

The Problem of Known Illusion and the Resemblance of Experience to Reality

1. Introduction.

If John Locke (1690/1975) is right, *color* might not be a feature of things as they are in themselves, but *shape* is a feature of those things. If I see a cube in normal conditions and rightly judge that it is a cube, then by gum there really is a mind-independent cubical thing out there, the shape of which in some important way *resembles my experience* of its shape. If Immanuel Kant (1781/1787/1929) is right, then John Locke is wrong about this. Things in themselves aren't cubical – or at least we have no good reason to think they are cubical. They're not laid out in space. There's nothing independent of the human mind that has cubical properties that resemble the properties of my visual experience of cubes.

I'd like to know if Locke is right or Kant is right. Do things as they are in themselves have shapes that resemble, in some important way, my experience of those shapes, or not? Are things, really, like *this* [here I gesture, through an act of attention, at my own visual experience]? Or is *this* just a sheen, a convenient interface experience, a human construction atop a radically different reality?

This might seem a hard question to answer.

I don't have an answer. But I do have a thought about a way in. My thought is this. Suppose it's the case that there are multiple different ways of veridically visually experiencing the same object, so that we can't say "this way is right and this way is wrong" or "this way is preferred over this other way". And then suppose further that sometimes it is also the case that there is no good reason to think that one of those two experiences more closely resembles how the experienced object is in itself. From these suppositions, it would then seem to follow that there's a kind of *looseness* between the features of experience and the features of things in

themselves. Things in themselves might be more like *this* or they might be more like *that*. They might more closely resemble experience A or they might more closely resemble experience B. Or they might really resemble neither experience very well. Thus, we get at least some bracketing parameters: We can no longer say we know they're like *this* – a miniature Kantian victory over Locke. (Just a miniature one, not a full-blown Kant.) And then the question is: How far can we push? How much looseness can we discover in the relationship between things in themselves and our experiences of them?

2. “*Objects in Mirror Are Closer Than They Appear*”.

So far, my remarks have been very abstract and probably impossible really to evaluate. Let's consider some specific examples. These examples will give both a feel for the general project and hopefully the beginnings of an answer.

According to the United States Code of Federal Regulations, Title 49, Chapter 5, §571.111, S5.4.2, pertaining to convex mirrors on passenger vehicles:

Each convex mirror shall have permanently and indelibly marked at the lower edge of the mirror's reflective surface, in letters not less than 4.8 mm nor more than 6.4 mm high the words “Objects in Mirror Are Closer Than They Appear” (GPO.gov, accessed July 13, 2011).

Here's a picture:

Figure 1: Objects in mirror are closer than they appear



image from <http://amchurchadulthooddiscipleship.net/>

And here's another picture that contrasts how things look in a convex mirror with how they look in a flat mirror:

Figure 2: The view in flat (on left) vs. convex (on right) driver's side mirrors



image detail from Wierwille et al. 2008

So my first question is: *Are* objects in the convex mirror closer than they appear?

Here are three possible answers:

(1.) Why yes, they are!

(2.) No, objects in the mirror aren't closer than they appear; but that's because rather than being closer than they appear they are *larger* than they appear. The convex mirror distorts *size* rather than distance.

(3.) No, objects in the mirror aren't closer than they appear; nor are they larger than they appear; if you're a skilled driver, the car behind you, as seen with the aid of the convex passenger-side mirror, is just where it looks to be and just the size it looks to be.

Now, this session is about introspective evidence in the study of perception. Maybe it's appropriate to wonder whether I have just now asked an *introspective* question or not. It kind of seems like an introspective question. It's about appearances, seemingly – whatever those are! – about how things look to me, what my visual experience is, when I glance in that mirror. If it's not an introspective question, what kind of question is it? A question about the ordinary language use of the word “appears”? A question about my behavior? That doesn't seem right.

And yet it doesn't seem exactly like a plain, canonical introspective question either, for example, like the question about what color experiences I have when I close my eyes or whether I'm feeling a pain in my left foot right now. So let me be the first to admit that I don't exactly know what we are doing.

Back to our question: Are objects in the mirror closer than they appear? The third of the answers I gave above is the one I'm drawn to. That's the view that objects seen via the mirror are just the size and shape they appear to be. Maybe you will be drawn toward this view also? Here are two reasons to favor the view. First, there seems no good reason to privilege saying that objects are *closer* than they appear in the convex mirror over saying that they are *larger* than they appear. It could be a 3-foot-tall car 30 feet away or a 6-foot-tall car 60 feet away. Is there something about its appearance, as distorted by the mirror, that decides between these two interpretations? Maybe split the difference: It's 4 1/2 feet tall and 45 feet away? These concerns problematize the first two interpretations, maybe giving us a reason to favor the third. Here's another reason to favor the third interpretation: Skilled drivers are undeceived. I've spent more time than it seems wise to have done reading the auto safety literature on convex mirrors. The results of that literature are clear: Practiced drivers do not misjudge the distance of cars in convex passenger-side mirrors. They don't misjudge when they are asked oral questions about the distance, nor do they misjudge when they make lane-shifting decisions in actual driving. Instead, they seem to skillfully and spontaneously use the mirror accurately to gauge the real distance of the cars behind them (e.g., de Vos 2000; Wierwille et al. 2008).

A third kind of evidence for my favorite answer is seemingly introspective: Get in a car. Drive. Think about how the cars behind you look, both in the driver's-side and in the passenger's-side mirrors. Try adjusting the two mirrors so that they both point at the same car

behind you when your head is centrally positioned in the cabin. Does the car look closer when your eyes are pointing toward the flat driver's-side mirror than when they're pointing toward the convex passenger's-side mirror? Based on my own messing around, I'm inclined to say no, the cars look the same distance in the two mirrors. I'm inclined toward what I will call the Multiple Veridicalities view. There's more than one way in which a car can look like it's 60 feet behind you. There's a flat-driver's-side mirror way and there's a convex passenger's-side-mirror way. And both ways are equally veridical. Flat mirrors aren't inherently more veridical; convex mirrors aren't inherently distortive. It's a matter of what we're used to.

Anyhow, that's the view I'm inclined toward, partly on introspective grounds, partly on grounds of theoretical elegance. Now if it can be sustained, we can consider other cases of multiple veridicalities too: how things look through my new progressive-lens spectacles vs. how things look through my older single-correction prescription glasses; how the moon looks when it's near the horizon vs. how it looks at zenith; how the oar looks when partly immersed in water vs. how it looks in plain air. Is there more than one way in which the oar can "look straight"?

I do have a bit of trouble in good conscience acquiescing to the Multiple Veridicalities view in the oar case. What I'd *like* to be able to say is that to the skilled boater, the oar partly submerged in water no longer looks crooked. It looks straight. It looks just the way a straight oar *should* look when partly submerged in water. There are now just two different and equally good ways in which an oar can look straight – the plain air way and the half-submerged way, and neither experience more closely resembles the straightness of the oar as it is in itself? Maybe if we're inclined to think otherwise, that's only an accident of what is more common in our experience and what is less common. If there were, perhaps, a world in which every straight thing were always seen half-submerged in a refracting medium, we would say "that looks

straight, straight, straight!” and when finally for the first time an oar was pulled into plain air we would say “oh, how crooked it looks; what an illusion!” As I said, that’s what I’d *like* to say. It would be cool if it were true. But I’m not sure that I know that it’s true.

If we treat the convex mirror case as I’d like to, then it seems we can construct a garden path to the oar case, via intermediate cases such as hypothetical windshields that contain a refractive portion to allow a broader field of view, skilled spearfishers who never aim wrong, corrective eyeglasses that habitually slip down the nose, head-mounted cameras, etc. We could consider fish-eyed jewelers and sphere-eyed gods (Schwitzgebel 2012). It would be elegant if we could treat all these cases in a unified way.

3. Inverting Lenses.

Let’s consider another famous case, from the history of psychology, the case of the inverting lenses.

Inverting lenses were first tried by George Stratton in the late 19th century (1896, 1987a-c). Stratton covered one eye and then presented to the other eye a field of view rotated 180 degrees, so that top was bottom and right was left. In his primary experiment, he wore this lens for the bulk of the day over the course of eight days, and he gives detailed introspective reports about his experience.

Stratton adapted to his inverting lenses, as do others who wear the lenses for an extended period. But what does adapting consist in?

The simplest possibility to conceptualize, perhaps, is this: After adaptation, everything goes back to looking just the way it did before one donned the inverting lens. Let’s say that pre-experiment one looks out at the world – at, say, a lamp. Let’s call the way things look, the way

the lamp looks, before you put on the lens, “teavy”. Now you put on the lens and everything seems to have rotated 180 degrees. Let’s call that visual experience, that way the lamp looks to you now, “toovy”. Over the course of adaptation, then, what happens on this view is that things go back – perhaps at first slowly, unstably, and disjointedly – to looking “teavy”. After adaptation they look just the same way they would have looked if you had never donned the inverting lens in the first place. This is the way adaptation to inverting lenses is often described, for example by James Taylor in his influential 1962 book and by Susan Hurley and Alva Noë in their 2003 article on the topic.

But there’s another possibility – I think a more interesting one. That’s the possibility that things remain toovy throughout. They never go back to teavy. But you *get used to* their looking toovy, so that you lose the *normative* sense that that’s a wrong or misleading way for things to look. The lamp no longer looks “upside-down” in the normative sense of looking like the wrong side is on top; but it retains its “upside-down” look in the non-normative sense that the visual experience is the reverse of what it was before you put on the inverting lenses. To the adapted mind, there would now be two ways in which a lamp might look to be right-side up – the pre-lens teavy way and the post-lens toovy way. Just like with the convex mirror there would be multiple veridicalities – two ways of something’s looking to have the same objective set of spatial properties and position and orientation relative to you.

Now it’s an empirical question whether the Multiple Veridicalities view is correct about inverting lenses or whether things really do just go back to looking teavy after adaptation. And it’s a tricky empirical question – one that requires I think a fairly subtle sense of what the possibilities are, a subtle sense of the different things one might mean by saying that something “looks like it is to the right or to the left” or “upside-down”. And as one might expect, the

introspective reports of people who have tried inverting lenses are not entirely consistent or unequivocal. However, my assessment of the evidence is that the experimenters with the best nose for this sort of nuance – Stratton himself and then in the 1960s Charles Harris (1965), favor the Multiple Veridicalities view. There's more than one way for a lamp to look right-side up.

4. Conclusion.

Can I bring this conclusion back to the Locke-Kant dispute with which I started? Well, not as fully as I would have liked! But I do think that if the Multiple Veridicalities picture is correct that does put a certain amount of pressure on Locke's view. If *this* resembles things as they are in themselves as much as *that* does, although *this* and *that* are phenomenologically very different, that seems to put an upper bound on the degree of resemblance we should expect between the character of our experience and the character of the mind-independent reality behind that experience.¹

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*** [http://www.igs.net/~pballan/Gibson\(chapt14,1966\).htm](http://www.igs.net/~pballan/Gibson(chapt14,1966).htm) Gibson 1966

*** Way in which it's not Kantian – exp not Euclidean? Ways in which it's possibly not Euclidean open possibility of non-Euclidean things in themselves? Or are distorting mirrors still Euclidean experiences? I guess they are – at least in the same way that “smaller in the distance, elliptical coin” is still Euclidean; or maybe *not* in that way, but that at least defuses the inference from toovy/teavy fisheye-lens to non-Euclidean...?

thoughts from PSA

- * sense modalities of shape conflict or not? maybe not? but if sense modalities individuated by sensorimotor contingencies, well sensorimotor contingencies slightly different between flat and convex mirrors, could create garden path and want unified treatment
- * people with permanent fish-eye lenses
- * slight diff eg with Hatfield
- * not perceiving distance instead safety or tau?
- * do railroad tracks converge in the distance?
- * multimodality offers different ways of experiencing distance too
- * Papineau: different experience but not different in *how that distance looks*
- * bathroom mirror case; restaurant mirror case
- * undeceived argument weak, e.g., in “do things look flat?”
- * ellipse vs circle when tilted already a radical difference?