Why have experiences?

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1. A Puzzle

1.1 Is distance immediately perceived?

In *An Essay Towards a New Theory of Vision* George Berkeley made the claim that, “distance, of itself and immediately, cannot be seen.” (Berkeley 1709, p. 171) Berkeley’s view was that distance was inferred from cues present in visual experience but was not itself present in visual experience. Berkeley’s main argument for the claim that depth is not immediately perceived is that depth is a line that projects to a single point on the retina, a point which remains the same whether the distance is greater or smaller. Berkeley was, of course, aware that we have two eyes and was also aware of the tradition in the study of vision that attempted to make use of this fact in accounting for ability to perceive depth visually. None of these attempts were successful, according to Berkeley, because none of the properties appealed to in these accounts are available in visual experience. Berkeley was wrong, at least in part, about both the representation of depth in visual experience and the relevance of binocularity, but the way in which he went wrong will lead us to an interesting puzzle regarding perceptual experience.

One standard current technique for studying some aspects of the visual perception of depth involves the use of random dot stereograms.[1] These, as the name suggests, consist of pair of images composed of randomly scattered dots. Typically the two images are identical except that one region, a square for example, is shifted horizontally. When the images are projected separately to each eye a single scene is perceived with the shifted region appearing either nearer or farther than the rest of the image, depending on the amount and direction of displacement. Stereograms are nice demonstrations of the fact that disparity between the two retinal images under the right circumstances gives rise to perceptions of depth. Random dot stereograms show, although this is not

[1] Refer to Julesz

their primary theoretical importance, that this effect can arise even when all other cues to the relative depth of the items in a scene are absent.

We do not have, however, conscious visual experience of two images with a region of the one shifted with respect to the other. Binocularity disparity is not an element of visual experience. It is not a cue for depth in the only sense that Berkeley recognized, i.e. the first step in a (potentially) conscious inference to how far away an object is from the perceiver. Berkeley was wrong about two connected claims: 1) Binocularity is (mostly) irrelevant to the perception of depth and, 2) there is no perception of depth unmediated by other consciously experienced cues.[2]

1.2 How did Berkeley go wrong?

Binocular disparity differs from most other visual cues for depth perception in not being itself an element of visual experience. Occlusion, texture gradients, shading etc., all have some claim for being useful in the visual perception of three-dimensional structure and are all represented in visual experience. This fact lends some plausibility to the claim that depth unlike color or two-dimensional structure is not itself represented in visual experience but rather inferred from those cues present in visual experience.[3] The materials for the inference are available in the case of depth which are lacking for color or two-dimensional shape. In the case of color, we ar e only aware of the final output of a complicated process that combines and compares the outputs of the photo-receptors over the entire visual field in order to determine the color of any particular point. The photo-receptor outputs themselves along with the outputs of several other intermediate stages of processing are not themselves available consciously. Depth can be inferred from conscious visual experience in a way that color cannot and this may lead to the conclusion that the perception of depth is inferential in this way. The argument, it is important to note, is not valid and it

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[2] Berkeley himself does grant that one consequence of binocularity does play a role in depth percpetion. Berkeley thought we could sense the distance between the two pupils, in other words the angle the eyes make with respect to each other, and that this was an important cue for depth. Notice that this is not, properly speaking, an account of the *visual* perception of depth since the relevant sensations are presumably proprioceptive and not visual.

[3] These facts merely lend plausibility and not much at that, as we will see below. At best they remove an obstacle to the claim that distance is not immediately perceived since in general the inference from we *could* perform the task using a particualr mechanism to we *do* perform the task in that way is a very shaky.

is never a conclusive reason for believing that perception operates in a particular way that it could work in that way.

1.3 Stereopsis vs. shading and the puzzle

Berkeley refused to admit the possibility that depth is sometimes visually perceived making use of information that is not available in visual experience. Berkeley was not wholly wrong, however, and binocular stereopsis is not the whole story about depth perception. Another kind of information that sometimes plays a role in depth perception is shading. An ellipse that is light on top and whose luminance continuously decreases towards the bottom will usually be seen to bulge out from the background even if there is no other information specifying the relative depth of the parts of the figure.[4] Although Berkeley does not discuss shading it clearly meets the constraints he puts on possible cues for depth perception. Shading, unlike disparity, is an element of visual experience and so could serve as the basis of a conscious, although not necessarily attended to, inference.

Unlike Berkeley, I have no difficulty with the visual system making use of information which is not represented in experience in order to support the perception of depth. Our perceptual beliefs and perceptual experience are the result of complex processes that are put in motion by a variety of stimulus features only some of which end up represented in visual experience. I am puzzled, however, as to why so many features that appear to be extracted relatively early in the course of visual processing end up represented in our visual experience. This puzzlement is compounded by the apparent fact that many of them like shading, texture, and color are of little interest in their own right for the important business of vision, recognizing objects and knowing where they are. The visual system sensibly disposes of disparity before reaching the level of visual experience retaining only the three-dimensional structure that it plays a role in constructing. Shading, on the other hand, seems to linger after its usefulness has been exhausted. Luminance gradients, once they have made their contribution to three-dimensional structure, are not of practical significance.

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[4] Interestingly, whether the figure appears convex or concave depends on the assumed direction of illumination which is sometimes ambiguous, especially in photographs. Millions of americans performed experiments demonstrating this during the Apollo era when we were taught that if the moon's craters appeared convex in a newspaper photograph the proper depth relations can be restored by inverting the picture. There is general, although not absolute preference, for assuming that the illumination comes from above.

My puzzle is, in a sense, the opposite of Berkeley's. Rather than rejecting the idea that important visual work can be done silently I am puzzled instead as to why so much of it leaves apparently functionally useless traces in visual experience.

2. Seeing and believing

2.1 Perceptual experience and perceptual belief

It is very plausible to think that the main business of perception is to inform us about the world. It is also plausible to think that perception is designed to inform us about those features of the world that actually matter to us in the sense of being relevant to successful action. Berkeley, by and large, shared this view. He failed to see my puzzle not because he doubted that the main business of perception is guide successful action but because he had a particular conception of how this job gets done. According to Berkeley, visual processing gives rise to perceptual experience which in turn gives rise to perceptual belief. The only point of conscious perceptual experience is to support inferences to conclusions which can guide actions. Although this description may be true some of the time it is not always true. Moreover it is important to recognize that the mere existence of coherence between belief and experience does not by itself constitute adequate evidence for the claim that the experience is derived from the belief.

It does not follow from the fact that we have visual experience of a certain property and also a perceptual belief that could be derived from the presence of that property that the perceptual belief is based on the experience. Although luminance gradients are represented in visual experience and luminance gradients in some circumstances carry information about three-dimensional structure it does not follow that our beliefs about three-dimensional structure derive from our experience. It does not follow even in the special case where the only available information about three-dimensional structure comes from luminance gradients. The argument ignores the possibility that luminance gradients contribute to perceptual belief either directly or through the visual experience of depth.[5] For all that has been said the experience of shading and

[5] My argument suffers from an unfortunate disability here since I am unsure as to just what the elements of visual experience are. One of the traditional notions that I am somewhat skeptical of is the claim that visual experience contains as elements a limited set of basic elements which are

our perceptual beliefs about depth may be joint results of common cause rather than intimately connected. Moreover I will shortly offer evidence that at least in one special case something very like this possibility seems to obtain. If I am right that an important class of perceptual experiences, does not in fact fill the traditional role there is a genuine puzzle about what the function of these experiences might be.

2.2 Another example

One plausible hypothesis about one of the roles that color vision plays in visual function is that it is an important source of information about material boundaries. We can use information about color to segment a visual scene into its component parts. The question to which I now wish to turn is whether the experience of color plays any essential role in the use of color information in visually detecting edges.

Some cases of cerebral achromatopsia (color blindness due to brain damage) display a preserved ability to locate boundaries between areas on the basis of color information without any awareness of what property it is that defines the boundary. M.S. becomes ill with a virus and suffers neurological damage as a result. One striking finding is apparent complete color blindness. All peripheral components of the color vision system are, however, demonstrably intact. M.S. denies seeing color, cannot sort objects by color, cannot name the colors of objects shown to him, and in most circumstances behaves as if he were completely color blind. M.S. can, however, detect boundaries between adjacent, isoluminant areas. M.S. can tell that there is a boundary but does not appear to have any awareness of the property that changes across the boundary. In some circumstances M.S. is also able to recognize figures whose shapes are specified only by color boundaries. He is not just able to detect the presence of a boundary but can report on what figure is being presented. When asked what differentiates figure from ground M.S. is unable to provide an answer. Visually,

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usually supposed to be color, shape, and possibly stereoscopic depth. It may be that we have visual experiences of depth derived from sources other than steropsis and it even may be that these experiences are crucially implicated in the production and justification of perceptual belief. My concern here is with the claim that the basic elements are involved in this way with belief. In other words, I wish to argue that there is no reason to suppose that the experience of shading plays any role in the production of either the experience of depth, if there is such, or the production of perceptual beliefs about depth. I will have nothing to say about the possible role of the experience of depth itself.

the figure looks exactly the same as the ground, according to M.S.[6]

2.3 Perception and mechanism

One thing that should not be surprising about the case of M.S., priming and the like is that information that is not represented in visual experience plays a role in influencing behavior and belief. Vision is a complex collection of processes and relatively little of this activity comes to our attention. Introspection, no matter how careful, reveals nothing about many of the image properties represented in early or intermediate stages of visual processing. Our visual experience, for example, does not represent the untransformed receptor outputs. Even such a simple percept as a black line on a white piece of a paper is the result of a multistage process with several intermediate stages of representation. What little is known about these processes is the result of psychophysical and neurobiological investigations and theorizing and not simple reflection on the nature of our visual experience. These processes operate to a very significant degree beneath our notice and also beyond our control.

There is no incompatibility between conscious experience being the result of a complex causal process and the view of perception held by Berkeley and many other philosophers in the empiricist tradition. To borrow Locke's terminology, the causal processes involved in the production of simple ideas of sensation may be complicated and mysterious. This complexity may be interesting but is, philosophically, of little importance. The interesting questions all revolve around getting from the simple ideas to more complex ones. Part of this approach to perception involves attributing to conscious perceptual experience a very small number of basic elements. Color, shape, and sometimes stereoscopic depth are the common attributes attributed to visual experience. Anything else is not properly a part of of visual experience but rather a judgment based on it. Even if we loosen our grip on the experience belief distinction and allow some more complex representations to count as elements of experience it is still the case that they must be somehow derived from the basic ones. That a particular set of colors and shapes make up a single object or that those colors and shapes constitue a cat are most often thought of as the result of an inference from experience and not as a part of it.

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[6] MS's color vision was first characterized in Mollon *et al.* (1989). Further details can be found in Heywood *et al*. (1991).

The examples discussed above, I hope, serve to call into question the propriety of just assuming that this is the correct description of the way in which perception always works. M.S. can see a boundary that is not based on his experience of color in anything like the usual way. Visual inputs that are not represented in experience can influence belief and behavior in perfectly normal people. Moreover, the assumption that more complex consciously accessible representations must be based on more basic conscious representations, is just that, an assumption, and not the result of serious argument or empirical investigation. Suppose instead a somewhat different picture of the way in which vision works. There are a variety of more or less specialized visual mechanisms: perhaps one for recognizing faces, perhaps another for segregating figure and ground, one for color, several for depth, etc. These mechanisms interact with each other and some of them may share inputs from earlier stages of visual processing and some of them may not. It need not be the case that there is any single set of inputs they all have in common and even the ones that share inputs may operate largely independently of each other. Although the edge detecting mechanism may have some common inputs with the color mechanism it need not be the case that the output of the color mechanism is an input for the edge mechanism. Because of their common inputs it will normally be the case that every edge corresponds to a color boundary but damage that affects one mechanism without affecting the other can break this correlation. Although some of these mechanisms are more specialized than others, face recognition is more specialized than color, it is far from obvious how to single out a special class of these mechanisms as the basic ones as the traditional picture does for the ones that give rise to the basic elements of visual experience. This picture, I suggest, corresponds much more nearly to what is known of the nature of the mechanisms operating in vision than does the traditional one.

3. The puzzle revisited

3.1 The function of perceptual experience

We are now in a position to re-examine the puzzle that I earlier motivated with the discussion of depth perception. Many different aspects of the visual world are represented in visual experience and belief. Some of these seem to correspond to relatively early stages of visual processing and some of them to stages of visual processing that use something like the outputs of these early stages as inputs. It is not necessarily true that it is the experience of the more basic properties that feeds into the more specialized ones. There is, in addition, no simple distinction among these processes that allows us to classify some as having outputs that are represented in experience and others as not. The picture sketched above is of a multiplicity of mechanisms that contribute more or less independently to sensation, perception, and action with dissociations possible between any of these levels. If basic experienced sensations are not necessary for the production of more complicated sensations and beliefs and are also not necessary for the production of action sensitive to the information normally regarded as being embodied in sensation then we have a puzzle as to what role simple visual experiences do play in the formation of more complicated representations and successful action.

This puzzle has been noted by some philosophers. The view of visual processing sketched above is sometimes referred to as computational vision. E.J. Lowe, for example, objects to computational approaches to vision on the grounds that they treat visual experiences as epiphenomenal, not involved in the main work of vision which is to enable us to gain knowledge of the world.[7] Since Lowe believes that the role of visual experience is to provide the materials which general intelligence processes to result in judgements about the world he is disturbed by the failure to robustly recognize this role in characterizing the various more or less specialized mechanisms that computational vision postulates. Lowe's view is recognizably similar to the empiricist tradition embodied in the views of Berkeley discussed above. It is important to note that the problem here is not the familiar one of epiphenomenal qualia. Even if we are hard-headed materialists, as I am, it is absurd to deny the existence of visual experiences but if they are not given their traditional epistemic role we are left with the question of what role, if any, these very salient aspects of our inner lives play in the business of getting along in the world.

3.2 A first step

A simple way in which basic perceptual experiences can contribute to more complicated experiences and judgments is by providing information about how

[7]E.J. Lowe, "Experience and its objects," in Crane, *The Contents of Exereience.*

we came by those experiences and judgments. One clear feature of perceptual experience is that different sense modalities give rise to different types of experiences. Visual experience is different from auditory experience and both differ from tactile experience. These differences provide information about how we came by various bits of perceptually acquired information. Similarly within a perceptual modality the differences in the various kinds of experiences provide information about how we came to make the various judgements that we in fact make. Lacking perceptual experience we would lack an important source of information about how we know the things that we know on the basis of perception. M.S., the achromatopsic patient described above, has no information about what difference identifies the boundaries he believes are present in the scene that he perceives. Having visual experience allows us to know that some of our beliefs are visually derived; having color experience allows us to know that some of our beliefs are based on color differences. In these cases the visual experience does not provide the evidence on which the belief is based, nor does it, necessarily figure in the causal production of those beliefs. Nevertheless, it provides information about those beliefs.

Since the experience of *seeing* a person to my left is different from the experience of *hearing* a person to my left, this difference can tell me that my belief that there is a person to my left is based on or derived from visual as opposed to auditory evidence. Similarly, since there is a difference between the experience of seeing a *color* boundary and seeing a *texture* boundary, this difference can allow me to know that my belief that there is a boundary present is based on color as opposed to texture differences. This kind of information may seem of little practical value but a little reflection shows otherwise. Our senses are far from perfect and their reliability varies with the circumstances of perception and the nature of the stimulus. Not only does the reliability of the senses vary with external conditions, but the different senses vary in different ways. In a dim light vision is very unreliable for many tasks while audition is unaffected. In a noisy environment audition is severely impacted while vision may be perfectly reliable. Even within a single sense there is similar variation in reliability. For some scenes and viewing conditions color differences are unreliable guides to finding edges, while texture differences are quite conclusive. In other circumstances texture is unreliable while color is trustworthy. Thus, having information about the sources of our belief can be very helpful in determining how trustworthy our beliefs are in various circumstances. People without perceptual experience would be impaired in their ability to adjust the confidence with which they hold their perceptual beliefs to the circumstances of perception.

Some recent experiments done on normal subjects provide some support for this hypothesis. The basic task is to detect a square of texture elements with one orientation on background of similar texture elements with a different orientation. The square can be located in one of the four quadrants of the screen and the subject is asked to press a key corresponding to the quadrant in which it is located. There are two conditions, one just as described in which the subjects consistently report seeing the square whose location they are supposed to report. In the second condition, the basic display is presented to one eye and a conflicting display to the other eye. In this condition the subjects never report seeing the square. Nevertheless they perform well above chance at correctly locating the square. The experimental subjects are also asked to supply ratings of how confident they are that they have correctly located the square. In the condition in which they report seeing the square their confidence ratings are well correlated with their performance. In the condition in which they report no awareness of the square their confidence is uncorrelated with their performance. In terms of my hypothesis their ability to accurately judge how likely they are to be right is impaired by their inability to have access to information about how they are performing the task. Their lack of visual experience leaves them with no basis on which to judge task difficulty.

3.3 Learning and experience

Showing that perceptual experience plays a role in adjusting confidence to task difficulty gives conscious experience a role to play in computational theories of perception. It is not a particularly important role, however, and fails to connect with the core of truth in the traditional empiricist account of perception. Although it may be granted that there are dedicated mechanisms that perform certain specialized tasks, such as facial recognition, it is clear that human beings cannot be born equipped with a full complement of such mechanisms. People occupy a variety of quite diverse visual environments and engage in an enormous variety of different kinds of activities in those environments which demand different visual skills. Human beings also clearly display an ability to learn new visual discriminations, an ability that surely underlies our successful functioning in such disparate environments as the tropical rain forest and a modern office building and our performance of tasks as different in their visual demands as reading written text and catching a fly ball. Although there are also limits on the kinds of visual tasks we can perform and the environments in which we can perform them there remains an impressive amount of plasticity in visual functioning. It may be thought that one of the functions that visual experience plays for creatures like us is in providing elementary perceptual elements that can be the basis of learning new visual tasks. After all, it might be argued, how can we learn to do something new if we have no awareness of one of the elements to be associated in the learning process. One cannot learn the association between a student's name and her face if one cannot be consciously aware of her face. Similarly, how can one learn to visually discriminate a fruit in a clutter of leaves if one has no awareness of those basic perceptual elements that combine to make up the fruit. As I will argue below, there is a good deal of plausibility to this hypothesis correctly construed but first I wish to point out ways in which it fails to be adequate.

First, it is clear that our visual system is constantly adjusting itself to changes in our environment and in our bodies. For example, as a child grows the distance between her eyes is continuously changing and with it the information about relative depth carried by a particular degree of binocular disparity. The child adjusts to this change without ever being having visual experience of disparity. On a different time scale anyone who has ever put on a new pair of eyeglasses will know that a change in lenses can produce annoying changes in spatial perception. The visual system quickly, although unfortunately not immediately, readjusts itself and a new transformation between retinal stimulation and perceptual output is embodied in the mechanisms of spatial vision. Since the change affects even the most basic elements of spatial experience it again cannot be learned via awareness of the elements of visual experience. Much of the work of adapting visual mechanisms to their environment is performed without implicating perceptual experience in any way.

It may be objected that none of the phenomena just discussed really count as example of learning in the intended sense. They all involve adjusting the operation of already existing mechanisms vision in order to take into account changes in the circumstances under which they operate. The sense of learning that was supposed to involve visual experience was learning to make new discriminations, extracting a new kind of information from the visual input. I have two responses and a concession to make to this objection. First, as argued above it does not follow from the fact that we have visual experience of a particular property and that property could serve as the basis of a learned discrimination that the property is actually implicated in the process of learning the discrimination. Second, the distinction between adjusting the parameters of an existing visual mechanism and doing something new is far from clear. If I can already visually recognize many fruits and vegetables and now learn to recognize a new variety of fruit is this a newly learned recognition or merely a modification to an existing mechanism. I do not deny that conscious perceptual experience is relevant to some forms of learning and the issue really is which of these various adaptive mechanisms require experience and which don't.

Finally, the role I will describe below for the function of visual experience in the voluntary control of visual attention does implicate experience in learning albeit indirectly. And, as will emerge, it is exactly in the case of learning novel visual discriminations that experience does play a role although not necessarily as providing elements that are combined in a new way but rather as a source of targets on which existing visual mechanisms can be brought to bear.

4. Visual experience and attention

4.1 Visual attention

Visual scientists have paid a great deal of attention recently to the role of attention in vision. Although many of the mechanisms remain unclear and many claimed phenomena are controversial there is a core of relatively stable and widely accepted theses about visual attention. One widely accepted claim is that some visual tasks require focal visual attention for their successful performance while others do not. Another is that focal visual attention can only comprehend a relatively small portion of the visual field at a time and that the focus of attention can be shifted without eye movements. Yet another and one that is important for my argument is that shifts in attention can be either voluntary or involuntary. Our attention can be drawn to a particular location without conscious choice or we can choose to direct it. A common metaphor is that of a spotlight which can be shifted about the visual field illuminating different areas although the diameter of the spotlight is not fixed. The underlying mechanism is supposed to be some process of bringing to bear special visual mechanisms on a delimited portion of the visual field although there is little agreement on either the process by which one part of the visual field is selected for special treatment or on what the nature of the special treatment itself is.

One much discussed kind of experiment that is taken to be relevant to the nature of visual attention involves searching for a target item in a field of distractors. For example, the task might be to determine whether or not there is a red dot present in a scene in which there are several green dots. For this task, the amount of time required to determine the presence or absence of the target is roughly independent of the number of distractors. In these cases the target is said to pop out from the distractors. For other tasks, especially tasks involving a conjunction of features, the time taken to detect the presence of the target does depend on the number of distractors. Determining whether there is a red square present in a scene that includes green squares and red and green circles is a task of this kind. Targets that do not pop out are thought to require attentive processing in order to distinguish from the distractors while pop-out is thought to proceed independently of attentive processing.

Movements of the head and eyes are intimately involved with attention and presumably because of the same underlying reason. The resolution of the eye is very much better in the center than it is in the periphery. Targets that draw attention almost invariably also draw fixation and the net result is that more visual resources end up being deployed on the object of attention than on other parts of the scene. Presumably this is to make sure that we get the fullest information possible about targets of interest given that there are limitations on the availability of visual resources. It appears that the human visual system is not designed to provide equally full information about all objects in the field of view and this makes it necessary to provide some mechanism for directing the available resources to where they are most needed.

One way of illustrating the importance of attention and eye movements in effective vision is to look at cases where the mechanisms for redirecting attention have been damaged. There is a form of visual agnosia, dorsal simultagnosia, which appears to be in large part a disorder of the ability to shift attention. Dorsal simultagnosics are described as having relatively normal vision of those parts of a scene to which they are attending. What they can’t do is shift attention, either voluntarily or involuntarily, to other targets. As a result their vision is of little practical value. A dorsal simultagnosic might walk into a desk because they had become fixated on the chair next to it. Dorsal simultagnosia is a striking demonstration of the importance of being able to scan the world according to some coherent strategy. They are functionally blind although demonstrably able to see. A similar kind of disability is also seen in cases of unilateral neglect. These patients are unable to direct targets to one half of the visual world. Although they can often perceive targets that extend across the midline they are unable to attend to or make eye movements to targets that only appear on one side. They are for most purposes functionally blind in the neglected field although again the problem is not that they are literally blind.

4.2 Visual attention and experience

The locus of attention can be determined either by voluntary (although possibly constrained) choice or passively. Eye movements similarly can be either voluntarily controlled or passive. Passive shifts of attention or eye movements can be brought about by a variety of factors including salience. For my purposes of special interest is that learning can influence the way in which eye movements and attentional shifts are distributed over a visual scene. Part of what is involved in learning to see is learning what targets to attend to and thereby gain greater information about. Salience, when not just a name for whatever draws attention, provides a relatively crude means of directing resources to targets that promise to be of some interest. These partly learned and partly innate mechanisms, however, are limited in enabling us to visually explore novel visual environments. The features that direct attention to objects of interest in familiar environments may not be a good guide as to which targets to pick in unfamiliar ones. In order to recognize complex features and objects it is not enough to have eyes, one also needs to know where to point them and what to attend to.

It is in exploring novel environments and recognizing new features of familiar environments that there is a role for voluntary direction of visual resources and with it for the primitive elements of visual experience. Color, texture, primitive spatial elements, and the like provide targets at which one can direct ones attention. In a situation in which pre-existing strategies of successive fixation and deploying attention do not get the job done we have available to us another way for directing our visual resources. Once we have successfully learned how to deploy our resources in a particular situation we no longer need to exercise voluntary control and the procedure continues on passively.

In order to voluntarily choose where to look we need to have available to our decision making apparatus information about what the possible targets are. One cannot aim, however, at targets of which one is not aware. This connection between conscious awareness and voluntary choice is crucial to my argument. I am in effect assuming that voluntary action, including attention and eye movements, cannot be guided by information to which one has no conscious access. The claim is that conscious visual experience serves to provide the targets for voluntary deployment of visual resources in novel situations. On this hypothesis visual experience of low-level properties does not serve as the input to the mechanisms that perform more specialized processing but rather serves to guide these mechanisms to promising targets.

5. Conclusion

The goal of this project is to throw away the most obvious proposal for the function of conscious perceptual experience, to provide the basis for perceptual judgements or beliefs, and see if anything is left. There are two reasons I can offer as to why this is a worthwhile way to proceed. First, setting aside this intuitively plausible and time-honored idea can help us to see more clearly that there very well may be other, neglected, roles for visual experience to play in informing us about the world. Second, the claim that basic perceptual experience has its primary role in leading to judgment is both more problematic and less well supported by argument than might have supposed. This claim does not fit well with the most common empirical approach to the study of vision, computational vision, and is not obviously required by the phenomena. Setting this role aside, I hope to have made plausible, does imply that conscious perceptual experience of basic properties is functionally irrelevant. There are jobs for it do, important jobs, even if it is not the basis for our complex experiences or judgements. If we take epistemology to include not only the analysis of what knowledge is but also the study of how we come by it and evaluate it then perceptual experience is epistemologically important. We would be less good at finding our way around the world without conscious perceptual experience than we are in fact. I cannot conclude that zombies are not possible, because too much of my argument depends on contingent facts about actual human beings, but if they are possible we can be sure that their internal mechanisms are not much like ours.