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Perception

You've just started reading this book. Or so you think. But are you certain that you're really reading it? How do you know you're not merely dreaming that you're reading a book, or having a vivid hallucination? How do you know that you're not in fact trapped in an extremely sophisticated virtual reality computer program, like the characters in the film *The Matrix*?

Perhaps you're tempted at this point to *stop* reading, convinced that such questions are frivolous, suitable maybe for late night sessions over a few beers but not for a book of serious philosophy, which is what you had hoped you'd bought. Yet there was no more serious a philosopher than René Descartes (1596–1650) – the very father of modern philosophy, as he is widely known – and he took these questions (minus the *Matrix* reference, obviously) to be of profound significance, for they formed, in his view, the starting point of a line of inquiry that not only lays the foundation for scientific knowledge, but also reveals the true nature of the human mind and its relationship to the material world, culminating in nothing less than the establishment of the immortality of the soul. As we will see, philosophers disagree over whether Descartes was right to think these things. But few would deny that his arguments are powerful and as worthy of consideration today as they were when he first put them down on paper. Nor can it be denied that, whatever one ultimately thinks of Descartes's views, they have set the agenda for modern philosophy in general and philosophy of mind in particular. For these and other reasons, we will do well to have made his starting point in the study of the mind our own.

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So, your curiosity now piqued, let's return to this question that Descartes thought has such deep implications: How do you know you're really reading this book?

Dreams, demons, and brains in vats

No doubt your first inclination is to say that it's just *obvious* that you're reading it, since, after all, you can *see* it in your hands, *feel* its pages, *smell* the ink and *hear* your fingers slide across the paper. Were you so inclined, you would also be able to *taste* the chemicals in the paper and ink. In any case, your reason for believing that you're reading the book is that you're having just the sorts of *experiences* you'd expect to have while reading. Your senses tell you you're reading the book; therefore, you must be reading it.

There is a problem with this answer which can be seen by comparison with the following example. Suppose Fred tells you that there will be a party at Ethel's house this Saturday, and that you know Fred to be a frequent and very convincing liar. Sometimes he tells the truth, but very often, even when the subject matter is trivial, he does not; in either case, his demeanor is exactly the same, and it always appears very sincere. Given that Fred is your only source for this information, do you have strong grounds for believing that there will indeed be a party at Ethel's this Saturday? Surely not. You just don't know for certain, because your only evidence for this belief – Fred's word, with all its evident sincerity – would be exactly the same whether there really will be a party or not.

We are, it seems, in exactly this sort of situation with regard to our senses. They "tell" us things all the time, and their way of telling us is very convincing – "seeing is believing," as the saying goes, for it is hardest to doubt something precisely when it seems to be there right before your eyes. Yet for all that, there are well-known cases where what our experiences tell us is real is not real at all. You may

have had the experience of being chased by a knife-wielding murderer, your heart pounding and a scream welling up in your throat. Terrified, you reflected on how much it all seemed like a nightmare, but being so vivid, it *couldn't* be; and then, just as the knife was set to plunge into you ... you woke up. You thought your senses were telling you that your life was in imminent danger, but you were wrong. In fact, you couldn't have been more safe, snug as you were in bed, asleep and dreaming.

But if your experiences could, in dreams, deceive you in a matter so momentous, why not in a matter as trivial as reading a book? Indeed, you know that they very often *do* deceive you in trivial matters – in every humdrum, murderer-free dream you have. So how can you be sure you're not dreaming *right now*? “But this is too vivid to be a dream!” you might reply. Yet, as I've already hinted, a dream can sometimes be so vivid that the person having it explicitly thinks, during the dream, that it *isn't* a dream. Perhaps this is one of those dreams. Besides, how do you *know* reality is always more vivid than a dream? On the basis of your memory of past dreams? But how do you know you aren't just dreaming that you're remembering those past dreams correctly? A similar problem afflicts *any* appeal to how one's dreams normally are – in black and white, say. For how can you be sure those memories are accurate? (And why couldn't this just be your first dream in color? There's a first time for everything, after all.) Nor will an appeal to evidence on the nature of dreams from psychology textbooks and the like help – maybe you're just having false dream “memories” that you ever read such books. In fact, it seems *any* evidence you could appeal to, or any test you could perform to prove you're not dreaming (for example, pinching yourself) is evidence or a test you might just be *dreaming* you're appealing to.

The bottom line is this: there is nothing in the nature of your experiences themselves that can tell you one way or the other whether they are waking or dreaming – in which case, experience, by itself, cannot tell you whether what you're experiencing right

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now (and at any time you consult it) is real. Nor are dreams the only basis for this disquieting conclusion. It is widely known that our experiences, in all their varieties – visual, auditory, tactile, gustatory, and olfactory – depend on processes within our brains. When, for example, you see a lemon, that is a result of light reflected from the lemon striking your retinas, which causes signals to be sent, via your optic nerves, to more central processing centers in the brain; which neural activity ultimately gives rise to your visual experience of the lemon. But if that is the natural way in which the experience of a lemon is produced, it is easy to see how such an experience might, in principle, be produced artificially – a neurosurgeon could simply stimulate directly the portion of your brain that causes the experience, bypassing the processes in the optic nerve, etc. that would normally trigger events there. Indeed, neuroscientists are even now capable of producing very simple sensations – a flash of red in one’s visual field, say, or the smell of lilacs – by such stimulation.

If that is possible, it would also seem to be possible for the entire stream of one’s conscious life to be produced artificially. We can imagine that neuroscientists might hook someone’s brain up to a massive virtual reality supercomputer which stimulates the brain to have just the sorts of experiences that characterize normal everyday existence. But then, how can you know that *you yourself* aren’t at this very moment hooked up to such a computer? You feel sure that you are reading a book, but maybe you’re really just a disembodied brain, floating in a vat of nutrients in a laboratory somewhere, the subject of a bizarre experiment by some mad neuroscientists who are causing you to have the experience of reading a book – along with all the other experiences you are now having or have ever had. Perhaps they are chuckling at this very moment at how amusing it is to have just given you the experience of reading about *them!*

It was Descartes who introduced the “dream argument” into modern philosophical discussion, and though he did not discuss

the “brain-in-a-vat” scenario he did also present another, perhaps even more chilling, possibility. You might find it reassuring to think that even if you are really dreaming at this moment or are a disembodied brain hooked up to a virtual reality machine, this would still all occur in the context of a physical environment that exists independently. Perhaps you can’t know what exactly is going on in it at any given moment, but at least it is there – at least, that is, there is a bed you’re sleeping in right now, or a laboratory somewhere with chuckling mad scientists. But what if not even all of *that* were real? What if you were nothing but a disembodied soul, with no physical body or brain at all, and the only other thing that exists is an extremely powerful evil spirit, a demon, who spends its time putting into your mind all the experiences and thoughts you’ve ever had? Every place you think you’ve ever been, every person you think you’ve ever met, the physical universe itself – none of it is real, just a massive, ongoing hallucination. How could you prove this isn’t what is happening to you? As with the dream scenario, it seems you could have no evidence that it isn’t – for any evidence you appeal to could be evidence the demon itself has manufactured.

Descartes took arguments of this sort to tell us something important about the nature of perception, namely that there is a gap – potentially, at least – between the appearance of the world that it presents to us, and the reality outside. In perception we know that appearance immediately and intimately; what we know of the reality is another, and more problematic matter. The first and most obvious consequence of this is *epistemological*, that is, it concerns the nature of human knowledge. That consequence is, in Descartes’s view, not (as it might at first seem to be) that we can’t know anything for certain, but rather that what we do know for certain, indeed, whatever it is we know at all, can’t ultimately come directly from perceptual experience alone. In this Descartes is opposed to *empiricism* – the view that all knowledge does ultimately rest on the senses – and also, perhaps, to common sense,

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which holds that whether or not the senses form the basis of all knowledge, they do at least give us all by themselves some indubitable knowledge. Descartes held that the sorts of arguments just considered prove that this can't be right. The senses by themselves are in fact so feeble that they can't even tell us whether we're awake. If we do have knowledge, then (and Descartes thought we surely did) it must come from somewhere else, namely from pure reason operating independently of the senses, a view about the basis of knowledge known as *rationalism*.

The first thing you know on this basis, according to Descartes, is that at least *you* exist. How? Well, even if you really are dreaming right now, are a brain in a vat, or the victim of a deceiving evil spirit, you still must exist in the first place in order to do the dreaming or to be deceived. Indeed, if you're worrying about whether or not you're dreaming, whether there's such a demon, or whether you even exist at all, *you must exist in order to do the worrying*. If you didn't exist at all, obviously you wouldn't be around to worry about the fact. So just to *think* about whether you exist is enough to prove that you do. "*Cogito, ergo sum*," as Descartes put it – "I think, therefore I am." This famous argument, knowable without having to rely on the trustworthiness of the senses, is in Descartes's view the starting point of all knowledge and the absolute stopping point of all doubt: if you can know nothing else, you can at least know for certain that you are real.

So far so good; but is anything else real? In particular, is the physical universe you've always assumed existed outside your mind – the mundane world of tables, chairs, rocks, trees, other human beings, dogs, cats and other animals, planets, stars and galaxies – is all that real too? It might seem that if all your perceptual experiences could be false, then there just is and can be no way to know that anything else exists. Perhaps nothing else does in fact exist – not even an evil spirit or mad scientists. Perhaps *you are the sole reality*, your perceptual experiences constituting nothing more than an indefinitely long hallucination and the entire universe a

figment of your imagination. This is *solipsism*: the view that “I alone exist.”

Indirect realism

Descartes himself was no solipsist. He was a staunch *realist*, who firmly believed that the world of external, objective, physical objects exists and that, even given arguments of the “dreaming” and “evil spirit” sort, we really can, through our senses, know that world. But he also thought that these arguments show that we don’t know it *directly*. What we do know directly are the contents of our own minds, the rich stream of experiences that constitutes everyday conscious life. The physical world that is represented by those experiences, not mad scientists or demons, is indeed what normally causes us to have them, but the experiences themselves are all we have immediate access to. It is as if we are watching images on a television screen, without being able directly to observe the ultimate source of the images. We might suppose that what we’re seeing is a live broadcast of astronauts inside a space shuttle orbiting the earth, and we may well be right – but it’s at least possible that what we’re really seeing is a recording of events that occurred earlier, actors on a sound stage in Hollywood and some clever special effects, or even an entirely computer-generated image. No doubt we can find out through some independent source whether it really is a live broadcast, but the fact that we can’t know this just from observing the images shows that we do *need* such a source and that what we do see directly cannot be the astronauts themselves, but only a representation of them. Similarly in perception, on Descartes’s view: when a book really is out there and is what’s causing you to have a “bookish” experience, then you really are seeing it, though indirectly; when it’s a dream or virtual reality device or demon causing the experience, you’re not seeing it at all. Either way, what you “see” directly

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is never the book itself but only a perceptual representation of the book.

This view, that all we are ever immediately aware of is the “veil of perceptions” that constitutes our conscious experiences, is known variously as *indirect realism*, *representative realism*, or *causal realism* – “realism” because it holds that there really is a physical world existing outside our minds, “indirect,” “representative,” or “causal” because it holds that we know that world only indirectly, through our direct awareness of the perceptual representations that world causes us to have, via its impact on our sensory organs. A long line of famous philosophers, including empiricists like John Locke (1632–1704) and Bertrand Russell (1872–1970) – otherwise in disagreement with Descartes over the latter’s rationalism – have held this view, usually on the basis of examples less bizarre than the ones we’ve considered thus far.

One such example would be hallucinations, which can seem indistinguishable from the normal perceptual experiences which present us with a reliable picture of the external world (that is, experiences which are, as philosophers say, *veridical*). The hallucination of a dagger in one’s hand could be as vivid as really seeing and feeling it there. There might be nothing in the experiences themselves that tells you whether they are trustworthy, and this supports the notion that whatever one is directly aware of in the one case must be the same sort of thing as what one is directly aware of in the other, since otherwise there would plausibly be some difference in the intrinsic character of the experiences. But in the case of hallucinations, it obviously can’t be an external physical object that one is directly aware of. So neither can an external physical object be what one is directly aware of in the case of a veridical perceptual experience. But then what one is directly aware of must be something else – a perceptual representation in the mind.

There is also the matter of the causal relations existing between perceptual experiences of physical objects and the objects themselves. There is, as implied above, a surprisingly long chain of causes

involved in even so simple an experience as the seeing of a lemon. Certain wavelengths of light are reflected off the surface of the lemon, photons travel to your retinas, rods and cones are stimulated and send signals along the optic nerve, these activate neural pathways in the brain that make their way to the occipital lobe, and after a further flurry of activity the experience finally happens. So how can your awareness of the lemon fail to be indirect, with all these intermediate steps existing between that awareness and the lemon itself? Moreover, such a sequence of causes occurs over time. In the lemon case, the light reaches your eyes virtually instantaneously, but in the case of looking at the sun, the light takes a full eight minutes to reach your eyes, meaning that what you're seeing now is the sun as it appeared eight minutes ago. The light from the star Alpha Centauri takes over four years to reach us, and light from other celestial objects takes much longer – in many cases, so long that some of the objects we see in the night sky no longer exist! So, again, how could your awareness of these objects fail to be indirect? How could you be *directly* aware of something that might not even exist?

These considerations regarding hallucination and causation arguably supply, all by themselves – with no need for an appeal to bizarre suggestions about mad scientists or evil spirits – powerful support for the indirect realist view of perception. As the philosopher Howard Robinson has suggested, they are best combined into a single simple and powerful argument, which we can summarize thus:

1. By stimulating the brain so as artificially to produce a neural process that is normally associated with a certain veridical perceptual experience, it is possible in principle to bring about a hallucination that is subjectively indistinguishable from that experience.
2. But if the immediate causes of veridical perceptual experiences and their hallucinatory counterparts are of the same sort, then these effects must be of the same sort as well.

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3. In the case of hallucinations, the effect is obviously direct awareness not of any external physical object, but rather of a subjective mental, perceptual representation of an external object.
4. So in the case of veridical perceptual experiences too, what one is directly aware of must be a subjective perceptual representation.

Again, this is not to deny that in veridical perceptions you really do perceive external, objective, independently existing physical objects. It's just that you perceive them only *indirectly*, through your direct awareness of something subjective and mental. You do indeed *really see* the lemon, but only on the private television screen of your mind, just as you really see the astronauts, but only on the literal television set in your living room.

Skepticism

Even if this argument is correct – and it is very controversial – it would show at most only that we *could* be right in thinking that the external, physical world of tables, chairs, other people, etc. exists, not that we *are* right. That we don't directly experience that world doesn't entail that we don't experience it at all, much less that it isn't real; but that doesn't prove that we do experience it, even indirectly, either. So we still haven't really answered the question of how anyone who starts from where Descartes did can get beyond there, to a genuine knowledge of the existence of a world outside the mind. This brings us to a motivation that many philosophers have had for trying to avoid indirect realism, opting instead for a “*direct realist*” view, on which we have unmediated perceptual contact with physical reality. Indirect realism, it is widely thought, threatens us with *skepticism* about the external world. If *all* we are ever directly aware of are our own perceptual representations, it seems that we can never have any grounds for believing that there

is a real world of physical objects beyond those representations. The indirect realist view, say its critics, so cuts us off from external reality that it seems we can never again get back in touch with it; it opens a door to skepticism that it cannot shut. That provides us with a good reason to try to find an alternative analysis of perception, one which doesn't have such skeptical implications.

But it may be that there *is* no such alternative analysis. For, as Michael Lockwood has pointed out, it is simply false to suggest that the threat of skepticism is unique to indirect realism. What gives rise to the skeptical problem is the fact that it is logically possible that your experiences could be just as they are now, when you take yourself to be reading a book, and yet you aren't really reading it at all, but only dreaming, or hallucinating, or being deceived by an evil spirit or mad scientists into thinking that you're reading it. And this fact holds regardless of whether indirect realism or direct realism is true. Let our awareness of physical objects in veridical perception be as direct as you wish: it is still an open question whether, in any particular case where you think you're having a veridical perception, you really are, or can be justified in believing that you are. The facts about hallucination, the causal mediation between our experiences and the world, the dependence of perceptual experiences on events in the brain, facts that no one denies – these are what make skepticism possible, whether or not they also support indirect realism. So, the suggestion that indirect realism must be rejected because it would lead us into a skeptical problem seems to cut little ice. That problem is with us *whatever* position we take. It poses no difficulty for the indirect realist that it doesn't also pose for everyone else.

Indeed, it might even be argued that an advantage indirect realism has over direct realism, *vis-à-vis* skepticism, is that it better accounts for why there is a skeptical problem in the first place. If we're never directly aware of anything but our own perceptual representations, it is perfectly understandable that there should be occasions when we think there are external objects corresponding

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to those representations when there are not. The fact, and nature of, hallucination and the like becomes intelligible. But if we are usually directly aware of external objects, it is puzzling why we should sometimes have experiences that are just like the veridical ones but in which we are not aware of any external objects at all, and why those non-veridical experiences should be so much like the veridical ones. For these reasons, indirect realism might have greater explanatory power than direct realism.

Defending indirect realism against the charge that it uniquely threatens us with skepticism still leaves unanswered the key question, which is, once again, whether there is any way to *answer* skepticism and *justify* the belief that there really is an external physical world beyond one's experiences. Descartes answered skepticism by appealing to the idea of *God*, an idea that one finds within one's own mind whether or not that mind has any contact with an external physical reality. Descartes took the view that the existence of God could be proved via several of the traditional theistic arguments. But to prove God exists is to prove that an all-good being exists; and such a being, though he might allow one to make a mistake from time to time (so as to learn from it) would not allow one to be mistaken in general, for that would be contrary to his goodness. But then it follows that he would not allow one always to be dreaming, or deceived by an evil spirit, or whatever. Therefore, if one's senses lead one to believe in the reality of an external, physical world, there must really be such a world.

To do Descartes's argument justice would demand, among other things, a careful evaluation of the case for God's existence. But that would require a book of its own. Moreover, it would clearly be philosophically more satisfying if one could answer skepticism without having to appeal to the existence of God, if only because it would enable us to side-step an issue which may be as controversial as skepticism and indirect realism themselves. But, in the view of many philosophers we can indeed do so, by arguing that the commonsense belief that there are external objects

corresponding to our perceptual experiences is a kind of *quasi-scientific hypothesis* that forms the best explanation of those experiences, an explanation that is constantly confirmed by the successful predictions we make on its basis. As Lockwood has argued, this sort of defense is exactly parallel to the scientist's justification of hypotheses about such unobservable entities as electrons. If our belief in electrons can be rationally justified by virtue of their being posited by a well-confirmed scientific theory, then so too can our belief in external physical objects, despite the fact that they are not directly observable.

A well-known principle of scientific explanation is *Occam's razor*, which holds that simpler and more economical hypotheses are to be preferred to needlessly complex ones, because they raise fewer further mysteries and thereby allow us to stay as close as possible to the evidence. If, for example, we can explain the slight wobble observed in a distant star by postulating the existence of one medium sized planet orbiting it, then we ought not to postulate instead the existence of seven small planets whose orbits are very close to each other. (For what reason is there to suppose seven, rather than six or eight? How exactly are the orbits of such planets related to each other? How can they have avoided colliding to form a larger body? Perhaps there are ways to answer such questions, but given that we don't *need* such a hypothesis to explain the star's wobble and that the seven-planet theory raises questions of its own and goes far beyond the available evidence, why bother with it?) One response to Lockwood's suggestion might be that it violates Occam's razor, for a skeptic could argue that the "evil spirit" hypothesis is simpler and more economical than the commonsense view, and is thus to be preferred. After all, unlike the commonsense view, which posits an enormous number and variety of external physical objects governed by complicated laws, the demon hypothesis postulates the existence of only one object, the demon itself, operating according to the simple principle of wanting to deceive.

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However, as the physicist David Deutsch has argued, skeptical hypotheses like the brain in a vat and evil spirit scenarios are actually *more* complicated than the commonsense belief in an external physical world, not less; for they are *parasitic* on the latter belief. Even to form the hypothesis of a deceiving evil spirit, we first have to form the hypothesis of the existence of the commonsense world of external physical objects governed by scientific laws, and then imagine that the demon is deceiving us into believing that this hypothesis is true. That requires that the demon be complex enough to do this successfully, which means supposing that it is complex enough to interact with us in a way that exactly parallels the way a world really consisting of external physical objects would. But that means that this evil spirit would itself have to be at least as complex as a world of physical objects; indeed, it means that such a spirit must be *more* complex, for it would not only have to mimic that sort of world, but also be (as such a world would not) *consciously aware* that that is what it is doing, thus being a thinking thing, which raises further questions about why it has the motives it does, etc., questions that wouldn't arise on the commonsense view. So the evil spirit hypothesis really isn't as simple or economical as the commonsense view after all and Occam's razor should lead us to reject it in favor of the latter.

Appearance and reality, mind and matter

If all this is right, then it is indeed possible to know that the physical world outside one's mind really exists, despite arguments about dreams, evil spirits, brains in vats, and hallucinations. As we've seen, consideration of such arguments nevertheless implies that there is a gap between our experience of the physical universe and that universe itself; between appearance and reality, mind and world.

That gap can be bridged, but that it exists at all has important philosophical implications. Having explored some of the epistemological implications, we want now to move on to the possible *metaphysical* implications of this gap, implications which are of even greater relevance to the philosophy of mind. Is the mind-world gap a gap only in the knowledge the mind has of the physical world, where the mind is nevertheless a part of that broader world, namely that part of it we call the brain? Or is it rather that the mind and the material world are fundamentally *different kinds of thing*, with the mind itself being *immaterial* or *non-physical*, a soul or spirit existing over and above the brain?

The discussion thus far leads naturally to such musings. Consider some of the features of your mind as it contemplates the very questions we've been asking about it in this chapter. As you wonder whether this book you take yourself to be reading is real, you note that it certainly seems to be, precisely because of the experiences you have of it – the visual look of the colors on its cover and the ink on its pages, the feel of the paper, the smell of the chemicals in the ink and paper, and so on. These aspects of your sensations – the way things look, feel, smell, taste, and sound – are referred to by philosophers as *qualia*, and appear to be features unique to the mind. A thermostat may register the information that the room has gotten cold and signal the heating system to come on; but surely, being just an assemblage of metal, plastic and wires, it doesn't feel cold the way you do. Furthermore, these qualia – the constellation of visual images, sounds, tastes, feels, smells and the like you are experiencing right now – form, not a chaotic jumble cascading through your mind without rhyme or reason, but a coherent and unified picture of the world, of which you are consciously aware *as* such a picture of the world. Moreover, you can think rationally about this picture and wonder whether it corresponds to any reality outside; and these thoughts, as well as the picture itself, have meaning or significance, representing the world as being a certain way. They have what philosophers call

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intentionality, the property of being *directed at* or *about* something, in the way that, say, pictures of cats or the word “cat” are about, mean or represent cats, rather than being mere meaningless squiggles of ink or paint.

These features of the mind – qualia, and the unified conscious awareness of which they are a part, rational thought and the intentionality it exhibits – together comprise the domain of the thinking subject whose situation Descartes vividly presents us with in the strange thought experiments with which we began this chapter. That subject is presented with a certain appearance of a reality outside itself, an appearance that reflects a certain point of view on that reality: the first-person or subjective point of view of the “I” or self who wonders about the outside world – whether it exists at all, what it’s like, what relation the self bears to it. This domain of the subject seems very different from that external reality itself: the physical world revealed to us by modern science, a reality which is objective, mind-independent, devoid of any particular point of view and thus “third-person” rather than first-person – an *it* rather than an “I.” It is a world we know from science to be composed ultimately of fundamental particles which have none of the features presented to us in experience, but are colorless, odorless, tasteless, and best described in the abstract mathematical language of physics. And this is no less true of our bodies and brains than of any other part of the physical world. So how could *they* in any way be the seat of the rich domain of conscious, rational thought through which we know that physical world? How could any material thing – including the grey, squishy lump of matter that constitutes your brain, which seems as brutally physical as a thermostat – have feelings, smells, tastes, and qualia in general? How could it be conscious and aware of itself and its surroundings? And how could it think rationally about itself and those surroundings, or have intentionality? After all, a thermostat’s existence surely involves nothing more than the passage of electrical current through wires, the motion of a needle across a surface, and so forth;

there is no consciousness there, no meaningful and rational thought, only crude mechanical processes. But how different, really, are the electrochemical signals sent between the neurons of the brain? How are these any less intrinsically meaningless and unconscious than the electricity passing through the wiring of a thermostat?

Yet though it is difficult to see *how* the mind could be anything purely physical, modern science is often taken to imply that it nevertheless somehow *is*, that every aspect of our mental lives can be accounted for in terms of electrochemical processes in the brain and central nervous system. How to resolve this tension between what the mind seems to be and what science says it is – or what some people *claim* science says it is – constitutes the famous mind-body problem, and sets the agenda for the philosophy of mind, all the issues of which tend, in one way or another, to trace back to this basic one. It is, like the problem of this chapter which has led us to it, a matter of deciding whether appearance corresponds to reality – in this case of determining whether the mind is, as it seems to be, something immaterial or non-physical, or whether this appearance is as misleading as a hallucination produced by Descartes's evil spirit. But if Descartes's revelation of the gap between appearance and reality has led us to the mind-body problem, he also presented a possible solution to it, which is the subject of the next chapter.

Further reading

The nature of perception is a large topic belonging as much to epistemology as to the philosophy of mind. We have merely scratched the surface in this chapter, and have focused only on those aspects of the problem relevant to the issues to be discussed in the chapters that follow. Those interested in a deeper investigation will find D. L. C. Maclachlan, *Philosophy of Perception*

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(Englewood Cliffs, NJ: Prentice Hall, 1989) to be a useful short introduction to the field. R. J. Hirst, ed. *Perception and the External World* (New York: Macmillan, 1965) is a good source for classical readings. Jonathan Dancy, ed. *Perceptual Knowledge* (New York: Oxford University Press, 1988) is a collection of contemporary articles. Descartes's *Meditations on First Philosophy* contains his reflections on dreams, the demon, the *cogito*, and on God as the guarantor of the trustworthiness of our senses. It is available in many editions, as is Locke's *An Essay Concerning Human Understanding*. Bertrand Russell defends indirect or causal realism in *The Analysis of Matter* (London: Kegan Paul, 1927), and his views are lucidly explained by Grover Maxwell in "Russell on Perception" in D. F. Pears, ed. *Bertrand Russell: A Collection of Critical Essays* (New York: Anchor Books, 1972). Howard Robinson defends indirect realism in *Perception* (New York: Routledge, 1994), Michael Lockwood in chapter 9 of *Mind, Brain, and the Quantum* (Oxford: Basil Blackwell, 1989), and David Deutsch in *The Fabric of Reality* (New York: Penguin Books, 1997). One influential critic of indirect realism is J. L. Austin, whose views are presented in his classic *Sense and Sensibilia* (New York: Oxford University Press, 1962). Another is John McDowell, whose "Criteria, Defeasibility, and Knowledge" can be found in the Dancy anthology.