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It is striking that only self-movers are perceivers. I will argue that it is no coincidence. Although passivity on the part of the perceiver is an essential feature of perceptual experience, I aim to show that perceivers are not just passive receivers of information. The idea that perception is dependent on action has a long history in philosophy, but has barely been elaborated in detail. Aristotle can be read as arguing that only beings that are self-movers can perceive. Alva Noë goes farthest with the claim that perception is dependent on action. He writes: “What perception is ... is a kind of skillful bodily activity”.¹ I do not want to go as far. However, the connection I draw between perception and action is stronger than that perception is a *means* to action and action is a means to perception. No doubt our perceptions *guide* our actions and our actions facilitate us having perceptions of different objects. Action and perception are certainly related in such an instrumental manner. I aim to bring out, however, that the capacity to perceive is furthermore necessarily and intrinsically dependent on the capacity to act.

Two arguments will be considered for this thesis. In Part 1, I present a way of thinking about perception that will motivate what I will be arguing for in the rest of the paper and thereby will lay out what I will be taking for granted. In Part 2, I argue that the capacity to perceive objects in objective space involves practical knowledge of how one’s perception changes as one’s spatial relation to perceived objects changes. This could be called the sensorimotor knowledge argument. It is subject to a host of objections, but—as I bring out in Part 3—if one uncovers a more fundamental connection between action and perception that this argument depends on, the objections can be put to rest and what is attractive about the sensorimotor knowledge argument can be retained. In Part 3, I argue that the capacity to form sensorimotor knowledge is dependent on a perceiver being *aware* that she is the acting perceiving subject. The self-awareness in play is understood practically in the sense that a perceiver understands herself as occupying one location in space from which she both acts and perceives. This will be called the self-awareness argument.

Before I embark on this project, it is necessary to make two terminological points. When I speak of action I do not have a notion in mind that has anything to do with reason giving practices, as the notion is usually used today in philosophical debates on action. I use the term action since that is the term used in the lively discussion of these matters in cognitive psychology today. I will discuss in more detail what I have in mind towards the end of this paper. Among other things it will have to be discussed whether the activity in question must be self-activated and whether it must be intentional. I

¹ Alva Noë (forthcoming), *Action in Perception* (Cambridge, MA: MIT Press), p.3.

will take for granted that intentional actions are not necessarily actions for reason.

As a second terminological remark, when I speak of perception, as I will explain in a moment, I mean *visual* perception of objects as three-dimensional space-occupiers. So I have a fairly rich notion of perception in mind. I hope that my argument holds for modes of perception other than visual spatial perception, but I will not venture into that in this paper.

I – Egocentricity Argument

Trivially, to perceive, one must perceive from a point of view. We perceive objects *from* our own position in space and *in relation* to our own position in space. We do not perceive objects simply to the left or to the right without perceiving them as being to *our* left or to *our* right and in this sense we do not just register how things are in perception, we perceive how things look from our point of view.

If perception is relational, then a perceiver's vantage point must play a role in her perception. Indeed, I want to say that the perceiver's point of view must figure in the content of perception for the content to present itself as perception of an objective spatial world.² But how can the location of the perceiver—which is simply a fact about the world—play a role at a semantic level? In order to play a role in perceptual content, the location of the perceiver must gain a place at a cognitive level. A first step in that direction can be to say that in perceiving objects as spatially related to herself, a perceiver gains awareness of her self as located in the perceived world. Understanding egocentric spatial perception as self-locating in this way involves an element of circularity, but a circularity that is not objectionable in itself. At the most basic level, the ability in question involves that a perceiver understands that she occupies the spatial location *between*, say, the bookshelf and the computer. The subject of perception is thereby conceived of as located in the world as a geometrical point of view on the world and the location of this geometrical point is defined by reference to the egocentric spatial content of the subject's perceptions.

But the capacity to locate oneself is not sufficient to perceive objects as three-dimensional space-occupiers. It is only if a perceiver can abstract from her position in space and understand herself as one object among others that she can gain the understanding of objective space necessary to perceive the spatial properties of objects independently of the point of view she happens to have in any particular situation of perception. How can this requirement be met? In order to abstract from her point of view and gain a conception of herself as one object among others, a perceiver must not only be able to understand that she occupies the spatial location between, say, the bookshelf and the computer, but furthermore needs to understand what it would mean to occupy the spatial location that is now occupied by the computer. Another

² Christopher Peacocke (1999) can be read as developing this thought in his *Being Known* (Oxford: Clarendon Press).

way of expressing this thought is that perceiving objects in objective space involves being able to imagine having alter-ego points of view and conjoining these different *possible* egocentric points of view to gain an understanding of objective space. This idea must not be understood as suggesting that there are two kinds of space: egocentric and objective space. There is only one space. However, the positions of objects in space can be characterized in more or less egocentric terms. Similarly, there are not two kinds of perceivings: perceivings from a particular point of view and perceivings of objects as objects that fill out a certain space.

In this section, I laid out what I am taking for granted and presented a way of thinking about perception that will motivate the argument in the rest of this paper. In particular, I motivated the view that there is an interdependence between how objects appear to us in egocentric space and how we perceive them in objective space. In the next section, I will take a closer look at this interdependence.

II – Sensorimotor Knowledge³

The fact that objects are always perceived from a particular point of view does not challenge the objectivity of our perceptions. Our perceptions do not simply *record* how things appear to us. It is more complex than that. We see the plate as round, despite its appearing elliptical from our vantage point. How does the way objects appear to us play a role in how our perceptions represent the world? While the *actual shape* is determined by how an object fills out space, I will understand its *apparent shape* as determined by its actual shape and the perceiver's spatial relation to the object. This is what I will call the appearance of the object. Appearances are not mental items, but a fact about the world. They are relational, but they are not determined by relations between objects and their sensory effect in us, but rather by the shape of objects and the perceiver's location in relation to the object. Although the motivation for speaking about appearances is to say something about perception, the relational property that brings about an appearance exists independently of any perceiver. An appearance of a round object just is the shape of the object as projected on to a plane that has a specific spatial location to the round object in question. This is very important, since it is because of this that the view suggested will not lead into a phenomenalist view.

Although we always perceive an object from a particular vantage point, we are able to grasp how the object looks independently of the point of view we happen to have in any particular situation. As I argued in the previous

³ The view presented in this section is a variation of a standard view in cognitive psychology. Anyone familiar with Susan Hurley and Alva Noë's work will realize that I owe much of the specific formulation of the sensorimotor view to their accounts. The view as it is described here differs from Hurley's as well as Noë's view in that my focus is exclusively on relations between perception and action on a personal level. See in particular Susan Hurley (1998), *Consciousness in Action* (Cambridge, MA: Harvard University Press) and Noë (forthcoming).

section, there are not two kinds of space or two kinds of perceivings. Accordingly, the question that needs to be addressed is *not* how to bridge the gap between egocentric and objective space or between how objects appear to us and how we in fact perceive them. The question is rather how it is that we perceive things as in objective space, although we always perceive things from a particular point of view and how the way objects appear to us plays a role in how our perceptions represent the world.

I aim to bring out that the capacity to perceive an object is only intelligible together with the practical ability to spatially orient ourselves in relation to objects. When we visually experience an object, say as round, we do so because of implicit, practical knowledge of the way the object's appearance varies in the characteristic way that the appearances of round objects vary as our relation to the perceived object changes. The details of this point are crucial. The most modest claim is that perception involves implicit, practical knowledge of the effects of movement on perception. A stronger claim is to say that perceptual content is constituted by a perceiver's ability to exercise bodily skills. In elaborating on these ideas, it will be necessary to gain a clearer understanding of what it means to say that an object appears to me in a certain way. Of course the way an object appears to us should not be understood as an epistemic intermediary between what we encounter in experience and the perceptual content of our experience.

The idea I would like to exploit is that we perceive a plate as round *because* we have encountered its elliptical appearance. It is important that this should not be read as suggesting that we *first* see a plate as elliptical and only later come to realize that it is in fact round. Nor is the suggestion that we do not *actually* see plates as round. It is true that one appearance in isolation may be misleading. But we do not *learn* to see round objects as round and we do not reflect on how objects appear to us and then arrive at judgments about how we should see them. But I do want to say that we see the plate as round *because* it appears elliptical to one.⁴ In order to have perceptions of objects in objective space a perceiver employs (implicit, practical) knowledge of the effects that changes in her spatial relation to objects have on her perceptions. More specifically, a person's perception of an object, say a cube, is determined by practical knowledge of the form "If I were to move to the right, my perception of the cube would change thus and so, namely in the characteristic way that the perception of cubes varies as a perceiver's spatial relation to the perceived object changes." The grasp of such practical conditionals between action and perception is a kind of practical knowledge. No doubt, it would be possible to have such knowledge explicitly. But what is involved in perception need not be explicit knowledge. I will call this practical knowledge "sensorimotor knowledge". It might be misleading to speak of knowledge in this context, even if one stresses the practicality of the

⁴ The idea underlying this thought is the same idea that motivates Leibniz's distinction between *grandes* and *petites* representings. On Leibniz's view our perception of a the ocean roaring, to use his example, is constituted of a multitude of micro perceptions of the noise that a grain of sand makes when water crashes on it. We are not aware of the noise that every single grain of sand makes when listening to the roaring of the ocean. Nonetheless, we hear the roaring of the ocean *because* we hear the noise of many grains of sand.

knowledge. An alternative term would be “sensorimotor skill”.⁵ The term “skill” suggests, however, that what is in question is *gained* through practice, which is a view I would like to avoid for reasons that I will lay out shortly.

To develop the specific way that I would like to understand the sensorimotor knowledge involved in perception, it will be helpful to think through some central ideas of Husserl’s account of protention.⁶ On Husserl’s view, perception of time is not atomized into a series of discrete instants. Rather, our time-consciousness is a continuous flux: when listening to a tune, at any given time, we have a ‘primal impression’ of the note that is occurring now, note 1. When we hear the next note, note 2, we no longer have a primal impression of note 1, but we retain it: we are aware of it as just past. As the tune proceeds, the first note recedes further into the past and appears in ever changing ‘retentional modifications’. Furthermore, at any given point in the tune we ‘protain’ its future course. To say that we ‘protain’ what is to come when listening to a tune does not mean that we hear into the future.⁷ Husserl distinguishes retention from memory in that when remembering a note our attention is directed at the note past and thus our perception of the present phase is impaired. By contrast, when we retain a note of a tune our attention is not directed at that note, but rather at the note that is currently to be heard. In the very same way, Husserl distinguishes protention from expectation.

When perceiving a cube, we do not see the surface of the cube facing away from us. As on Husserl’s account of protention, we do not *direct* our attention at the surface of the cube facing away from us. Although our attention is directed at the surface of the cube facing towards us, there is a sense, however, in which we perceive the surface facing away from us as well. We have expectations (expectations that do not involve actively directing our attention at what is imagined) of what an object looks like from points of view we do not have in the particular moment of perception. In this sense, our perception of objects is not limited to the information projected onto the retina. When we perceive a cube, of course, we never see the whole cube. But it is *as if* we perceive the whole cube since we know that *if* we were to move thus and so, we *would* see the cube from the other side and eventually be visually confronted with every angle of the cube. The sensorimotor knowledge that figures in the expectations we have of what an object looks like from other perspectives involves entertaining the possibility of having different vantage points to the object perceived.

This sensorimotor knowledge argument is subject to a host of objections. I will consider three objections.

⁵ This is the term that Alva Noë uses to describe a similar capacity.

⁶ See Edmund Husserl (1905), *Lectures on the Phenomenology of Internal Time-Consciousness*, tr. John Barrett Brough (Dordrecht: Kluwer Academic Publishers, 1991).

⁷ This understanding of perception is distinct in several ways from Merleau-Ponty’s understanding. For an engaging discussion of the latter’s views see Sean Kelly (forthcoming), “Seeing things in Merleau-Ponty”.

Imaginative Mind Objection

Although one can make a case that to be a successful perceiver it *helps* to be able to move around objects, why must we say that sensorimotor knowledge *necessarily* figures in perception in objective space? Why not just say that we need a concept of object and a concept of objects as solid and temporally located three-dimensional space-occupiers in order to have perceptions of objects in objective space. Surely, we do not need to be able to actually move around objects in order to gain a sense of their three-dimensionality and recognize that they appear differently from different points of view. Indeed it would seem that all we need is an imaginative mind that can entertain the possibility of having different points of view. I will call this the imaginative mind objection.

The problem with this line of thought is that it requires at the same time too much and too little. It requires too much since a perceiver does not need the *concept* of an object to have perceptions of objects. No doubt an imaginative mind can do much of the work that sensorimotor knowledge can do, however, it seems important to take seriously that perception is a fairly primitive cognitive skill. A perceiver needs merely the *ability* to perceive objects as three-dimensional space-occupiers.

The imaginative mind objection requires too little since imagining an object and perceiving an object with practical knowledge are two very different activities. By replacing the practical knowledge that is in play by an imaginative mind the presentness and particularity of perception gets lost. I have argued that there is a sense in which I perceive the sides of an object that are not immediately presented to me from the point of view I happen to have in a particular situation of perception. The practical knowledge that figures in my perception is part of my perception proper. This is a very different idea than the idea involved in, say, having a *concept* of objects as solid and three-dimensional. The difference is of the same nature as the difference I have made with reference to Husserl between protention and expectation. A perceiver does not direct her attention at the back side of the object, but there is a sense in which she perceives an object as having a back side qua perceiving it as a three-dimensional space-occupier. What I have said so far is not sufficient to put the imaginative mind objection to rest. I will come back to this objection in Part 3.

Sentient Statue Objection

Assuming that perception involves sensorimotor knowledge as described, is the requirement merely that our perceptions be integrated into sensorimotor patterns allowing us to anticipate how our perceptions would change were our spatial relations to the perceived objects to change? If this were the case, it would only be necessary that a person's body can be moved in relation to perceived objects. Or must the movement at least at times be self-movement? The answer to these questions depends largely on how one understands the sensorimotor knowledge in play. Noë takes a radical position, arguing that bodily movement-perception *coordination* must be gained in order for

perceptual experience to acquire content.⁸ If one says that coordination of action and perception is necessary to gain the sensorimotor knowledge involved in perception then the ability to self-activate movement becomes necessary for perception. Intentional movement or deliberate action play an ineliminable role on Noë's view, since it is only through such self-activation that one can figure out the sensorimotor interdependence.

I do not want to go as far. Although I do not take it to be necessary to be able to gain movement-perception *coordination*, I will argue in the next section, however, that it is necessary that a perceiver have practical awareness of being the perceiving subject, and that a perceiver is aware *that* she is perceiving in virtue of controlling *what* she perceives through action. From what has been said so far it is not obvious why it would not be enough that a perceiver be moved in relation to objects. But more needs to be in play to bring out what the ability to form sensorimotor knowledge amounts to in order to understand what is involved in having alter-ego points of view and conjoining these different possible egocentric points of view to thereby gain an understanding of objects as three-dimensional space-occupiers. So in order to understand why this sentient statue objection does not hold you will have to bear with me some more.⁹

Sense Data Objection

Finally, as a last objection to the view outlined so far: why is taking the way objects appear to a perceiver from her point of view into account not just a way of introducing sense data? I am arguing that there is a way in which perception presents the world as being independently of a perceiver's vantage point. In this respect, I perceive the plate as round. But there is also a way the world is presented in perception that incorporates a reference to how things appear from a perceiver's vantage point. In this respect, the plate appears elliptical to me. Such appearances, however, are not mental items. As I argued above, how things appear with respect to shape is a fact about the

⁸ See Noë (forthcoming), p. 24.

⁹ A further objection against the sensorimotor knowledge view is that a necessary condition for objective perception is for the perceiver to be in a position to regard diverse perceptions as perceptions of a single enduring and distinct object. In order to have perceptions of a single enduring and distinct object a perceiver must be able to recognize two distinct perceptions as successive perceptions of the same object and distinguish this case from cases in which successive perceptions are of two different objects. As was argued above, sensorimotor knowledge allows us to recognize any particular appearance of an object as only one of many possible ways that an object can present itself to a perceiver. But this thought is not the same as the thought that diverse perceptions are recognized as perceptions of a single enduring object.

Sensorimotor knowledge as the idea has been unraveled so far cannot account for the capacity to distinguish between successively perceiving one and the same object and successively perceiving qualitatively indistinguishable but numerically distinct objects, because in order to regard successive perceptions as perceptions of the same object, a perceiver must be able to ascribe them to a numerically identical subject whose route through the world anchors them to a single object. For a helpful discussion of related ideas see Quassim Cassam (1997), *Self and World* (Oxford: Oxford University Press).

object and the vantage point that the perceiver happens to have on the perceived object. Therefore, the appearances that I am arguing are crucial for an understanding of visual spatial perception have nothing to do with sense data. The thought that I think must be taken very seriously in an account of perception is that perception does not just represent the objective spatial properties of objects; it represents how things are *in relation* to the perceiver.

But taking this thought seriously must not be understood as introducing sense data. Accepting that there is a mutual dependency between apparent shapes and actual shapes need not involve understanding perception as a process of constructing an internal representation. The appearance of an object from a perceiver's point of view is difficult to isolate from how we perceive the object on the basis of our sensorimotor knowledge. It is only when we, for instance, learn to draw realistically that we train our eyes to see that a plate appears elliptical from most points of view.

When we take a realistic painter's point of view, we perceive the round object as elliptical. We perceive the object as elliptical *because* we are confronted with a round object, rather than perceiving a round object *because* we encounter an elliptical appearance. In both cases, there is an interdependence between apparent shape and actual shape. Whereas in the first case one abstracts from one's vantage point and perceives the shape of the object independently of one's point of view, in the second case one brings one's vantage point into the picture and perceives the shape of the object as it appears to one from one's point of view.

To say that there is an interdependence between apparent shape and actual shape does not mean that one is necessarily consciously aware of both the apparent shape and the actual shape. And to say that the actual shape and the apparent shape both play a role in perceiving the shape of an object does not involve saying that there is an inconsistency in the perceptual content, since we do not perceive the round object both as elliptical and as round, but rather as either *appearing* elliptical from our point of view or as *being* round.¹⁰

III – Self-Awareness Argument

I have argued that perception involves sensorimotor knowledge. I aim to show now that the capacity to form sensorimotor knowledge is dependent on a more fundamental connection between action and perception, namely that a

¹⁰ I take the interdependency between apparent shape and actual shape to be an instance of the interdependence between how an object appears to one in perception and how the object actually is; an interdependence that is involved in modes of perception other than visual spatial perception. A difficult case is the perception of color, since the color of a surface is not independent of its appearance in the way the actual shape of an object is. Unlike shapes, one might argue, colors are themselves appearances. When perceiving a wall it might be just as correct to say that the wall appears uniformly white, as it is correct to say that the wall appears to have patches of pink and green. But here again there is an interdependency, in this case, between two ways that the wall appears to one:

perceiver be *aware* that she is the acting perceiving subject. Only through such awareness can we make full sense of what it means to understand ourselves as one object among other objects (egocentricity argument) and as keeping track of our perceptions as our spatial relations to perceived objects change (sensorimotor knowledge argument). Uncovering this dependency on self-awareness will put the objections that can be raised against the two previous arguments to rest and allow us to keep hold of what is attractive about the two arguments. Furthermore, it will bring out how the egocentricity argument and the sensorimotor knowledge argument are connected. Keeping track of how our perception changes as our spatial relation to perceived objects changes requires awareness of one's own position in space in so far as this position is the point of origin of our actions and perceptions.

If we take seriously the idea that how things look from here is a relational property that figures in the content of perception, then the perceiver's vantage point must figure in the content of perception. Encountering the elliptical appearance of the plate is what allows us to perceive the plate as round, but only because the vantage point from which we perceive the plate enters in our perceptual content. So the subject of perception plays a role in the content of her perceptions to the extent that she forms the point of origin of an egocentric frame of reference. Furthermore, to play a role in perceptual content, the perceiver's spatial location must gain a place on a cognitive level. (These are two of the ideas that I laid out in the first part and am taking for granted in the context of this paper.)

The location of the perceiving subject as the egocentric frame of reference, I will argue, can figure in our perception only in so far as we are aware of ourselves as acting beings. The idea I am trying to exploit is that perceivers have an understanding of their location in space, because it is the location from which they both perceive and act. Perception is essentially perspectival insofar as perceptual content is structured in subject-dependent terms. But the possibility for action that is involved in the egocentric organization of perceptual content allows us to go beyond the perspectival representation of objects and to perceive them in objective space. So paradoxically, it is the egocentricity of perception that allows us to transcend our perspectival frame of reference.

It is important that both the capacity to perceive and the capacity to act in play are understood on a personal level. In this respect, the view I am suggesting differs from an argument that takes subpersonal interrelations between perception and action into account. Susan Hurley takes such an approach in her *Consciousness in Action*, arguing that the interdependence between the contents of intentions and of perception on a personal level can be understood as emerging from the codependence of perception and action on dynamically circular subpersonal relations. In particular, she argues that feedback from motor outputs to sensory inputs plays a critical role within such a subpersonal dynamic system. The point I am making is fundamentally different in that the focus of the interdependency between action and perception is on the perceiving subject, not its subpersonal system. But saying that there is an interdependence on a personal level need not involve denying that there is an interdependence on a subpersonal level; I am simply not taking a stance on it.

It must be added that Hurley and similarly Noë in his forthcoming book *Action in Perception* self-consciously slip back and forth between personal and subpersonal levels. Noë argues that bodily activity and the physical implementation of perception in the brain and nervous system are epistemologically on the same level of investigation and, thus, rejects any autonomy thesis, any claim that a philosophical analysis of perception is epistemologically independent of a scientific analysis. I believe that one must hold on to a distinction between bodily movement and the processes of an organism's nervous system that is not just a distinction in observability of the movement involved. But this is a big topic. In this paper, I will take for granted that there is a clean distinction between perception on a personal level and the processing at the concrete implementation of perception.

Now if the capacities to perceive and act are understood on a personal level, why does this account of self-awareness involved in perception not introduce a superfluous and potentially problematic intermediary stage in perception? This is a version of the sense data objection that I argued against in the previous section. It is important to keep in mind that when perceiving external objects the self is not the object of attention. Perceptual attention is focused on the objects perceived, not on the perceiver or the mental state of perception. So the self-awareness in play must not be understood in analogy to the awareness involved in perception of objects.

In this sense, the view presented here differs fundamentally from what could be called the experiential knowledge view. Awareness of what it *feels* like to be perceiving or any other form of introspection or awareness of one's inside is not what constitutes the essential awareness of oneself as the point of origin of perception. I neither feel *that* I am perceiving, nor is there something that is perceiving that I then realize is me. One's perceptions cannot be experienced as unowned or of uncertain ownership.¹¹ Indeed, the question whether awareness and felt ownership of perception are separate issues does not make much sense. Although one can imagine cases in which the thought that "I found myself perceiving x" makes sense, the situation in which one is aware that one is perceiving but unwilling to ascribe one's perception to oneself does not make sense. By understanding the self-awareness in play as immediate and non-relational in this way, I am rejecting the view that awareness of an object and awareness of myself as perceiving are two states of mind that in perception successfully come together.

How do these ideas of the ownership of perception relate to the thesis that the capacity to perceive is dependent on the capacity to act? I am arguing that a perceiver is aware *that* she is perceiving because she is aware of occupying one space from which she both perceives and acts. But why would perception alone or action alone not be enough to bring about the awareness of one's own location in space that is said to be necessary for perception of objects in objective space? Why does one need the two?

¹¹ There are interesting analogies between the sense of ownership involved in perception and the sense of ownership involved in action. For a discussion of cases in which sense of action and sense ownership can come apart see Anthony Marcel and Christopher Peacocke's (2003) discussion of the Anarchic Hand syndrome in Naomi Eilan, Johannes Roessler (eds.), *Agency and Self-awareness* (Oxford: Oxford University Press), pp. 48-110.

The answer to this question leads to the idea that spatial concepts are not simply related to the place we occupy, but rather to the specific way we occupy that space concerning our possibilities for action. We need at least an understanding of what it would mean to reach out to the glass to perceive the glass as within reach and we need to have an understanding of what it would mean to move our body upwards in order to have an understanding of the spatial concept of up.¹²

The idea behind the thought I am interested in is that a perceiver is aware *that* she is perceiving in virtue of controlling *what* she perceives through action.¹³ When we perceive a cube we know that if we were to move thus and so, we would see the same cube from another angle. We are aware that we are perceiving rather than imagining an object because when we, say close our eyes, we cease to see the object and when we make a step to the left our perception changes in expected ways. Action alone or perception alone is not sufficient to gain the self-awareness that is said to be necessary for perception.¹⁴

Overintellectualization Objection

Now why does understanding the awareness that is said to be involved in perception along these lines not run the risk of over-intellectualizing perception? In reply to this question it needs to be insisted that the notion of self-awareness in play is understood in a radically practical way. The point of origin figuring in perception need not be conceptualized in any conceivable manner and the self-awareness in play need not involve *information* about the self, its states or their contents. A perceiver need not have the capacity to have first-person thoughts, nor does she need the capacity to ascribe

¹² The idea I am interested in is related to Evans's thought that "an egocentric space can exist only for an animal in which a complex network of connections exists between perceptual input and behavioural output" (See his (1982), *Varieties of Reference* (Oxford: Oxford University Press), p. 154). Spatial concepts are not simply related to the place we occupy, but rather to the specific way we occupy that space concerning our possibilities for action. If I am tilting my head, I do not see objects on the verge of sliding off the surface of the earth. The reference of 'up' is not determined by the direction of my head, but rather by how I would move my body, given what I perceive. It is because our perspectival perceptions involve how we *would* move and act that perceptual content gains objectivity through its egocentric structure. In this sense, the self enters the content of perception as the point of origin of an egocentric frame of reference only in so far as we understand ourselves as acting beings.

¹³ This way of thinking about the self-awareness in play is similar to the basic insight of the ecological understanding of agency according to which perceptual information involves self-awareness in virtue of its role in controlling actions. For a critical discussion of the ecological sense of self-awareness along Gibsonian lines, see Johannes Roessler (2003), "Intentional Action and Self-Awareness" in Eilan, Roessler, pp. 383-406.

¹⁴ This thought is related to a reading of G.E.M Anscombe (1957) according to which there are important connections between action control and knowledge of actions "from within". Anscombe can be read as arguing that an agent is aware of what she is doing in virtue of controlling her action, rather than on the basis of observation or introspection. The notion of control, involved in perception is naturally of a very different kind. See her *Intention* (Cambridge MA: Harvard University Press).

perceptions to herself. Furthermore, the suggested view is not that a perceiver locates her own position in space by *reflecting* on her spatial relation to perceived objects. As I argued above the self-awareness in play is understood as immediate and non-relational. A perceiver is aware of her location in a dual mode: the zero-point of perception presents itself as being the zero-point for bodily movement. One occupies *one* position from which one *both* perceives and acts.

When a cat perceives a chair, it might not see it *as* a chair, but it sees something that is located in a certain relation to itself and something that it can either choose or choose not to jump onto. Through perception it gauges the distance it must jump to land on the chair. Its location in relation to the chair must figure in its perception for it to be able to flex its muscles such that it ends up landing on the chair.¹⁵

Imaginative Mind Objection and Sentential Statue Objection revisited

Against the sensorimotor knowledge view the objection was raised that a perceiver must only be able to *imagine* having different points of view in order to acquire the sensorimotor knowledge necessary for objective perception. If it is not necessary that a perceiver actually *has* different points of view, it is unclear why a perceiver need to move in space or think of herself as being capable of moving in space to acquire sensorimotor knowledge. I called this the imaginative mind objection.

An objection could be raised on similar grounds against the self-awareness argument. I have argued that a perceiver needs the *capacity* for self-movement, but it is not clear why a perceiver must ever actualize this capacity. Furthermore, why not say we need perception, sensation, and cognitive abilities that allow us to have self-awareness and imagine occupying different locations in space. Why do we need the capacity to act at all? Finally, surely the connections between perception and action are not so tight as to exclude the possibility that a being that is not capable of self-movement can perceive objects as in objective space. So, why does bringing self-awareness into play refute the imaginative mind objection?

In order to discuss this question, it will be necessary to take a closer look at the notion of action in play. The notion of action in play in the self-awareness argument differs from the notion of action in play in the sensorimotor knowledge argument. The question how to understand the action on which perception is claimed to be dependent must therefore be answered differently with respect to the different ways in which perception is dependent on bodily activity.

As I argued in the last section, it is not obvious that actual token actions need to be involved for perceivers to have sensorimotor knowledge. What constitutes sensorimotor knowledge are not token actions, but rather practical knowledge of how perceptions *would* change, *were* the perceiver to change

¹⁵ The example aims only to exemplify that the self-awareness in play is understood practically in a way that is unproblematic to ascribe to cats. The example is not meant to make any implications about cat-perception. It cannot be taken for granted that cats have perceptions of objects as three-dimensional space-occupiers.

her visual angle on the perceived object. By contrast, the self-awareness argument was formulated in terms of *capacities* to act. But again, it is not clear that actual actions need to be involved. Certainly a subject who is *temporarily* unable to act can have a full-fledged conception of her location in space from which she perceives and from which she *would* act *were* she able to act.

On the view suggested a perceiver must, however, know what it *means* to, say reach out to an object, when perceiving the object as within reach. It is not required that a person *actually* reaches out or *has* reached out in the past. But what does it mean to say that a perceiver knows what it means to act, what it means to reach out to something? Certainly it does not mean knowing what it *feels* like to reach out to something or any other form of proprioception. What is meant is rather knowing what it *takes* to reach out to something or knowing what the success conditions are to reach out to something. Since we must know what it would mean to act on our perceptions, being just moved in relation to objects, as say plankton are, is not sufficient to have perception of objects in objective space. This is why the sentient statue objection does not hold. But the alternative is not that the movement be self-activated. Rather I am taking a different line altogether, one that involves minimal cognitive skills, namely knowing what it would mean to act.

But why does this not mean that it would be enough to say that a perceiver need to be able to *imagine* herself to be able to act? The answer to this question depends on what one means by imagining oneself to be able to act. If knowing what it takes to do this or that counts as imagining oneself as being able to act, then indeed that is all that is required. But this is not how the imaginative mind objection was formulated.

The objection was that having a concept of object and a concept of objects as solid and temporally located three-dimensional space-occupiers is sufficient to have perceptions of objects in objective space. Having such concepts is not sufficient to know what it would mean to do this or that, say, reach out to something that one perceives as within reach. In this sense, as I argued in the last section, the imaginative mind objection requires at the same time too much and too little.

IV – Conclusion

In Part 1, I laid out what I am taking for granted, namely that perception is relational, that there is such a thing as perception of objects as three-dimensional space-occupiers, and that in order to perceive objects as three-dimensional space-occupiers a perceiver must have an understanding of objective space. To have such an understanding a perceiver must be able to abstract from her own point of view and understand herself as one objects among others.

The fact that objects are always perceived from a particular point of view does not challenge the objectivity of our perceptions. We are able to perceive the shape of objects independently of the point of view we happen to have in any particular situation. In Part 2, I argued that our perception of an object is determined by practical knowledge of how our perception changes as our spatial relation to the perceived object changes. This sensorimotor knowledge

brings out the interdependence between the apparent shape and the actual shape of the object. While the *actual shape* of an object is determined by how the object fills out space, its *apparent shape* is determined by the actual shape of the object and the perceiver's spatial relation to the object. The apparent shape, what I have called the appearance of the object, is not a mental item, but rather a fact about the world.

The egocentricity argument as well as the sensorimotor knowledge argument is subject to a host of objections. In Part 3, I argued that if one uncovers a more fundamental connection between action and perception that these two arguments depend on, the objections can be put to rest and what is attractive about both arguments can be retained.

Both arguments require that a perceiver be *aware* that she is the acting perceiving subject. Keeping track of how our perception changes as our spatial relation to perceived objects changes requires awareness of one's own position in space in so far as this position is the point of origin of our actions and perceptions. If we take seriously the idea that how things look from here is a relational property, then we must take seriously the idea that the subject of perception plays a role in the content of her perceptions to the extent that she forms the point of origin of an egocentric frame of reference: perceptual content is organized egocentrically representing the perceived object as being in a certain spatial relation to the perceiver. Encountering the elliptical appearance of the plate is what allows us to perceive the plate as round, but only because the vantage point from which we perceive the plate enters into the content of our perception.

When I say that the self enters the content of perception as the point of origin of an egocentric frame of reference, I do not mean that a perceiver being *aware* of herself as an acting perceiver is what figures in the content of perception. It is rather the spatial location of the perceiver in relation to the perceived object that figures in perceptual content. But this spatial location can *only* figure in perceptual content because the perceiver is aware of herself as the acting perceiving subject. Perceivers understand themselves as occupying one space from which they both perceive and act and this self-understanding is crucial for perception in objective space, because it brings about the notion of self that figures in the content of perception and allows us to transcend the egocentricity of our perception.