

Spatial Perception from a Cartesian Point of View

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We must observe this rule exactly: Never judge by the senses what things are in themselves, but only what relation they have to our body, for, in fact, the senses were not given to us to know the truth about things in themselves, but only for the preservation of our body. (Malebranche, Search After Truth I.5 §3)ⁱ

Descartes proposes in the *Sixth Meditation* that although the senses are unreliable guides to the nature of the material world, they are nevertheless reliable guides for self-preservation and action. He writes: “I misuse [the senses] by treating them as reliable touchstones for immediately discerning the essential nature of the bodies located outside us” (AT VII 83).ⁱⁱ And yet: “in matters regarding the well-being of the body, all my senses report the truth much more frequently than not” (AT VII 89).ⁱⁱⁱ Descartes most clearly has in mind here internal sensations (pains, tickles, hunger, thirst) and perhaps secondary quality sensations (sensations of color, sound, odor, and the like). A pain in my foot does not tell me what exactly is going on in my foot, but it effectively reports that my foot is injured. The foul smell of rotten eggs does not reveal to me the intrinsic nature of the eggs, but it informs me in no uncertain terms that there is something bad about the eggs, and it keeps me from eating them. But what about spatial perception? The prevailing view is that spatial perception stands apart from the more qualitative aspects of sense perceptual experience: the senses report bodies to have sizes, shapes, positions and motions, and in fact they do. Descartes’ conception of the senses as guides for self-preservation, the thought goes, is little more than an ad hoc way to find a place for the

internal sensations and secondary quality sensations that systematically mislead us about the intrinsic nature of the material world.

Malebranche understood Descartes' claim differently. Conceiving the senses as guides for self-preservation is not an ad hoc way of handling problematic cases, but a way of re-conceiving sensory experience as a whole, spatial perception included. Descartes had suggested that the senses facilitate self-preservation by providing a self-interested representation of the world; they represent material objects "not as they are in themselves" but "as they are related to and may benefit or harm us."^{iv} Malebranche explicitly extends this idea to spatial perception: "our sight does not at all represent extension to us as it is in itself, but only as it is in relation to our body" (*Search* I.6 §1, OCM I 84/LO 28). Our eyes, he argues, "were given to us not to discover the exact truths of geometry and physics, but to clarify all the movements of our own body in relation to those that surround us" (*DM* V §8, OCM XII 119/JS 80). To be sure, there is a difference between sensory perception of primary and secondary qualities: sensory perception of primary qualities represents properties that can really exist, as sensorily perceived, in the material world of Cartesian physics; sensory perception of secondary qualities represents properties that cannot exist, as sensorily perceived, in the material world of Cartesian physics. Malebranche acknowledges the point; indeed he insists on it (*Search* I.10, OCM I 121-22/LO 48). Important as this difference is, it should not blind us to the various ways in which spatial perception is *like* the rest of sensory experience in representing the world in a way that reflects the needs and interests of our own bodies.

Malebranche's argument starts with the Cartesian idea that sensory perception is a distinctively *embodied* form of thought. It is a form of thought, and so a mode of mind,

but, as Descartes had put it, sensory perception “cannot belong to the mind simply in virtue of its being a thinking thing, but only in virtue of its being joined to something else that is extended and mobile, viz., the human body” (*Principles* II.2, AT VIII-A 41).^v Malebranche similarly describes sensory perception as “thinking in relation to the body” (*DM II*, OCM XII 50/JS 20). What exactly does this mean? First, and most obviously, it means that sensory perception requires a bodily cause (or occasion), typically the impact of some material object on the sense organs and the consequent stimulation of the brain.^{vi} Malebranche identifies a second sense in which sensory perception is a distinctively embodied form of thought: it is *phenomenologically* bound up with the body. Sensory perception does not simply represent material objects to the mind; it reflects one’s own body in the way that it represents objects. This in turn helps to explain why sensory perception is especially suited to helping the mind to direct its body safely through the world. Or so I argue. Elsewhere I examine the ways in which this idea is expressed in the Cartesian treatment of secondary quality sensations and bodily sensations.^{vii} My interest here is to explore the ways in which Malebranche puts it to work in his treatment of spatial perception.

Whether Malebranche’s treatment of spatial perception reflects Descartes’ considered view, or instead amounts to a creative development of it, is unclear. My own opinion is that it is an accurate reflection of Descartes’ view, and I will call attention to those aspects of Descartes’ account of spatial perception that anticipate Malebranche. Either way, Malebranche’s version has philosophical advantages. First, it recognizes that spatial perception has a bodily phenomenology. Second, in linking this bodily phenomenology to survival, it acknowledges the intimate connection between sensory

perception and action: the senses represent the world in a way that facilitates action. Finally, it offers a unified conception of sensory experience to compete with the bifurcated and ad hoc conception typically attributed to Descartes. As Malebranche depicts it, sensory experience is a wholesale expression of the mind's embodiment. In both its primary and secondary quality aspects it arises from the mind-body union, represents the world phenomenologically as it is related to the mind-body union, and thereby serves the mind-body union in its effort to survive.

I. Preliminaries

Some clarificatory remarks are in order, starting with terminology. By “spatial perception” I mean to refer to *sensory*, as opposed to *purely intellectual*, perception of such properties as size, shape, position, motion, distance and orientation.^{viii,ix} I focus on vision because it receives the most extensive treatment by both Descartes and Malebranche. Finally, I mean to refer to spatial perception as we are acquainted with it in conscious experience; I do *not* mean to refer to the representation of spatial properties at any sub-personal or sub-conscious levels of sensory processing. That said, Descartes and Malebranche offer somewhat different accounts of the sub-personal levels of sensory processing that will be important for my argument at various points. I therefore review them briefly.

Descartes distinguishes three stages of sensory processing (*Sixth Replies*, AT VII 436-39). The first stage is purely physical: it includes the mechanical stimulation of the sense organs by external objects and the subsequent effects of this stimulation on the brain. The second stage is psycho-physiological in the sense that it includes “everything

in the mind that results immediately from the fact that it is united to a corporeal organ thus affected” (*Sixth Replies*, AT VII 437). In the case of spatial perception, this stage may include a perspectively distorted representation of objects corresponding, in vision, to the retinal image. The third stage includes a host of unnoticed judgments that, among other things, correct for the perspectival distortion at the earlier stage. These judgments effectively recover the three-dimensional properties of objects and explain perceptual constancy: they explain why things look to have constant shapes and sizes despite the fact that the portion of the visual field they fill is constantly changing as we move through the environment. Descartes depicts these judgments as habitual, leaving open the strange suggestion that they are at some point in our infancy made deliberately and consciously (*Sixth Replies*, AT VII 438).^x

Malebranche adopts the basic structure of Descartes’ account, but he substantially revises the third, judgmental stage. He rejects the suggestion that these judgments are ever made deliberately. They “occur in us independently of us and even in spite of us” (*Search I.9 §3*, OCM I 119/LO 46). Consequently, he argues, they ought really to be called “natural” judgments:

When, speaking as others do, I attribute these judgments and inferences to the soul, I called them *natural* in order to make it clear that it is not properly the soul that makes them but the Author of nature who makes them in it and for it. It was necessary to speak of these judgments because one cannot explain our various sensations without them, since they presuppose them and depend necessarily on them. (*Elucidation XVII §43*, OCM III 345-46/LO 746)

Natural judgments, then, are hard-wired.^{xi} Malebranche sometimes refuses to call this stage of sensory processing “judgmental” at all:

[A]s the senses can only sense and never judge, properly speaking, it is certain that this natural judgment is only a compound sensation...I call it compound [*composée*] because it depends on two or more

impressions that occur at the same time in our eyes. (*Search* I.7 §4, OCM I 97/LO 34)^{xii}

Natural judgments, in other words, are not really judgments. They are nothing but groups of concurrent sensations, occasioned by concurrent impressions on the sense organs, that taken together constitute a perceptual whole that outstrips its sensational parts.

Malebranche distinguishes these natural judgments from further free judgments that the soul subsequently makes “with such habit that it can hardly remember doing so” (*Search*, I.10 §6, OCM I 130/LO 52).^{xiii} These free judgments include the (epistemically dangerous) habit of believing what one sees. Whereas natural judgments explain why things look as they do, free judgments explain why we believe things are as they look. Free judgments are the only judgments for which we are epistemologically culpable.

II. Spatial Perception and the Body

I said that Malebranche argues that spatial perception serves as a better guide for self-preservation than as a guide to the nature of the material world, and that he bases his argument on the idea that spatial perception reflects the perceiver’s own body in the way that it represents the spatial properties of objects. As I read him, Malebranche identifies three ways in which spatial perception can be said to do this. First, the senses represent spatial properties egocentrically. Second, in many cases awareness of one’s body through proprioception and kinesthesia figures directly into spatial perception. Third, the representational scope and acuity of spatial perception is determined by the bodily processes on which it depends. I consider each in turn.

II.A Spatial Perception and Egocentric Representation

It is tempting to say that spatial perception represents objects as they really are, i.e., as Cartesian physics would describe them. The senses represent the top of my coffee mug as circular and the screen of my computer as rectangular. They represent my mug as being to the right of my computer and as being smaller than the computer. They represent both as being at rest. And so they are. What more is there to say? We can say that is not quite that simple, for the senses represent the spatial properties of objects *egocentrically*; that is, they represent them *as they are spatially related to me*, the perceiver. More specifically, the senses represent objects as they are spatially related to *my body* (or perhaps some part of my body). The qualification is important because the *relatum* must be something that has spatial properties of its own—a size, shape and location. The *ego* in *egocentric* cannot refer simply to the Cartesian “I,” i.e., to the mind or soul. It has got to be a body. Some examples will illustrate this point.

II.A.1 Position Perception

Descartes opens his treatment of spatial perception in *Dioptrics* 6 by examining the sensory perception of an object’s position (*la situation*), which he defines in unmistakably egocentric terms as the “direction [*le coté*] in which each part of the object lies *relative to our body*” (AT VI 134; italics mine). We do not see (or feel) objects to be located at some absolute position on a cosmic co-ordinate system. We see (and feel) them as located in a direction relative to our own bodies: to the left/right of our bodies, above/below our bodies, in front/back of our bodies. Malebranche does not treat the perception of an object’s position in any detail, but he does describe it in similarly egocentric terms:

I open my eyes in the middle of the countryside and in an instant I see an infinity of objects...Among other things I see *at about a hundred*

steps from me a large white horse running toward the right at a great gallop” (Elucidation XVII §43, OCM III 343-44/LO 744-45; italics mine).

What Descartes and Malebranche are latching onto here is the fact that in sensory experience the perceiver’s body effectively fixes the origin and the axial symmetries of the space within which objects appear to be located: my body is always located as *here* and objects appear as situated *around me*, at some distance and direction from here.^{xiv} My coffee mug appears to be over there to my right, my computer straight ahead, the ceiling up over my head, my books just behind me to my left, the chattering squirrels way off to my left. As I turn to get a book, those egocentrically identified locations change: the coffee mug is now represented (through touch) as just behind me to my right, the books as straight ahead of me, and so on. That is not to say that the objects are represented as moving around. So long as I have some way of telling that *I* have moved, the objects around me will simply be represented as changing their position *relative to me*. Of course, objects are also represented as spatially related *to each other*: my coffee mug is visually represented as being to the right of my computer. But that representation too makes implicit reference to my body. If I go behind the computer to check a cable, the coffee mug will be visually represented as being to the left of the computer rather than to the right. There is always, it seems, some lurking reference to my own body when the spatial layout of objects is sensorily represented.^{xv} (Whether I have an *explicit awareness* of my body in these sensory experiences is a question I’ll address in II.B.)

II.A.2 Size Perception

Although Descartes largely overlooks the egocentric aspect of size perception, Malebranche takes a particular interest in it. He opens his treatment of spatial perception with a lengthy discussion of size perception that culminates in the conclusion that “it is a

prejudice grounded in no reason at all to believe that one sees bodies as they are in themselves” (*Search* I.6 §1, OCM I 87/LO 29). How does he arrive at this conclusion? He begins by noting that the senses do not represent the size of objects with any specificity or precision: they do not represent things as being an inch long or three cubic feet so much as being small or large. But small and large are relative notions: “nothing is large or small in itself” (*Search* I.6 §2, OCM I 91/LO 31). A bird is large relative to a mite, but small relative to an bear. In sensory perception, Malebranche insists, the relevant *relatum* or the standard in relation to which an object’s size is represented is always first and foremost the perceiver’s own body: “our eyes...provide us with ideas of [the size of] objects, which are *proportionate to the idea we have of the size of our own body*” (*Search* I.6 §1, OCM I 87/LO 29; italics mine). Sensory representation of size, he maintains, is scaled to the perceiver’s body size.

This last quotation invites a number of questions. First, what is this “idea we have of the size of our own body”? Is it sensory or intellectual? If sensory, is it derived “from the outside” through touch, sight, and mirrors or “from the inside” through something like proprioception and kinesthesia? Is it implicit or explicit in size perception? Does it change as we grow? Putting these questions aside for the moment (I will return to some of them in II.B), there is also a question about how to understand Malebranche’s claim that our ideas of the size of objects are “proportionate” to that of the size of our own body. Is the suggestion that perceivers with differently sized bodies (a) see what are in fact differently sized objects (so that the range of visible objects is proportionate to the perceiver’s body size) or (b) see the size of the same objects differently? Malebranche commits himself to both claims, and sometimes conflates the

two, but in this case he primarily intends the latter. Perceivers with different body sizes see (and presumably feel) the sizes of things differently: a blade of grass that *looks tiny* to me *looks quite large* to a mite; a cookie that *feels small* to me *feels large* to a child.

Malebranche argues for the point by asking the reader to “imagine that God had made from a small quantity of matter the size of a ball a sky and earth and men on that earth with the same proportions that are observed on this larger earth of ours” (*Search I.6 §1, OCM I 87/LO 29*). Would the mini-people on mini-earth have the same ideas of the sizes of bodies as we do? Malebranche answers with a resounding “no”: “it is obvious...that these little men would have ideas of the size of body that are very different from ours” (*Search I.6 §1, OCM I 87-88/LO 29*). The answer is puzzling: if things on mini-earth are exactly proportionate to things on earth, then shouldn’t the mini-trees look to the mini-people just as our trees look to us? What Malebranche seems to have in mind is that our ideas and the mini-people’s ideas *of the same objects* would be different. The mini-earth that we regard as “but the size of a ball,” the mini-people regard as having “infinite space.” The difference in perceived size cannot be explained solely by the fact that the mini-world occupies more visual angle for the mini-people than it does for us, for Malebranche recognizes that visual angle underdetermines the perceived size of objects.^{xvi} What distinguishes the size perceptions of the mini-people and us is the difference in size of an object relative to our differently sized bodies. This relativity in size perception seems to underlie Malebranche’s warning that “we are very uncertain about the true size of the bodies we see, and all we can know of it by sight is the relation between their size and our own” (*Search I.6 §1, OCM I 88/LO 30*).

II.A.3 Shape Perception

Malebranche is fully prepared to admit that “our sight is less liable to mislead us when it represents shapes to us than when it represents anything else” (*Search* I.7 §1, OCM I 94/LO 33). But even shape perception is egocentric insofar as it represents the shapes of objects perspectively. By that I do not mean that shape perception is first-personal or subjective--that it is my experience and no one else's. It is surely that, but so, arguably, is all conscious thought. Shape perception is perspectival in the more robust sense that it represents objects *as seen from a particular spatial point of view* (and, presumably, as felt from a particular spatial point of contact). Spatial perception informs me not simply what shape something is, but also how that shape is oriented with respect to me. I see my computer screen as rectangular, but, at the same time, I see it as leaning away from me, so that I would have to reach further to touch the top side than the bottom. This point is connected to the point that an object's position is represented egocentrically. One might argue that the perspectival representation of shape is just a consequence of the egocentric representation of position: if all the visibly distinguishable parts of an object are represented as standing in a particular spatial location relative to me, then naturally the overall shape of the object will be represented as standing in a particular orientation relative to me. Descartes and Malebranche (and most perceptual psychologists after them), however, tie the perspectival character of shape perception more directly to facts about the sub-personal levels of sensory processing, such as the deformations that occur as an object's shape is represented in the retinal image and, correspondingly, in the visual field.

It is by now a familiar point that when one looks at the top of a coffee mug from an oblique angle it projects an elliptical image onto the retina. As I stand up and walk

around the image that the mug projects on my retina changes. Descartes and Malebranche argue that these retinal images are mechanically reproduced further along in the brain, and that those images in the brain in turn give rise to corresponding sensations in the mind. When I look at the mug, elliptical patches of color are produced in the visual field.

Malebranche writes:

When we look at a cube, for example, it is certain that the sides of it that we see almost never make projections or images of equal sizes on the back of the eyes, since the image that each of these sides paints on the retina or optic nerve is quite similar to a cube painted in perspective. Consequently, the sensation that we have of it must represent the faces of the cube to us as unequal, since they are unequal in a cube in perspective. (*Search* I.7 §4, OCM I 96/LO 34)

Instead of talking about sensations of ellipses and trapezoids, we might talk today about elliptical and trapezoidal patches in the visual field, but the point is the same. Now we all know that mugs don't look to have elliptical tops and cubes don't look to have unequal trapezoidal sides. Nor does it look like the shapes of things are constantly changing as we walk around them. As generations of philosophers and perceptual psychologists have noted, seeing the stable shapes of things as we normally do requires more than what is provided by these retinal and sensory images (or patches in the visual field) alone. It is at this juncture that Descartes and Malebranche introduce "judgments" into the sense perceptual process. Malebranche accounts for the fact that we normally see the sides of a cube as equal (and square) as follows:

Now one could say that this happens by a kind of judgment that we make naturally, to wit that the faces of the cube that are farthest away and that are viewed obliquely should not form images on the back of our eyes that are as big as those formed by the faces that are closer. (*Search* I.7 §4, OCM I 96-97/LO 34)

What is interesting for present purposes is what Malebranche assumes must go into these judgments. The passage suggests that they incorporate information about the faces of the

cube being nearer to or farther from the perceiver and about the oblique angle from which the cube is being viewed, i.e., information about the relation between the object and the position of perceiver's own body. Elsewhere Malebranche is explicit about this: natural judgments resemble judgments we would make ourselves "if we had an exact knowledge not only of what is happening in our brain and our eyes, *but also of the position and movement of our body*" (*Elucidation XVII §26*, OCM III 327/LO 733, italics mine).^{xvii} In other words, the senses represent the stable shapes of objects only by incorporating information about the changing position of our own bodies. This information is operative in sensory experience: the tops of coffee mugs do not look elliptical, but they do not simply look round either. They look like circles *viewed from a certain oblique angle*. Similarly, the sides of a cube do not look to have different shapes, but they do not look straightforwardly equal either. They look like equal sides *viewed from different visual angles*. The perceiver's location is thus built right into the sensory representation of an object's shape (and size) in the form of a point of view.^{xviii}

Now we are certainly capable of representing objects less egocentrically. We might represent them allocentrically, from the point of view of someone or something else. If I ask you to hand me the book to your right, I am abstracting from my own visual point of view and imagining the world as seen from yours. When I draw a map, I abstract from my own visual point of view and imagine the world as it would be seen from the position of a blimp hovering a couple hundred feet over the world. I may project myself into the point of view of a creature of another size and imagine what the world must look like to it (as Malebranche does with his mini-world thought experiment and as the makers of *Antz* and *A Bug's Life* have done with their animated movies). I can even imagine what

the shape of the Eiffel Tower looks like standing at the base and looking up while sitting at my desk in Cambridge. Descartes and Malebranche even seem to think that the human mind (and certainly the angelic and divine mind) can do even better than this by using the pure intellect to represent the spatial properties of things abstracted from all points of view entirely. The fact that these representational accomplishments require that I abstract from my own sense perceptual point of view, however, only reinforces the claim that sensory perception itself represents spatial properties egocentrically. In so doing, it represents not simply the world, but the world as it is related to my body.

II.B Spatial Perception and Bodily Awareness

A second way in which spatial perception reflects the perceiver's own body is in its intimate connection with bodily awareness. By "bodily awareness" I mean to refer to our awareness of what Descartes describes as "those states we sense as in our limbs, and not in objects outside us" (*Passions* I.24, AT XI 347). These include not only the familiar internal or bodily sensations (thirst, hunger, pain, tickles) but also proprioceptive and kinesthetic sensations (the feeling of one's legs being crossed, of standing upright, of turning one's eyes, and so on). Both contribute to the sense we have of our own bodies. Descartes discusses the role of proprioception and kinesthesia in his scientific works on perception. In the *Treatise on Man*, he proposes that the muscular position of one's arm provides the occasion for the soul "to sense that the arm is turned toward [some] object" (AT XI 181). Similarly in the *Dioptrics*, he writes that different positions of the limbs produce correspondingly different arrangements in the nerves surrounding the pineal gland that "enable the soul to know the place of each part of the body it occupies with

respect to all the others” (AT VI 135). The more familiar internal sensations contribute to the sense of our own body as well. As Malebranche puts it, pains and tickles are “modifications of our soul that it feels in relation to its body” (*Search* I.10 §5, OCM I 128/LO 52) and that thereby “direct our soul to parts of our body” (*Search* I.11 §3, OCM I 133/LO 55). They always *feel* like they are located in some part (or general region) of the body: we feel thirst in the throat, heat and warmth in our hands, pain in our feet, and so on.^{xix} While Descartes and Malebranche claim that these phenomenological facts lead us to false beliefs about the nature of body and the relation between body and mind, they nevertheless successfully acquaint us with the fact that we are embodied creatures: “Nature teaches me through these sensations of pain, hunger, thirst, etc., that I am not merely present in my body as a sailor is present in a ship, but that I am very closely conjoined and as it were intermingled with it, so much so that I compose one thing with it” (*Meditations*, AT VII 81).^{xx}

So what does bodily awareness have to do with spatial perception of *external* objects, i.e., objects that lie outside the limits of one’s own body? Descartes and Malebranche both suggest that bodily awareness figures into spatial perception. Sometimes it seems to play an inferential role: on the basis of being aware of some spatial feature of one’s own body one makes a judgment about the spatial properties of some external object. More often, and more plausibly, the idea seems to be that the body makes itself felt in spatial perception, so that bodily awareness and spatial perception comprise two aspects of a single perceptual experience. When I grasp my mug, I not only feel the shape of the mug, but also the muscular configuration of my hand and the pressure of the mug against my skin. I don’t typically attend to the configuration of my

hand or the feeling on my skin; I attend to the shape of the mug (if my intention is to take a drink). But that is not to say that my body is not present to consciousness. As Brian O'Shaughnessy aptly puts it, bodily awareness is "attentively recessive in a high degree; it takes a back seat in consciousness almost all of the time."^{xxi} Much as the ground of a figure-ground drawing recedes into the attentional background of our perceptual experience without, for all that, disappearing from view, so bodily awareness recedes into the attentional background when we are looking at and touching external objects without, for all that, disappearing from consciousness. Let's consider some examples.

II.B.1 Position Perception

The most suggestive passages in Descartes come in his treatment in the *Dioptrics* of the perception of an object's position.^{xxii} Eager to downplay the role of retinal images, Descartes proposes that we perceive position through muscle strain. The direction in which something haptically feels to be located depends on where I have to reach to make contact with it. Similarly, the direction in which something looks to be located depends on where I have to look to see it (AT VI 142).^{xxiii} If I am looking straight ahead, my computer appears to be in front of me; if I turn my head to the left, the trees I see out the window appear to be off to my left side despite their being in the center of my visual field; and so on. To perceive the spatial organization of my computer's parts I have to run my hands over it or cast my eyes over it. Descartes proposes that the muscular changes associated with these exploratory activities are what enable me to see both an object's position and spatial arrangement. Interfering with one's looking eye or reaching hand by some extra-muscular means results in the misperception of an object's position, since under these circumstance the object does not lie in the direction one is muscularly

disposed to be looking or reaching (*Dioptrics* 6, AT VI 141-44 and *Treatise*, AT XI 160-62).^{xxiv} Reaching and looking, it seems, are part and parcel of sensing an object's position and spatial arrangement.

There remains some interpretive question whether Descartes intends to suggest that the perception of an object's position involves *feeling* the muscular position and changes of eyes and hand or whether the mere fact that they *are* so positioned and changed mechanically affects the brain in such a way that it gives rise, by sheer hard-wiring, to the appropriate perception of position with no intervening feeling. Descartes is not crystal clear. In the *Treatise* he simply writes that "if the eye is turned toward object E, the soul will be able to know the position of this object, inasmuch as the nerves from this eye [to the brain] would be disposed differently if it were turned elsewhere" (AT XI 159). He doesn't say whether this process involves any corresponding *feeling* of the turn of the eye. On the other hand, he maintains that forcibly altering the position of the eye results in misperception of position not simply because the muscular information the brain receives about the position of the eye is in fact wrong, but because "the soul will judge that the eye is turned" in a direction that it is not (*Treatise*, AT XI 161). The process appears to be psychological, not merely physiological. Moreover, in the *Dioptrics* he portrays the perception of an external object's position as a kind of *extension* of bodily awareness. What is hard-wired is bodily awareness:

[W]hen our eye or our head is turned toward some direction our soul is informed of this [of the eye or head turning] by the change caused in our brain by the nerves embedded in the muscles that make these movements. (AT VI 135)

These same physiological events enable the soul to perceive the position of external objects, but this requires that the soul "shift its attention [*transferer son attention*] from

places on the body to the places contained in the straight lines that one can imagine being drawn from the extremity of each part of the body and extended to infinity” (AT VI 135).

Thus a blind man reaching out to an object with a stick perceives its position as follows:

[T]he nerves embedded in this hand cause a certain change in his brain, which enables his soul to know not only the place of his hand but also all the other places that lie in the [imaginary] straight line that extends out from it; in this way the soul can turn its attention to the object and thereby determine where it is. (AT VI 135)

On this account, the visual and haptic perception of position not only involves but requires bodily awareness.

And yet just here Descartes throws a curve ball. I left out the final clause from the last quotation. Descartes writes that the blind mind’s soul can “turn its attention to the object and thereby determine where it is *without in any way knowing or thinking about where his hands are*” (AT VI 135). What can this mean? It sounds like Descartes is saying that the same physiological mechanism can produce *either* a perception of his hands’ position *or* a perception of an external object’s position, but not both. Or not both at once. This would be an odd thing for Descartes to say since it violates his principle that there is a strict one-to-one correspondence between pineal motion types and sensation types (*Sixth Meditation*, AT VII 87). Another possibility is that the physiological mechanism naturally gives rise to a single perceptual experience with two aspects, one of which is always “attentively recessive” with respect to the other. Typically, the position of the external object is the focus of attention and one’s body is attentively recessive.^{xxxv} Even when I am not explicitly attending to (or “thinking about”) my eyes and hands, however, I surely have *some* sense of where I am looking and reaching. While this seems to me the more plausible way to go philosophically, it is hard to decide the interpretive matter, for this second interpretation requires a distinction

between what we are conscious of and what we are attending to that Descartes does not explicitly recognize.

Malebranche is more decisive. Recall his claim that “if I incline my head or lie down on the grass while looking at the horse, its image will change place on my retina and will no longer disturb precisely the same fibers, yet I shall always see it the same.” I see it as occupying the same position, he explains, “because I know at the same time that my head is inclined and what the position of my eyes is” (*Elucidation XVII* §43, OCM III 345/LO 745). How do I know that my head is inclined and what the position of my eyes is? Surely through bodily awareness: I *feel* these things. I might know these things by some other means (by looking in a mirror, by memory, by divine revelation), but Malebranche insists that sensory perception is informed only by the occurrent changes in the brain and not by any knowledge about objects that one might have from some other source. Knowing through astronomical reasoning that the sun is very large, for example, has no impact on what we see when we look at it (*Elucidation XVII* §27, OCM III 328/LO 734). Presumably any knowledge I may have gained about my body from mirrors, memory and divine revelation is not the sort of thing that figures into my occurrent perception of an object’s position either.

Malebranche tends to cast the relation between knowing the position of his eyes and head and knowing the position of the horse as inferential: it is by “reasoning properly” that he comes to see that his eyes and head have changed their position and not the horse. Unlike Descartes, Malebranche still seems to be worried that we have to sort out the ambiguous information provided by the retinal image. It is important, however, not to take this talk of reasoning too literally. As I mentioned above, Malebranche

explains that this is only a *façon de parler*. This “reasoning” is a matter of natural judgment hard-wired into us. But if that’s the case, then why think that information about the position of my eyes and head that the natural judgments take into account is anything we are *aware* of? Because natural judgments, on Malebranche’s account, are themselves nothing more than compound sensations. In the case of seeing the distance of a clock tower, he explains: “the confused visual experience of the fields between us and the bell tower is the same thing as the natural judgment of the distance of the bell tower, for these judgments are only compound sensations” (*Search I.9* §3, OCM I 116/LO 45). Correspondingly, I suggest, seeing an object’s position must be constituted, on Malebranche’ account, by a collection of sensations, one component of which is a sensation of the position of one’s eyes and head. Bodily awareness, on this view, is quite literally part and parcel of the perception of an object’s position.

II.B.2 Distance Perception

Bodily awareness figures prominently in distance perception too. As one looks at objects at different distances, Descartes proposes, the shape of the lens (or “crystalline humor” or “body of the eye”) changes, for “as we have said, in order to make us see things close to our eyes this shape must be a little different than it must be to make us see things farther away” (*Dioptrics* 6, AT VI 137). We now call this “accommodation.” But is there any suggestion that we *feel* this change in the lens? Happily no, but Descartes does give a strangely active sounding account of the process: “as we change [the shape of the lens] in proportion to the distance of objects, we change also a certain part of our brain in a way that is instituted by Nature to make the soul perceive this distance” (AT VI 137). He tones this down by adding that “[t]his ordinarily happens without our reflecting on it”

(AT VI 137). There remains, however, some lingering suggestion that the act of looking (or directing one's gaze to an object) is part of the phenomenology of seeing distance even if we do not feel the mechanism through which it is accomplished. Moreover, when Descartes later discusses the limitations of distance perception, he maintains that accommodation is unreliable for objects at any great distance because "as for the shape of the eye, it undergoes hardly any discernible [*sensiblement*] change when the object is more than four or five feet away" (AT VI 144; see also *Treatise* AT XI 162), suggesting that there *is* some discernible change when the object is less than four or five feet away. Whatever his own considered view, Descartes plants the seed for the idea that the feeling of ocular change accompanies the perception of a nearby object's distance.

Malebranche is less cagey. He leaves no question that we feel changes in the eye during accommodation, at least when this mechanism is useful for distance perception. He gives a slightly different account of the physiological details, however. Rather than say that the shape of the lens changes in accommodation, he argues that the muscles surrounding the eye compress the whole eye and thereby move the lens back and forth to insure that the rays of light coming from the object converge properly on the retina. The difference is significant, for while it seems implausible to suppose that we feel the lens changing shape, it is not implausible to suppose that we feel a muscular change in the eye as a whole. Malebranche insists that the strain is felt: "anatomy teaches us that there are muscles that surround the middle of the eye, and *one feels the effort of these muscles as they press and lengthen the eye when one wants to look at something very close*" (*Search* I.9 §3, OCM I 112/LO 43, italics mine).^{xxxvi} One need only think of the ocular strain one

feels when trying to thread a needle to confirm the phenomenology. As the effort changes, Malebranche proposes, so does our ability to perceive distance by this means:

If an object is only a half a foot from us, we can perceive its distance well enough by the disposition of the muscles that press on our eyes in order to make them a little longer; this disposition is even painful. If the object is two feet away, we still perceive the distance because the disposition of the muscles is still somewhat perceptible [*sensible*] although it no longer hurts. But if the object is moved several feet more, this disposition of our muscles becomes so slightly perceptible that it is utterly useless to us for judging the distance of the object. (*Search* I.9 §3, OCM I 113/LO 43)^{xxvii}

Although this passage makes it sound as though the ocular strain is playing an inferential role in distance perception, so that distance is judged on the basis of feeling the strain, this is surely not Malebranche's considered view. As with the perception of position, the judgments that the soul is said to be making here are surely among the natural judgments that are hard-wired into the visual system and that consist in compound sensations that include as one component a sensation of ocular muscle strain.

Descartes' suggestion that we perceive distance by a kind of "natural geometry" has been the subject of philosophical and interpretive controversy since the *Dioptrics* was published. One chief source of controversy concerns whether Descartes means to suggest that we actually *feel* the muscularly induced convergence of the eyes as they triangulate on an object and, on that basis, *calculate* (by angle-side-angle?) the distance of the object. Descartes' texts are decidedly ambiguous on the question whether there is any calculating going on in the mind. Some, relying heavily on an analogy with a blind man triangulating on an object with hand-held sticks, suggest that indeed the mind judges or calculates distance by knowing the distance between the eye and their angular convergence (*Treatise* AT XI 160 and *Dioptrics* 6, AT VI 137-38). Others suggest instead that any "calculating" is implicitly encoded in the lean produced in the pineal

gland by fibers connecting it to the converging eyes; this lean produces in the mind a perception of distance by sheer institution of Nature (*Treatise*, AT XI 183). Whether it serves as the basis for geometrical judgments or not, there remains the question whether Descartes imagined that the convergence of the eyes is something that we *feel* in distance perception at all. There is some slight textual evidence to suggest that he did. As with accommodation, he writes that natural geometry is ineffective for perceiving very distant objects because the “angles [of ocular convergence] no longer change as perceptibly [*sensiblement*] when the object is fifteen or twenty feet away” (AT XI 162).

Malebranche is once again more explicit:

It is easy to see that this angle [of the converging eyes] changes noticeably [*notablement*] when an object a foot away is moved to four feet; but if it is moved from four to eight feet the change is much less perceptible [*sensible*]; from eight to twelve, again less; from a thousand to a hundred thousand, hardly at all. Finally this change will no longer be perceptible even if the object were carried all the way out into the imaginary space. (*Search* I.9 §3, OCM I 110-11/LO 42)

What is especially informative about Malebranche’s treatment of the natural geometry is that this time he himself explains in a footnote that we should not think that the soul actually engages in any judgment making on the basis of feeling the strain of the converging eyes. Rather “these natural judgments are only sensations” (*Search* I.9 §3, OCM I 109/LO 41). As I suggested in the earlier cases, the idea seems to be that a sensation of ocular convergence is included in the compound sensation that constitutes our sensory perception of distance. It is therefore present in the sensory experience of distance without being the focus of any explicit attention.

Here, then, is a rather obvious way in which the phenomenology of spatial perception reflects the perceiver’s own body: the physical act of looking is sensorily represented in visual experience; and the physical acts of reaching and touching are

sensorily represented in tactile experience. We do not usually attend to these aspects of the experience, although we certainly can. Malebranche's construal of natural judgments as compound sensations allows him to accommodate this phenomenological point into his theoretical account of sensory experience more easily than Descartes. Feeling the ocular strain and the convergence of the eyes as I look at something up close and feeling the direction in which my eyes and head are directed as I look at something in the surrounding environment are, on his account, simply sensory components of the compound sensation that constitutes my sensory experience.

II.C The Limits of Spatial Perception

Malebranche points to one final way in which spatial perception reflects the perceiver's own body when he writes "the idea that [vision] gives us [of extension] has very narrow limits, but it does not follow from this that extension has such limits" (*Search* I.6 §1, OCM I 80/LO 26). The senses are limited in the range of bodies they perceive (e.g., to macroscopic objects nearby), and even more limited in the range of bodies they perceive well (e.g., to objects in the center of the visual field). That is because they depend on the impact of objects on our body. Because it depends on causal contact, sensory perception is only a partial and selective representation of the material world. Intent on calling attention to the epistemic weaknesses of the senses by contrast with the pure intellect, Malebranche, like Descartes, seems never to tire of cataloguing the various limitations and illusions to which spatial perception is liable on account of its corporeal heritage.

Let's start with a point that is obvious to us, but that Descartes and Malebranche felt the need to argue for: we perceive through the senses only a subset of the objects in

the world. We see nothing smaller than a mite, Malebranche is fond of reminding us, but that doesn't mean there are no bodies smaller than mites. Descartes argues for the existence of insensibly small bodies abstractly from the infinite divisibility of extension and from the phenomenon of growth (*Principles* IV.201, AT VIII-A 324), whereas Malebranche draws on all the latest empirical evidence from microscopes and magnifying glasses.^{xxviii} Descartes explains our inability to sense these very tiny bodies straightforwardly:

we should not be surprised that we are unable to sense tiny bodies, for our nerves themselves, which must be moved by objects in order to produce a sensation, are not the tiniest but are like thin cords made up of many smaller parts; consequently, they cannot be moved by the tiniest bodies. (*Principles* IV. 201, AT VIII-A 324)^{xxix}

Facts about our sense organs prevent us from having sensory access to anything very small. Obviously if we cannot sense tiny bodies we cannot sense any of their spatial properties either. Malebranche gets to the same point with his thought experiment about mini-people on mini-earth. Clearly, he argues, the mini-people would see bodies that we just cannot see: they would see “one another and the parts of their bodies and even the little animals that are capable of harming them” (*Search* I.6 §1, OCM I 87/LO 29). Why? Because their sense organs, being made up of tinier and more delicate parts than ours, would be sufficiently impacted by tinier things to produce a sensory perception. Malebranche moves quickly from this point to the conclusion that “our sight therefore does not represent extension to us as it is in itself, but only as it is in relation to our body” (*Search* I.6 §1, OCM I 84/LO 28). One might object that our sight *does* represent body as it is itself; it just doesn't represent *all* of it. But insofar as the senses represent body *as something with limits* that it does not in fact have, then Malebranche has a legitimate point: the limitations expressed in sensory representation reflect the limitations of the

sensory apparatus, not the body represented. Similarly, if the senses represent as devoid of body regions of the world that are simply devoid of *perceptible* body, then again Malebranche is in a position to argue that they represent external bodies only as they are related perceiver's own body.

Even within the range of bodies we can sense, we sense only some of them clearly due to the peculiarities of our sensory physiology. In vision, we perceive sharply only objects that fall near the center of our visual field. Visual acuity and accuracy also fall off dramatically as objects get further away from us. As Malebranche puts it, “we see the sun and the moon as if they were wrapped up in the clouds although they are vastly distant from them”(Search I.9 §3, OCM I 110-11/LO 42).^{xxx} Shape perception is also quite poor for objects at any great distance, because we can visually discriminate only as many parts of an object as we have receptors (or “fibers”) to be differentially stimulated on the retina:

That is why...in general all bodies are seen less distinctly from a distance than close at hand, and finally why the greater the area that we can make the image of a single object occupy at the back of the eye, the more distinctly it can be seen. (*Dioptrics* 6, AT VI 134)

All this lack of clarity and precision in spatial perception again reflects not the objects being perceived but the limitations of our sensory apparatus.

Finally, spatial perception is subject to a panoply of illusions: distant square towers look round, straight sticks submerged in water look bent, the sun and stars look smaller than they really are, the sun and moon look flat and circular although they are really spherical, the sun and moon look larger on the horizon than in their zenith, bright objects look closer than they really are, and so on.^{xxxii} All of these illusions are explicable, and they are by and large explained by peculiarities of our sensory physiology. “The

errors of the senses,” Malebranche summarily writes, “come from the nature and constitution of the body and are revealed by considering the soul’s dependence on it” (*Search* III.1-1 §1, OCM I 380/LO 197).

Does any of this point to a way in which spatial perception reflects the perceiver’s body *phenomenologically*? Yes. First, facts about the perceiver’s sensory physiology determine what is phenomenologically available *at all* and what is available *clearly* or *well* in sensory experience. Second, Malebranche takes this point further, arguing that even slight differences in sensory physiology produce differences in sensory phenomenology, so much so that “we cannot be certain that there are two men in the world who see objects as having precisely the same size, or as being composed of the same parts, since we cannot be certain that their eyes are entirely similar” (*Search* I.6 §1, OCM I 84/LO 28).^{xxxii} The fact that sensory perception is limited in various ways by its underlying physiology is not something that goes unnoticed in sensory experience, and this suggests another sense in which spatial perception has a distinctively corporeal phenomenology. We regularly compensate for our sensory limitations by moving our bodies about to sense things better: we turn our eyes and head to get the things we want to see in focus; we bring small things closer to our eyes; we approach distant things; and so on. In other words, because the senses provide only partial and selective view of the world, one must use one’s body to secure a better sensory grasp of it.

III. Spatial Perception and the Search After Truth

It is because the senses provide a biased and partial view of material objects, a view of them as they are related to our own bodies, that Descartes and Malebranche routinely

insist that we should not blindly base our beliefs about them on what we sense.

Commentators have focussed on their attempt to deliver us from the mistaken belief that bodies are colored and smelly in just the way they sensorily appear to be, but by now it should be clear that they are just as concerned to disabuse us of the habit of naively trusting the senses to inform us about the spatial properties of bodies.^{xxxiii} “Even though we see the sun very clearly,” Descartes warns, “we must not judge on that account that it is only as large as we see it” (*Discourse 4*, AT VI 40). As we have seen, Descartes and Malebranche are concerned to argue that the senses mislead us not only about the particularities of the extended world (about the size of the sun, the shape of distant towers, the distance of the stars, the integrity of a stick submerged in water), but also, and worse, about the very nature of the extended world. They lead us to believe such things as that there is nothing smaller than a mite and that where we see (or hear or feel or smell) no body, there *is* no body.^{xxxiv} These latter beliefs are particularly troubling to them, for insofar as they makes people resistant to the idea that observable phenomena may be explained by insensibly small mechanisms they stand in the way of the progress of Cartesian science. Malebranche thus issues a blanket warning about trusting the senses in one’s search after truth: “[w]e must not rely on the testimony of our sight to make judgments about the truth of things in themselves...our eyes generally deceive us in everything they represent to us--in the size of bodies, in their shapes and motions, and in light and colors” (*Search I.6*, OCM I 79/LO 25).

By contrast with the senses, Descartes and Malebranche both argue that the pure intellect or pure understanding or pure mind represents things just as they are. Purely intellectual perception is supposed to be a form of thought that has no underlying

physiology. It is thinking “without any relation to the body” (*Search* III.1-1 §1, OCM I 379-81/LO 197-98).^{xxxv} As such, it is less liable to the bias and error than the senses. It does not represent things egocentrically, but is the same “for all intelligences” (*Response to Arnauld* 13 §7, OCM VI 99). It is not bound up with any bodily sensations. And it is not representationally held hostage to any physiological limitations of the body: whereas a distant or small body is “annihilated” from our sight, it “continues to subsists before the mind” (*DM V* §7, OCM XII 119/JS 80). We ought therefore, they argue, to base our fundamental beliefs about body on the deliverances of the intellect:

If we bear in mind that the senses normally show us the benefit or harm that bodies may do to us and do not, except occasionally and accidentally, show us what bodies are like in themselves, we will easily lay aside the preconceived opinions acquired from the senses, and in this connection make use of the intellect alone, carefully attending to the ideas implanted in it by nature. (*Principles* II.3, AT VIII-A 41-42)

Malebranche similarly insists:

The mind’s attention and application to the clear and distinct ideas that we have of objects is the most necessary thing in the world for discovering what they really are. (*Search* I.18 §1, OCM I 176/LO 79).

Of course, both of them recognize that the senses must play *some* role in the search after truth. We can’t know everything a priori by reasoning from first principles. We cannot, for example, discover the determinate properties of particular existing bodies through the intellect alone.^{xxxvi} The senses must assist the intellect at some point.^{xxxvii} Nevertheless, the senses must always operate under strict intellectual management in the search after truth. Whatever we may think of the Cartesian notion of a pure intellect, a wholly immaterial faculty that latches directly onto the essences of things by ideas planted innately in it or, even more dramatically in Malebranche’s version, by the action of ideas in God on our minds, their observations about limits of sensory representation, and in particular their

insistence that its self-interested character must be overcome for the purposes of natural philosophy, are certainly astute.

IV. Spatial Perception and Self-Preservation

So how does all this support Malebranche's contention that spatial perception is especially suited to facilitate self-preservation? In the same breath that he warns against the many epistemic dangers of sensory perception, he indicates that it is nonetheless conducive to self-preservation:

All the knowledge the mind received through the body, or on account of some motion taking place in the body, is false and confused in relation to the objects it represents; although it is very useful to the preservation of the body and about the goods related to the body.
(*Search* Preface, OCM I 19/LO xxv)

That is because the very aspects of sensory perception that compromise our ability to know the world for theoretical purposes enhance our ability to move around in it efficiently and to interact with it appropriately. In the case of spatial perception, it is its peculiar bodily phenomenology that is at work here.

Consider first the fact that the senses represent the spatial properties of objects egocentrically. In order to move through the world effectively, one needs to know not simply what the spatial properties of the objects in the environment are, but how they are spatially related to one's own body. Simply knowing that the dining room table is rectangular will not help me walk around it. I need to know how it is oriented with respect to me if I am to avoid bruising myself. Simply knowing that the table is located at a certain position on some cosmic coordinate system will not help me put a plate on it. I need to know how far it is from where I am standing, plate in hand. Knowing that a bear is nine feet tall and three hundred pounds will not help me know what to do if I

encounter one in the woods; I need to know that the bear is bigger than me in order to decide that I should flee. And I need to know that the bear is *coming right at me*, not simply that it is moving north-north-east, if I am to run in the right direction. Perceiving the world egocentrically puts us in a position to interact quickly and reliably with the objects in our environment.

None of this is to deny that it would be possible to get one's body safely around in the world by perceiving the spatial properties of objects non-egocentrically. If I somehow came to understand that the dining room table is rectangular and that it is located at a certain position on a cosmic coordinate system, and if I simultaneously came to understand that my own body is located at some other position, I could (at least in principle) work out the spatial relation between the table and me and move myself around it accordingly. But this seems to require a lot of calculating. As Malebranche sees it, it requires *too* much calculating:

If we had to examine all the relations that the bodies surrounding us have with the current dispositions of our body in order to judge whether, how and how much we should interact with them, this would divide—what am I saying!—this would completely fill the capacity of our mind... What a fine occupation for a mind that walks and exercises its body, to know with each step that it makes its body take that it is in a fluid air that can neither injure nor bother it by cold or heat, by wind or rain, or by some other malignant and poisonous vapor; that in every place it goes to put its foot there is nothing hard and sharp capable of injuring it; that it must promptly lower its head in order to avoid a stone, and maintain its balance for fear of falling! (*DM IV* §14, OCM XII 98/JS 61)

These calculations, he argues, would exceed the limits of our finite minds, for we would have to make infinitely many of them at every instant to approximate what we get in a glance from vision. Indeed he is willing to argue that “no intelligence could make them at the very instant that one opens one's eyes and look around” (*Elucidation XVII* §25,

OCM III 326-27/LO 733). Sensory perception, then, provides a kind of shorthand for all these calculations: it provides “instinctive proofs, not of the nature and properties of the objects surrounding us, but of the relation they have to our body, so that we could work successfully at the preservation of life without being constantly attentive to our needs” (*DM IV* §15, OCM XII 99/JS 62).^{xxxviii} Malebranche chiefly has in mind our experience of odors and pains when we makes remarks like this, but his discussion of all the natural judgments that are packed into spatial perception makes it clear that he thinks that it too provides a kind of shorthand representation of the relations between objects and our bodies. He writes:

To speak only about what concerns vision, God...gives us precisely all those perceptions of objects that we would give ourselves if we had a precise knowledge not only of what happens in our brain and in our eyes, but also of the position and movement of our body; and if, in addition, we had a perfect knowledge of optics and geometry and if we could, on the basis of this current knowledge, rather than any other knowledge we might have drawn from elsewhere, make in an instant an infinite number of precise inferences and give ourselves all the different perceptions, be they distinct or confused, that we have of the objects we see in a glance—perceptions of their size, their shape, their distance, their motion or rest, and of all their diverse colors.
(*Elucidation XVII* §26, OCM III 327/LO 733-34)

By representing the spatial properties of objects egocentrically, then, the senses provide us with a fast and efficient way to negotiate our way around the world.

Now consider the way in which bodily awareness figures in spatial perception. Seeing that the book I want is over to my left involves feeling the direction in which I am looking. Reading the book under my nose involves more eye strain than seeing the trees out my window. The fact that I feel myself moving as I walk across the room to get another book helps me to sort out which changes in the visual field are due to me and which are due to changes in the objects I am seeing. In short, the systematic co-variance

between the spatial perception of objects and bodily awareness helps us to track the changing relations between self and world, and that too is important for action. In some cases the muscles whose changes we are aware of in spatial perception are the very muscles that will enable us to respond to what we sense: the muscles through which I feel my hand wrap itself around my book will help me remove it from the shelf.^{xxxix}

Typically bodily awareness lies quietly in the background our experience while we focus our attention on the world. But that changes quickly as the need requires. Say I am hiking through the woods attending, as usual, to the sights around me and not on the steps my feet are taking. A stumble on a root quickly brings the movements of my feet into the foreground of my experience so that I can change my course of action and prevent the fall. Although the Cartesians bemoan the metaphysical errors engendered by the immediate awareness we have of our bodies in our daily perceptual experience (preventing us, they argue, from distinguishing properly between mind and body), these errors are a small price to pay for the ability to move our bodies as effortlessly as we do. (What is more, from a Cartesian point of view, these metaphysical errors can be countered with a little meditation!)

What about the fact that our sensory physiology limits the range of objects we are sensorily acquainted with? Malebranche proposes that our eyes

perform their job quite well in making us have ideas of objects proportionate to the idea we have we have of the size of our own body, even though there are in those objects infinitely many parts that they do not disclose to us at all. (*Search* I.6 §1, OCM I 87/LO 29)

The point here is that the macroscopic objects nearest to us are the ones we most need to know about. When Malebranche says things like “our sight does not make us see every sort of extension but only that which has some *significant enough* [*assez considérable*]

relation to our body” (*Search I.7 §2*, OCM I 94-95/LO 33), he has more than a sufficiently large *spatial* relation in mind. He has in mind that we see only those bodies that poised to impact our bodily well-being. More often than not those are the relatively large ones nearby. There is, on this unabashedly teleological theory, a *reason* we can see nothing smaller than a mite with the naked eye: “because half a mite has no significant [*considérable*] relation to our body, and can neither preserve nor destroy it, our sight hides it from us entirely” (*Search I.6 §1*, OCM I 84/LO 28).^{xi} Or again:

If a body were too far from us to be able to harm us, or if it were close but too small to harm us, we would not fail to lose sight of it. To our eyes it would be annihilated...because the relation of these bodies to our own is nil, or need not be perceived by the senses, which speaks and need speak only for the preservation of life. (*DM V §8*, OCM XII 119-20/JS 80)

If we had “microscopical eyes” that enabled us to see things the size of half a mite, we might in some sense see more of what there really is in the world, or see what we already see even better, but our ability to get around efficiently, Malebranche is willing to bet, would be compromised. I need to see a bear coming after me in the woods in order to get away from him. If I had microscopical eyes, so that my visual field were filled with the hairs on the bear’s face, I might well lose the bear through the hair. Mites and miniature men, by contrast, need their microscopical eyes: they need to see things that are quite tiny in order to get their own miniature bodies through their miniature world: they “see one another, the parts of their bodies, and even the [from our sensory perspective] little animals that might bother them, *for otherwise their eyes would be useless for their preservation*” (*Search I.6 §1*, OCM I 87/LO 29, italics mine).^{xii} The senses, Malebranche is suggesting, are tuned to precisely those objects of a size and distance most salient to the well-being our own bodies.^{xiii}

Consider finally the fact that among the objects we do see, we see some better than others. Descartes and Malebranche recognize not one but several processes underwriting distance perception, most of which are reliable only for objects within a few feet. Distance perception for nearby objects is over-determined while that for more remote objects is grossly inaccurate. Of course, it is not just the distance of remote object I cannot make out with any accuracy, but all of their spatial properties--their size, shape, motion, and so on. The same is true for objects lying in my peripheral vision. Again, Malebranche asserts that this makes good sense if the senses are representing the world with an eye, so to speak, toward self-preservation: "it is of little use to us to know with any precision the truth about things happening in faraway places" (*Search* I.9 §3, OCM I 119/LO 46). And more generally: "precision and accuracy are not at all essential to sensory cognition, which only needs to serve the preservation of life" (*Search* I.6 §3, OCM I 92/LO 32). (Interestingly, Leibniz will later add that it would be a positive nuisance to have all the available information about the environment explicitly present to consciousness at once.^{xliii}) Once again, Malebranche is willing to argue that the reason that spatial perception deteriorates as objects grow farther away is that they are in less of a position to benefit or harm us:

It is true that we know precisely enough the relation that bodies close to us have to our own body, but the further they are from us the less we know them, because they then have less of a relation to our body. The idea or sensation of size we have of some object by sight deteriorates as the object is less in a position to harm us, and the idea or sensation improves as the object approaches us, or rather as its relation to our body increases. (*Search* I.6 §3, OCM I 92/LO 32)^{xliv}

The facts that distant square towers look round, that things in our periphery are blurry and that we see nothing smaller than a mite are simply artifacts of a system designed to be accurate for macroscopic objects nearby.

In each of its self-specifying aspects, then, spatial perception represents the material world as one that is ready for action, with myself, the embodied agent, at its very center. For present purposes I have set aside the secondary quality aspects of sensory experience and internal sensations. The case is only made stronger once they are re-introduced. Through them, Descartes writes, nature presents objects to me “as things I should seek out or avoid” (*Meditations*, AT VII 83). Malebranche similarly writes that these sensations “quickly advise the soul of what ought and ought not to be done for the preservation of life” (*Search* I.5 §1, OCM I 77/LO 23). Descartes and Malebranche are famous for their arguments about the many ways in which the senses are poised to mislead us about the nature of the material world and to interfere with the pursuit of natural philosophy. If I am right, they simultaneously try to redirect our attention to the various aspects of sensory experience that facilitate our successful action in the world. In Malebranche’s case, we find a sustained argument for this point regarding sensory experience as a whole. In spatial perception, no less than the rest of sensory experience, the senses prove themselves to be “false witnesses in relation to the truth, but faithful instructors in relation to the preservation and convenience of life” (*DM IV* §15, OCM XII 100/JS 62).^{xlv}

ⁱ OCM I 78/LO 24. Malebranche’s works are referred to in the text and notes by short title or abbreviation as follows: *DM* for *Dialogues on Metaphysics and Religion*; *Elucidations* for *Elucidations on the Search After Truth*; *Response to Arnauld* for *Response by the author of the Search After Truth to the book of Mr. Arnauld*; *Search* for *The Search After Truth*. References are to the *Oeuvres complètes de Malebranche*, 20 volumes, ed. André Robinet (Paris: Librairie Philosophique J. Vrin, 1958-78), abbreviated “OCM” and citing volume and page number. I also provide references for the following English translations: *The Search After Truth*, trans. T.M. Lennon and *Elucidations of the Search After Truth*, trans. T.M. Lennon and P.J. Olscamp (Columbus: Ohio State University Press, 1980), abbreviated “LO” and *Dialogues on Metaphysics and on Religion*, ed. Nicholas Jolley and trans. David Scott (New York: Cambridge University Press, 1997), abbreviated “JS.”

ⁱⁱ Descartes’ works are referred to in the text and notes using the following short titles: *Comments* for *Comments on a Certain Broadsheet*; *Discourse* for *The Discourse on Method*; *Meditations* for *Meditations*

on *First Philosophy*; *Passions for Passions of the Soul*; *Principles for Principles of Philosophy*; *Rules for Rules for the Direction of the Mind*; and *Treatise for Treatise on Man*. All references are to *Œuvres de Descartes*, 12 vols., ed. Charles Adam and Paul Tannéry (Paris: Vrin, 1964-76), using the abbreviation "AT" and specifying volume and page numbers. Translations are my own, but they have benefited from those in *The Philosophical Writings of Descartes*, 3 vols., ed. and trans. John Cottingham, Robert Stoothoff, Dugald Murdoch and Anthony Kenny (Cambridge: Cambridge University Press, 1985-91) and *Treatise on Man*, trans. Thomas Hall (Cambridge: Harvard University Press, 1972).

ⁱⁱⁱ See also *Meditations*, AT VII 83 and 89; *Sixth Replies*, AT VII 441; *Principles* I.71-72 and II.3, AT VIII-A 35-36 and 41-42.

^{iv} See also Descartes' letter to Henry More, 5 February 1649, AT V 271 and *Principles* II.3, AT VIII-A 41-42.

^v See also *Principles* I.48, AT VIII-A 23 and his letter to Elizabeth, 21 May 1643, AT III 665.

^{vi} Descartes and Malebranche both insist that the only bodily cause (or occasion) that is really necessary is the motion in the brain that has been instituted by Nature to correspond, type to type, to a sensation in the mind. The precise role of this motion in the production of a Cartesian sensation remains a much disputed interpretive question among Descartes scholars. Some argue that it this motion is the efficient cause of the sensation. Some argue that it is (at least and at most) a partial efficient cause of the sensation (the mind picking up the causal slack). Others argues that the motion is only an occasional cause of the sensation (with the mind or God serving as efficient cause). Yet others argue that the brain is no cause at all in the production of sensation but instead serves as the object that the mind inspects in sensory perception. Malebranche, at least, is clear that there is no efficient causal commerce between the body and mind; the body serves as an occasional cause of sensation. Even so, the precise nature of Malebranchean occasionalism is disputed. I will not try to decide these interpretive matters here, and the differences will not affect the main points of this essay. For convenience, I will speak of the "causal" relationship between body and mind with the understanding that this might be either an efficient or a occasional causal relationship, and with the understanding that it might be inappropriate strictly speaking to call this relationship a causal one at all.

^{vii} See "A Cartesian Guide to Self-Preservation," manuscript.

^{viii} Perhaps the most distinctive feature of spatial perception from an early modern point of view is the fact that it is phenomenologically bound up with secondary qualities: I see pink hearts, yellow crescents, orange stars and green clovers. The precise nature of the relation between these two aspects of sensory experience is fraught with interpretive difficulties that I must put aside for present purposes. While I focus on the spatial properties, it should be understood that they are inextricably linked with secondary qualities in the sensory context.

^{ix} There is some dispute among Malebranche's commentators over whether there really *is* a distinction to be made between the sensory and purely intellectual perception of spatial properties. The controversy arises from Malebranche's familiar claim that sensory perception has two components, a sensation in the mind and an idea of extension in God. On one reading of this claim, sensory perception is a mixture of two perceptions: (a) a sensation of some secondary quality and (b) a purely intellectual understanding of some primary quality through the idea of extension in God. Even in sensory experience, then, our representation of primary qualities is intellectual rather than sensory. Nicholas Jolley offers such a reading in his book, *The Light of the Soul* (New York: Oxford University Press, 1990), 91-92. On another reading, sensory perception is not constituted by two perceptions; rather, the sensation is a special form of (especially affective and noticeable) perception that is itself directed to the idea of extension in God. The result is a distinctively sensory representation of primary qualities, a representation of them as existing, as particular,

and (misleadingly) as colored. Versions of this reading can be found in Daisie Radner, *Malebranche: A Study of a Cartesian System* (Amsterdam: Van Gorcum Assen, 1978), ch. 5 and in Tad Schmaltz, *Malebranche's Theory of the Soul: A Cartesian Interpretation* (New York, Oxford University Press, 1996), ch. 3. A proper defense is beyond the scope of this paper, but I will be assuming that a version of the latter reading for the purposes of this essay.

^x See also *Principles* I.71-72, AT VIII-A 35-37. For more detailed discussions of the stages of sensory processing, see Gary Hatfield, "Descartes' Physiology and its Relation to his Psychology," in *The Cambridge Companion to Descartes*, ed. John Cottingham (New York: Cambridge University Press, 1992), 335-70; Celia Wolf-Devine, *Descartes on Seeing: Epistemology and Visual Perception* (Carbondale, IL: Southern Illinois University Press, *Journal of the History of Philosophy* monograph series, 1993), ch. 4; and my "Descartes on the Cognitive Structure of Sensory Experience," *Philosophy and Phenomenological Research* 67 (2003), 549-579.

^{xi} Malebranche's chief and quite sensible reason for insisting that these judgments are hard-wired is that, apart from our not actually being aware of making them, it is implausible to think a finite mind would be able to make all the calculations and inferences that would be required instant by instant to account for spatial perception as we know it. See, for example, *DM IV* §15, OCM XII 99/JS 62 and §13, OCM XII 98/JS 61; see also *Elucidation XVII* §26, OCM III 327/LO 733-34 and §43, OCM III 345-46/LO 746.

^{xii} See also *Search* I.9 §3, OCM I 116/LO 45, *Search* I.10 §6, OCM I 130/LO 52 and *Search* I.14 §§1-2, OCM I 156-58/LO 68-69.

^{xiii} See also *Search* I.5 §2, OCM I 77/LO 23 and I.14 §§2-3, OCM I 158-61/LO 69-70.

^{xiv} In some cases it may be only a *part* of the perceiver's body that fixes the origin and axial symmetries. In touch, for example, the perceiver's hand is arguably at the perceptual center of things. The part of the body that fixes the origin and axial symmetries may even change depending on the activity in which the perceiver is engaged: it may be the fingers if one is writing, the feet if one is dancing or playing the organ, the head if one is listening, and so on. In the case of vision, it is difficult to say what part of the body fixes the origin and axial symmetries. It is natural to suppose it is the eyes or head, but, as Christopher Peacocke rightly points out, the situation is more complicated: "Looking at Buckingham Palace is one experience. It is another to look at it with one's face still towards the Palace, but with one's body turned towards a point on the right. In this second case, the Palace is experienced as being off to one side from the direction of straight ahead—even if the view remains exactly the same as in the first case" ("Scenarios, Concepts and Perception" in *The Contents of Experience*, ed. Tim Crane (New York: Cambridge University Press, 1992), 106).

^{xv} Even if an object is sensorily represented as being in between two others and is so represented even through changes in my vantage point—my pen is represented as being in between my computer and mug whether I am in front of my desk, in back of my desk or on top of my desk--the representation of that relation is still changes in ways that reflect the changing relations that the three objects have to my body as I move around to get a different view.

^{xvi} See n. 18 below.

^{xvii} See also *Elucidation XVII* §43, OCM III 346/LO 746 and *Search* I.9 §3, OCM I 120/LO 46-47.

^{xviii} Malebranche gives a parallel account of size constancy according to which the ever changing size of the retinal image and sensory image of an object is offset by judgements about the object's distance from the perceiver. Mountains in the distance do not look small even though their images occupy a small portion of the visual field, because I see them as large mountains *seen from a great distance*. See, for example, *Search* I.7 §4, OCM I 96-97/LO 34 and *Elucidation XVII* §27, OCM III 328/LO 734.

^{xix} In Descartes, see *Meditations*, AT VII 88-89; *Principles* I.67 and IV.196, AT VIII-A 33 and 320; *Passions* I.24, AT XI 346-47. In Malebranche, see *Search* I.14 §2, OCM I 158/LO 69.

^{xx} See also Malebranche, *Search* I.10 §5, OCM I 128/LO 52. The peculiarities of bodily awareness and of the sense it gives us of our body (and in particular, of its spatial limits) has been the topic of much discussion in recent philosophy of mind. For some representative discussions, see Bill Brewer, “Bodily Awareness and the Self” in *The Body and the Self*, ed. José Luis Bermúdez, Anthony Marcel and Naomi Eilan (Cambridge, MA: The MIT Press, Bradford Books, 1995), 291-310; Michael Martin, “Sight and Touch” in *The Contents of Experience*, 196-215, “Sense Modalities and Spatial Properties” in *Spatial Representation*, ed. Naomi Eilan, Rosaleen McCarthy and Bill Brewer (New York: Oxford University Press, 1993), 206-18 and “Bodily Awareness: A Sense of Ownership” in *The Body and the Self*, 267-90; Brian O’Shaughnessy, *The Will: A Dual Aspect Theory*, volume 1 (New York: Cambridge University Press, 1980), pp. 139-250 and “Proprioception and the Body Image” in *The Body and the Self*, 175-204.

^{xxi} “Proprioception and the Body Image,” 175. The connection between bodily awareness and spatial perception of external objects has also been subject to much recent discussion in the literature cited in the previous note.

^{xxii} Although my reading differs in some details, I am indebted to Celia Wolf-Devine’s discussion of this topic in *Descartes on Seeing*, ch. 4.

^{xxiii} For a similar claim in Malebranche, see *Elucidation XVII* §43, OCM III 345/LO 745.

^{xxiv} This point has recently received some empirical confirmation. See Rick H. Cai, Alexander Pouget, Madeleine Schlag-Rey, “Perceived geometrical relationship affected by eye-movement signals,” *Nature* 386 (1997), 601-604.

^{xxv} Descartes might insist that in infancy the body is the principle focus of attention, for in infancy the embodied mind has “no leisure to think of anything except through those means by which it sensed what was happening to its body” (*Principles* I.71, AT VIII-A 35). Later, when the body starts moving about and noticing that external objects impact its body for better or worse, it might start directing its attention more to the position of those objects than to the position of its own body parts. This jibes well with Descartes’ talk of “shifting attention” from the body to external object in the *Dioptrics*, for he might say that just as the various judgments involved in seeing constant shapes and sizes occur too habitually and too quickly to be noticed (*Sixth Replies*, AT VII 438) so too this shift in attention, while conscious, occurs so habitually and so fast that we simply don’t notice it.

^{xxvi} See also *Elucidation XVII* §31, OCM III333/LO 737.

^{xxvii} See also *Elucidation XVII* §32, OCM III 333/LO 738.

^{xxviii} See *Search* I.6 §1, OCM I 80-84/LO 25-28 and *Elucidation XVII* §42, OCM III 342/LO 744.

^{xxix} See also his letter to More, 5 February 1649, AT V 268.

^{xxx} See also *Search* I.9 §3, OCM I 109-115/LO 41-44. In Descartes, see *Treatise*, AT XI 162.

^{xxxi} See *Dioptrics* 6, AT VI 144-45; *Meditations*, AT VII 39, 76 and 82; *Sixth Replies*, AT VII 438-49; *Principles* I.72, AT VIII-A 36-37; *Search* I.7 §5, OCM I 98-100/LO 35 and I.9 §3, OCM I 116-17/LO 45.

^{xxxii} See also *Search* I.13 §5 OCM I 147-54/LO 63-66.

^{xxxiii} Edwin Curley and Margaret Wilson also make a point of stressing that Descartes is just as concerned about the errors that the senses lead us into about primary or spatial qualities as those about secondary or sensible qualities. See Curley's *Descartes Against the Skeptics* (Cambridge, MA: Harvard University Press, 1978), 218 and Wilson's "Descartes on the Perception of Primary Qualities," in *Essays on the Philosophy and Science of René Descartes*, edited by Stephen Voss (New York: Oxford University Press, 1993), 162-76.

^{xxxiv} See, for example, *Meditations*, AT VII 82; *Principles* II.17, AT VIII-A 49; and *Search* I.6 §2, OCM I 89-91/LO 30-31.

^{xxxv} In Descartes, see *Fifth Replies*, AT VII 358 and 385-87 and *Comments*, AT VIII-B 363-64.

^{xxxvi} Interestingly, Descartes seems to think the intellect can get further on its own than Malebranche does. He intimates that we can discover the determinate properties of some particular bodies, like the size of the sun, through intellectual reasoning alone. He also clearly thinks we can discover the basic laws of motion through the intellect alone. Malebranche is more resolute in insisting that all the intellect alone can provide us with is an understanding of the nature of body in general. He maintains that sensations are needed to represent bodies as (a) existing and (b) determinate (see, for example, *DM I* §10, OCM XII 46-47/JS 17-18). As Tad Schmaltz points out, he also denies that the laws of motion can be discovered through a priori reasoning alone, since they ultimately depend not just on the nature of body but on God's free will (see Schmaltz, *Malebranche's Theory of the Soul*, 68-69). Nevertheless, both Descartes and Malebranche think that there is a significant role for the senses to play in natural philosophy, *so long as they are properly subordinated to the intellect*. This topic has been extensively covered in the literature. See, for a sampling, Desmond Clark, *Descartes' Philosophy of Science* (University Park, PA: The Pennsylvania State University Press, 1982), esp. ch. 2; Charles Larmore, "Descartes' Empirical Epistemology" in *Descartes: Philosophy, Mathematics and Physics*, ed. Stephen Gaukroger (Sussex: The Harvester Press, 1980), 6-22; Daniel Garber, "Science and Certainty in Descartes," in *Descartes: Critical and Interpretive Essays*, edited by Michael Hooker (Baltimore: The Johns Hopkins Press, 1978), 114-51 and "Descartes and Experiment in the *Discourse* and *Essays*," in *Essays on the Philosophy and Science of René Descartes*, edited by Stephen Voss (New York: Oxford University Press, 1993), 288-310; Stephen Gaukroger, "Descartes' Project for a Mathematical Physics" in *Descartes: Philosophy, Mathematics and Physics*, 97-140; Gary Hatfield, "The Senses and the Fleshless Eye," esp. 68-69 and "Science, Certain and Descartes," *Philosophy of Science Association* 88 (1989), 249-62; and Bernard Williams, *Descartes and the Project of Pure Enquiry* (New York: Penguin Books, 1978), ch. 9.

^{xxxvii} This is not the place for a thorough examination of the differences and relations between the senses and pure intellect, or of the need for their cooperation in the mind's search after truth. For a couple of helpful discussions of the topic, however, see Gary Hatfield, "The Senses and the Fleshless Eye" in *Essays on Descartes' Meditations*, edited by Amélie Rorty (Berkeley: University of California Press, 1986), 45-80 and Louis Loeb, "The Priority of Reason in Descartes," *The Philosophical Review* 99 (1990), 3-43.

^{xxxviii} See also *DM IV* §13, OCM XII 98/JS 61 and *Elucidation XVII* §26, OCM III 327/LO 733-34 and §43, OCM III 345-46/LO 746.

^{xxxix} It is unfortunate that Descartes and Malebranche do not have more to say about touch, for bodily awareness figures even more obviously in our perception of objects by touch. Descartes and Malebranche clearly recognize this, but they discuss it primarily in connection with the perception of secondary qualities like heat and cold. Descartes points out that "at the same time and by means of the same nerves we can sense the cold of our hand and the heat of the flame near it" (*Passions* I.24, AT XI 347). The same is true, however, for spatial qualities perceived cutaneously (by pressing the object against my skin) or haptically (by grasping the object). If the bottom of the mug is placed firmly on the palm of my hand, I, on the one hand, feel its round shape and, on the other hand, feel a certain circular impression on my hand. When I grasp my hand around the mug, I, on the one hand, feel the shape of the mug and, on the other hand, feel

the spatial configuration of my grasping hand. That perception through touch and bodily awareness are so thoroughly bound up with each is, Malebranche might argue, exactly as it should be: by touch I am feeling objects that are *already in contact with my body* and so I need to be able to move my body in response to them immediately. For an interesting discussion of the intimate connection between bodily awareness and the sense of touch in recent literature, see Michael Martin, “Sense modalities and spatial properties” in *Spatial Representation*, 206-18.

^{xi} Malebranche is obviously unaware of the devastating action of viruses and bacteria. If he were, however, he could reasonably argue that those creatures do not pose an *immediate* threat to our bodies. And once they start doing their damage, the fact will be brought to our attention through such sensations as aches and pains.

^{xii} See also *Search* I.6 §1, OCM I 84/LO 28.

^{xiii} Locke advances an entirely similar view of the senses when he writes: “The infinite wise Contriver of us, and all things about us, hath fitted our Senses, Faculties, and Organs, to the conveniences of Life, and the Business we have to do here...And if by the help of such Microscopical Eyes, (if I may so call them,) a Man could penetrate farther than ordinary into the secret Composition, and radical Texture of Bodies, he would not make any great advantage by the change, if such an acute Sight would not serve to conduct him to the Market and Exchange; If he could not see things, he was to avoid, at a convenient distance...if Eyes so framed, could not view at once the Hand, and the Characters of the Hour-plate, and thereby at a distance see what a-Clock it was, their Owner could not be much benefited by that acuteness; which, whilst it discovered the secret contrivance of the Parts of the Machine, made him lose its use” (*An Essay Concerning Human Understanding*, ed. Peter H. Nidditch (Oxford: Clarendon Press, 1975), Bk. II, ch. Xxiii, secs., 12-13, pp. 302-304; see also IV.xi.8, p. 634-635). Both Malebranche and Locke, obviously, will underwrite this blatantly teleological treatment of sensory function by appeal to God’s creative intentions.

^{xiiii} He writes: “...the infinitely wise Author of our being was acting in our interests when he brought it about that we are often ignorant and subject to confused perceptions—so that we could act the more quickly by instinct, and not be troubled by excessively distinct sensations of hosts of objects which, necessary though they are to nature’s plan, are not entirely agreeable to us” (*New Essays on Human Understanding*, ed. Peter Remnant and Jonathan Bennett (New York: Cambridge University Press, 1996, Bk. II, ch. Xx, sec. 6).

^{xlv} See also *Search* I.9 §3, OCM I 119/LO 46.

^{xlv} My first debt of gratitude goes to the members of the philosophy department at the University of Michigan whose pressing questions on a different paper lead me to write this one. I thank Justin Broackes, Alex Byrne, Tyler Doggett, Ned Hall, Paul Lodge, Sarah McGrath, Tom McGrath, Jim Pryor and Red Watson for helpful discussions of the material in this paper as it was being written. Finally, this paper benefited from discussions following colloquium presentations at Duke University, Reed College, the University of California at Davis, the University of Colorado at Boulder, the University of Missouri at St. Louis, the University of Pennsylvania, the University of Pittsburgh, the University of Toronto, and the University of Vermont.