impending danger.

4.7 Behavioral Analysis

In what sense, exactly, does philosophical behaviorism 'tie states of mind to behavior'? Many behaviorists hold that assertions concerning states of mind can be translated or paraphrased into statements about behavior or dispositions to behave. You have had a taste of this already. A behaviorist might say that if you believe there is a bear in your path, you are disposed to take evasive action, to assert to 'there is a bear in the path', to warn your companions, and the like. This, according to the behaviorist, is, at bottom, what it is to believe there is a bear in your path.

The guiding idea is that, if talk about states of mind could be paraphrased into talk of behavior (and dispositions to behave), then talk of states of mind will have been 'reduced to' - shown to be nothing more than - a shorthand way of talking about behavior (or, more accurately, behavior plus dispositions to behave). Analysis of this sort is meant to replace something potentially contentious with something uncontroversial. To see the point, think of a parallel case. Economists sometimes speak of the average family. The income of the average family in rural areas has declined from what it was a decade ago. Is there an average family? Is there an entity (or, for that matter, a collection of entities) designated by the phrase 'the average family'? Thinking so looks like a category mistake.

In this case, you can see how talk about the average family's income might be reductively analyzed into talk about the income of individual families summed and divided by the number of families. The upshot: there is nothing more to the average family than this. If you could 'paraphrase away' claims about minds and mental goings-on, replacing such claims with descriptions of behavior and dispositions to behave, then (so the thought goes) you would have succeeded in showing that there is nothing more to an agent's possessing a mind than the agent's behavior or being disposed to behave in appropriately mindful ways.

(Berkeley, whom you encountered in Chapter 3 promoting idealism, defends a reductive analysis of talk about material objects to talk about 'ideas'. Berkeley's catch-all term for states of mind. If successful, such an analysis would show that you do not need to suppose that material objects are anything 'over and above' 'ideas in the mind. Behaviorists' analyses run in the opposite direction.)

What are the prospects for behaviorist-style reductive analyses of states of mind? One nagging worry is that behavioral analyses threaten to be open-ended. There is no limit on the list of things you might do or be disposed to do if you harbor the belief that there is a bear on the trail, for instance. What you do, will depend on the circumstances, and the circumstances can vary in indefinitely many ways that resist specification in advance. Moreover, it
seems clear that among the things you will be disposed to do is to form new beliefs and acquire new desires. Each of these beliefs and desires will require its own separate behavioral analysis.

This complicates the picture, certainly, but it need not pose an insuperable problem for the philosophical behaviorist. The envisaged analyses could turn out to be non-finite. You might accept a non-finite reductive analysis, provided you can see how it could be extended, even when you are in no position to do so yourself.

Another difficulty is less easily dismissed. You see a bear on the path and form the belief that there is a bear on the path. But what you do and what you are disposed to do evidently depends on your overall state of mind: what else you believe and want, for instance. And this is so for any state of mind. Suppose you believe that there is a bear in the path, but want to have a closer look (you are curious by nature), or believe that bears are not dangerous, or suppose you have a yen to live dangerously, or to impress a companion.

It would seem that your belief is compatible with your behaving or being disposed to behave in any way at all depending on what else you believe and what you want. In that case, it looks as though no reductive analysis of states of mind is on the cards. The problem is not just that each of these additional states of mind requires a further behavioral analysis, thus complicating and extending the analytical task. The problem, rather, is that there is apparently no way to avoid mention of further states of mind in any statement of what behavior a given state of mind is likely to produce. It is as though you set out to analyze away talk about the average family only to discover that your analysis reintroduced mention of average families at every turning.

To appreciate the magnitude of the problem, return to your belief that there is a bear in the path. This belief, in concert with the belief that bears are dangerous, and a desire to avoid dangerous animals, might lead you to hurry away. But now imagine that you believe that there is a bear in your path, believe that bears are dangerous, and desire to avoid dangerous animals (your beliefs and desires are as before) but that you believe, in addition, that hurrying away would only attract the bear’s attention. In this case, you would be disposed to behave, and behave, very differently.

The example illustrates a general point. Any attempt to say what behavior constitutes, or partly constitutes, a given state of mind can be shown false by producing an example in which the state of mind is present but, owing to the addition of further beliefs or desires, the behavior in question does not follow. Nor will it help to try to rule out such cases by means of a general exclusion: if you believe that there is a bear in the path, believe that bears are dangerous, and you desire to avoid dangerous animals, then, providing you have no additional conflicting beliefs or desires, you will be disposed to turn tail. The problem here is that we have reintroduced mention of states of mind in the italicized exclusion clause. And these are precisely what we were trying to ‘analyze away’. The analytical project looks hopeless. (In § 6.11, you will encounter a technique – associated with Frank Ramsey and David Lewis – for dealing with cases of this sort that a behaviorist could adopt. The question then arises whether this is sufficient to render behaviorism an attractive option.)

4.8 Sensation

A committed behaviorist might regard all these worries as pedantic philosophical details. Perhaps it is unreasonable to expect perfect translations of assertions about states of mind into statements about behavior. Perhaps all we need show is that talk of inner goings-on could be replaced with behavioral talk. Perhaps so doing would mesh nicely with scientific accounts of the activities of intelligent creatures.

This ‘verificationist’ line of response is likely to be attractive to psychological behaviorists (see below, § 4.12). How reasonable is it? In discussing behaviorism’s analytic project, I have focused on kinds of mental state that might seem especially apt for reduction: belief, desire, intention, and the like (these are the so-called propositional attitudes). What happens when you extend the analytical enterprise to qualitatively loaded states of mind?

To see why there might be a problem with such cases, consider a concrete example. Imagine that you have contracted a mild case of food poisoning as a result of a visit to a local fast-food emporium. You suffer a variety of symptoms including nausea. Your feeling nauseous doubtless leads you to behave in various ways and to be disposed to behave in various others. (You will have no trouble filling in the details.) Could this be all there is to your being nauseous? The behaviorist analysis apparently leaves out the most salient feature of nausea: its immediate qualitative character! Most of us would find it hard not to believe that this qualitative character is what leads us to behave as we do. The beetle is reasserting itself!

Behaviorism opposes the idea that states of mind are inner states that yield behavioral symptoms. But this seems crazy when you think of nausea, headache, or the ‘electric’ feeling you have when you bump your funny bone or your foot falls asleep at the cinema. In fact, behaviorism seems to have things backwards when you reflect on any qualitatively vivid state of mind. These can be unpleasant, as in headache or nausea; pleasant, as in feelings of warmth; or both pleasant and unpleasant, as a child’s feeling when being tickled by an older sibling. Analyzing talk of such things into statements about behavior or dispositions to behave, apparently omits just what is most distinctive about them.

Is this just more philosophical pedantry? I urge caution here. As you will discover, behaviorists are not alone in wanting to factor out talk of the qualitative character of states of mind. Plenty of materialist philosophers who reject behaviorism reject, as well, the idea that states of mind are what they are owing to their qualitative character. If you are so inclined, if you are skeptical that sensory experiences are qualitatively imbued, you will be in no position to criticize behaviorists on this score.
4.9 The Legacy of Philosophical Behaviorism

If the attempt to analyze talk of states of mind into talk of behavior is unworkable, what is left of philosophical behaviorism? It is true, certainly, that our grounds for ascribing states of mind to one another are largely behavioral. This is an epistemological point, however; a point about what constitutes evidence for our beliefs about one another's mental lives, and if a Cartesian could happily accept.

What of Ryle's contention that it is a mistake -- a 'category mistake' -- to regard your possessing a mind as a matter of your body's standing in a particular relation to a special entity, your mind? And what of Wittgenstein's suggestion that terms used to ascribe states of mind are not meant to designate definite sorts of object or episode? Both of these ideas are independent of the behaviorism's analytical project, and both survive in accounts of the mind that are self-consciously anti-behaviorist. You might, for instance, think that to have a mind is simply to possess a particular sort of organization, one that issues in intelligent behavior. And you might imagine that to be in a given state of mind is just to be in some state or other -- the nature of the state could vary across individuals or species -- that contributes in a characteristic way to the operation of this organized system.

These themes are central to functionalism, a conception of mind to be examined in Chapter 6. For the moment, I ask you simply to register behaviorism's lack of concern for the qualitative dimension of states of mind. If your having a headache is solely a matter of your behavior, or being disposed to behave, in a particular way, then the intrinsic qualitative nature of whatever is responsible for your so behaving, or being disposed to behave, is irrelevant. This is explicit in Wittgenstein's beetle in the box analogy. And, as you will see, this feature of behaviorism is apparently inherited by functionalism.

4.10 Intrinsic Characteristics

Speaking of 'intrinsic qualitative nature', you are bound to wonder what exactly this phrase is supposed to signify. The notion of an intrinsic quality is best understood in contrast to the complementary notion of an extrinsic characteristic. (I prefer to contrast intrinsic with extrinsic rather than relational. That two liver cells bear a certain relation to one another is a relational feature of the cells, but an intrinsic feature of the organ to which they belong.) An intrinsic quality is a quality an object has in its own right. Being spherical is an intrinsic quality of a billiard ball. Being near the center of the billiard table is, in contrast, a non-intrinsic, extrinsic feature of the ball.

Think of intrinsic qualities as being built into objects; extrinsic characteristics as being ascribable to objects only in virtue of relations those objects bear to other objects. In the beetle in the box case, imagine that one person's box contains a marble, and another's contains a sugar cube. Then the intrinsic nature of what is in each box differs. And it is precisely this that 'drops out of consideration as irrelevant'.

You can distinguish an object's intrinsic qualitative nature from its dispositionalities or 'causal powers'. The billiard ball has the power to roll across the table, the power to shatter a pane of glass, and the power to reflect light in a particular way. But the ball has, as well, a particular qualitative nature: a particular shape, a particular color, a particular size, a particular mass, a particular temperature. How an object's powers or dispositionalities are related to its qualitative characteristics is a difficult business, as you will see. For the present, you need only appreciate that it seems natural to distinguish an object's qualitative aspects from its causal propensities or powers. And, again, behaviorism regards the intrinsic qualitative nature of a state of mind as irrelevant. What matters is what it does or would do, not what it is.

One way to put this would be to say that, according to the behaviorist, states of mind, 'qua states of mind', lack an intrinsic qualitative nature. Think again of the beetle in the box analogy. Whatever is in the box has some intrinsic qualitative nature or other -- how could it not? But this nature is irrelevant to its being true that the box contains a beetle: 'qua beetle' -- considered solely as a 'beetle' -- what the box contains lacks intrinsic qualities.

You might regard a view of this kind as wildly implausible. Surely your headache has an intrinsic qualitative nature, and this is an important part of what makes your headache a headache: there is something it is like to have a headache. What it is like to have a headache differs qualitatively from what it is like to have other kinds of conscious experience. Part of what makes a given conscious experience a headache is just this intrinsic what-its-likeliness'.

The denial of all this could strike you as incredible. Yet behaviorists do deny it. And, as you will see, many other philosophers, including philosophers dismissive of behaviorism, seem ready to deny it as well. These philosophers argue that states of mind owe their identity, not to their intrinsic qualitative nature (if indeed they have any such nature at all), but exclusively to their causal powers, their dispositionalities. One of the aims of the chapters that follow is to equip you to evaluate such claims.

4.11 'Experimental Methods and Conceptual Confusion'

Philosophical behaviorism is a thesis about the meanings of mental terms and, ultimately, about the significance of mental concepts. Its proponents consider philosophical questions about the nature of mind to be equivalent to questions about the character of mental concepts. They reason that, if you want to know what minds are, you must make explicit what 'mind' and its cognates mean. This, they contend, is largely a matter of spelling out how 'mind' and its cognates are used by competent speakers. Minds are whatever answers to '... is a mind' in common parlance.

A conception of this sort neatly distinguishes the philosopher's interest in minds from the psychologist's. Philosophers are taken to be
in the business of making dear the subtleties of the conception of mind enshrined in our linguistic practices. Psychologists and other empirical scientists investigate the character of extra-linguistic reality. Language 'carves up' the universe in a particular way. You are in a position to interpret empirical claims about minds only after comparing concepts deployed in those claims with the concepts encoded in ordinary language. When psychologists speak of belief, or emotion, or mental imagery, do they mean belief, emotion, mental imagery, do they mean what is ordinarily meant by 'belief', 'emotion', 'mental imagery'? To find out, you must see how these expressions function in psychological theories and compare this with their use in everyday language.

When you do this, according to philosophers sympathetic to Wittgenstein and Ryle, you discover that psychology has more often than not made use of familiar terminology in surprising ways. This can lead to a systematic misunderstanding of psychological theses. Wittgenstein put it this way: 'in psychology there are experimental methods and conceptual confusion' (1953, 232). The charge of 'conceptual confusion' is intended to apply as much to the psychologists' interpretation of their own work as it does to a layperson's grasp of psychological results.

Here is the picture. A theorist introduces a technical notion using a familiar term. The technical notion might differ importantly from the term's everyday significance. The theorist then establishes truths that pertain to whatever the technical notion denotes. Confusion results when the theorist, along with the rest of us, interprets these as applying to whatever the original everyday term applies to. It is as though you decided to give 'pigeon' a strict sense: a four-legged artifact with a flat surface used for supporting objects. You then go on, using rigorous empirical methods, to establish that the common belief that pigeons can fly, mate, build nests, and lay eggs is a myth.

This, according to Ryle and Wittgenstein, is just the kind of mistake made by psychologists when, under the guise of making mental terms more precise, they redefine them and deploy the terms thus redefined in experimental settings. If the critics are right, psychology is riddled with such mistakes.

4.12 Psychological Behaviorism

So much for philosophical behaviorism. Behaviorism in psychology was spawned, not by worries about the significance of mental terms, but by a concern that psychology have an appropriately scientific status. On a traditional view of the mind, a view accepted without question by psychologists in the nineteenth century, states of mind were taken to be private conscious states not amenable to public scrutiny. You know the story. While 'access' to your own states of mind is direct, others can only observe their effects on your behavior. If you suppose, as pioneering behaviorists J. B. Watson (1878–1958) and B. F. Skinner (1904–90) supposed, that only what is publicly observable is a fit subject for science, you will want to exclude states of mind, as traditionally conceived, from scientific consideration. If you suppose, as well, that talk about items not susceptible to public verification is unsavory, or even meaningless, you will have, in effect, ruled the traditional conception of mind out of bounds for serious empirical consideration. (In fairness, I should note that early behaviorists were reacting to what was widely perceived as the uniform failure of introspective psychology to deliver the goods.)

You could put this by saying that, on the behaviorist conception, talk of minds, conscious experiences, and the like is pointless. Appeals of such things in explanations of behavior reflect only a superstitious past in which observable characteristics of objects were explained by reference to ghosts and spirits taken to animate them. To deny ghosts and spirits — and mental states — is not to deny that objects and intelligent creatures have complex observable traits, nor is it to deny that these are susceptible to rigorous scientific explanation. Just as we have put behind us explanations of pathological behavior that appeal to possession by evil spirits, so we must put behind us explanations that appeal to private inner occurrences. This is what behaviorists set out to do.

The data for psychological behaviorism are instances of behavior, 'behaviors': what organisms do in response to environmental contingencies. A behaviorist explains an instance of behavior, not by postulating unobservable interior states of mind, but by reference to environmental stimuli that elicit the behavior. The governing model is the simple reflex. On a visit to the doctor, you sit in a relaxed position on the edge of an examining table. A doctor taps your knee, and your leg bobs in a characteristic way. Here, a bit of behavior, a response — your leg's bobbing — is explained by the occurrence of a stimulus — the doctor's tapping your knee. What connects stimulus and response is an unadorned 'reflex mechanism'. Behaviorists describe that mechanism exclusively by reference to its role in clear-cut stimulus-response (S–R) relations.

Behaviorists hold that all behavior, even complex behavior, can be fully explained in S–R terms. The job of the psychologist is to provide a systematic accounting of these S–R relations. As far as the behaviorist is concerned, the organism is a 'black box', something the psychological nature of which is exhaustively describable by reference to its response to stimuli (Figure 4.1). Black boxes and organisms have an internal structure, something capable of being investigated in its own right. But this is the province of the biologist or the physiologist, not the psychologist. The psychologist is, or ought to be, interested only in plotting behavioral contingencies.

![Figure 4.1](image-url)
Behaviorists proscribe mention of inner mechanisms except in cases in which these are capable of exhaustive decomposition into relations between stimuli (observable inputs) and output responses (observable behavior). Complex responses are to be broken down into patterns of simpler S–R relations. In this way, simple mechanisms operating in concert, could yield recognizably intelligent behavior.

All but the simplest organisms are capable of learning, capable, that is, of modifying their S–R contingencies. Again, the mechanism is straightforward. A particular kind of response can be ‘reinforced’ if its occurrence is ‘rewarded’. A rat may not be inclined at the onset of a particular sound—a ringing bell, say—to respond by pressing a bar in its cage. But if, perhaps by accident, the rat, hearing the bell, presses the bar and receives a food pellet, then a bar-pressing response to the aural stimulus will be reinforced. Eventually, the rat comes to ‘associate’ the bell, the act of bar-pressing, and the reward. As a result, the rat is conditioned to press the bar when the bell sounds.

It would be natural to describe the rat as ‘discovering a connection’ between the bell’s ringing, pressing the bar, and the receipt of a food pellet. If behaviorists are right, however, such a description must be purely metaphorical. Taken literally, it suggests an inner mental process of the sort behaviorists disdain. Sticking to the observable facts, you find that the rat presses the bar at the onset of a particular sound and receives a food pellet. Subsequently, the rat’s bar-pressing comes to co-vary reliably with the bell’s ringing. More precisely: the probability that the rat will press the bar at the onset of the sound increases dramatically. Eventually, the rat presses the bar during, and only during, a period immediately following the onset of the sound. This is, at bottom, what the rat’s ‘discovering the connection’ amounts to.

4.13 The Demise of Behaviorism

Behaviorists were committed to the idea that all learning could be explained in terms of simple associative S–R mechanisms. This assumes that complex tasks—your learning to play Parcheesi, for instance, or your acquiring the ability to paint in the manner of Kandinsky, or your coming to master English or Urdu—can be broken down into simpler tasks, each of which can be explained in something like the way the rat’s bar-pressing is explained.

In 1959, Noam Chomsky published a review of Skinner’s Verbal Behavior in which he argued forcefully that Skinner’s attempts to extend the behaviorist model of learning to the linguistic abilities of human beings were hopelessly inadequate. Chomsky claimed that the acquisition of language could not, even in principle, be explained without assuming that human beings possessed a sizable repertoire of complex cognitive structures that governed their acquisition and deployment of language.

This attack on central behaviorist themes had a devastating effect on the behaviorist program. Many psychologists had grown dissatisfied with rigid behaviorist doctrines, and were already moving in new directions. Chomsky’s review, combined with a growing interest in ‘rule-governed’ activities generally, sealed behaviorism’s fate. Behaviorism was never again to possess the kind of scientific cachet it once enjoyed. It became increasingly clear that behaviorism was founded on a view about scientific legitimacy rooted in unappealing philosophical doctrines going back at least to Berkeley. (If that surprises you, recall Berkeley’s emphasis on observability as the mark of reality.) By requiring that every scientifically respectable expression be characterizable in terms of observations that would confirm its application, behaviorists foreclosed modes of explanation that had proved fruitful in other sciences. These modes of explanation distinguished, as behaviorists often did not, between entities postulated to explain observable features of the universe and observations that constituted evidence for these entities.

4.14 Behavior

One further difficulty inherent in the behaviorist program is worth mention. Consider the central notion of behavior. What constitutes an instance of behavior? When do two ‘behaviors’ count as instances of the same kind of behavior, and when are they different? Answers to these questions are central to the behaviorist agenda. Behaviorists envisage a rigorous pairing of stimuli with response ‘behaviors’. The model we began with was the patella reflex: your knee is tapped, and your leg bobs. This same response—your leg’s bobbing—happens whenever your knee is tapped. If your leg’s bobbing is an example of behavior, then it would seem that behavior is to be understood as bodily motion. Two instances of behavior are counted the same just in cases they are instances of the same kind of bodily motion.

Once you move beyond simple reflexes, however, matters are not so simple. A rat’s bar-pressing is a case in point. Suppose that on one occasion the rat presses the bar with its right paw, then later with its nose, then with both paws. The behaviorist counts these as instances of the same behavior—‘bar-pressing behavior’—even though the rat’s bodily motions differ markedly. This is to move away from the basic reflex model.

It is relatively easy to envisage a simple mechanism that accounts for your leg’s bobbing when your knee is tapped. But the mechanism responsible for a rat’s pressing a bar with a bell’s ringing is not like this. That mechanism connects the onset of a particular sound with a variety of different kinds of bodily motion. What these bodily motions have in common is just that they each result in the bar’s being pressed. And now it looks as though any mechanism behind the rat’s bar-pressing behavior must be specified by reference to what we non-behaviorists might blushingly describe as the rat’s purposes or desires: what the rat wants is not to move its right front paw, or both paws, or its nose, but to press the bar. Unfortunately, purposes and desires are ‘unobservable’ states of mind, and so officially out of bounds for the behaviorist.
When it comes to complex human behavior, the situation is much, much worse. Think of your answering the door when the doorbell rings. Call this door-answering behavior. There are no bodily motions common to all instances of behavior of this kind. Sometimes you walk calmly to the door and open it. On other occasions you might trot to the door, or go on tiptoe, or roller skate, or press a button unlocking the door remotely, or, if the door is unlocked and you are otherwise occupied, merely shout 'Come in!' Again, it is difficult to imagine that the mechanism connecting the doorbell's ring with your door-answering behavior is a simple reflex mechanism, or even an organized collection of such mechanisms. It looks, for all the world, as though your behavior is mediated by a goal-directed state of mind!

Parallel considerations hold of the behaviorist notion of stimulus. When you look at what behaviorists count as instances of 'the same' stimulus, you discover that these lack the sorts of common feature the approach would seem to require. Your 'door-opening behavior' might be elicited by a loud banging on the door, or a soft knock; by the ringing of a doorbell; or by a glimpse through the window of an acquaintance striding up the footpath. These stimuli have little in common beyond being in some respect responsible for your electing to open the door.

Suppose a behaviorist cannot come up with a noncircular, independent characterization of 'door-opening stimulus', one that does not invoke the very thing for which it is the postulated stimulus – 'door-opening behavior'. Then it looks as though appeals to such stimuli in explanations of behavior will be trivial. A response is elicited by a stimulus. Which one? The response-eliciting stimulus! This does not mean that the behaviorist contention that all behavior is explicable by reference to stimulus–response relations is false, or that learning is not explicable purely by reference to contingencies of reinforcement of such relations. But it does strongly suggest that the central notions of stimulus and response gain credence only by taking in another's washing. And if this is so, the theory is largely uninformative.

Perhaps these worries about the emptiness of behaviorist explanation could be overcome. Even so, there is some reason to suspect that the behaviorist model is fundamentally misguided. Think for a moment of your response to a given stimulus, the appearance of a bear in your path, for instance. Strictly speaking, it would seem not to be the bear that elicits your response (whatever it might be), but your perceiving or in some way taking note of the bear. If a bear appeared in your path, but you remained oblivious to it, you would be unmoved by the bear's presence. Just so, you might be moved to a bear-avoiding response, even if a bear were absent. You might be so moved if, for whatever reason, you thought there were a bear in your path.

Such examples suggest that behavioral responses are determined, not by behaviorist-style stimuli, but by your perceptions (or apparent perceptions) of those stimuli. The bear's presence explains your behavior only if it leads you to a perception of a bear. This perception mediates your subsequent behavior. Perceiving (or apparently perceiving; imagining or hallucinating) a bear, however, is a matter of your going into a particular sort of mental state. And it was just such mental intermediaries that behaviorism was supposed to eliminate.

None of these reflections yields a knock down argument against behaviorism. In fact behaviorists have attempted to respond to these and other worries. I shall not pursue those responses here, but push ahead to what appear to be more promising approaches to minds and their contents.

**Suggested Reading**


Francis Crick's brand of materialism is developed in *The Astonishing Hypothesis: The Scientific Search for the Soul* (1994). Whether Crick's hypothesis is 'astonishing' is a matter of dispute. Thomas Hobbes defends materialism in part one of *Leviathan* (1651). Julien Offray de La Mettrie offers another early materialist model in *Man a Machine*, (1747/1994). For the biologically inclined, this edition includes, as well, La Mettrie's *Man a Plant*.

The possibility of a neuroscientist who has mastered the neurophysiology of headaches but has never suffered from a headache touches on an argument that has come to be associated with Frank Jackson: the 'knowledge argument'. The argument moves from the claim that, unless you have undergone an experience, you could not know what it is like to undergo that experience, to the conclusion that qualities of conscious experiences (so-called 'qualia') could not fit the materialist worldview. You can know all the material facts (facts about brain goings-on, for instance) and yet fail to know facts about conscious experiences (what they are like), so facts about conscious experiences are not material facts. See Jackson's 'Epiphenomenal Qualia' (1982) and the discussion in § 10.6.


Wittgenstein's best known discussion of states of mind occurs in *Philosophical Investigations* (1953). The question whether Wittgenstein's
views are behaviorist is much debated. The philosopher most often associated with behaviorism as a philosophical doctrine is Gilbert Ryle. Ryle's position is developed in *The Concept of Mind* (1949). Readers of *The Concept of Mind*, however, might doubt that Ryle's position is accurately described as behaviorist. Some of the same ambivalence extends to the work of Wittgenstein's students and followers (see, for instance, Norman Malcolm's *Dreaming*, 1959).

Reductionist programs in the philosophy of science of the kind advanced by Rudolph Carnap, 'Logical Foundations of the Unity of Science' (1938), and Carl Hempel, 'The Logical Analysis of Psychology' (1949), were more explicitly and enthusiastically behaviorist. Hilary Putnam's *Brains and Behaviour* (1965) comprises a withering attack on these and other strains of behaviorism. Behaviorism's association with verificationism probably accounts for its lingering well past its heyday. (Verificationists, who trace their ancestry to the British empiricists, hold that the meaning of claims purporting to be about the world must be analyzable into sentences concerning actual or possible observations.) W. V. O. Quine's *Word and Object* (1960) expresses strong behaviorist sympathies, and Daniel Dennett (*The Intentional Stance*, 1987), a student of Ryle’s, could be read as advancing a nuanced brand of behaviorism.


5 The Identity Theory

5.1 From Correlation to Identification

Let us, at least for the time being, banish thoughts of behaviorism—philosophical and psychological—and revert to our Cartesian starting point. Let us suppose that states of mind are states of something—some thing, a substance—the mind. Descartes argues that minds are distinct from bodies. And if states of mind are not states of the body, they are not states of some part of the body, states of the brain, for instance.

What makes Cartesianism so unappealing to the modern temperament is not Descartes’s contention that minds are entities, but that minds are nonmaterial entities. The more we learn about the nervous system, the more we discover intimate connections, or at least correlations, between mental occurrences and neurological goings-on in the brain. (I follow custom and speak of goings-on in the brain. This should, however, be understood as shorthand for goings-on in the central nervous system. Alternatively, you might think of the brain as distributed throughout the body.) Suppose these correlations were perfect: every kind of mental state or process could be matched to a definite kind of neural state or process. Your undergoing conscious experiences of a particular kind—your seeing a particular shade of red, for instance—might invariably be accompanied by brain processes of a particular kind, perhaps the firing of a particular collection of neurons. Finally, suppose the brains of others undergoing similar experiences exhibit similar processes.

What are we to make of this? Cartesians explain the correlations as resulting from causal interactions between minds and brains. Such correlations would resemble correlations between falling barometers and the advent of rain. Another possibility is epiphenomenalism: the correlations are the result of mental goings-on being systematically produced as by-products of neurological activity. Occasionalism offers a third possibility: every mental and material event is willed by God in such a way that occurs in orderly patterns.

Each of these ways of accounting for one—one mental—material correlations is founded on the assumption that mental states or events are, and