

# The Openness of Illusions<sup>1</sup>

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What is the philosophical significance of illusions? In epistemology, illusions turn up regularly in arguments for external-world skepticism. But Tim Crane argues that they raise problems antecedent to issues about the reliability of perception. The possibility of illusions, Crane says, threatens our “ordinary conception of perception,” according to which perception is or involves “openness to the world.” (Crane 2011) This “openness,” as Crane characterizes it, involves two ideas: first, that the objects of experience, the things that we perceive, are mind-independent, and second, that the phenomenal character of the experience has, as Crane cautiously puts it, “something to do with the nature” of those objects. So in the typical case, a case of veridical perception, when I have an experience of some object *o*’s having a property *F*,<sup>2</sup> the experience will be “open” both in the sense that I am directly aware of a mind-external object, *o*, and also in the sense that *o*’s being *F* somehow determines or explains the character of

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<sup>2</sup> I take it that Crane is not leaning heavily on “object” here – that is, that he is not requiring that perceptual experiences be of objects as opposed to stuff. I take it the formulation is also meant to allow that a person can, in a certain sense, “see nothing,” in the sense that one can, for example, look out on a featureless scene without recognizing anything as an object.

my experience, its being *as of an object o's being F*. In the atypical case, the case of falsidical experience, I have an experience in which *it seems to me as if* some object *o* is *F*, but there is no mind-independent object *o* that actually is *F*.

There are two kinds of falsidical experiences: illusions and hallucinations. Crane considers that both kinds threaten openness. But if so, I say that they do so in importantly different ways. Recall the two aspects of openness identified by Crane -- call the first the “world-involving” aspect, and the second the “world-determined” aspect. Then “openness” can be taken to be the thesis that perceptual experiences are both world-involving and world-determined. Hallucinations would then fail to be open because they fail, in the first place, to be world-*involving*; they are, by definition, *endogenously* generated sensory experiences.<sup>3</sup> A defender of openness might, with justice, deny that hallucination should be considered a kind of perceptual experience at all; hallucinations satisfy openness vacuously. It might be an interesting question why an experience I have in some circumstance in which there is no object *o* with property *F* might have – or seem to have – the same character as a veridical experience of *o's* having *F*, but I don't see that a defense of openness needs this question answered.<sup>4</sup>

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<sup>3</sup> I set aside, for now, after-images and other hybrid illusion/hallucination cases.

<sup>4</sup> Certainly disjunctivists deny that hallucination falls under the same experiential type as veridical perception. But most classify illusions together with hallucinations. That is, in the terminology of Byrne and Logue 2009a, most disjunctivists are “V v IH” disjunctivists, rather than “VI v H” disjunctivists. Byrne and Logue place Harold Langsam in the second category, but Langsam seems not to make much of the idea that veridical perception and illusions both have real-world objects, and it's not clear that his notion of “illusion” coincides with mine. Fish 2009 seems sensitive to the point I'm making here in denying that hallucinations have “acquaintance-grounding” phenomenal content. But in general, disjunctivists' discussions of both illusions and hallucinations are driven by epistemological concerns, and focus according on the apparent phenomenological similarity between some veridical and some falsidical states. My point is that the fact that hallucinations are sometimes, or could be mistaken for a veridical perception does not in itself threaten the intuition of openness. I'll have more to say about disjunctivism below.

Illusions, however, present a different problem. Illusions *do* involve perceptual encounter with the extra-mental world, and so *are* world-involving. In the case of veridical experiences, their being involved with the world is what enables the world to determine them to have the character they have. But somehow, in the case of illusions, world-involvement doesn't work the same way. Thus, if I have the illusion of seeming to see that *o* is *F*, there *will* be something out there. It might be that it's *o* out there, just as I thought, but that *o* is *G* and not *F*. Or, it might be that what I take to be *o* is really something else. Either way, it cannot be "something about the nature" of the actual object of my perception that determines my experience to have the character that it has, viz., the character of *o*'s being *F*. Illusions are world-*involving* without being world-*determined*. This strikes me as an interesting situation.

Remember to refer to Brewer later on.

So here's an example to focus on. I look out my window and see my dog, Freya, lolling on the grass in the sun. Openness says that the object of my experience is a dog, lolling. It also says that the lolling-dog character of my experience, its "lollidogginess," "has something to do with the nature" of this objectively lolling dog. So far so good. But suppose I look out again, and this time, although I take myself to still be seeing my still-lolling dog, it just so happens that she has roused herself and gone away, and that what I take to be Freya at the moment I look out is nothing but a peculiar play of shadows on the lawn. No dog, no lolling. What, then, is the object of my experience? And if it's not a lolling dog, what explains the experience's lollidoggy character?<sup>5</sup>

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Ironically, it is the assumption that hallucinations *are* a type of perceptual experience, together with the insistence that perceptual experiences must have objects, that generates a drive toward sense-data.

<sup>5</sup> Or rather (to avoid begging the question against the disjunctivist), what explains the experience's being indistinguishable from a lollidoggy experience?

The object of the second experience cannot be Freya. (Nor indeed can it be any dog. I do not mean to be raising the special problem of *singular* or *particular* perception right now.) More precisely: Freya cannot be the object of my second experience *in the same way* as she was the object of my first experience. We might say of both experiences that they were experiences “of” Freya, in the ontologically neutral sense in which thoughts or pictures can be “of” things that don’t even exist. Freya could be, in other words, the *intentional* object of both experiences. But openness is supposed to invoke a stronger relation than mere aboutness. For my experience to be open to Freya, she has to actually be there.

But on second thought, it’s not so clear that the fan of openness should allow that Freya was even the intentional object of my second experience. According to the openness intuition, the *character* of my first experience, the way it was like to have that experience, should be attributable to the objective character of the world I encounter perceptually. It is supposed to be the world itself that determines the way the world seems to me to be. If we think of this “way things seem to be” as the intentional content of the experience (as we earlier considered Freya to be the intentional object of the experience), then the “world-determined” aspect of openness is what *explains* why my first experience had the particular intentional content that it had. After all, if I am perceptually open to an objective world containing an objectively lolling dog, then how else *could* my experience have been *but* lollidoggy? Yet my second experience seemed also to be lollidoggy, and in that case, the perceptual door opened onto a canine-free landscape. Why should I have experienced *that* as if it were a world containing a lolling dog?

The intuitive tug of openness is that it seems to capture – even to explain – the most salient features of perceptual experience in the veridical cases. But precisely to the extent that openness accounts for these features of veridical experiences, it makes illusions seem

mysterious. And this is why I think illusions pose a different – and knottier – challenge to the idea of openness than hallucinations do. Hallucinations have nothing to do with the world. There’s no reason to expect that anything about the world will constrain the forms they take, or the meanings they suggest to us. If you’re going to start seeing things that *aren’t* there, why *not* pink elephants? Illusions, however, involve *some* kind of perceptual encounter with the world, and if so, we’d expect that the world somehow *disciplines* the character of the experience, just as it is supposed to do in the veridical cases. If involvement with the world ensures a perceptual experience a world-determined character in the veridical cases, why does it fail to do this in the falsidical ones?

It appears that a defense of openness requires one to say that in the case of falsidical perceptions, there is something defective in the nature of the perceptual contact the subject makes with the world. What could the defect be? One tempting thought is that veridical and falsidical perceptions are open to the world to different *degrees*. If falsidical perception is insufficiently open, if it is not *fully* open to the world, then it would be less mysterious why the world did not fully determine the character of the experience. Scott Sturgeon has proposed a scheme that embodies this idea. According to Sturgeon, every visual experience possesses both a “portrayal side” and a “perceptual side.”<sup>6</sup> (These “sides” correspond to what I’ve called the two aspects of openness: character and object, respectively.) Common sense taxonomies of visual experiences, Sturgeon claims, can be reconstructed in terms of the way these two sides “interweave.” Veridical perceptual perception, “the best kind of visual experience,” is “fully grounded in perceptual contact with the world.” It occurs when “the portrayal side of the experience springs fully from its perceptual side.” Other experiences then range away from the

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<sup>6</sup> Sturgeon 2008. I should note that Sturgeon introduces his scheme for purely expository purposes; he makes no claim that it contains a solution to the problem of illusion.

veridical pole according to the degree to which their portrayal sides are not grounded in their perceptual side. “Visual experience varies in the degree to which its conscious portrayal of the world is grounded in its perceptual contact with that world.” Illusions, then, are intermediate cases: “What makes for illusion...is conscious portrayal of the world yoked to, but not drawn wholly from, perceptual contact with it.” Hallucination lies at the opposite pole from veridical perception. (Sturgeon 2008, 114)

Sturgeon does not explicate the term “grounded that he is utilizing; nor does he say exactly how portrayal sides ever “spring from” or get “yoked to” the world, to whatever extent. But it would appear that the relation he’s after is some kind of determination relation – possibly causal, but not necessarily. So perhaps we can interpret “grounding” to mean something like this: An experience is “grounded” in perceptual contact with the world to the extent that the portrayal side of the experiential state is determined (in some way) by the state of the external world at the point at which the experience occurs. If so, Sturgeon’s continuum gives fair expression to the idea that veridical perceptions are *fully* open to the world, while falsidical perceptions are only *partially* open. Hallucinations, at the opposite pole from veridical perceptions, are, as they should be, completely closed – their portrayal sides are not at all determined by perceptual contact with the world.

Tempting as it may be, however, this approach will not work. The view posits a kind of difference between veridical perception and illusion that conflicts with what is known empirically about visual perception. Vision science makes clear that the difference between veridical experience and illusions is not at all a matter of the degree to which each owes its character to its contact with the external world. From a psychophysical point of view, veridical experiences are artifacts, no less than falsidical ones. They are equally constructions built out of

sensory data supplemented by subjectively supplied material. This means that there is no positive pole to anchor Sturgeon's continuum, no case in which the "portrayal side" of an experience ever "springs fully from" perceptual contact with the world. Illusions and veridical experiences are, in other words, equally open.

### *What Vision Scientists Say About Illusion*<sup>7</sup>

Contemporary vision scientists take for granted an information-processing model of visual perception. Specifically, they take it for granted that perception is or involves an inference-like transformation of information explicitly present in the retinal array into representations of the distal environment. Crucial to this model is the idea that perceptual processes are *ampliative*: the end product of perception, the *percept*, contains more information than was present in the retinal array. Stephen Palmer explains, for example, that a fundamental problem for vision science was to figure out how the visual system solves the "inverse problem." The problem is that while our perceptual phenomenology is of objects spread out in three-dimensional space, the input to perception, the retinal image, is an informational array of only two dimensions. Since there are an infinite number of three-dimensional layouts that could have produced any given two-dimensional array, perception cannot simply "take the inverse" of the optical image. Something internal to the visual system must, therefore, serve either to supplement the information encoded in the retinal signal or else to constrain the inferences drawn on its basis. Thus, Palmer tells us that the "dominant" approach to solving the inverse problem is to assume that 3-D perception results from the visual system making a lot of highly

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<sup>7</sup> All of the illusions I refer to in this paper may be viewed at Michael Bach's enormously useful website: <http://www.michaelbach.de/ot/>

plausible assumptions about the nature of the environment and the conditions under which it is viewed. These assumptions constrain the inverse problem enough to make it solvable most of the time. (Palmer 1999, 23)

The ampliative character of visual perception is evident also in constancy phenomena. We perceive an interior wall to be a uniform color, despite there being great variation in the average wavelengths of light reflected onto our retinas by its various sub-regions. Similarly, we perceive a person walking toward us as having a constant size, even though the ocular image of that person is steadily growing. And here, too, the explanations refer to “assumptions” made by the visual system: assumptions about the direction of illumination, about the boundaries of objects, and about the significance of a rapidly expanding retinal image.

Richard Gregory, accordingly, describes visual perception as a type of empirical inference, one that would be highly shaky were it not for the bolster of endogenous “knowledge” (Gregory 2009):

For perception, there is always guessing and going beyond available evidence. On this view, the closest we ever come to the object world is by somewhat uncertain hypotheses, selected from present experience and enriched by knowledge from the past. (Gregory 2009, 10)<sup>8</sup>

I want to draw two lessons from all of this. The first is that normal perception, veridical perception, is *not* “fully grounded” in the world, not if that means that the character of the experience is determined entirely by the character of the perceptual object. Rather, veridical perception (for humans) essentially involves endogenously supplied information. It is this

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<sup>8</sup> Gregory is here also highlighting the *selectivity* of visual perception, which involves the *loss* of information contained in the retinal signal. This feature of perception only strengthens my case, but for the sake of simplicity, I will ignore it in the rest of my discussion.



information that makes possible the perception of external objects as possessing stable shapes, colors, sizes, and locations. Without it, we would not be able to resolve the inherent ambiguities in the retinal signals on which all perception is based. Veridical perception, is world-involving without being fully world-determined.

That, of course, was how we characterized falsidical perception -- which brings me to the second lesson. Illusions do not differ from veridical perceptions in the degree to which their character is determined by the world. Falsidical perceptions have exactly the same relation to the world as veridical perceptions. Perceptual processing begins the same way in both cases, with the data embodied in the retinal array. These data are determined in the same way in each case by the character of the distal scene and the laws of optics. The difference between veridical and falsidical perceptions thus cannot be attributed to differences at the point of interface between world and subject. Nor can the difference be located in the subsequent perceptual processing of the sensory data. It's true that the production of a falsidical perception involves empirical risk, and that it depends upon content contributed by the subject rather than by the world, but there is no less risk involved in the production of a veridical perception, and the endogenously supplied "hidden assumptions" are the same in both cases. Illusions and veridical perceptions, I contend, are equally "open" to the world.

What should we conclude from all of this? One might simply dismiss all these empirical considerations on the grounds that the story I've been telling has no bearing on the philosophical issue with which we began. The philosophical problem of perception arises at the level of conscious phenomenology. Whatever we learn about the subpersonal computational processes that underlie perceptual experience, perception does not feel to us as if it is inferential. We do not experience a separation of sensory data from perceptual conclusion, nor do we experience the

intrusion of any “assumptions” mediating the movement from one to the other.

I grant that all this is true. But my appeal to vision science is not meant to be a reconstruction of the phenomenology of perception. I am not claiming, for example, that what we “really” experience are shapes and colors, rather than whole objects, or that the contents of visual experience are fixed by the physical sensitivities of the retinal transducers. Rather, I am trying to give substance to the idea of world-determination, to spell out the precise way in which the phenomenal character of the experience might have “something to do with the nature” of the objects of that experience. If we assume that the character of a perceptual experience at least supervenes on subpersonal states of the perceiver, then *any* kind of “determination” relation between perceptual states and the world is going to depend on the world’s somehow affecting those subpersonal states. What the empirical considerations show, in that case, is that the world is no more determinative of the character of veridical experiences than it is of falsidical ones.

This result leaves us with two choices. One would be to conclude that intuition about perception is simply mistaken, that the whole idea of “openness” is chimerical, and that perception never simply presents the world as it is. Palmer, at places, encourages this line of thought:

[Visual] illusions support the conclusion that perception is indeed fallible and cannot be considered a clear window onto external reality. The reality that vision provides must therefore be, at least in part, a construction by the visual system that results from the way it processes information in light. (Palmer 1999, 8)

Yet he does not endorse the further conclusion that there is *no* difference between veridical and falsidical perceptions. According to Palmer, there is still a distinction that can and should be drawn in terms of the fit between the “hidden assumptions” and the circumstances in which a

particular perception occurs. The passage quoted above continues:

The nature of this construction [by the visual system] implies certain hidden assumptions, of which we have no conscious knowledge, and when these assumptions are untrue, illusions result. (Palmer 1999, 8)

Illusions, then, are the conclusions of perceptual inferences that occur in circumstances in which the endogenously supplied premises – the hidden assumptions – are false. Palmer provides many examples to show how theorists following this approach have proffered explanations for a variety of familiar illusions. In some cases, the illusion is hypothesized to be the result of a single mistaken assumption: in the Ames room illusion, for example, our visual system assumes that it is looking at a room with a rectangular footprint (Gregory 2009, plate 4), and in the hollow face illusion, where the visual system may assume that illumination comes from above, or perhaps that faces are always convex (Hill & Johnston 2007, Gregory 2009, 128-9) Sometimes, the illusion may involve conflicts among hidden assumptions: in the case of the Ames room, the illusion results from one assumption (that rooms are rectangular) winning out over another (that people are roughly the same size.) (Palmer 1999, 247-8). Sometimes theorists taking this approach disagree about precisely *which* hidden assumption is responsible for the falsidical effect. (Simanek 2010)

In Palmer's view the hidden assumptions bear semantic content. They record contingent, but highly typical and stable facts about the perceptual environment. Some of these assumptions may be natively specified, and some may be the result of experience. But their etiology doesn't matter; it is their in-general adequacy that makes perception highly reliable overall:

[Vision] makes use of inferential rules of thumb – based on the additional assumptions – that are not always valid and so will sometimes lead to erroneous conclusions, as in the

case of perceptual illusions. Under most everyday circumstances, however, the assumptions *are* true, and so normal visual perception is highly veridical. (Palmer 1999 23-4)<sup>9</sup>

There are, however, problems with this line. First of all, as Brian McLaughlin notes in a recent paper, there appear to be some empirical problems with the particular hidden-assumption explanations that have been offered for certain illusions. Richard Gregory's account of the Mueller-Lyer illusion, for example, says that we interpret the line with arrowheads appended as a corner projecting toward us, and the line with arrowtails as a corner receding from us. This explanation relies crucially on the arrowhead and arrowtail details; without them, there is no visual resemblance between the lines in the Mueller-Lyer display and actual corners in physical space. Given that resemblance, Gregory's inference goes through: the visual system, treating the line displays as protruding and receding corners, and correctly gauging their equal ocular lengths, appeals to the hidden assumption that if items at different distances produce images with the same ocular lengths, then the length of closer distal source is actually shorter. It turns out, however, that the illusion of inequality is still quite vivid – for many people, exactly *as* vivid – if the arrowheads and tails are replaced by circles. Since the resulting configurations do not look visually like corners – nor, indeed, like any common distal scene – it's hard to see how the particular assumption cited in the explanation of the canonical Muller-Lyer could be at work here.<sup>10</sup>

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<sup>9</sup> The reader will note that Palmer here posits two sources of perceptual error – the inherent inductive risk involved in reliance on the presumably non-deductive “rules of thumb”, as well as the possible falsity of the hidden assumptions. This is an interesting wrinkle, but I don't think it makes a difference to my argument here. It is, however, the subject of my “In Praise of Loose Talk: Three Ways of Following a Rule” [unpublished MS]

<sup>10</sup> In *Seeing Through Illusions*, Gregory simply notes this fact, without commenting on its implications for his explanation. (189)

Another empirical shortcoming is that, in several cases, explanations of illusions in terms of false hidden assumptions seem to make false predictions about the subject's phenomenology. One commonly-proffered explanation of the moon illusion posits a hidden assumption that the sky is a flattened, rather than spherical, dome. Under that assumption, the moon will be presumed by the subject's visual system to be closer when it is at the top of the sky than when it is at the horizon. Under the additional assumption (also invoked in Gregory's account of Muller-Lyer) that when two objects at different distances project the same-sized image, the more distant object is actually bigger, the subject is held to infer that the moon at the horizon is actually larger. When real subjects are asked, however, about which condition is the one in which the moon *seems closer*, they tend to report that it's when the moon on the horizon.<sup>11</sup>

McLaughlin argues that such considerations as these do not challenge the whole idea that substantive hidden assumptions mediate perceptual inference; he contends that they threaten only the specific psychosemantic hypothesis that the hidden assumptions embody the specific generalizations about regularities in the external environment that have been proposed, generalized that employ everyday categories of environmental variation. More likely, McLaughlin argues, the information encoded in the hidden assumptions will track properties of a different type and at a higher level of abstraction than the properties captured in our familiar terms. The perceptually relevant invariants in the environment that the visual system exploits in the construction of percepts may be difficult to discover, and may fail to correspond to categories we find natural. (McLaughlin 2011).

Still, even if it is possible to repair the hidden assumptions account of illusions by finding

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<sup>11</sup> See Palmer's discussion of Kaufman and Rock's "apparent distance" theory: Palmer 322-4. Palmer notes that there is an entire book chapters of which present competing explanations of the illusion: Hershenson 1989, and I have already mentioned the Simanek website. See also McLaughlin 2011.

appropriate intentional contents to assign to the assumptions, there is still philosophical reason to be dissatisfied with this approach. The idea that we get things *right* perceptually when the hidden assumptions are correct, and *wrong* when the hidden assumptions are false, encourages the thought that, in cases of illusion, there is some *better way things could look* – indeed, that things don't look the way they *ought to*. But if the vision science is correct, this should make no sense. It's not just that our perceptual states are the only way they can be, given the perceptual machinery with which we are equipped, and the circumstances in which we find ourselves. The point is that, if the empirical story is even roughly right, *all* perception is artifactual. The properties instantiated in perceptual experiences are *never* direct reflexes of the familiar properties we attribute to objects in the external world.<sup>12</sup> In that case, the properties we experience in veridical visual perceptions may be entirely different from the properties we attribute to distal objects on the basis of those perceptions. If so, the properties present in visual perception would lack the kind of correspondence to properties of distal objects that would be necessary to support the any claim about the object's familiar properties being accurately represented or not.

Consider the example of the straight stick in water. This is generally considered to be a case of illusion – the stick, says almost everyone, *looks*, but *is not*, bent. Of course as Austin (Austin 1962) pointed out, such a report is false if it's taken to mean that the stick looks the same way a genuinely bent stick looks when it's stuck into water.<sup>13</sup> We're simply mistaken if we think that.

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<sup>12</sup> Except, possibly, color. But given the controversy about the ontology of color, and about the existence of an appearance-reality distinction with respect to color, I hope I may be permitted to set it aside, at least for now.

<sup>13</sup> See also Travis 2004. I realize that many philosophers, following Chisholm (Chisholm 1957) hold that “looks”-talk is ambiguous, or at least polysemous. I don't think, contra Sainsbury (Sainsbury unpublished MS) that there is any neat grammatical segregation of these senses. The data he cites appear to me to be dialect-relative. In my dialect of English, I can use the single

But then what do we mean? I think that what we have in mind is that the straight stick doesn't look the way we *think* a straight stick in water *ought to* look – we would prefer, perhaps, that the visual edge of the stick stay straight as it passes into the water. But a straight stick in water *cannot* look that way to a creature like us; the visual appearance that we may inchoately wish for is, after all, one that our perceptual systems, in their wisdom, have pre-determined to serve as the appearance of a (certain kind of) *bent* stick in water. If the visual system regularly and reliably uses that sort of appearance – call it, tendentiously, “straightish” – to present to us distal scenes involving bent sticks in water, why should we take the straightishness of the percept to be a misrepresentation of *straightness*? Why not take it to be an indicator of, well – *straightishness*, a property possessed by certain bent sticks in water, but always lacked by submerged sticks that are actually straight?

Here's what I'm suggesting. Instead of taking the facts about the constructive character of visual perception to defeat the claim that perception is *ever* “open,” take them instead to support the claim that perception is *always* open. I think there is some independent plausibility to this suggestion. I proposed earlier to gloss Sturgeon's notion of “grounding” in terms of the degree to which the character of a perceptual experience was determined by the character of the perceptual object. What vision science tells us is that the character of falsidical experiences is determined by objective features of the environment to exactly the same degree as is the character of veridical experiences. In both cases, the input to the experience is fully determined by the properties of external objects responsible for structuring the light that hits our retina, and

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expression “looks like” in either an epistemic or a comparative sense: “It looks like no one's home” can mean either “I conclude, from the way things look, that no one is home” or “Things look the way they look when no one's home.” In any case, the demonstration that such an ambiguity exists would not affect my point. “It looks like that stick is bent” is fallacious if the first sense is intended, and false if the second one is. (Thanks to Mark Sainsbury for bringing this issue to my attention, and for providing me with a copy of his paper.)

in receiving these data, we are fully open to those properties. And while it is true that subsequent perceptual processing introduces subjective elements into the perceptual construct, these subjective elements are invariant across perceptual contexts. The perceptual function is thus, effectively, a function of one argument: the character of the external world.

Here I am taking for granted another empirical assumption about vision, and that is that visual perception is *modular*, or at least *informationally encapsulated*, in the sense of Fodor 1983. That is to say that the only endogenous information to which visual processing is sensitive is information embodied in the perceptual system itself; the construction of the percept will not be affected by the perceiver's background knowledge or beliefs. That is not to deny that the hidden assumptions can be shaped by experience; it is only to say that if they are, the shaping will be a matter of intramodular modification (perhaps unsupervised network training), rather than an effect of rational-causal belief revision. I will say more about this assumption below.

### *Back to Philosophy – Appearance Properties and Illusions*

I started this essay with Tim Crane's observation about a threatened antinomy in our ordinary conception of perception. Having set out the problem, Crane surveys the available philosophical options for staving off contradiction. There's one that he dismisses rather quickly.

To deny that illusions are possible would be to deny that we could have experiences when it appears as if an object has a property which it does not have in reality. This is not a popular way to deal with the problem, as there are plausibly many examples of such experiences. (Crane 2001)

I am, in a sense, denying the existence of illusions; I'm denying that the type of experience of which there are plausibly many examples has the characteristics that Crane takes to define



illusions. Crane, recall, characterizes an illusion as an experience in which “it seems to one as if some object *o* has the property *F*, when there is no mind-independent object *o* that is actually *F*.” I certainly do not deny that there are many cases in which we describe our experience and our situation in just such a way: we look at the straight stick in water and say “It seems like the stick is bent.” What I am denying is that the feature of our experience that we try to capture with the locution “It seems like ... is bent” is a feature that represents the objective shape-property of being bent. The feature that is actually present in our experience of a straight stick in water is a feature that infallibly corresponds to a property the stick actually does possess, namely the objective feature of objective sticks that triggers visual systems like ours to produce the particular kind of percept it produces. (We lack a name for this property, but following the pattern set above, we could call it *bentishness*.) Our experience, therefore, does not have the content “the stick is bent.” It rather presents to us a bentish stick, something it cannot fail to do, given the openness of perception and the manifest bentishness of the stick.

Obviously, I am positing *appearance properties*. I am hardly the first person to do this, and my story about appearance properties is largely consonant with the accounts others have offered.<sup>14</sup> I claim that appearance properties are properties of objects: it is an objective feature of some sticks in water that they are straightish, and an objective feature of other sticks in water that they are bentish. Correlatively, I deny that appearance properties are subjective or mind-dependent. They are not properties *of* experiences. Thirdly, I contend that appearance properties are, at least with respect to perceiving subjects, non-relational. Appearance properties do not depend for their instantiation on the occurrence of any perceptual event. They are intrinsic to the objective scenes that constitute the objects of perception. I would be happy to say that they are

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<sup>14</sup> See, for example: Shoemaker 2006, Levine 2006, Hill 2009.

“response-dependent” properties in the sense that their status as a kind, as a real property, depends on the fact that they evoke certain responses in certain kinds of perceivers, but I do not consider that fact to impugn their objectivity or reality.<sup>15,16</sup>

My account differs, however, from most other accounts in denying that perceptual experiences possess genuine representational content. The character of a perceptual experience, on my view, is determined by, and thus reliably indicates, appearance properties of objects. One may say, if one likes, that perceptual experiences *represent* those appearance properties, or that they have those properties as their content, but this would be “representation” in an attenuated sense. Many philosophers hold that where there is representation, there is the possibility of *misrepresentation*; but I want to say that appearance properties are properties of the mind-independent world to which we are *fully open*. It is because perception involves the registration or indication of appearance properties that there is no such thing as perceptual misrepresentation, and thus, in a sense, no such thing as an illusion.

My thesis, that perception is openness to the appearances of things, solves, I think, the very specific problem that I saw illusions as posing. Let’s return to my original example. When I first look out the window, I have a perceptual experience of a lolling-dog. When I next look out, I have an experience of what turns out to be a grassy patch in shadow. The problem posed by such a case for the intuition of openness, I argued, was not only that there appeared to be a mismatch between perceptual object and perceptual character in the second case, but also that it was mysterious *why* a perceptual experience the object of which was a shaded patch *should* have the same character as a perceptual experience of a lolling dog. On my current proposal, the

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<sup>15</sup> I make the case that facts about the sensitivities of epistemic agents have ontological import in Antony, 2008. For another defense of the objectivity of response-dependent properties, see Pettit

<sup>16</sup> In this I differ with Levine 2006.

mystery is dispelled. (You're gonna love this.) The reason that my second experience had the same character as my earlier experience of a lolling dog is that the two scenes I perceived *looked the same way*. Both scenes possessed the appearance property of lollidogginess. Since they both actually *were* lollidoggy, my visual system made no mistake in classifying them together – it did not somehow assign the wrong percept to the patch of shaded grass. It has presented to me, faithfully and without error, a shaded patch of that exact type. There's no other way that a patch shaded in just that way *ought* to be presented, not to a creature like me.

No doubt the reader is entertaining fleeting thoughts about theft and honest toil. I've saved openness, it may seem, only by stipulation. I've traded off the most natural way of characterizing our perceptual experience – at high intuitive cost -- for a merely nominal and probably useless form of “openness.” Too harsh! I'll concede that I manage to preserve openness only by radically reforming the “semantics” of perceptual states, by denying them the intentional contents they would need in order to ever be falsidical. But it's worse than that. I am not proposing to *reinterpret* them; I propose to deny them propositional content altogether. I want to agree with Charles Travis that they do not *assert* anything. This was the point of my cagey formulations above: perceptual experiences *present* the world to us *in* a particular way; they do not *tell* us that the world *is* that way.

Percepts – the products of perceptual processing – are indices. They carry information about the world, in the strict, Dretskeian sense of “information.” (Dretske Given the occurrence of a given visual index, the probability that a scene possessing the appropriate appearance property has occurred is one. The information carried by a visual percept is something like this: “here is one of the infinite numbers of disparate scenes that look *like this*.” What that means for the semantics of the percept is that if we want to say that it *represents* those scenes, we must say

that it does not represent them *robustly*.<sup>17</sup> There is no possibility here of the percept/index occurring in the absence of a scene that is part of its content; there is no possibility of *misrepresentation*.

That, I contend, is a good thing, for many reasons. To begin with, it means that there is, in an important sense, a “given” in perception. Although we are not passive in the production of a percept – the visual system must actively construct it – it is still the case that perception is a kind of “reception” of the world. As Jerry Fodor noted long ago, it is the bottom-up character of perceptual processing that secures the objectivity of empirical belief. (Fodor 1983) As long as the perceptual output is a strict function of the sensory input, the transformations effected by perceptual processing do not diminish its objectivity – its world-determinedness is guaranteed by its world-involvement, just as we’d like.<sup>18</sup>

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<sup>17</sup> There are two senses of “robust representation” floating around, and I want to be clear which one I mean here. I am using “robust” in the sense of Fodor 1987, according to which a term robustly represents a content if tokenings of the term are sometimes caused by things not part of the term’s content. Robustness in this sense is what gives rise to the disjunction problem; it makes possible, but does not entail misrepresentation. Terms that merely carry information in the Dretskean sense given above are not robust. But “robust” can also be used to characterize a view of reference as a substantive relation, in contrast with “deflationary” views, according to which (roughly) nothing more can be said about the reference relation than is given by truisms like “‘horse’ refers to horses.” (I prescind from the subtle differences between deflationism and disquotationalism.) I do not mean to deny that perception is robust in *this* sense. I do not deny the possibility of giving a substantive psychosemantics for percepts, or for the hidden assumptions. It strikes me as a perfectly reasonable empirical question to ask what properties of external objects are involved in the lawful regularities characterizing the production of visual percepts. Thanks to Brian McLaughlin for prompting this clarification.

<sup>18</sup> Richard Gregory denies that perception is a wholly bottom-up process, and wants to explain some illusions in terms of cognitive interference from “above.” I ought to defer to him about this, but I don’t, for two reasons: first, some of what he calls “cognitive interference” may be a matter of training within the visual processing module (as when he cites knowledge of probabilities), and second, some of the phenomena he wants to explain this way may be really post-perceptual. I am happy to allow that some illusions may be best explained as our *cognitively* drawing false conclusions from the character of our visual experience. In an earlier version of this paper, I suggested a categorical difference between illusions of that sort and illusions I called “intramodular.” I thought at that time that this distinction explained something

The bottom-up character of perceptual processing is an aspect of the modularity of perception, mentioned in the previous section. I want now to say why I think the modularity of perception supports my unorthodox view of the semantics of percepts. Basically, it is because the informational encapsulation of perceptual “inferences” removes any empirical pressure to treat them as *genuine* inferences, that is, as general-purpose semantic engines, rather than as special-purpose computational mechanisms that simply *are describable* in inferential terms. There are two sorts of considerations that rationalize the stronger imputation in the case of central cognition.<sup>19</sup>

One is that cognition needs to be able to deal with subject matter from any domain. We can think about *anything*, and we can think about anything *in any way*. The visual system, however, has proprietary inputs – it’s colors and shapes, shapes and colors, all day long – and it has a limited number of things to “say” about them. Vision needs no representational flexibility, and thus needs no mechanism for generating or computing upon arbitrarily many novel representations. The “vocabulary” of the visual system is thus bounded in a way that obviates the most powerful argument for compositional representational structure: productivity.

The second sort of consideration has to do with the nature of the computations effected within the visual system. Cognition not only has to permit the formation of thoughts referring to arbitrarily many distinct subjects, it must also manipulate those thoughts in -- to a first

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about the phenomenology of illusion-experiences, but I relied in this on my own introspective data, which I have been convinced are aberrant.

I derive some license about this matter from Palmer (Palmer 1999, 84-5). See Fodor 1983 for discussion of some putative difficulties for the bottom-up assumption about visual processing.

<sup>19</sup> Ironically, the very features that I’m about to cite as features that warrant the imputation of robust representation and classical computational structure to cognition are the same ones that give rise to the frame problem, which in Fodor’s view is insoluble within our currently available theoretical frameworks. See Fodor 2000.

approximation -- sensible ways. And to do that, cognition needs a domain-neutral computational mechanism. It would be bad for us if we were hardwired to infer “that flies” from “that’s a bird,” because we might some day go to Antarctica and see a penguin. Moreover, we might want at some point to bring information about penguins to bear on information about human consumption of fossil fuel in order to draw conclusions about global warming. One way to do this – maybe the only way for a finite creature to do this – is to employ a system of representation that uses lexical/syntactic distinctions to keep subject matter straight, and a classical syntactic engine to enforce cogent inferences involving them. Vision, however, need not bother with this. It would be fine for perceptual processing to utilize specialized algorithms to sensory data into percepts, because such transformations take only proprietary input, and because their output will not have to comport with representations of things outside the visual domain.

Visual processing, then, might stand to cognition as a simple Turing machine stands to a universal Turing machine. And like a simple Turing machine, the visual system would not represent the rules that govern the computations that it performs. If my analogy is apt, then the “hidden assumptions” within the visual perceptual system would not be explicit representations that enter causally into the production of the percept, but would rather be external descriptions of the regularities that the perceptual computation respects. The hidden assumptions would be, as some say, *implicitly* represented by the structure of the computational mechanism. Any content we ascribed to them would be simply a way of giving insight into the *de facto* function of the perceptual transformations, as well as the conditions of ecological validity for visual perception.

*Disjunctivism*

I've argued that my non-intentional view of perception can solve a problem about illusions that arises for defenders of openness who also think that perceptual experience involves robust representation of the external scene, as for example a representation that some object *o* has the property *F*, where that representational content can be shared by falsidical perceptual experience. The problem was that falsidical experiences are no less world-involving than veridical experiences, and since that is so, the world-involving feature of veridical experience cannot explain how the character of veridical experience is world-determined. It might be thought that this problem is simply an artifact of a certain type of intentionalism, the type that insists on a "common-kind" approach to perceptual experience. A disjunctivist might argue, in other words, that the problem I'm concerned with does not arise if one recognizes that veridical perceptions are experiences fundamentally different in kind from falsidical experiences. The latter do not share content with the former; they are simply psychologically indistinguishable from them. The experiences that philosophers call "veridical" constitute "good cases" of perceptual contact with the world. Those classed as falsidical experiences, or illusions, are "bad cases." Good and bad cases do not constitute a genuine kind of experience, because they have nothing substantive in common. They share only the attenuated disjunctive property of *being either a good case or subjectively indistinguishable from a good case*.

A number of problems with disjunctivism have been raised in the literature: one problem, identified by Susanna Siegel, is that some illusions involve the apparent perception of "impossible" objects.<sup>20</sup> There is nothing in the real world that *could* be an Escher staircase, and so no good case, reference to which can serve to characterize the nature of one's perceptual experience when looking at an Escher drawing. There's at least one response that a disjunctivist

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<sup>20</sup> See Siegel, [get reference](#)

can make to this objection: he or she can say that the experience one has when looking at an Escher drawing is a good case of looking at an Escher drawing. Quite so. But now the floodgates open. *Every* falsidical perception is a perception *of something*. As I put the point earlier on, an illusion is, by all accounts, as object-involving as any veridical perception. In that case, though, *every bad case of seeing an X is a good case of seeing some Y*. A bad case of seeing water on the ground up ahead on the road is a good case of seeing a desert on a hot day. *That* is just exactly and precisely what a desert on a hot day looks like. The disjunctivist ought to be able to explain (a) why we don't recognize a desert on a hot day when we see one, and (b) why we should find such an experience indistinguishable from an experience that is *of something* entirely different.

It is open to the disjunctivist to offer a more positive characterization of "bad cases." The disjunctivist may say that in cases of illusion, the experiences that form the veridical/falsidical pair actually do have *different* contents, and that in both cases the contents are determined by the objective scene with which the subject makes perceptual contact. Thus, in my own example, my first experience is an experience of the lolling-dog type, but my second experience is an experience of the shaded-patch type. There is no appearance property common to both perceptual presentations; nothing either is or seems *lollidoggy*. That the experiences have different contents explains why the beliefs I form on the basis of each experience have such different epistemic status: the first experience has the content "Freya is lolling on the grass," which provides immediate warrant for the belief that Freya is lolling on the grass. In the second case, my experience has the content "there is a shaded patch of lawn," which does not warrant



any belief about my dog's location or state of repose.<sup>21</sup>

This account still makes mysterious the connection between experiential content and subsequent belief – why should a perception of shaded grass give rise to a belief about my dog? And why doesn't it give rise to a belief about shadows and grass? But there is a more difficult problem for the disjunctivist. The disjunctivist should not presume to know the content of an experience by simple introspection. After all, it is the disjunctivists themselves who want to break any connection between introspective classification and objective experiential taxonomy.<sup>22</sup> So what justifies a disjunctivist in presuming that the content of my first experience was anything like “Freya is lolling on the grass?” Why not “something's going on that looks like Freya lolling on the grass,” a content that would be shared by my second experience – both experiences being ones that reach out to incorporate a world that contains, objectively, things that look like Freya lolling on the grass?

Notice, too, that this is a way of getting the result that some falsidical experiences are members of a “common kind” with veridical experiences that does not depend on any sort of analytical decomposition of a veridical experience into an appearance *plus* something else.<sup>23</sup> The co-classification of experience pairs like the one in my example is warranted by the objective similarity between the external objects of my perceptions – in both cases, there were scenes that shared the objective property of *lollidogginess*, the property of appearing *lollidoggy* to a perceiver constituted as I am.

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<sup>21</sup> Brewer makes similar observations in Brewer 2008, and develops, on their basis, a view of illusions he calls the “Object View.” He believes that his view permits expression of a more adequate version of disjunctivism than the more commonly assumed “Content View.”

<sup>22</sup> Requiring what Michael Martin (Martin 2004) calls “modesty” in accounts of perceptual experience.

<sup>23</sup> See Jonathan Dancy, “Arguments from Illusion”

## *Conclusion -- Loose Ends*

There is a great deal more that needs discussion, but that I cannot treat adequately here. (The limitations are more of wit than of space.) Let me just flag three of the outstanding issues (for me).

1) *The epistemology of illusions.* The experiences that we ordinarily call “illusions” are experiences that can give rise to false beliefs. On first encounter with the Mueller-Lyer illusion, most subjects judge that the two lines are unequal in length. If cartoons are to be believed, desperate travelers are actually fooled by mirages into thinking that their thirst will soon be quenched. What is my story about how perception that is fully “open” so frequently leads us astray?

One thing that I’d like to say about this – or rather, say and be able to defend – and that is that the proper place to focus on in explaining the epistemology of illusions is at the point at which perceptual experience is *conceptualized*. It’s when we bring percepts under rubrics that we risk going wrong.

2) *Hybrid cases: after-images, systematic distortions, perceptual malfunctions.* My basic line on hallucinations, as I indicated earlier, is that they pose no challenge to the intuition of openness, because they are not in any way constrained by the world. This is not the case, however, for the hybrid cases. These are cases in which the world does constrain to some extent the character of the experience, but in which the endogenous contribution is anomalous in comparison with cases of normal perception. Christopher Hill (Hill 2009), who also thinks that perception involves appearance properties, wants to say that in cases like this, we *misperceive* the *appearances*. Hill wants to say that appearance properties are objective, as do I, but he also wants to say that their being objective entails the possibility of an appearance/reality distinction. Hybrid cases provide

examples of cases in which we make mistakes about the appearance properties of objects – we take a white wall to appear to have green dots moving around on its surface, but that the white wall does not at all have the objective appearance property of looking like a wall with green dots moving on its surface. Yet the fact that my perceptual experience has the character it has is partly due to the character of the world during my previous perceptual encounters with it. What becomes of openness in such cases?

3) *Cross-modal appearance properties?* As Locke famously noted, there appears to be a difference between properties like shape and size, on the one hand, and color, taste, and sound on the other. Properties in the first group, the primary qualities, Locke took to be inherent in external objects in a way that the properties in the second group were not. One basis for that distinction is that primary qualities are discernible by more than sense modality, whereas color and other secondary qualities are proprietary to particular senses. But if it is not objective shape that is registered in visual experience – if it is only, as I insist, “shapishness,” how do I account for the fact that the same property appears to be presented in tactile experience as well? It’s not plausible that the percepts constructed by distinct sensory systems could be treated as type-identical unless they are typed according to their convergence onto the same objective property. And such a property is not plausibly an appearance-property in my sense. Perceptual constructions involving touch deal with entirely different physical inputs, and different perceptual transformations than do the constructions of the visual system.

I hope to have something satisfying to say about these issues in the near future.

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