

# THREE APPROACHES TO KNOWLEDGE

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## §1. REASON AND SENSE-PERCEPTION

*Sense-perception* (or sometimes “perception” for short) is kind of awareness that we have through our senses—seeing, hearing, smelling, touching and tasting, and any like sense modalities that there may be. (The term “perception” is also sometimes used more widely for any sort of awareness at all.<sup>1</sup>) *Reason*, by contrast, is the faculty that is responsible for *thinking*; it is epitomized by such disciplines as mathematics, natural science, and philosophy. Clearly many animals other than human beings also perceive, but reason is usually thought of as distinctively human. John Locke aptly described it as “that faculty whereby man is supposed to be distinguished from beasts, and wherein it is evident he much surpasses them.”<sup>2</sup> Of course there is a sense in which some other animals might be said to think, but they certainly don’t engage in anything like science, mathematics or philosophy, they don’t make arguments in which they take some propositions as a reason to believe others; indeed, they don’t even have language, which would be necessary to do any of this.<sup>3</sup> Reason can be thought of as the faculty that enables the kind of awareness and thought that is formulated in language. Either other animals lack this capacity altogether or they have it only to a very small degree and (as Locke put it) we “much surpass them” with respect to it, so the contrast between human beings and animals is helpful as a way to focus on the difference between reason and perception.

Another way to capture the difference between reason and perception is to say that reason is the faculty of *concepts*. A concept is the sort of unit of thought that is expressed linguistically by a single word.<sup>4</sup> Whereas in perception we are aware of *individual* things, each in a particular location at a particular time, concepts enable us to think *universally* about *kinds* of things. For example, like many other animals you can look at a tree and learn what you can about it by perception, but the concept “tree” enables us to think at once about *all* trees, including ones that we have not perceived, and even ones that have not yet come into existence. If we know something about trees (for example, that they need carbon dioxide to live), this knowledge applies not just to trees near us, but to trees on the other side of the world, and not just to the trees presently alive, but also to trees in the future and in the distant past.

The traditional view (dating back to the Greek philosophers Plato and Aristotle) is that concepts are unique to human beings. Of course, many animals have some sort of ability to apply what they learn about one tree to other trees, but this ability is traditionally thought to be based

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<sup>1</sup> Sometimes the terms “sensation” and “sense-perception” are used interchangeably, but some philosophers differentiate between the two, using “sensation” for the simplest unanalyzable units of sensory data, and “perception” for the sensory awareness of external objects. We needn’t concern ourselves with these nuances of meaning, however, for our present purposes.

<sup>2</sup> *An Essay Concerning Human Understanding* IV.XVII.1

<sup>3</sup> Granted a few animals have been taught some rudiments of language by people, but it is doubtful that the mental processes in these animals are very much like those in human beings when we use language, and, in any event, these cases are the exceptions and involve only the most primitive uses of language.

<sup>4</sup> Concepts stand to words as propositions do to sentences. Thus it may be that two different words (for example words in different languages or synonyms within a single language) stand for a single concept.

on certain activities of the perceptual faculty (such as associating similar looking objects with one another), rather than on an ability to *think* about *trees in general*. For this reason, the type of learning that other animals can do is very limited. While they are able to treat trees alike, they are unable to do this for things that do not look (or sound or smell, etc.) alike. By contrast, concepts allow us to think *universally* about kinds of things whose members may not perceptually similar, and may not be perceivable at all. For example, among the things subsumed by the concept “organism” are trees, lions, and bacteria: trees and lions look extremely different, and bacteria cannot be seen at all (at least not with the naked eye).

Nevertheless, there are some philosophers and psychologists who argue that our ability to form concepts like “organism” is simply a more sophisticated exercise of an ability which, in a more primitive form, is shared by other animals and is at work in their applying what they have learned about one tree to another. If we think of reason as the faculty that is responsible for concepts, then if these thinkers are right, we would have to attribute it to other animals as well. However, even in this case, it would remain the case that we “much surpass” the other animals with respect to reason. The faculty is distinctively human, either in the sense that the other animals lack it altogether or in that they possess it in a degree or form that is trivial when compared to human reason; and it is our possession of reason—*our ability to think conceptually*—that is responsible for such distinctively human endeavors as philosophy, mathematics, science, and industry.

The point of all of the preceding was to distinguish between reason and perception. Evidently both faculties are involved somehow in our knowledge, and there are different views as to the respective roles they play. In what follows, we are going to consider three schools of thought on this issue. The first two are called “rationalism” and “empiricism”. As with many pieces of technical terminology, these words get used somewhat differently by different people. In all the uses, however, “rationalism” emphasizes the role of reason in acquiring knowledge, and “empiricism”, the role of the senses. If this is all that were meant by the two terms, there would be no conflict: reason and the senses may each play an important role that deserves emphasis.<sup>5</sup> However, as the terms are most often used in philosophy, “rationalism” denotes a more specific view: the thesis that there are things that can be known by reason *independently of sense-perception*. “Empiricism” is then used either for the thesis that all knowledge is based on sense-perception, or (as I will use it below) for a specific position, which includes a certain view of sense-perception and of how knowledge can be based on it. Understood in this way rationalism and empiricism are competing schools of thought. After considering both of them, we will turn to Aristotle and some related thinkers who, like the empiricists, hold that all knowledge is based on sense-perception, but have a very different understanding of perception and the ways in which knowledge can be based on it. Doing so will shed further light on the alternative between rationalism and empiricism and suggest an alternative to them. We will consider another alternative later in the term when we get to the work of Immanuel Kant.

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<sup>5</sup> Indeed, “rationalism”, in this very broad sense, is sometimes used for anyone who champions *thinking for oneself* as opposed to relying on faith or authority. Many of the people who are rationalists in this sense are also empiricists in that they emphasize the importance of learning about the world by observation, and some of them are empiricists in the narrower sense discussed below.

## §2. RATIONALISM

Rationalism is the view that reason has some concepts and knowledge independent of sense-perception. Things that are known or understood independent of sense-perception are described by the Latin phrase “*a priori*”, because they are known *prior* looking out at the world. By contrast knowledge and concepts that can only be acquired on the basis of perception are described as “*a posteriori*” because our knowledge of them is *posterior* to perception. Philosophers who believe in *a priori* knowledge have generally thought that it was innate—i.e., born into us. Thus rationalism is sometimes defined as the thesis that there are *innate ideas*.

Typically rationalists argue that certain ideas must be innate because it would be impossible to acquire them based on sense-perception. Often they add that without (some of) these ideas it would be impossible for us to think at all, and so to form any other ideas.

Rationalists differ somewhat in which ideas they think are innate. A few hold that all concepts are innate. (This seems to have been Plato’s view for at least part of his career.) Most focus on the fundamental concepts and principles of various disciplines. The most common to focus on are mathematics, metaphysics, logic, and ethics, because these fields are fundamental to many others and it is (or has been thought to be) especially difficult to see how the fundamental ideas in each of these fields could be derived from sense-perception. Rationalists also differ somewhat about how we acquired our innate ideas. Plato held that our souls existed in another world before birth and that our innate ideas are latent memories of what we experienced in that world. Descartes and many later thinkers, by contrast, think that our innate ideas were implanted in us by God, and some more recent rationalists think that they are hard wired into our brains by evolution.

### §2.1 PLATO’S THEORY OF FORMS AND RECOLLECTION

Let’s explore Plato’s view further. In the world that our soul inhabits before we are born there are objects called *forms*. For each form, there are many corresponding objects in our world that are named for it. For example, as there are many beautiful objects in our world, there is a *form of beauty* in the other world, and as there are many circles here, there is a *form of the circle* there. (Plato and his followers have several ways of referring to these forms, for example the form of beauty might be designated by any of the following phrases: “the beautiful itself” or “the beautiful itself in itself” or “true beauty” or “real beauty” or “pure beauty” or “the substance of beauty” or “the being of beauty”.) According to Plato the objects in our world (the many beautiful things or the many circles) are all imperfect: they are like poor imitations or fleeting shadows of the forms. Let’s focus on the case of circles. Because the many circles in our world are imperfect and transitory, it would be impossible to acquire any of the geometrical knowledge we have about circles by studying them. The Greeks often made geometrical diagrams by drawing in the sand with sticks. Imagine drawing a circle in this way (especially on a very windy day) and trying to work out the value of  $\pi$  by taking measurements of this circle’s circumference and diameter. Clearly it would be hopeless. You might fare somewhat better with a neatly printed circle in a book, but if you look closely you’ll find that it is not perfectly circular and that it changes over the course of time (for example, as the paper bends or stretches or the ink fades). Yet  $\pi$  is an absolutely precise value and it does remain constant over time. The value  $\pi$ , therefore, applies only imperfectly to any circle in our world and could not be discovered by the examination of such circles. The circle to which  $\pi$  applies must be the form of the circle (or “the

circle itself” or the “real circle”, as Plato sometimes calls such things). Thus, our knowledge of  $\pi$ , must have been acquired during an encounter with *this* circle.

The example concerning  $\pi$  is my own, but we can see Plato making this same point using the example of “equality” in the following passage. (Like most of Plato’s works, it takes the form of a dialog with Socrates playing the starring role. Socrates was a real person—a philosopher who was put to death for “corrupting the youth” when Plato was in his late 20’s, and this discussion is set on the day of Socrates’ execution. However, the ideas expressed by Socrates here were original to Plato.)

SOCRATES: I suppose we agree that if anyone is to remember anything, he must have known it at some previous time?

SIMMIAS: Certainly.

SOCRATES: Then do we agree to this also, that when knowledge comes in such a way, it is recollection? What I mean is this: If a man, upon hearing or seeing something (or perceiving it in any other way), not only knows that thing but also has something else occur to him—something of which the knowledge is not the same, but different—aren’t we right to say that he recollects the thing that occurs to him?

SIMMIAS: What do you mean?

SOCRATES: Let me give an example. Knowledge of a man is different from knowledge of a lyre.

SIMMIAS: Of course.

SOCRATES: Well, you know, don’t you, that when someone who is in love sees a lyre or a cloak or anything else that belongs to his beloved, he perceives the lyre and an image occurs to him of the boy to whom the lyre belongs? This is recollection, just as when one sees Simmias, one often remembers Cebes, and I could cite countless such examples.

SIMMIAS: To be sure you could.

SOCRATES: Now, is that sort of thing a kind of recollection? Especially when it takes place with regard to things which have already been forgotten through time and inattention?

SIMMIAS: Certainly.

SOCRATES: Well then, can a person be reminded of a man by seeing a picture of a horse or of a lyre, or be reminded of Cebes by seeing a picture of Simmias?

SIMMIAS: Surely.

SOCRATES: And by seeing a picture of Simmias he can be reminded of Simmias himself?

Simmias: Yes.

SOCRATES: All these examples show, then, that recollection is caused by like things and also by unlike things, don’t they?

Simmias: Yes.

SOCRATES: And when one has a recollection of anything caused by like things, will he not also inevitably consider whether this recollection offers a perfect likeness of the thing recollected, or not?

SIMMIAS: Inevitably.

SOCRATES: Now see, if this is true. We say there is something equal. I do not mean one log equal to another, or one stone to another, or anything of that sort, but something beyond that—the equal itself. Should we say there is such a thing, or not?

SIMMIAS: We should definitely say that there is.

SOCRATES: And do we know what it is?

SIMMIAS: Certainly.

SOCRATES: Where did we get the knowledge of it from? Isn't it from the things we were just talking about—by seeing equal logs or stones or other equal things? Wasn't it from seeing these that this thing, which is different from them, occurred to us? Or don't you think it is different? Look at it this way. Don't equal stones and logs, while remaining the same, sometimes seem equal to one person and unequal to another?

SIMMIAS: Certainly.

SOCRATES: Well, then, did the equals themselves ever appear to you unequal or did equality ever appear to be inequality?

SIMMIAS: No, Socrates, never.

SOCRATES: Then, those equals are not the same as the equal itself.

SIMMIAS: I should say not, Socrates.

SOCRATES: But, nevertheless, it is from those equals, which are not the same as that equal, that the knowledge of that equal occurred to you and was received by you?

SIMMIAS: Very true.

SOCRATES: And it is either like them or unlike them?

SIMMIAS: Certainly.

SOCRATES: It makes no difference. Whenever someone sees one thing, and from this sight another thing occurs to him, whether the things are like or unlike, this must be recollection.

SIMMIAS: Surely.

SOCRATES: Now then, do the equal logs and the equal things of which we were speaking just now affect us in this way: Do they seem to us to be equal in the way that the equal itself is equal, or do they somehow fall short of being like the equal itself?

SIMMIAS: They fall very far short of it.

SOCRATES: Do we agree, then, that when anyone on seeing a thing thinks, "This thing that I see aims at being like some other thing that exists, but falls short and is unable to be like that thing, but is inferior to it," the person who thinks thus must have previous knowledge of the thing that he says the other resembles but falls short of?

SIMMIAS: We must.

SOCRATES: Well then, isn't this just what happened to us with regard to the equal things and the equal itself?

SIMMIAS: It certainly is.

SOCRATES: Then we must have had knowledge of the equal before the time when we first saw equal things and thought, "All these things are aiming to be like the equal but fall short."

SIMMIAS: "That's true."

SOCRATES: And we agree, also, that it did not occur to us, nor could it have occurred to us, from anything other than seeing or touching or one of the other senses—I'm counting them all as the same.

SIMMIAS: Yes, Socrates, they are all alike, for the purposes of our account.

SOCRATES: Then it must be from the senses that it occurs to us that all the things we perceive through them are striving to reach that which the equal is, and that they are falling short of it. Is that our view?

SIMMIAS: Yes.

SOCRATES: Then before we began to see or hear or use the other senses we must somewhere have gained a knowledge of what the equal itself is, if we were about to compare our perceptions of equal things to it, viewing them all as yearning to be like it, but falling short.

SIMMIAS: That follows necessarily from what we have said before, Socrates.

SOCRATES: And we saw and heard and had the other senses as soon as we were born?

SIMMIAS: Certainly.

SOCRATES: But, we say, we must have acquired knowledge of the equal before we had these senses?

Simmiias: Yes.

SOCRATES: Then it appears that we must have acquired it before we were born.

SIMMIAS: It does.

SOCRATES: Now if we had acquired that knowledge before we were born, and were born with it, we knew before we were born and at the moment of birth not only the equal and the greater and the less, but everything of that sort? For our present account is no more concerned with the equal than with the beautiful itself and the good itself and the just and the pious, and, in short, with all those things which we stamp with the seal of "what it is", both when we are asking questions and answering them. So we must have acquired knowledge of all of them before we were born.

SIMMIAS: That's true.

SOCRATES: And, if having acquired this knowledge in each case, we didn't forget it, we must to always be born knowing these things, and must know them throughout our life; for to know is to have acquired knowledge and to have retained it without losing it, and the loss of knowledge is just what we mean when we speak of forgetting, isn't it, Simmiias?

SIMMIAS: Certainly, Socrates.

SOCRATES: But, I suppose, if we acquired knowledge before we were born and lost it at birth, but afterwards by the use of our senses regained the knowledge which we had previously possessed, would not the process which we call learning really be recovering knowledge which is our own? And should we be right in calling this recollection?

SIMMIAS: For sure.

SOCRATES: For we found that it is possible, when perceiving a thing by the sight or the hearing or any other sense, to have occur to one from that perception another thing which had been forgotten, which was associated with the thing perceived, whether like it or unlike it. So, as I said, one of these two things is true: either we are all born knowing these things and know them all our lives, or else those who are said to learn merely remember, and learning would then be recollection.

SIMMIAS: That is certainly true, Socrates.

SOCRATES: Which then do you choose, Simmiias? Were we born with the knowledge, or do we recollect afterwards things of which we had acquired knowledge before our birth?

SIMMIAS: I cannot choose at this moment, Socrates.

SOCRATES: How about this question? You can choose and you have some opinion about it: When a man knows, can he give an account of what he knows or not?

SIMMIAS: He certainly can, Socrates.

SOCRATES: And do you think that everybody can give an account of the things about which we've just been talking?

SIMMIAS: I wish they could, but on the contrary I fear that at this time tomorrow there will be no longer any man living who is able to do so properly.

SOCRATES: Then, Simmiias, you do not think all men know these things?

SIMMIAS: Not at all.

SOCRATES: Then they recollect the things they once learned?

SIMMIAS: Necessarily.

SOCRATES: When did our souls acquire the knowledge of them? Surely not after we were born as human beings.

SIMMIAS: Certainly not.

SOCRATES: Then previously.

SIMMIAS: Yes.

SOCRATES: Then, Simmias, the souls existed previously, before they were in human form, apart from bodies, and they had wisdom.

SIMMIAS: Unless, Socrates, we acquire these ideas at the moment of birth; for that time still remains.

SOCRATES: Very well, my friend. But when else could we lose them? For we are surely not born with them, as we just now agreed. Do we lose them at the moment when we receive them, or do you have some other time to suggest?

SIMMIAS: None whatever, Socrates. I did not notice that I was talking nonsense.

SOCRATES: Then, Simmias, is this our position: if, as we are always saying, the beautiful exists, and the good, and every substance of that kind, and if we compare all our perceptions to these, finding that it existed before and is ours, and we liken these things to that substance and liken our perceptions to it, then just as these things exist, so our souls must have existed before we were born. And, if these things do not exist, our account is impotent? Is this the case, and is it equally certain that provided these things exist our souls also existed before we were born, and that if these do not exist, neither did our souls?

SIMMIAS: Socrates, it seems to me that there is absolutely the same certainty, and our account comes to the excellent conclusion that our soul existed before we were born, and that the entity of which you speak likewise exists. For there is nothing so clear to me as this, that all such things, the beautiful, the good, and all the others of which you were speaking just now are fully real. And I think the proof is sufficient.<sup>6</sup>

Let's consider some similar arguments that could be made with ideas from logic or metaphysics. Consider the following form of deductive argument: "All A is B, and All B is C, therefore All A is C." Any argument of this form is valid—if its premises are true its conclusion cannot fail to be. But *how do we know this*? Is there anything that we could perceive with our senses that would convince of its truth if we did not already know it? Or, moving from logic to metaphysics, consider the concept "cause". Perhaps it is by using your senses that you discover the particular causes of particular things (or sorts of things), but where does the very idea of one thing's causing another come from? Is that something you can learn from your senses? As we will see later, philosophers argue about whether you can. (We will turn shortly to another metaphysical concept that most rationalists think is innate.)

## §2.2 DESCARTES' WAX AND THE UBIQUITY OF INNATE IDEAS TO OUR ORDINARY KNOWLEDGE

I mentioned earlier that many rationalists argue not only that some ideas are innate, but that our innate knowledge and concepts are fundamental to all our thinking, even to those thought processes that do not obviously employ them. We can see an indication of this sort of thinking in the passage from Plato quoted above. He says that from the moment we are born we

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<sup>6</sup> *Phaedo* 73c-77a. (Translated by H. N. Fowler and revised by G. Salmieri.)

are constantly *comparing* our perceptions with are latent memories of the forms. This implies that our innate knowledge of the forms is at work even when children make the most basic observations of their surroundings. Descartes states this point much more explicitly and argues for it.

Let us consider those things which are commonly believed to be the most distinctly grasped at all: namely the bodies we touch and see. [...] Let us take, for instance, this piece of wax. It has been taken quite recently from the honeycomb; it has not yet lost all the honey flavor. It retains some of the scent of the flowers from which it was collected. Its color, shape and size are manifest. It is hard and cold; it is easy to touch. If you rap on it with you knuckle it will emit a sound. In short, everything is present in it that seems needed to know a body as distinctly as possible. But notice that, as I am speaking, I am bringing it close to the fire. The remaining flavors of the honey flavor are disappearing; the scent is vanishing; the color is changing; the original shape is disappearing. Its size is increasing; it is becoming liquid and hot; you can hardly touch it. And now when you rap on it, it no longer emits any sound. Does the same wax still remain? I must confess that it does; no one denies it; no one thinks otherwise. So what was there in the wax that was so distinctly grasped? Certainly none of the aspects that I reached by means of the senses. For whatever came under the senses of taste, smell, sight, touch or hearing has now changed; and yet the wax remains.

Perhaps the wax was what I now think it is: namely that the wax itself never really was the sweetness of the honey nor the fragrance of the flowers, nor the whiteness, nor the shape nor the sound, but instead was a body that a short time ago manifested itself to me in these ways, and now does so in other ways.<sup>7</sup>

Because we are able to recognize that the piece of wax is the *same thing* even though all of its perceptible qualities have changed, this thing that we take the piece of wax to be cannot be identical with any of these qualities or with their sum. We think of the wax as a something that possesses certain perceptible qualities at one time and others later. But where did we get the idea of this *something*? The idea could not have come from sense-perception because it is an idea of something that remains constant when all of the wax's perceptible qualities have changed. Descartes concludes that his awareness of the wax "is neither a seeing, nor a touching... Nor has it ever been, even though it previously seemed so; rather it is an inspection on the part of the mind alone."<sup>8</sup> Even the sorts of knowledge that we normally ascribe to sense-perception are not due to sense-perception alone.

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<sup>7</sup> *Meditations on First Philosophy*, Third Meditation, 30-31. Translated by D. Cress.

<sup>8</sup> There is an additional step to Descartes' argument that I have omitted above. I'll include it here for those of you who may be interested. He considers what the wax, as distinct from its perceptible qualities, is and determines that it is something with the properties of extension (i.e., taking up space), flexibility, and mutability (i.e., the ability to be changed). Then he considers where *these* ideas might have come from. He takes it for granted that they cannot come from sense-perception since they are ideas for attributes that something can continue to have even when all its perceptible qualities change, but he considers another possibility before concluding that these ideas are innate. Perhaps these ideas come from a faculty that he (following Aristotle) calls "imagination". The imagination is the faculty that retains perceived material and can perform certain basic operations on it such as associating similar looking (or sounding or smelling, etc.) together, or picturing them undergoing certain basic changes. Aristotle thought that this faculty plays a significant role in our mental lives and is a great aid to thought (enabling us to *visualize* things), but that it is a part of the perceptual faculty rather than of reason. He also thought that this was the faculty behind many of the animal behaviors that we might casually ascribe to thinking. So Descartes considers whether the ideas of flexibility and extension and mutability could be derived from this faculty, but he concludes that they cannot. To see why, I'll focus on the concept of mutable. Since one can visualize something changing, one might think that imagination is the source of the concept of mutability. But to think of something as mutable is to think at once of its being capable of undergoing infinitely many different sorts of changes, but one can only visualize a finite number of changes, and one must visualize them one at a time.

For we say that we see the wax itself, if it is present, and not that we judge it to be present from its color or shape. Whence I might conclude straightaway that I know the wax through the vision had by the eye and not through an inspection had on the part of the mind alone. But then were I perchance to look out my window and observe men crossing the square, I would ordinarily say that I see the men themselves just as I say I see the wax. But what do I see aside from hats and coats, which could conceal automata? Yet I judge them to be men. Thus what I thought I had seen with my eyes, I actually grasped solely with the faculty of judgment, which is in my mind. [...] Let us then go forward and inquire when it was that I perceived more perfectly and evidently what the piece of wax was. Was it when I first saw it and believed I knew it by the external sense [...]? Or do I have more perfect knowledge now, when I have diligently examined both what the wax is and how it is known? Surely it is absurd to be in doubt about this matter. For what was there in my initial perception that was distinct? What was there that any animal seemed incapable of possessing? But indeed when I distinguish the wax from its external forms, as if stripping off its clothing, and look for the wax in its nakedness, then, even though there can still be an error in my judgment, nevertheless I cannot perceive it thus without a human mind.<sup>9</sup>

Descartes' discussion of the wax brings us to another metaphysical concept that rationalists typically think cannot be derived from sense-perception: the concept *substance*. Put aside for a moment the normal meaning of that term associated with chemistry. In Latin the word means literally that which "stands under" other things. In metaphysics, it refers to things that exist *in their own right*, as opposed to things that exist only as attributes of other things. For example consider the white color of Descartes' wax before he brought it near the fire. This color does not exist *on its own*, but only as an attribute *of* the wax. It could not continue to exist if the wax went out of existence. Thus we can think of the wax as "standing under" this quality and supporting it in existence. By contrast, the wax can exist without the white color, as it does at the end of the example. The piece of wax is a substance because it exists in its own right and so supports the existence of its various (and changing) attributes and actions.

Substances, then, are contrasted with things that do not exist in their own right, but only as ways that the substances can be—for example qualities the wax can have, or actions it can take. Such non-substances are sometimes called "modes". And this is the terms that both Descartes and Locke (who we will discuss in the next section) use. Using this term, we can recast Descartes' wax argument as follows: all of the things we perceive by the senses are modes (color, heat, weight, size, etc.) but we have ideas of things other than modes—of the substances that these modes are modes of and that remain constant even when all their modes change. These ideas of substances cannot, therefore, have come from the senses.

Notice that in the passage in which he makes this argument, Descartes is discussing the particular piece of wax he is holding, not to the stuff wax, of which it is made (though the points he makes apply to the stuff as well). In common parlance we tend to use the term substance only for *stuffs*, like wax or gold or carbon dioxide or cocaine. But in metaphysics the term can also apply also to *things* like pieces of wax or people. It applies to anything that exists in its own right and supports the existence of other things.

Metaphysicians debate about what things are truly substances. Some think, for example, that the only real substances are the basic materials out of which the physical world is made, and that ordinary objects like people or cars or pieces of wax are simply *arrangements of* these materials, rather than things that exist in their own right. Plato thought that the only things that exist in their own right are the forms and that the objects in this world are shadows or imperfect and transient manifestations *of* these forms. (That is why in the passage quoted above, the forms

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<sup>9</sup> *Meditations on First Philosophy*, Third Meditation, 30-32. Translated by D. Cress.

are referred to as “substances”.) Some theists think that God is the only real substance and that everything else is some sort of projection or manifestation of God rather than a substance in its own right. And there are other views. Descartes and many of his contemporaries thought that there were two types of substances: bodies and minds. The piece of wax (and wax in general) is a body, whereas the self that Descartes cannot doubt exists is a mind. Minds and bodies each exist in their own right, and they each support various attributes in existence.

In this class we will not discuss the question of which things are the true substances, but it is important to introduce the concept “substance” because it is one of the central metaphysical concepts that it is often thought must be innate. We can see why from Descartes example of the wax. The senses, it is thought, inform us only about the perceptible qualities of things (their colors, sounds, tastes, textures, odors, etc.), but all of these are *attributes*; none can exist in their own right. If we are to have any idea of the things themselves of which these qualities are attributes—of the substances that “stand under” them—then this idea cannot come from the senses. (Or so it has been often argued.)

### §2.3 RATIONALIST METHODOLOGY

Rationalism, as we have said is the thesis that reason possesses some concepts and knowledge *a priori* (i.e., independent of sense perception). We have also discussed how rationalists usually think that these *a priori* ideas are fundamental to all of our reasoning—even to what we normally take to be learning by observation. But the purpose of epistemology is to tell us how to discover new knowledge and evaluate putative knowledge. What advice do rationalists give us about how to think?

Typically they tell us to focus on our innate knowledge and away from sense-perception, which they argue confuses and distracts us. For example, consider the following passage from Plato:

SOCRATES: Do we think there is such a thing as the just itself, or not?

SIMMIAS: We certainly do.

SOCRATES: And the beautiful and the good?

SIMMIAS: Of course.

SOCRATES: Well, did you ever see any of these things with your eyes?

SIMMIAS: Certainly not.

SOCRATES: Or did you ever grasp them with any of the bodily senses? I am speaking of all such things, as size, health, strength, and, in a word, the substance of all other things—what each of them really is. Is what is most true in them contemplated by means of the body? Isn't it rather the case that the person who prepares himself most accurately to grasp the thing he is investigating himself will come nearest to the knowledge of it?

SIMMIAS: Certainly.

SOCRATES: Who would do this most perfectly? Wouldn't it be someone who approached each thing, so far as possible, with thought alone, not introducing sight into his thinking or dragging in any of the other senses along with his reasoning, but using thought pure and by itself in his attempt to search out the substance of each thing pure and by itself, freeing himself (as far as possible) from his eyes and ears, and, in a word, from his whole body, because association with it confuses

the soul and prevents it from attaining truth and wisdom? Isn't this the man, Simmias, if anyone, who will reach reality?<sup>10</sup>

In a similar spirit, Descartes writes:

I will now close my eyes, I will stop my ears, I will turn away my senses from their objects, I will even efface from my consciousness all the images of corporeal things; or at least, because this can hardly be accomplished, I will consider them as empty and false; and thus, holding converse only with myself, and closely examining my nature, I will endeavor to obtain by degrees a more intimate and familiar knowledge of myself.<sup>11</sup>

This is the approach that he advocates when dealing with fundamental issues in metaphysics or topics concerning the mind or God. With respect to these topics he thinks that the senses are of no use and “must be banished” to prevent them from “hampering” the mind.<sup>12</sup> However, he thinks that some limited use must be made of the senses when thinking about bodies (for example in physics). And he acknowledges that they must be used in thinking about (for example) how to negotiate our immediate environment. Throughout, however, his emphasis (like Plato's) is on minimizing the role of sense-perception in thinking.

How then do these philosophers think that we ought to proceed? By identifying our innate knowledge and then *deducing* from it. This is the pattern that they think is followed in mathematics, and they think that it is the key to progress in other fields as well. Descartes explains:

There are two ways by which we arrive at the knowledge of facts—namely, by experience and by deduction. We must further observe that while our inferences from experience are frequently fallacious, deduction (or the pure inference of one thing from another) cannot be erroneous when performed by an understanding that is in the least bit rational (though it may go unnoticed if [the necessary connection] is not seen). [...] None of the mistakes that men can make (men, I say, not beasts) are due to faulty [deductive] inference; they are caused merely by the fact that we build them on a basis of poorly comprehended experiences, of that propositions are posited that are hasty and groundless.

This furnishes us with an evident explanation of the great superiority in certitude of arithmetic and geometry to other sciences. The former alone deal with an object so pure and uncomplicated that they need to make no assumptions at all that experience renders uncertain. Rather, they consist wholly in the rational deduction of consequences. That is why they are the by far the easiest and clearest of all, and they have the kind of object that we need, for in them it is hardly humanly possible for anyone to err except by carelessness. Yet it is not surprising that plenty of people of their own accord prefer to apply their intelligence to other studies or to philosophy. The reason for this is that, when a subject is obscure, every person permits himself the liberty of making guesses with a lot more confidence than he would if the subject was clear; and it is much easier to have some vague notion about any subject (no matter what it is) than to arrive at the real truth about a single question, however simple it may be.

But one conclusion now emerges out of these considerations—not, indeed, that arithmetic and geometry are the sole sciences to be studied, but only that in our search for the direct road to truth we should not busy ourselves with objects about which we cannot attain a level of certainty equal to that of the demonstrations of arithmetic and geometry.<sup>13</sup>

[We should] take note of all those mental operations by which we are able, wholly without fear of illusion, to arrive at the knowledge of things. Now I admit only two: intuition and deduction.

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<sup>10</sup> *Phaedo* 65d-66a.

<sup>11</sup> Meditation III, 1.

<sup>12</sup> *Rules for the Direction of the Mind*, Rule XII

<sup>13</sup> *Rules for the Direction of the Mind*, 364-6. Translated by E.S. Haldane and G.R.T. Ross; revised by G. Salmieri.

By *intuition* I understand not the fluctuating testimony of the senses, not the misleading judgment that proceeds from the blundering constructions of the imagination, but the conception that an unclouded and attentive mind gives us so readily and distinctly that we are wholly freed from doubt about that which we understand. Or, which comes to the same thing, *intuition* is the undoubting conception of an unclouded and attentive mind, and springs from the light of reason alone. It is more certain than deduction itself, in that it is simpler, though deduction, as we have noted above, cannot by us be erroneously conducted. Thus each individual can mentally have intuition of the fact that he exists, and that he thinks; that the triangle is bounded by three lines only, the square by single superficies and so on. Facts of such a kind are far more numerous than many people think, distaining as they do to direct their attention upon such simple matters.<sup>14</sup>

From the fundamental truths that we directly “intuit,” other knowledge is gained “by being deduced by true and known principles by the uninterrupted action of a mind that has a clear vision of each step in the process.”<sup>15</sup> The vision is clear largely because it is isolated as far as possible from potentially confusing sensory material. As Plato put it, in the ideal and most certain form of thinking we “descend to a conclusion without making use of anything visible at all, but only of forms themselves, moving on from forms to forms and ending in forms.”<sup>16</sup>

Even for Plato, however, the judicious use of the senses can play some role in our thinking, since it is our perceptual encounters with things in this world that trigger our recollection of the forms. What we must avoid is regarding the objects we perceive as identical with the forms we are thinking about. Rather we should regard them in the way that we might regard the (imperfect) shapes we might draw in the course of working through a geometric proof.

Although [geometers] use visible figures and make claims about them, they are not thinking about them, but about the other things that they are like. They make their claims with a view to the square itself and the diagonal itself, not the diagonal they draw, of which shadows and reflections in water are images; they now in turn use these as images, in seeking to see those others themselves that one cannot see except by means of thought. We should consider the decorations in the sky to be the most beautiful and most exact of visible things, seeing that they’re embroidered on a visible surface. But we should consider their motions to fall short of the true ones—motions that are really fast or slow as measured in true numbers, that trace out true geometrical figures, that are all in relation to one another, and that are the true motions of the things carried along with them. And these, of course, must be grasped by reason and thought, not by sight. Therefore we should use the embroidery in the sky as a model in the study of these other things. An expert in geometry would view divine drawings as beautifully crafted but would think it laughable to scrutinize them zealously, expecting to find in them true equality or duplicity or any other ratio.

Don’t you think, then, that a real astronomer will feel the same way when he looks up at the motions of the stars? He will believe that the craftsman of the heavens arranged them and all that is in them in the most beautiful possible way for such things. But as for the ration of night to day, of these to a month, of a month to a year, or of the motions of the stars to them or to each other, don’t you think he will consider it strange to believe that they are always the same and never deviate in the least, since they are connected to body and are visible things, or to seek by every means possible to get the truth about them?

We will pursue astronomy, then, in the same way as we do geometry... We will leave the things in the heavens alone, if we are going to really participate in astronomy and make the naturally wise element in the soul useful rather than useless.<sup>17</sup>

Plato makes similar claims about music theory, saying that people working in the field should not “put their ears to instruments like someone trying to overhear what the neighbors are

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<sup>14</sup> Ibid 368.

<sup>15</sup> Ibid 169

<sup>16</sup> 511b

<sup>17</sup> *Republic* VII, 529b-530b. Translated by C. D. C. Reeve.

saying” or “torture their strings, stretching them on pegs” to try to extract information from them.<sup>18</sup> In all cases, the senses are to be used not as a source of information, but as a sort of heuristic—a learning aid; and the ultimate goal of the process is to wean ourselves off of sense-perception.

## §2.4 SOME CRITICISMS OF RATIONALISM

There have, of course, been many critics of rationalism. Some have argued that the idea of innate knowledge (or particular version of the theory) is either incoherent or unclear. In what form exactly can an infant be said to have knowledge of the principles of calculus, for example? Is it plausible to hold that anyone had such knowledge in the millennia before these principles were discovered? Others have pointed out that often we find people who actively disagree with things that others claim to know *a priori*, and indeed that there are cases in which two different rationalists claim to have *a priori* knowledge of contradictory things. Other critics have pointed to the many cases in which things that rationalists claimed to have proven from intuited principles were later proven false. Descartes’ works on physics, for example, argue that the planets are moved in perfectly circular orbits by vortexes and that light travels instantaneously. A more troubling example, perhaps, comes from geometry. It was often thought that the principles of Euclidian geometry (most notably that parallel lines never cross) were innate and that it is impossible to think about space at all, unless one presupposed these principles, however in the 19<sup>th</sup> Century some non-Euclidian systems of geometry came to prominence, and in the 20<sup>th</sup> it was found that they are more accurate than Euclidian geometry when characterizing large (interstellar) spaces.

Many of the preceding criticisms were made by John Locke, a Seventeenth Century empiricist whose view of knowledge we will consider in the next section. He further argued that, when ideas have been instilled in us since early childhood and have become the foundation for much of our subsequent thinking, it is difficult to remember learning these ideas or to conceive of them being false. Consequently it is easy to mistake these ideas for innate ones instilled in us by God. Because this mistake prevents us from examining and reevaluating these ideas, it can lead to horrible consequences. We can see this point, along with summaries of several of his arguments in the following passage:

[When men] reflect on their own minds, they cannot find anything more ancient there than those opinions that were taught them before their memory began to keep a register of their actions, or date the time when any new thing appeared to them; and, therefore, they make no scruple to conclude that *those propositions of whose knowledge they can find in themselves no origin, were certainly the impress of God and nature* upon their minds, and not taught to them by anyone else. These they entertain and submit to, as many do to their parents with veneration, not because it is natural (nor do children do it where they are not so taught), but because, having been always so educated, and having no memory of the beginning of this respect, they think it is natural.

This will appear very likely, and almost unavoidable to come to pass, if we consider the nature of mankind and the constitution of human affairs. *Most men cannot live without employing their time in the daily labors of their callings, nor be at quiet in their minds without some foundation or principle to rest their thoughts on.* There is scarcely any one so floating and superficial in his understanding, that he does not have some revered propositions that are to him the principles on which he bottoms his reasonings, and by which he judges of truth and falsehood, right and wrong. [Because some men] lack skill and leisure, and others the inclination,

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<sup>18</sup> Republic VII 531a-b

and some are taught that they ought not to examine [these principles], there are few to be found who are not exposed by their ignorance, laziness, education, or precipitancy *to take them upon trust*.

This is evidently the case of all children and young folk. And custom, a greater power than nature, seldom fails to make them worship as divine the things that she has inured them to bow their minds and submit their understandings to. So it is no wonder that grown *men*, either perplexed in the necessary affairs of life, or hot in the pursuit of pleasures, do *not* seriously sit down to *examine their own tenets*—especially when one of their principles is, that principles ought not to be questioned. And, if men had the leisure, parts, and will, who is there almost that would dare to shake the foundations of all his past thoughts and actions, and endure to bring upon himself the shame of having been wholly in mistake and error for a long time? Who is there hardy enough to contend with the reproach that is everywhere prepared for those who dare venture to dissent from the received opinions of their country or party? And where is the man to be found that can patiently prepare himself to bear the name of whimsical, sceptical, or atheist—names anyone is sure to meet with if he has the least scruple at any of the common opinions? And he will be much more *afraid to question those principles*, when he thinks them, as most men do, the standards set up by God in his mind, to be the rule and touchstone of all other opinions. And what can hinder him from thinking them sacred, when he finds them the earliest of all his own thoughts, and the most revered by others?

It is easy to imagine *how*, by these means, it comes to pass that men worship the idols that have been set up in their minds, grow fond of the notions they have been long acquainted with there, and *stamp the characters of divinity upon absurdities and errors*, become zealous votaries to bulls and monkeys, and [be willing to] fight, and die in defense of their opinions. [...] For, since the reasoning faculties of the soul, which are almost constantly, though not always warily nor wisely employed, would not know how to move, without a foundation and footing, in most men, who through laziness or avocation do not (or for want of time, or true helps, or for other causes, cannot) penetrate into the principles of knowledge and trace truth to its fountain and origin, it is natural for them, and almost unavoidable, to take up with some borrowed principles, which, being reputed and presumed to be the evident proofs of other things, are thought not to need any other proof themselves. Whoever receives any of these into his mind, and entertains them there with the reverence usually paid to principles, never venturing to examine them, but accustoming himself to believe them, because they are to be believed, may take up, from his education and the fashions of his country, any absurdity for innate principles. And, by long poring on the same objects, he may so dim his sight as to take monsters lodged in his own brain for the images of the Deity, and the workmanship of his hands.

How many there are who arrive by this process at principles that they believe innate can be easily observed in the variety of opposite principles held and contended for by all sorts and degrees of men. And anyone who denies that this is the method whereby most men proceed to the assurance they have of the truth and evidence of their principles, will perhaps find it a hard matter to account in any other way for the contrary tenets that are firmly believed and confidently asserted and that great numbers are ready at any time to seal with their blood. And, indeed, if it is the privilege of innate principles to be received upon their own authority, without examination, I know not what may not be believed, or how anyone's principles can be questioned. If they may and ought to be examined and tested, I desire to know how first and innate principles can be tested. Or at least it is reasonable to demand the marks and characters whereby the genuine innate principles may be distinguished from others, so that amidst the great variety of pretenders, I can be kept from mistakes in so important a point as this. When this is done, I shall be ready to embrace such welcome and useful propositions; and till then I may with modesty doubt; since I fear universal consent, which is the only [mark] produced [by the advocates of innate principles], will scarcely prove a sufficient mark to direct my choice, and assure me of any innate principles.<sup>19</sup>

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<sup>19</sup> *An Essay Concerning Human Understanding* I.III.23-27. (I have modernized the English to make it more readable.)

Whatever merit the above arguments may have, however, a convincing and satisfying response to rationalism would have to address directly the knowledge and concepts that rationalist think it is impossible to derive from sense-perception and to show how these ideas can be based on perception (or else that they ought to be rejected altogether). Our next subject will be Locke's attempt to do just this.