The Empiricists // Spring 2016

Handout 9

Berkeley: Depth perception, size perception

Some claims about distance. Berkeley begins his discussion by announcing that: NTV 2

Distance cannot be immediately seen. (9-1)

This claim is justified by the way our perception operates: the visual information we receive is invariable under differently stationed objects. Still, the claim (9-1) allows a number of interpretations. Perhaps the author means to reject the possibility of perceiving distance 'of itself' for the reason of it being a volume of clear air. Or perhaps he could mean that we cannot tell how far the objects are. All these interpretations are wrong, because the clarification comes in the next paragraph where Berkeley says the estimate of distance is an act of judgement. NTV 3

The keyword in (9-1), then, is 'immediately'. We do not see distance, unless there is an intellectual activity yielding a certain interpretation of the contents of our perception. An analogy may be this: I might say, 'I saw Percy getting angry.' When pressed for the meaning of it, I could say that I saw Percy turning red, I heard Percy shouting, and I *inferred* that he was getting angry.

NTV 11 There is, then, also a sense in which I may be said to be able to see distance, but there is a sense in which I do not. Now, what is in the perceptual content that suggests to us the distance between us and the object? The answer is that we NTV 16 move our eyes in a particular fashion when the object moves closer and further away. Moreover, in a passage as though lifted from Hume, Berkeley also insists that there is no 'necessary connexion' between the sensations we receive in turning NTV 17 our eyes and the actual distance. It is just a product of the association of ideas—of habit—that the idea of distance is generated in our minds.

But now, what *is* the idea (or in the modern terminology, notion) of distance? It seems we have two alternatives only: either it is an innate idea, or acquired in experience. The former option is insane, so we have to say how we get the idea of distance in experience. And it can only be got through some form of perception. Berkeley's brilliant proposal: we get it in tactile experiences. In fact, we can say that the clues offered by visual perception suggest a possibility of motion, to and NTV 45 from the object.

Cues for distance perception. One cue has just been mentioned: it is the sensation accompanying the act of NTV 16 turning your eyes at the object. Another is the 'confusion' that we experience when the object is brought nearer or moved NTV 21 further away. The third is the sensation from straining the eye that we perform when an object is brought near the eye. NTV 25

Thus the view seems to be that in visual perception the perceiver's mind processes some of the cues just mentioned, and on their basis, generates the idea of the distance between the eye and the object. As mentioned before, it is interesting to note that the procedure (the 'suggestion' of the idea of distance to the mind) is not a form of inference. We should NTV 17 instead interpret this procedure as habituation, where the perceiver's mind is, so to speak, conditioned to generate the idea of distance. That being said, Berkeley is happy to talk of 'judgements of distance'. The previous point stands: these NTV 20 judgements are intuitive, not arrived at by inference, but rather are immediately suggested to us by experience.

Remark 1. Berkeley's view relies on the process of association of ideas. It is a bedrock of Hume's epistemology. It should be contrasted with the so-called thesis of 'theory-ladeness' of observation popularised by Kuhn.

All in all, it seems that, according to Berkeley, we are victims of an illusion (a 'prejudice', as he calls it). Objects appear NTV 146 to us to be at a distance from our eyes, when in fact we do not see them to be so. This illusion is of course entrenched in our minds by a long process of conditioning (starting soon after birth). NTV 145

Objects at a distance. Next to the imperceptibility of distance (claim (9-1)), Berkeley maintains also the following claim:

Objects at a distance cannot be seen. (9-2) NTV 44

Question 2. Does (9-1) entail (9-2)? Why?

The purpose of (9-2) is to establish the heterogeneity of tactile and visual perception:

Visible objects and tangible objects are never the same. (9-3) NTV 49

We see only ideas in our minds, whereas we touch objects located 'outside' in space, at a distance from us.

Remark 3. As we shall see, the claim (9-3) is abandoned in the metaphysical system of PHK and DHP. PHK 44

How, then, does Berkeley prove (9-2) in §44? Suppose I look at the Moon. I see a small round disk. I assume it to be a great distance from me. Suppose I then travel to the Moon. When I land there, I find no such disk. Therefore, what I saw back on Earth was not the Moon itself, but just an image in my mind. This is because, if I really saw the Moon, then the content of my experience would not have changed merely on account of my travel. Presumably you might respond that at least I see an idea or an image of the Moon resembling the Moon:

$$y = I(x) \text{ only if } y \text{ resembles } x.$$

However, what I see upon landing on the Moon does not at all resemble the small disk I saw back on Earth. Therefore, the small disk of my Earth-bound perception was not an image of the Moon.

Size perception. Staying with the Moon, it is worth noticing Berkeley's discussion of the notorious Moon illusion. The problem is this: we see the Moon on the horizon as larger than the Moon. In fact, the horizon moon appears nearly twice the diameter of the zenith moon.

Given the preceding discussion, observe that we cannot really talk of the size of visible objects existing, as they are, in the mind. When we see an object (i.e. perceive a visible object), we use the visual information to compute the size of a tangible object (the two kinds of objects, according to the present view, are distinct). In this computation we use different cues, in a fashion similar to the computation of distance. Berkeley lists a number of cues, among them: the size of the relevant visible object, confusion or distinctness of the visible object, faintness of the visible object. NTV 56

Berkeley's first explanation of the Moon illusion is the faintness of the horizon moon. Berkeley uses his first cue: the fainter the visible object, the greater the tangible object is supposed to be. This explanation leads nowhere, since modern experiments, placing moons against brighter or fainter skies, showed irrelevance of that cue. NTV 68

The second explanation is that we rarely see objects at great height, and therefore, the size cues will act differently in the formation of our judgement of the size of the zenith moon. Why should the zenith moon appear smaller? I find Berkeley's discussion very opaque. Still, the answer presumably is that, if were to rely on the size of the visible object alone, the size of the distant tangible object would be estimated to be quite small. This means that the 'usual' cues suggest to us a greater size. But these cues are absent in the perception of an object at a great height. I suppose what Berkeley *may* be willing to say is that, for example, the presence of the various objects on the horizon suggests the great size of the horizon moon, while the absence of those objects makes the zenith moon appear smaller. In this case the cues are suggested by the terrain. That is: the default cue offered by the angular size of the moon will suggest a smaller size, whereas the presence of other objects (not necessarily large ones) will suggest a larger size. NTV 73

Remark 4. Notice that Berkeley does not claim that the large objects on the horizon—houses or mountains—make the horizon moon appear larger, as in Ebbinghaus' illusion (Figure 1). This explanation is largely discredited. Berkeley rejects it in §77.

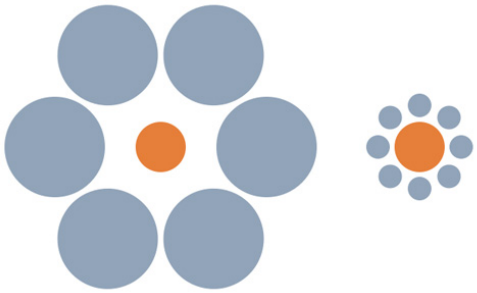

Figure 1: Ebbinghaus' illusion

Another cue is the angle of view. (There is some unclarity, I think, whether this is supposed to be an independent cue.) We are accustomed to see objects straight ahead, rather than up in the sky. When we look up at the zenith moon, it appears smaller. But if this indeed is to be a separate cue, Berkeley does not explain why the zenith moon appears smaller, rather than larger.

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