Cognition, Perception, and Justification

by

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ABSTRACT

There is ample evidence from psychology and cognitive science that a person's beliefs, memories, expectations, concepts, and desires can influence how that person perceives the world. In other words, the way an object looks (the color, size, shape, etc.) to a person can vary according to his or her beliefs, memories, desires, and so on. But a person is principally justified in his or her beliefs about the world by how things look to that person. So, if how things look to a person justifies that person's beliefs about the world, and that person's prior beliefs, memories, and desires influence how things look, then his or her prior beliefs, memories, and desires influence the justification for his or her beliefs about the world. This influence creates several significant philosophical problems. In this dissertation, I introduce and attempt to solve these problems by constructing a theory of justification in which a person's beliefs about the world are justified if and only if his or her prior beliefs, memories, and desires constitute a coherent worldview.

DEDICATION

To Woody, Stacy, and Allison

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INTRODUCTION

In the philosophy of science there is a thesis that an observer's background theory influences what he or she observes—that scientific observation is "theory-laden." For example, it may be that two scientific observers with two different theories of a phenomenon could observe the same experiment and make different observations according to their different theories. There is a parallel thesis in psychology and cognitive science. The thesis is that a person's perceptual experiences are partly determined by that person's background beliefs, concepts, memories, desires, expectations, biases—that perceptual experience is "cognitively penetrable." To say that an experience is cognitively penetrated is to say that what the experience is about, or its content, is partly determined by one's background beliefs, concepts, memories, and so on.

Our perceptual experiences provide us with justification to believe things about the perceivable world. One's visual perceptual experience of a red tomato provides one justification to believe that there is a red thing. One's feeling of cold air provides one with justification to believe that it is cold outside. And one's hearing a dog bark provides one with justification that a dog is nearby. But if our experiences give us justification for believing things about the perceivable world, and those experiences are partly determined by our background beliefs, concepts, and memories, then what, if any, role do our background beliefs, concepts, and memories play in giving us justification to hold beliefs about the perceivable world? This dissertation answers this question.

There are two central themes that I explore in this dissertation. The first is whether perceptual experience is cognitively penetrable, and if it is to what degree do one's background beliefs, concepts, and memories influence one's perceptual experiences. The second is whether a person's background beliefs, concepts, and memories play an epistemic role in one's justification to hold beliefs about the perceivable world. Central to the exploration of these two themes is the use of empirical data from cognitive science and psychology.

With respect to the first theme, I argue that a person's background beliefs, concepts, memories, and so on have a strong influence on what one's perceptual experiences are about. With respect to the second theme, I argue that a person's background beliefs, concepts, memories, and so on play a significant epistemic role in one's justification to hold beliefs about the perceivable world. In the end, I provide an analysis of perceptual justification, or the justification one has to hold perceptual beliefs.

The first two chapters explore in detail cognitive penetration and the nature of perceptual experience. The first chapter evaluates the case that can be made that perceptual experience is cognitively penetrable. I first look at the foundations of the notion that experience is cognitively penetrable. These foundations include considerations from the philosophy of science and the experience of ambiguous figures. I then engage with a more current debate over the cognitive penetrability of perceptual experience that occurred in a series of papers by Paul Churchland and Jerry Fodor. Churchland argues that experience is cognitively penetrable and Fodor argues that it is not. I adjudicate the debate by appealing to a variety of strong

empirical evidence that both minimizes Fodor's protestations as well as provides additional support for the notion that experience is cognitively penetrable. Not surprisingly, I conclude that on balance the evidence supports the claim that experience is cognitively penetrable.

In the second chapter I appeal to one of the experiments detailed in the first chapter to argue that it is possible for people to perceive high-level properties such as the property of being a brother, a mother, or a friend; it is possible for the content of one's experience to be about high-level properties. To argue for this claim, I first consider what are currently taken to be the best two arguments for the view that one can experience high-level properties and claim that empirical data falsifies them. Citing empirical data detailed in the first chapter, I then construct a deductive argument that one can experience high-level properties.

The third, fourth, and fifth chapters address the second of the main themes: the epistemic role of background beliefs, concepts, memories, and so on in one's justification to hold beliefs about the perceivable world. The third chapter argues that for most perceptual experiences, the justification an experience provides one to hold a perceptual belief is epistemically mediated by one's background beliefs, concepts, memories. This is to say, for example, that the justification one's experience of a red tomato provides for one's perceptual belief that the tomato is red is mediated by one's background beliefs, concepts, memories. Again, I appeal to empirical data to support this claim.

The fourth chapter begins where the third chapter ends. If, as I argue in the third chapter, a person's background beliefs and so on epistemically mediate one's perceptual justification, then the background beliefs and so on themselves need to be justified, or have a positive epistemic status. I argue in the fourth chapter that for background beliefs, concepts, memories to have a positive epistemic status they need to be coherent with one another. In arguing for this claim, I slightly modify traditional notions of coherence. Such modifications, I argue, allow me to evade traditional objections to coherentist accounts.

The fifth chapter concludes the substantive account by arguing for an analysis of perceptual justification. Central to the analysis is the condition that for one to have perceptual justification one's background beliefs, memories, concepts, and so on must cohere with each other. I also argue that this analysis avoids powerful objections to other, prominent theories of perceptual justification. I finish the chapter by suggesting ways the analysis might respond to the external world skeptic.

I finish with a chapter arguing that evidentialism—the view that justification supervenes on evidence—is false. I again appeal to empirical data to construct a counterexample to the view. I explore several different lines of response and find them all insufficient.

The result of my dissertation is a theory of perceptual justification that is novel, accommodating of the robust empirical data relating to perceptual experience, and consistent with philosophers' intuitions about perceptual justification.

CHAPTER 1

COGNITIVE PENETRATION

Whether observation is "theory-laden" is and has been a fiercely debated topic in the philosophy of science. If observation is theory-laden, then an observer's observations are in some respect determined by the observer's background theory. Consider a famous example from Norwood Hanson (1958). Suppose that Tycho, a geocentricist, and Kepler, a heliocentricist, are looking at a sunrise. In one sense, Tycho and Kepler's observations are the same: the retinal stimulations are, all other things equal, the same. But in another sense, what they observe is different. Where Tycho observes the sun revolving around the earth, Kepler observes the sun as immobile. This difference in observation is quite plausibly the result of Tycho and Kepler having different background theories. The problem is an epistemological one: how can science be a good route to how the world works if the observations required to conduct scientific research are in some way determined by the observer's background theory?

There is a similar debate in cognitive psychology and the philosophy of perception (though in the philosophy of perception it has received not nearly as must attention as its parallel thesis in the philosophy of science)—is perception cognitively penetrable? This is to ask whether or not a subject's background cognitive state, including one's concepts, or one's theory, can in some way impact the subject's perceptual system sometime between the time a particular stimulus reaches the relevant perceptual organ and the time the subject makes a perceptual judgment and

do so in such a way that the perceptual experience or judgment would have been different had the background cognitive state not penetrated the perceptual system. The general idea is that one's background cognitive state partly determines one's perceptual experience. Although the formulation of cognitive penetration will have to be refined, the refinements can wait until later. For now, here is a first pass at cognitive penetration:

> **Cognitive Penetration (CP)**: Perceptual experience is cognitively penetrable iff it is possible for two subjects (or for one subject in different counterfactual circumstances, or at different times) to have different perceptual experiences while seeing and attending to the same distal stimuli under the same external conditions, as a result of differences in other cognitive (including affective) states.[1]

The penetration of perception by background cognitive states suggests that scientific observation is theory-laden. But I do not think that scientific observation is necessarily theory-laden given that perception is penetrable. There may be good arguments that in spite of the penetrability of perception scientific observation is theory-neutral. I do think that the penetration of perception is a more basic issue, as it addresses everything from ordinary perceptual experience up to and possibly including scientific observation. In any case, the issue of this chapter and the remaining chapters is the issue of cognitive penetration of perception.

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[1]Though this is nearly exactly the formulation of Susanna Siegel's (forthcoming), it is slightly less specific. Later, the formulation will be made more specific by unpacking the notion of visual experience.

There are many interesting questions surrounding the penetration of perceptual experience. Is perceptual experience penetrable by a subject's background cognitive state? If so, how deep does a background cognitive state penetrate? That is, does a subject's background cognitive state only partly determine high-level perceptual experience, perception of things like cars and chessboards? Or does a subject's background cognitive state partly impact perceptual experience of shape and color? If perceptual experience is penetrated by a subject's background cognitive state, is it a part of the subject's background cognitive state or the whole thing? And if it is a part of the background cognitive state, which part? What constitutes a subject's background cognitive state? It doubtlessly includes some beliefs and concepts. But can it also include other attitudes like desires and fears? This chapter will not attempt to give full answers to all of these questions. This chapter is rather more modest. I will try to give at least partial answers to some of the questions. In particular, I hope to motivate the claim that a subject's background cognitive state penetrates deeply and pervasively. This is to say that a subject's background cognitive state penetrates both high-level perceptual experience and low-level perceptual experience, including the experience of shape and color, and does so for very many of a subject's perceptual experience.

I am concerned with the cognitive penetrability of *perceptual experience*. One way to unpack the notion of perceptual experience is that it is how things appear or seem to a subject. It is not the entire act of perception where this would include light hitting the retinas and information being passed along neural pathways. These processes are not part of perceptual experience, though they obviously contribute to

it. Though sometimes invoking the notion of consciousness can obscure the discussion, having perceptual experiences seems to imply having some degree of consciousness. Perceptual experiences usually, to be neutral on the relation between experience and phenomenology, involve some degree of phenomenal character. Perceptual experiences are also usually available or accessible to cognition. They are in the "global workspace."

Perceptual experiences are not necessarily perceptual judgments or perceptual beliefs, though it is sometimes natural to think that perceptual experiences just are perceptual judgments or perceptual beliefs. One difference between the two is that perceptual judgments and perceptual beliefs are subject to epistemic evaluation but perceptual experiences are not. Perceptual experiences are merely states of an individual not subject, at least in the way perceptual judgments or perceptual beliefs are, to epistemic norms. To say that perceptual experiences can be justified or rational is just to be confused about what perceptual experiences are. It would be like saying that one's pain is rational or justified.

If there is cognitive penetration, then there are many significant consequences. To name two, the cognitive penetrability of perceptual experience may have serious implications for both the philosophy of science and how one comes to have justification for perceptual beliefs. Exploring the philosophical implications of cognitive penetration is the subject of the dissertation. The subject of this chapter is to review many of the data and arguments that purport to establish one of cognitive penetrability or cognitive impenetrability. The structure of the chapter will be as follows. The first chapter discusses the early motivations for

cognitive penetration. Many of these come from the "New Look" in psychology, Norwood Hanson and Thomas Kuhn. The second section outlines arguments for and against cognitive penetration from a series of papers by Paul Churchland and Jerry Fodor. Much of the debate between Churchland and Fodor hinges on empirical data from cognitive psychology. Some of this data is the subject of the third section. The data suggest that cognitive penetration occurs even for low-level perceptual experience and that it happens for very many perceptual experiences. This data is disputed, however, most notably by Zenon Pylyshyn. The fourth section explicates Pylyshyn's criticism and argues that he does not show that perceptual experience is not cognitively penetrated. I conclude perceptual experience is cognitively penetrable.

1 Early motivations

In 1957, Jerome Bruner started what is known as the "New Look" theory of perception. Bruner claimed that perception is essentially an act of unconscious inference. One takes cues, or clues, from the input to the perceptual system and categorizes what is seen based on those cues: "there is a selective placing of the input in one category of identity rather than another" (1957, p. 123). The cues need not only be perceptual inputs. One's background cognitive state can provide cues as well. He writes that "what is achieved by the perceiver is the categorization of an object or sensory event in terms of more *or* less abundant and reliable cues. Representation consists of knowing how to utilize cues with reference to a system of categories" (p. 123). Essentially, one takes cues from the input to the perceptual system, attempts to

categorize the stimulus given one's background cognitive state, attempts to verify the categorization given the input, and either accepts the verification or goes through the categorization process again until one accepts a categorization. The speed at which this categorization is done partly depends on how accessible the category is to the perceiver. And how accessible a category is to a perceiver depends on the amount of input necessary to elicit a categorization attempt and range of input characteristics that fit the category (Hanson, 1957, p. 129-130). The effect of this is that "all perceptual *experience* is necessarily the end product of a categorization process" (p. 124, emphasis added).

In the philosophy of science, Thomas Kuhn and Norwood Hanson forcefully argued that observation is theory-laden or, more generally, that one's perceptual experience is penetrated by one's background theory, which includes one's beliefs, expectations, and concepts. Kuhn writes that "What a man sees depends both upon what he looks at and also upon what his previous visual-conceptual experience has taught him to see" (1970, p.113). Kuhn continues: "In a sense that I am unable to explicate further, the [scientists with different background theories] practice their trades in different worlds…[the proponents of competing paradigms] see different things when they look from the same point in the same direction" (1970, p.150).

Hanson also claims that perceptual experience partly depends on one's background cognitive state. He claims that "There is a sense...in which seeing is a 'theory-laden' undertaking. Observation of x is shaped by prior knowledge of x" (1958, p. 19). To argue for this claim, Hanson considers Tycho and Kepler looking at

the sunrise. In one sense, what they see is the same. The retinal stimulations are, all other things equal, the same. But in another sense what Kepler and Tycho see is different. The scene before them is ambiguous between an immobile sun and a sun that revolves around the earth. So the difference between Kepler's perceptual experience and Tycho's perceptual experience is similar to the different perceptual experiences one has when looking at an ambiguous figure. Consider the following examples.

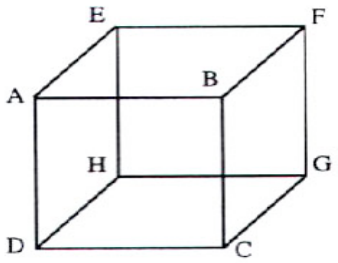

Figure 1: Necker Cube

The above figure is the famous Necker cube. The cube is ambiguous between a cube with the front face of ABCD and a cube with the front face of EFGH. The experience of seeing the cube with the front face of ABCD is quite different from the experience of seeing the cube with a front face of EFGH. But the stimulus is the same. The cube doesn't itself show that perceptual experience is penetrated by one's background cognitive state. It just effectively points out how vastly different two perceptual experiences can be given basic retinal stimuli. Figures

2 and 3 are effective in pointing out the difference as well. Figure 2 is the famous figure that produces both an experience of a young woman looking away and to the left of the viewer as well as an experience of an old woman (the chin of the young woman is the nose of the old woman). Figure 3 is ambiguous between two people staring at each other and a vase. Because the stimuli are the same in the ambiguous figures but the experiences are vastly different, stimuli alone do not determine how things appear to a perceiver.

Figure 2: Old/Young woman; Figure 4: Vase/People staring

Hanson supposes that what brings about the perceptual difference in ambiguous figures is one's background cognitive state, or one's theory. Consider Figure 4. Figure 4 is ambiguous between some long-beaked bird and an antelope. That background cognitive states play an important role in determining a subject's perceptual experience is also evident given Figures 5 and 6. Although seeing the animal in the lower right portion of Figures 5 and 6 as either an antelope (Figure 5) or a bird (Figure 6) is dependent on the context that the animal is in, it may not

contribute to the perceptual experience if one did not have the appropriate background knowledge of what groups of antelopes (or rabbits) and groups of birds look like. Moreover, Hanson writes that the context need not be explicit in the way it is in Figures 5 and 6. Often the context is "'built into thinking, imagining, and picturing. We are set to appreciate the visual aspect of things in certain ways" (p. 15). The idea is clear. Just as one can see a bird or an antelope depending on one's background theory, Tycho and Kepler see the sun differently based on their respective astronomical theories.

Figure 3: Bird/Antelope/Rabbit

Figure 5: Antelopes; Figure 6: Birds

Although considering ambiguous figures does not firmly establish that perceptual experience is cognitively penetrable, it does seem to make a good case for

it. If one had no concept of birds, for example, one would not be able to shift experiences from a bird to antelope. In a very general sense, then, one's background cognitive state does penetrate one's perceptual experience. That is, one's perceptual experience would be different if one's background cognitive state did not include beliefs about birds or antelopes or even rabbits. Figure 7, I think, points out that perceptual experience is penetrated by one's background cognitive state. If one were from a different culture and had never before encountered Roman letters or Arabic numbers, the middle image would not be ambiguous at all. And, of course, prior experience with different written languages and numbers is part of one's background cognitive state.

The moral of this section is that "seeing is more than meets the eyeball" (Hanson, 1958, ch. 1). Though ambiguous figures do not show without reasonable doubt that one's background cognitive state helps determine one's perceptual experience, they do give some support to the claim. I want to emphasize, however, that I do not mean to suggest that ambiguous figures offer excellent support for the cognitive penetrability of perceptual experience. In fact, later in the paper I will consider alternative explanations of ambiguous figures. These alternative explanations indicate that ambiguous figures are not great evidence for cognitive penetration. The intent of this section is rather to show how ambiguous figures may motivate the thesis that background cognitive states can partly determine one's perceptual experience. It is not to set out conclusive evidence for the cognitive penetrability of perceptual experience.

In the next section, I will outline the debate over the cognitive penetrability between Churchland and Fodor. In the section after next, I will look at some empirical data that makes a better case for cognitive penetration of perceptual experience.

Figure 7: 'B'/'13'

2 Churchland and Fodor

Paul Churchland (1979, ch. 1) argues that perceptual judgments are theoretical responses to sensory stimulation. In other words, perceptual judgments are cognitively penetrable. This is the notion in the philosophy of science, not the psychological notion that is under discussion here. But it did provoke a small series of papers from Churchland and Fodor.

In response to Churchland's argument that there can be no theory-neutral observation, Kuhn and Hanson's position, and the New Look theory of perception, Jerry Fodor (1984) argues that perception is cognitively impenetrable. Fodor's argument is largely directed at the psychological notion of cognitive penetrability—that how things look or perceptual experience is cognitively penetrable. His

argument is also in the context of arguing for the modularity of perception. Fodor (1983) argues that some cognitive systems are modular and encapsulated. A system is modular when it is dedicated to a specific domain of inputs and outputs and a module is encapsulated when information from other modules or systems cannot affect the inputs or outputs of the module. Perception is supposed to be modular and encapsulated.

Fodor does argue with Churchland's position in the philosophy of science, but the present concern is the psychological notion of cognitive penetrability, so I will focus on his argument against the psychological notion. His argument is that because some perceptual illusions continue to be illusory even when one knows or believes it to be illusory, perception cannot be cognitively penetrable. The illusion he takes to be a prime example of this is the Müller-Lyer lines (Figure 8). Fodor writes that "the news has pretty well gotten around by now" that the Müller-Lyer lines are in fact an illusion (p. 34). He continues:

> So, it's part of the 'background theory' of anybody who lives in this culture and is at all into pop psychology that displays like [Figure 8] are in fact misleading and that it always turns out, on measurement, that the center lines of the arrows are the same length. *Query: Why isn't perception penetrated by THAT piece of background theory?* Why, that is, doesn't *knowing* that the lines are the same length make it *look as though* the lines are the same length?...how the world looks can be particularly unaffected by how one knows it to be. I pause to emphasize that the Müller-Lyer is by no means atypical in this respect. (1984, p. 34)

This appears to be a troubling result for the view that perceptual experience, how things look to a subject, is cognitively penetrable. This is where a distinction between diachronic and synchronic penetration is important. If perception is diachronically cognitively penetrable, then how things look to a subject can be partly determined by a background cognitive state over a long period of time. It may take a long time to learn a theory or learn to put it into practice. If perception is synchronically cognitively penetrable, then how things look to a subject will immediately change when a subject acquires a single novel relevant belief.

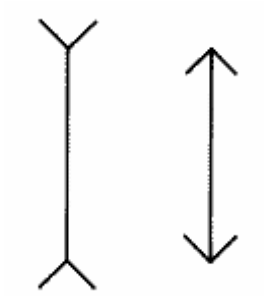

Figure 8: Müller-Lyer lines

I noted above that Churchland's view with regard to perceptual judgments is that they are diachronically cognitively penetrable. He makes similar claims with regard to the cognitive penetration of perceptual experience in his response to Fodor. He writes:

> the issue is not whether visual processing is in general very *easily* or *quickly* penetrated by novel or contrary information: the issue is whether in general it is penetrable at all, where

> the acceptable means of penetration can include long regimes of determined training, practice, or conditioning. (1988, p. 174)

Churchland remarks that it is possible that given much learning and experience with the Müller-Lyer lines and a sufficient amount of time, it could eventually appear to one that the lines are the same length. He also discusses several examples of diachronic cognitive penetration. Among these are ambiguous figures. I will discuss these shortly, but I first want to go over Fodor's response. He anticipates this sort of move from the proponent of cognitive penetration. He explicitly allows that there may be diachronic cognitive penetration. To claim that there is no diachronic cognitive penetration would be to claim that all information in background cognitive states is inaccessible to encapsulated modules such as a perception module or a language module. And this is implausible.[2] If there were no diachronic cognitive penetration, why else would children growing up in China end up speaking Chinese? Fodor, then, allows for some diachronic cognitive penetration. But diachronic cognitive penetration is only a substantive thesis about the relation between cognition and perception if "just any old learning or experience can affect the way you see, and there is no reason at all to suppose that that is so" (Fodor, 1984, p. 39) So, if diachronic cognitive penetration is going to be a substantive thesis about the relation between cognition and perception, according to Fodor, then, it must be shown that any ordinary learning or experience can affect how things look to a subject. And he forcefully doubts that this is the case. I will return to this later.

[2] The cognitive penetrability of a language module, of course, does not entail the cognitive penetrability of a perceptual module. The point here is just that Fodor allows for some cases of cognitive penetrability.

In responding to Fodor's claim that the persistence of illusions is a problem for cognitive penetrability of perceptual experience, Churchland gives several examples of purported diachronic cognitive penetration. Churchland first cites ambiguous figures like the ones from section 1. He claims that these figures are good examples of the ability of higher, or downstream, cognitive centers to help determine how things look to a subject. They are examples of such penetration because "one learns very quickly to make the figure flip back and forth at will between the two or more alternatives, by changing one's assumptions about the nature of the object or about the conditions of viewing" (1988, p. 172). By changing the assumptions about the figure, presumably accessing different concepts, expectations, and beliefs, one can have a different perceptual experience despite sameness in stimuli.

Churchland also cites learning music as cognitive penetration. Keys, notes, and chords are part of auditory space. But the conceptual framework of music and expressions of keys, notes, and chords in musical notation, for example, are not innate to our auditory processing and not part of our ordinary language. But with enough learning and practice, people can "train their ear" to perceive these features of auditory space. The idea is that if an accomplished musician and someone not familiar with music are listening to the same piece of music, the musician will hear it differently and this difference is in virtue of the musician's background cognitive state. In order for one to perceive what the musician perceives, one would need to

learn and practice the appropriate theory. Cases like this are supposed by Churchland to be commonplace.[3]

Gathering the evidence in favor of Churchland and cognitive penetration of perceptual experiences, we have the fact that one can have distinct perceptual experiences given despite identical stimuli and the ability to perceive aspects of auditory space given the appropriate theory and practice. Gathering the evidence so far in favor of Fodor and cognitive impenetrability, we have the persistence of Müller-Lyer and other illusions despite knowing that the Müller-Lyer is in fact an illusion. Both Churchland and Fodor agree that there is at least some diachronic cognitive penetration. They differ with respect to how much diachronic cognitive penetration there is. Churchland thinks that it is commonplace. Fodor thinks that it is rare, given that not just any old learning will change one's perceptual experience. I'll give Fodor (1988) the last word and then finish with a brief summary of the exchange between Churchland and Fodor.

I have already pointed out Fodor's main argument against cognitive penetration—the persistence of illusion. But he also addresses Churchland's example. In the case of learning to hear music differently, Fodor claims that Churchland is begging the question by just asserting that the difference between the musician and the normal person is perceptual. Fodor claims that argument is needed to establish that there is a perceptual difference, and Churchland has not given one.

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[3] Churchland (1979, p. 174-75; see also Kottenhoff, 1957) also writes that experiments involving inverting lenses are indicate that perceptual experience is cognitively penetrable. It is not clear that they are, however, so I will not discuss them.

With regard to ambiguous figures, Fodor claims that Churchland is just wrong about what is going in when one first has a perceptual experience of a duck, for example, and then a perceptual experience of a rabbit. Recall that Churchland claims that what is happening is that one changes one's assumptions about what is in the figure and by doing so one can have a different perceptual experience. Fodor, however, disputes this analysis. He claims that what happens is that one's focal attention, where in the figure one is focusing on, changes. And when focal attention changes the figure will appear differently. For example, when I look at the Necker cube (Figure 1), focusing on point H will make the cube appear as though it has a front face EFGH and focusing on point F will make the cube appear as though it has a front face of ABCD. This activity has little to do with changing my assumptions about the figure. For you, where your focal attention may need to be in order to bring about the change may be different, but Fodor's point stands.

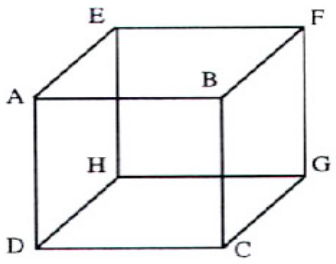

Figure 1: Necker cube

Or consider a duck-rabbit (Figure 9). For me at least, when my focal attention is on the far-right of the image, what would be the back of the head of the duck or the face of the rabbit, my perceptual experience is of a rabbit. And when my focal

attention is on the point where the bill of the duck or the ears of the rabbit meet the head, my perceptual experience is of a duck.[4]

Figure 9: Duck-rabbit

This section began by laying out Fodor's response to Churchland. This response is that because illusions persist despite knowing about their illusory natures, perceptual experience cannot be cognitively penetrable. This argument from Fodor makes salient the distinction between diachronic cognitive penetration and synchronic cognitive penetration. Although Fodor's argument makes it implausible that there is synchronic cognitive penetration in the cases of perceptual illusions, it is still an open question whether perceptual experience is diachronically cognitively penetrable. This Fodor and Churchland seem to agree on. But, Churchland thinks that diachronic cognitive penetration is commonplace, Fodor thinks that it is very rare given that not just any old learning or experience changes one's perceptual experiences. To make the case that there is diachronic cognitive penetration, Churchland cites two examples: musical learning and ambiguous figures. Fodor responds to these examples by giving explanations of them that are supposed to be

[4] It is still possible that, at least in the case of the duck-rabbit, some work is being done by my background cognitive state in that it I would not have been able to have a perceptual experience of a duck if I lacked a concept of a duck. I will discuss this more in section 4.

compatible with cognitive impenetrability. This is where the debate currently stands. Both Churchland and Fodor rely on empirical data. In the next section, I will look at some data concerning the cognitive penetrability of perceptual experience and adjudicate the debate. The data suggest that there is cognitive penetration of perceptual experience of even low-level properties such as color and shape and that Fodor's assertion that illusions persist despite knowledge of illusion, his main reason for thinking that perceptual experience is cognitively impenetrable, is not as good as a reason as he thinks. Together, these two features of the data suggest that perceptual experience is cognitively penetrable.

3 Empirical data

In this section, my goal is to establish two theses. The first is that perceptual experience of the Müller-Lyer lines is plausibly diachronically penetrable. McCauley and Henrich (2006) argue for this thesis by citing anthropological data from the 1960's that show that some cultures are more susceptible to the Müller-Lyer lines than other cultures. The second thesis is that there are other data that make a good case for the cognitive penetrability of perceptual experience even in cases of low-level properties such as color perception. At a minimum, the data make it reasonable to believe that perceptual experience is cognitively penetrable. The conjunction of these two theses has the effect of both neutralizing one of the main criticisms of cognitive penetrability and establishing on independent grounds the plausibility of cognitive penetration.

3.1 Cultural sensitivity of the susceptibility to the Müller-Lyer lines

Data from Segall, Campbell, and Herskovits (1966) suggest that whether one perceives the Müller-Lyer lines as illusory depends in some way on the culture in which one cognitively develops. McCauley and Henrich (2006) argue that this shows that perceptual experience of the Müller-Lyer lines is diachronically cognitively penetrable. Thus, Fodor's main argument for thinking that perceptual experience is cognitively impenetrable is neutralized. In this sub-section, I will go over the data and McCauley and Henrich's argument.

Segall et al. studied the perceptual experiences of the Müller-Lyer lines of subjects from 17 different cultures. Of the cultures studied, 15 were "non-Western" and were primarily foraging cultures in remote areas of Africa and Australia and two were "Western" cultures from Evanston, Illinois and European descendents in Johannesburg, South Africa. Sample sizes ranged from 36 adults and 0 children to 131 adults and 93 children. Segall et al. found that there were large cultural differences in how much longer the right-hand line (Figure 8) had to be before it appeared to subjects that lines were equal in length.

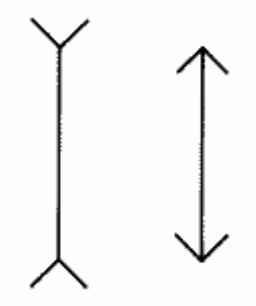

Figure 8: Müller-Lyer lines

For instance, for two different cultures, one South African miners and the other African foragers (sample sizes were 60 adults and 0 children and 36 adults and 0 children respectively), the right-hand line only needed to be, on average, 1% larger than the left-hand line before it appeared to the subjects that the lines were equal in length. These cultures were virtually immune to the illusion. Indeed, it is doubtful that they would even call it an illusion. For another culture of African foragers (sample size was 131 adults and 93 children), the right-hand line needed to be, on average, 8% longer than the left-hand side before it appeared to the subjects that the lines were equal in length.

The culture that was by far the most susceptible to the illusion was the Evanston, Illinois group (sample size 111 adults and 77 children). For subjects in this culture, the right-hand line had to be, on average, 20% longer than the left-hand line before it appeared to the subjects that the lines were equal in length. This shows that the Evanston, Illinois culture was by far more susceptible to the illusion than any other culture. The second most susceptible culture was the European descendents in Johannesburg, South Africa (sample size was 36 adults and 0 children). For this group, the right-hand line had to be 13% longer than the left-hand line before it

appeared to the subjects that the lines were equal in length. For the cultures other than those mentioned, the average percentage of difference was between 4% and 11% with most between 4% and 8%.[5] These data strongly suggest that how the Müller-Lyer lines appear to one depends in some way on one's culture. So far, it does not look good for Fodor. This is the first dimension of the McCauley and Henrich's argument.[6]

The second dimension is that not only are children under the age of 12 more susceptible to the illusion, their susceptibility is the strongest at the ages of 6 or 7 when it gradually decreases until the age of 12 or 13. At this age, their susceptibility gradually increases until the age of about 20, when susceptibility plateaus until old age is reached. [7,8] The increase in susceptibility during adolescence is less than the decrease in susceptibility during childhood, so the net result is less susceptibility at 20 than in childhood. This together with the cross-cultural data suggest that whatever cultural element causing the variations in how the Müller-Lyer lines appear is in place before the age of 20 but has no effect after that. So, how the Müller-Lyer lines appear to one is diachronically penetrable but only until the age of 20. But just because the data show that after 20 whatever cultural influence causes the variability

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[5] These values reflect the average percentage required for both adults and children.

[6] The studies were rigorously controlled. For a summary of the controls see McCauley and Henrich.

[7] Of the 17 cultures studied, children were more susceptible than adults in 9 of them, 3 were less susceptible, one of which was not susceptible at all. In the other cultures, the data is for either only adults or only children.

[8] This data is not from the experiment of Segall et al. The experiment was conducted across the United States by Wapner and Werner (1957).

is inert, it does not follow that diachronic cognitive penetration of how the Müller-Lyer lines appear after the age of 20 is impossible. In order to conclude this, one must study subjects from the cultures that were not susceptible and embed them in, say, Evanston, for a sufficiently long time and then study their susceptibility again. If their susceptibility remains the same, then one could conclude that diachronic cognitive penetration is impossible after the age of 20. And this was not done. So, although the first dimension shows that Fodor is wrong—experience of the Müller-Lyer lines is diachronically cognitively penetrable—the second dimension does not show that Churchland's claim about the possibility of diachronic cognitive penetration of perceptual experiences of the Müller-Lyer lines is wrong.

Although explanations for the phenomenon of cultural variation of perceptual experience of the Müller-Lyer lines are orthogonal to the present purpose, it may be helpful to discuss what seems to be the best explanation so far. The explanation is that subjects in "Western" cultures like those of Evanston or Johannesburg develop in "carpentered" environments. Being in a carpentered environment makes one familiar with three-dimensional lines and angles like those in many of the buildings. But subjects in "non-Western" cultures like African foraging cultures have little to no familiarity with three-dimensional lines and angles that are usually part of "carpentered" buildings.

There are three conclusions from the data relevant to the present purpose. The first is that the data provide good evidence that how the Müller-Lyer lines appear is diachronically cognitively penetrable. This is McCauley and Henrich's conclusion and it shows that Fodor's main reason for thinking perceptual experience

is cognitively impenetrable is not as good as originally thought. The second conclusion is that the data do not show that Churchland's claim about the possibility of diachronic cognitive penetration is false. McCauley and Henrich write that "Churchland will not care for the suggestion that the [cognitive penetration] of visual perception in adults may be irredeemably constrained on some fronts" (2006, p. 99). As I claimed above, the data do not necessarily show this. Third, it can be concluded from the data that perceptual experience of lines and angles is diachronically cognitively penetrable. The Müller-Lyer lines are just lines and angles and they appear differently to different people. There is nothing particularly special about the lines—they are not necessarily illusory—such that we should treat perceptual experience of the Müller-Lyer lines differently than we treat perceptual experience of other lines and angles.

3.2 Other data

In this sub-section, I will provide other reasons to think perceptual experience is cognitively penetrable. Some of the reasons will come from empirical data and some of the reasons will come from intuitions about cases.

There is evidence that one's mood can affect perceptual experience of color. Barrick et al. (2002) found that there is a strong correlation between depression and color reports. They studied inpatients and outpatients suffering from depression. There was a strong correlation between how depressed people claimed to be and impairment of color vision. That is, the more depressed a person reported to be correlated with reported impairment of color vision. If a person reported being very

depressed, they were more likely to report that things looked gray or drab. If people reported being moderately depressed, they were less likely to report this impairment—things would appear less gray.[9]

There are other reasons to think perceptual experience is cognitively penetrable. I have already mentioned ambiguous figures. Another example commonly used is that of gestalts in helping complete "fragmented" figures. The idea is that a fragmented figure will underdetermine what the figure is. Consider Figure 10:[10]

Figure 10: Fragmented figure

After getting "hints" or clues that there is something meaningful in the figure, subjects typically do better is spotting the figure. In the case of Figure 10, after getting hints that there is a meaningful object in the figure, or even that there is a Dalmatian in the figure, subjects are more likely to recognize the object and will do

[9] The experiment leaves open whether mood causes the color vision impairment, they have the same cause, or the color reports are metaphorical.

[10] This figure is from Ronald C. James

so quicker than they would had they not received the hint. This is supposed to show that background beliefs or knowledge that there is something meaningful in the figure will produce a different perceptual experience.

Finally, there are the cases of expert perceivers. These cases often rely on intuitions. Churchland's music example falls into this category. His example is that one who has learned and practiced the relevant theory, or made the appropriate modifications to his or her background cognitive state, will perceive auditory space differently than one who has no understanding of music. Other examples may be birdwatchers and chess players. Intuitively, when looking at a Purple Finch, an ornithologist will have a different perceptual experience from that of someone who cannot classify birds but still has a concept or capacity to recognize birds and both will have a different perceptual experience from that of one who has no concept or capacity to recognize birds. Also intuitively, when a chess expert and novice are both looking at the same chessboard, the chess expert will have a different perceptual experience from that of the novice.

Susanna Siegel (2006) gives the example of recognizing trees. When one is first trying to identify trees, one may not be able to tell a pine tree from a deciduous tree. At this point, one will have a certain perceptual experience of looking at a pine tree. But after acquiring a recognitional capacity—acquiring the ability to easily recognize pine trees, one will have a perceptual experience that is different from the one had prior to acquiring the recognitional capacity. It should be noted, however, that there are explanations of Siegel's case that make it plausible that the experience prior to acquiring the recognitional capacity is identical to the experience after

acquiring the recognitional capacity. For instance, one might claim that the experiences have different phenomenal character, but it is a difference in cognitive phenomenology, not perceptual phenomenology. If this were the case, then her case would not be one of cognitive penetration of perceptual experience, but one of cognitive penetration of cognitive experience. Another way to deny Siegel's claim is to claim that there is no difference in perceptual experience after acquiring the recognitional capacity. Rather, there is only a difference in what one perceptually judges. The case from Siegel, however, is merely illustrative of the how the experiences of expert perceivers may help establish the cognitive penetrability of perceptual experience.

Other examples that may fall in the category of expert perceives are that of reading and hearing one's language. One can easily imagine that a monolingual English speaker and a monolingual Chinese speaker have vastly different perceptual experiences than the other whenever they read or hear their native language.

Though the above evidence may seem to support the cognitive penetrability of perceptual experience, there are good explanations of the above evidence that are compatible with cognitive impenetrability. I will discuss these explanations in the next section. There are some data, however, that more conclusively support the cognitive penetrability of perceptual experience. The data come from a series of experiments on color perception and an experiment on the effects of desires on experience of shape.

In one experiment (Duncker, 1939), Duncker cut up a green leaf into pieces and reorganized them in the shape of a donkey and placed the pieces on a white background. On another white background, Duncker placed another green leaf so that the two shapes were the same color and texture. Each shape was then viewed under red illumination. After looking at the shapes, subjects were instructed to match the color of the shapes to a color wheel later under white illumination. The result was that subjects remembered the leaf being far greener than the donkey, which was matched with a nearly gray shade. This is supposed to be evidence that color vision is cognitively penetrable.[11]

Bruner et al. (1951) produced similar results. Subjects were shown various objects that are typically along the red-orange-yellow continuum: a tomato, lobster claw, carrot, banana, lemon, and a tangerine. They were also shown an oval and an ellipse. All of the objects were cut from the same gray paper and placed on a blue-green background. When later asked to match the colors of the objects with a color wheel, typically red objects like tomatoes appeared redder and typically yellow objects like bananas appeared more yellow despite the fact that all of the objects were from the same piece of paper. When Bruner et al. put the objects right next to the color wheel, however, the objects appeared to be the same color. This is also supposed to be some evidence that color vision is cognitively penetrable. It is not that strong of evidence given that the objects appeared to be the same color when placed next to a color wheel.

[11] This may not be that great of support for cognitive penetrability as the methodology is suspect. I will discuss this shortly.

In another similar experiment, Delk and Fillenbaum (1965) got similar and more conclusive results. Different shapes were cut from the same reddish-orange paper: lips, apple, heart, all typically red shapes; an oval, circle, or ellipse, all typically neutral shapes; and a bell, mushroom, and horse's head, all typically non-red shapes. The shapes were placed right in front of a color wheel under white illumination. Subjects were divided into three different groups. One group was told what the color and shapes were. For instance, as the horse appeared subjects in this group would be told that it is a yellowish-orange horse. Another group was told only what the cutouts were. For instance, when a cutout in the shape of lips appeared subjects in this group would be told that it is a pair of lips. The third group received no information about the color or shaped of the cutouts. Subjects were instructed to turn the color wheel in the background until the shape was indistinguishable from the background. Delk and Fillenbaum found that subjects turned the color wheel more towards red for the lips, apple, and heart, and that subjects turned the color wheel more towards brown for the bell, mushroom, and horse's head. That is, although the shapes were cut from the same piece of paper, it took a much redder background to make the typically red shapes indistinguishable from the background than it did for the typically neutral shapes and it took a much browner background to make the typically non-red shapes indistinguishable from the background than it did for the typically neutral shapes. This experiment is more conclusive because subjects were not asked to remember the color of a given shape before matching it to the color wheel. Instead, subjects could look at both at the same time merely by looking at the border of the shape and the background color wheel. This experiment seems

to make it clear that how colors of objects appear is significantly impacted by one's concepts or some other background cognitive feature. Consider, for example, the subjects looking at the pair of lips. The experiment seems to establish that if one had not had a concept of or background beliefs about lips, one would not have experienced redness.

To deny that there is cognitive penetration in this experiment would be to claim that the reason the subjects experienced redness of the lips had nothing to do with the subjects' background cognitive states. One would also need to make similar claims with regard to subjects' color experiences of the other objects. In effect, the claim is just that the subjects' color experiences of the shapes had nothing to do with their concepts of or background beliefs about the various objects. In other words, the fact that subjects experienced typically red objects as red had nothing to do with their background beliefs about those typically red objects. They experienced them as red for some other reason.

If the subjects' background cognitive states had nothing to do with them experiencing the lips as red, then it should be perfectly reasonable to expect that one with no concept of or background beliefs about lips could experience the lips as red. But given the data, this is unreasonable. Unless one has a better explanation of the data—unless one can show how it is possible for the subjects to experience the lips as red in the absence of a concept of or background beliefs about lips—one ought not deny the claim that a subject wouldn't have experienced redness had one not had a background belief, memory, and so on about lips. We can easily imagine that if

some subjects had no concept of lips, for example, they would have matched it to the color wheel in the way they would have matched the color-neutral shapes.[12]

There are strategies to deny that in the Delk and Fillenbaum experiment the subjects' cognitive features cognitively penetrate their perceptual experiences. One such strategy is to claim that the subjects in fact do not experience redness when looking at the lips. Rather, the subjects experience the correct reddish-orange color and judge that the lips are red. In other words, the represented redness is at the level of perceptual judgment, not at the level of experience.

Fiona Macpherson (forthcoming) discusses at length this response to the Delk and Fillenbaum experiment.[13] She argues that this strategy is unmotivated, as it postulates brute and inexplicable misjudgment on the part of the subject. Consider the scenario postulated by the proponent of this strategy. The subjects had accurate experiences of the cutout and the differently colored background, but incorrectly judged that they were the same color. That is, the subjects were consciously aware of the reddish-orange color of the cutout, the redness of the background, but misjudged them as the same color. There are several reasons to think that such a gross error of misjudgment on the part of the subjects is not the appropriate analysis of the results of the experiment. First, the error must be systematic, occurring whenever the experimental conditions are satisfied. Second, there is no evidence that the subjects actually experienced the cutouts as differently colored from the backgrounds. Third,

[12] Fisher, Hull, and Holtz (1956) produced results similar to those of the above three experiments.

[13] Macpherson discusses the Delk and Fillenbaum experiment to establish that there is cognitive penetration. She does not argue for high-level theory.

there is no available explanation for why the subjects categorically misjudged their experiences. Because there is no available explanation for the misjudgment, the strategy is ad hoc.

A second strategy agrees that the subjects experienced redness when looking at the lips—redness was not merely represented in judgment—but disputes the claim that the subjects' background beliefs penetrated their experiences. Instead, the strategy proposes an alternative explanation for the subjects' experiences of redness. The explanation is that the subjects had been conditioned to respond to the recognition of certain shapes, and that such response occurred independently of the intervention of any cognitive feature about the object of perception. So, for instance, the subjects learned to associate redness with the recognition of the shape of lips; the recognition of that shape triggered the experience of that shape as red. There is no need for the intervention of background beliefs to explain the experience of redness. So, this strategy can explain the phenomenon without appealing to cognitive penetration.

According to this strategy, the explanation for the subjects' experiences of redness, for example, is that the subjects had conditioned responses to the shapes and that their experiences were not cognitively penetrated. So, the explanation is a legitimate alternative only if the proponent of it can show that it is plausible that there was no cognitive penetration. And as long as it is plausible that the subjects had background beliefs about the objects represented by the cutouts, then it is plausible that their experiences of redness were cognitively penetrated. Thus, the proponent of the strategy must show that the subjects lacked any background beliefs about the

object represented by the cutouts. It is implausible, however, that all of the subjects lacked beliefs about the typical colors of all of the non-neutral shapes. The subjects were undergraduates at the University of North Carolina in the 1960s. They were apparently normal, competent young adults. We know that the subjects had background beliefs about the objects represented by the cutouts because competent young adults usually have beliefs about and memories and concepts of objects they ordinarily encounter. Though it is a possible explanation, the alternative explanation does not give a reason to think that the subjects' experiences of redness were not cognitively penetrated.

There are more contemporary experiments that are good evidence for the cognitive penetrability of color. Hansen, Olkkonen, Walker, and Gegenfurtner (2006) showed that background cognitive states influence one's perceptual experience of color. Hansen et al. displayed images of fruits and vegetables on a computer screen and instructed subjects to modify the color of the fruit until it appeared achromatic, or perfect gray. When subjects adjusted the color of a banana, for example, until it *appeared* achromatic, the fruit *actually* had a bluish hue, yellow's opponent color. That is, when it appeared gray it was actually in the bluish range of the color spindle. And when it was actually gray, right in the middle of the color spindle, it still appeared yellow. But when asked to adjust the color of neutral shapes, how it appeared matched very closely with its actual color. These results were replicated with other fruits and vegetables ranging in color from green through yellow to orange. For all of the fruits and vegetables, when they appeared achromatic they were actually in the range of their opponent color. This experiment is very good evidence that

perceptual experience of colors is partly determined by one's background cognitive state. High-level cognition penetrates perceptual experience of colors. Indeed, it seems to establish the cognitive penetrability of perceptual experience. Consider the case of a subject looking at the achromatic banana on the screen. In such a case, the experiment establishes that if one did not have a concept of or background beliefs about bananas, one would not have experienced yellowness. Denying this forces one to make the same commitments as does the denial of the above counterfactual from Delk and Fillenbaum. The strategies to defend the cognitive penetrability of perceptual experience are thus just as effective with respect to the Hansen et al. experiment. These two experiments, therefore, provide excellent reasons to think that perceptual experience is cognitively penetrable.

Another alleged instance of cognitive penetration comes from Bruner and Goodman (1947) via Dustin Stokes (forthcoming). Using experimental data, Stokes has argued that desires can also cognitively penetrate perceptual experience. In other words, one's desire that p can partly determine the content of one's perceptual experience. This notion is familiar to many, especially sports fans. For instance, suppose that in a baseball game a pitcher for the home team throws a pitch. The pitch is called a ball, but the fans of the home team have the desire that the pitch be a strike. It seems possible in this case that the location of the ball thrown will look different to the fans of the home team in virtue of their desire that the pitch be

called a strike. Such an occurrence may be followed by "boos" and allegations that the umpire has poor eyesight.[14]

To support the idea that desires can cognitively penetrate one's perceptual experience, Stokes appeals to an experiment conducted by Bruner and Goodman (1947). Bruner and Goodman tested the effect the judged value of an object has on perceived size of that object. The assumption is that objects judged as having value will be desired. Bruner and Goodman performed the experiment on three groups of normal 10-year-old children with ten children in each group. The children were seated in front of a medium-sized box with a glass screen in the middle upon which a circular patch of light was directed. The diameter of the light patch could range between 1/8 of an inch and 2 inches and was manipulated by a knob on the bottom right corner of the box.

Bruner and Goodman tested the perceived size of coins of varying value. Two of the groups of children were given coins of varying value, which they held in their left palm six inches to the left of the circular patch of light. They were then instructed to match the size of the circular patch of light with the size of the coin in their hand by changing the diameter of the light patch. The third group was given gray circular cardboard cutouts identical in size to the corresponding coins. Bruner and Goodman discovered that the experimental groups, the groups with the coins, by matching the patch of light to the perceived size of the coin, perceived the coins as larger than they actually were. For instance, on average the children with coins

[14] For readers who may not be familiar with baseball, similar disputes commonly arise in soccer matches about whether a particular player played a handball.

perceived the quarter as nearly 40% larger than it actually was. And the control group, the children with the cardboard cutouts, perceived the quarter-sized cutouts as only about 2% larger. The children with the coins also perceived the dime as almost 30% larger than it actually was and the children with the cardboard cutouts perceived the dime-sized cutout almost 2% smaller than it actually was.

Bruner and Goodman also took into consideration the wealth of the children's families. Some of the children were from rich families and some were from poor families. The assumption is that poor children will have a stronger desire for money than will the rich children. Bruner and Goodman discovered that the poor children perceived the coins as larger than did the rich children. For instance, the poor children on average perceived the quarter as more than 50% larger than it actually was, whereas the rich children on average perceived it as about 22% larger than it actually was. And the poor children perceived the dime as more than 40% larger than it actually was, whereas the rich children only perceived the dime as 16% larger.

On the reasonable assumptions that people desire what they judge to have value and that children judge currency to have value, these data constitute strong evidence that children's desire for money causes them to represent coins a certain way. The size properties represented by the children were dependent on the children's desires. In other words, children's desire for money partly determines the

perceptual content of their experiences of coins. This is good evidence that desires can cognitively penetrate one's perceptual experience.[15]

I promised that the evidence from the two sub-sections would help adjudicate the debate between Churchland and Fodor. From 3.1 it is reasonable to conclude that perceptual experience of the Müller-Lyer lines is diachronically cognitively penetrable. The persistence of the illusion is the main reason to think that there is no cognitive penetration. Moreover, the empirical evidence strongly suggests that low-level perceptual experience, perceptual experience of lines, angles, and colors, is cognitively penetrable. And if low-level perceptual experience is cognitively penetrable, then intuitively high-level perceptual experience is cognitively penetrable. On the controversial assumption that one can perceptually experience high-level properties, that such experiences are cognitively penetrable has not been shown yet.

Recall Fodor's other reason for doubting the plausibility of diachronic cognitive penetration. He claimed that it is doubtful that just any old learning could penetrate one's perceptual experience. The empirical evidence suggests otherwise. What is more ordinary than learning the colors of fruits and vegetables? What is more ordinary than learning the colors of lips, horses, hearts, bells, and lobster claws? And although Fodor explains how one can come to have different perceptual

[15] Stokes provides a detailed defense of the claim that the Bruner and Goodman experiment shows that desires can cognitively penetrate perceptual experience. His discussion of possible ways to reject the cognitive penetrability of perceptual experience consists of the strategies discussed above and strategies that will be discussed shortly.

experiences in ambiguous figures that do not require cognitive penetration, this is only an explanation of a piece of data. I conclude that there is good reason to think that perceptual experience is cognitively penetrable.

In the next section, however, I will outline Zenon Pylyshyn's seminal argument against cognitive penetrability. I will conclude in that section several things: that cognitive penetrability is compatible with Pylyshyn's argument, that perceptual experience of shape is cognitively penetrable, and that even if Pylyshyn's argument were incompatible with the cognitive penetrability of perceptual experience, he would still be wrong.

4 Pylyshyn and the cognitive penetration thesis

Zenon Pylyshyn (1999) has forcefully criticized the cognitive penetration thesis. This section will have three sub-sections. The first will refine the notions of perceptual experience and cognitive penetration. This is necessary to proceed any further. The second will outline what Pylyshyn takes cognitive penetration to be and his model of the perceptual system, part of which he argues is cognitively impenetrable. It will also outline his reasons to think that there is not a very good case to be made for cognitive penetration. These reasons include his criticism of the above cases that purport to be very good evidence for cognitive penetration. The second sub-section will also argue that his argument does not address the cognitive penetration of perceptual *experience*. The third sub-section will argue that 3-D perceptual experience is cognitively penetrable.

4.1 Cognitive penetration and perceptual content

Until now, we have been able to get by with an unrefined notion of what a perceptual experience is and what is being penetrated by one's background cognitive state. But in order to proceed further, these two things need to be explained in more detail. First, a perceptual experience has phenomenology, or phenomenal character. That is, there is something it's like to see a game of football or hear a sonata. Second, perceptual experiences also have content. Perceptual contents are just what the perceptual experience represents. If one has a perceptual experience of a cigar-smoking bearded man, then the perceptual experience represents a cigar-smoking bearded man and this representation is the content of the perceptual experience. Perceptual contents are also shared by a veridical perceptual experience and a hallucinatory perceptual experience. One's veridical perceptual experience of a cigar-smoking bearded man and one's hallucinatory perceptual experience of a cigar-smoking bearded man in some respect have the same perceptual content—to some extent that which is represented is the same.

What the precise relation between perceptual contents and the phenomenal character of a perceptual experience is is a contentious issue. Generally, however, it seems quite uncontroversial that if one's perceptual contents change, then one's phenomenal character changes as well. Or even more generally, what the phenomenal character of one's perceptual experience is is in some way a matter of what the perceptual content of the perceptual experience is. These notions will be

explored in more detail in subsequent chapters. But for the purposes of this chapter, this basic notion should be sufficient.

I am now in a position to state the more refined theses of cognitive penetration. There are two. The first is a slight modification of the one from the beginning of the chapter and is about the conditions under which it is *possible* for perceptual experience taken as a whole to be cognitively penetrable:

> **Cognitive Penetrability (CP):** Perceptual experience is cognitively penetrable iff it is nomologically possible for two subjects (or for one subject in different counterfactual circumstances, or at different times) to have perceptual experiences with different contents and phenomenal character while perceiving and attending to the same distal stimuli under the same external conditions, as a result of differences in other cognitive (including affective) states.

CP seems to be confirmed by the cross-cultural data regarding perceptual experiences of the Müller-Lyer lines. Suppose a subject from Evanston and a subject from one of the African foraging cultures were standing right next to each other looking at the Müller-Lyer lines. In this case, the two subjects are perceiving and attending to the same distal stimulus, the Müller-Lyer lines, and are doing so under the same external conditions. Yet the distal stimulus is represented differently by the two subjects, which is just to say that the perceptual content of their experiences of the Müller-Lyer lines is different. And under the very plausible assumption that if there is a change in perceptual content there is also a change in phenomenal

character, the subjects' perceptual experiences will have different phenomenal character. Not only is this possible, it is actual.

The second thesis states what the conditions are for a specific state to be cognitively penetrated:

> **Cognitive Penetration Thesis (CPT):** When a perceptual experience with content p had while attending to a distal stimulus is cognitively penetrated by background cognitive state B, if one were not in B, then one would not have had the perceptual experience with content p while attending to the same distal stimulus.[16]

The CPT is about what is going on when a perceptual experience is cognitively penetrated. When a perceptual experience is cognitively penetrated, the counterfactual, 'if one were not in B, then one would not have had the perceptual experience with content p while attending to the same distal stimulus' will usually hold. The CPT seems to be confirmed by the data from the color perception experiments. Suppose that one of the subjects in the Delk and Fillenbaum (1965) experiment lacks any concept or beliefs about lips, including the belief that lips are typically red. Quite plausibly, that subject would have matched the color of the lips in the same way that he or she matched the color of the typically neutral objects like the

[16] CP and CPT are almost identical formulations from Siegel (forthcoming). The difference is that she formulates them only for vision. Here they are formulated in terms that would encompass all sense modalities. There is also a wrinkle for the formulations. The wrinkle is that the formulations refer specifically to distal stimuli and in hallucinatory perceptual experience there may not be any distal stimuli. This is not much of a problem, however, appropriate modifications can be made that refer to proximal stimuli or whatever it is that veridical and hallucinatory experiences share.

circle or oval. The subject would not have been in background cognitive state B (by lacking the concepts and beliefs about lips) and the perceptual content of the experience of the lips would have been different. This is just to say that the counterfactual in the CPT holds.

Also, both CP and the CPT state that what is being penetrated is the content of the perceptual experience. What is represented, according to both CP and the CPT, is partly determined by one's background cognitive state. And if the phenomenal character of a perceptual experience changes when there is a change in perceptual content, then the phenomenal character of an experience will be indirectly penetrated by one's background cognitive state.

4.2 Pylyshyn

This brings me to Pylyshyn's formulation of cognitive penetration. He writes that "if a system is cognitively penetrable then the function it computes is sensitive, in a semantically coherent way, to the organism's goals and beliefs, that is, it can be altered in a way that bears some logical relation to what the person knows" (1999, p. 343).[17] For any system to be cognitively penetrable, one's goals and beliefs must be able to alter what the system computes. Perceptual experience is cognitively penetrable if one's background cognitive state can alter the contents of perception

[17] Pylyshyn's article is in an issue of *Behavioral and Brain Sciences*. The article is followed by a wide variety of peer commentaries and Pylyshyn's response to these commentaries.

via some logical relation between the contents and the background cognitive state (p. 343).[18]

Pylyshyn is concerned with vision and concedes that part of visual perception, taken as a whole, may be cognitively penetrable. He is concerned with how far into the perceptual process one's background cognitive state is able to penetrate. He claims that there is a part of the perceptual process that is cognitively impenetrable. Roughly, the idea is that there is a three-stage process. He claims the second stage, early vision, is cognitively impenetrable. The function of early vision is to take "attentionally modulated activity of the eyes" as input to early vision and spit out "shape representations involving at least surface layouts, occluding edges—where these are parsed into objects—and other details sufficiently rich to allow parts to be looked up in a shape-indexed memory in order to identify known objects" (p. 364). Early vision results in a unique 3-D representation and is defined by this function. The other two stages are cognitively penetrable. The first stage is prior to early vision and is a system that directs attention—it directs where the eyes should focus attention. The third stage is identification and categorization of the output.

It may be right that early vision is cognitively impenetrable. Nothing said so far has indicated otherwise. I will argue later in this section that 3-D representation is cognitively penetrable. And if 3-D representation is the proprietary domain of early vision, then early vision is cognitively penetrable. Before I get to that, however, there

[18] Here it is not clear whether Pylyshyn means the contents of perceptual experience or the contents of the whole perceptual process. This lack of clarity is consistent throughout his article.

are more pressing concerns. First, much of the force of Pylyshyn's criticism of cognitive penetrability comes from his claims that cases that are typically cited as cases of cognitive penetration are, in fact, not cases of cognitive penetration. Second, it is not clear that cognitive impenetrability of early vision entails cognitive impenetrability of perceptual experience. In other words, Pylyshyn's claim that early vision is cognitively impenetrable may have nothing to do with the cognitive penetrability of perceptual experience. Given certain claims by Pylyshyn, the present concern and his concern may be quite different.

I will begin by outlining Pylyshyn's discussion of the cases that purport to be good evidence for cognitive penetration. He treats three of the types of cases the same way: fragmented figures, ambiguous figures, and expert perceivers (p. 357-360).[19] Fragmented figures, like Figure 10, are unspecific about what is in the figure. After subjects are given hints or clues about what is in the figure, they typically are better at identifying the object in the figure. Pylyshyn claims that what is happening is not that one's background cognitive state is assisting in identifying the object. Rather, what is happening is that being given a hint or clue triggers a search for a locus of attention. The hint or clue tells the eyes to focus on different specific points. This shifting attention is what assists a subject in identifying the object in the figure. And shifting attentional focus, for Pylyshyn is prior to early vision.

Pylyshyn says the same thing is going on in ambiguous figures. This response to ambiguous figures and Churchland's claim that one changes one's assumptions to

[19] He also talks about perceptual learning. But perceptually learning is similar enough for it to be included in the category of expert perceivers.

have a different perceptual experience is the same as Fodor's response. Pylyshyn claims that the subject looking at ambiguous figures, when given a hint or clue, searches for different specific points of focal attention.

It is plausible that this is what is happening in cases of fragmented and ambiguous figures. But it does not show that one's background cognitive state has nothing to do with perception of the figure. In order to show this, one would need to show that a subject lacking the relevant concept could nevertheless find the object in the figure. Such a subject couldn't identify it, as they have no concept of it. For example, if after getting hints or clues that there is something meaningful in Figure 10, could a subject lacking concepts of dogs or Dalmatians find the dog sniffing the ground? Or could one lacking concepts of rabbits or rabbit-like mammals have both the perceptual experience of a duck and the perceptual experience of a rabbit when looking at the duck-rabbit. If not, then fragmented and ambiguous figures may still provide evidence of cognitive penetration, albeit less than before.

With regard to expert perceivers like musicians, chess players, ornithologists, and tree-identifiers, Pylyshyn claims that there are two skills being deployed, neither of which are part of early vision. First, expert perceivers have acquired greater classificatory and recognitional capacities. These are post-early vision, or post-perceptual. The second type of skill that experts have but the layperson does not is the skill of knowing where to look to find the relevant information. Their expertise guides their focal attention to locations in perceptual space where information is most likely to be. For example, the chess expert will know better where to direct one's focal attention in order to gather information relevant to the next move. And

the ornithologist will know better where to direct one's focal attention in order to distinguish one bird from another.

It is unclear how this might apply to expert musicians. Though it seems possible to generally attend to certain features of auditory space by turning one's head or cupping one's hands around one's ears, it is unlikely that this is what is happening in the case of musical experts (I wouldn't know; I am not a musician). Attending to specific, fine-grained portions of auditory space seems quite difficult. Perhaps being an expert musician is like being an expert at concentrating on having conversations in environments in which there is a lot of background noise. Or maybe Pylyshyn would allow that auditory perception is cognitively penetrable but visual perception is not. This sort of move, however, is prima facie unprincipled.

Pylyshyn's point that what is happening in the above cases is the direction of focal attention may be compatible with CP and the CPT. CP and the CPT depend on the distal stimuli to which subjects are attending. Depending on how fine-grained the description of the distal stimulus is, CP and the CPT may be compatible with Pylyshyn's point. If the description of the distal stimulus that the subjects are attending to is coarse-grained, then Pylyshyn's point is compatible with CP and the CPT. This is just to say that the counterfactual in the CPT would still hold if the description of the distal stimulus is coarse-grained enough. Suppose that two subjects, one an expert and one a novice, are looking at a chessboard. If we describe the distal stimulus in this case as just the chessboard, then clearly CP and the CPT will hold, as they will be attending to the same distal stimulus and have different perceptual contents. This, however, would weaken both CP and the CPT. But if the

distal stimulus is a specific point on the chessboard, something like square E5, then Pylyshyn's point may not be compatible with CP or the CPT. As I will point out shortly, it might just be that Pylyshyn and I are concerned about different things.

So, for the cases of fragmented figures, ambiguous figures, and expert perceivers, Pylyshyn claims that one's background cognitive state is not penetrating the *visual system*. What is penetrated is the pre-perceptual system that governs focal attention. The other cases that are purportedly good evidence for cognitive penetration are the color experiments, the case of inversion lenses, and the cultural-sensitivity to the Müller-Lyer lines. Pylyshyn only address the color cases and the Müller-Lyer lines.

Pylyshyn makes the same claims as Fodor about the Müller-Lyer lines. Indeed, one of his main reasons for rejecting cognitive penetration is the persistence of the Müller-Lyer illusion (p. 342). This issued has been addressed in sufficient detail above.

Pylyshyn also address the color experiments, but does so very quickly and only in response to one of the peer commentaries. Recall that the early experiments (Duncker, 1939; Bruner et al., 1951) had subjects look at an object that is associated with a typical color and later match it to the color wheel. As such, the matching relied on the subjects' memory of the object. Pylyshyn exploits this aspect of the experiment in responding to the experiments. He writes:

> "When subjects are asked to compare the color of an object (such as an apple) to the color of a standard Munsell color chip they must (a) focus on the color to the exclusion

> of other properties of the object, and (b) retain the color in memory as they shift their gaze from the object to the color chip. The one thing we *know* to be cognitively penetrable is memory. (p. 404)

This is effective in calling doubt upon the early color experiments from Duncker (1939) and Bruner et al. (1951), but it does nothing to mitigate the evidence from the Delk and Fillenbaum (1965) experiment or the Hansen et al. (2006) experiment. These experiments in no way relied on matching how subjects remembered the object to a color wheel. Moreover, subjects did not have to "shift their gaze" from the object to the color wheel in these two experiments.

Pylyshyn does address the Delk and Fillenbaum (1965) experiment, but it is very unclear what he thinks he has shown about it. He writes of the Delk and Fillenbaum (1965) experiment that "The task, however, is still to match cutouts of shapes associated with the color red (apple, heart, lips) against Munsell chips, so the influence of color recall for objects continues to be a factor" (p. 405).[20] The task in the experiment was to match a background color to the color of the objects. It is unclear why Pylyshyn thinks this entails that memory is playing a crucial role. Why couldn't the subjects just focus on the boundary? He also writes that "If the subjects understand the task as that of matching the color that objects of that shape typically have, then memory is the crucial variable" (p. 405). This conditional may be true, but it misses the point. The task was not to match the color the shapes *typically* have to

[20] I have omitted a parenthetical remark from the end of the quotation. Pylyshyn claims that Delk and Fillenbaum recognize that remembering how an object looked crucially affects the matching process. After an extensive search of Delk and Fillenbaum (1965) I can find no such admission.

the color wheel. The task was to match the color the objects *appear* to have to the color wheel.

It is unclear what Pylyshyn would say about the Hansen et al. (2006) experiment with the fruits and vegetables. The Hansen et al. experiment and the Delk and Fillenbaum experiment are close enough in detail to warrant the same type of response. That is, whatever one says about one of them one should say something similar about the other. Doing otherwise would appear ad hoc. We have seen that Pylyshyn's response to the Delk and Fillenbaum experiment is not good. So on the assumption that he would say something similar to the Hansen et al. experiment by appealing to the subjects' memory Pylyshyn would be wrong with regard to that one also.

I have outlined Pylyshyn's view and his reasons for doubting cognitive penetration. The only reasons that threaten cognitive penetrability are the cases of fragmented and ambiguous figures and expert perceivers. And even then it is not clear that all cases of expert perceivers, for example, are cases in which there is no cognitive penetrations. The other reasons do nothing to show that there is no cognitive penetration. But the threat from Pylyshyn's explanation of fragmented and ambiguous figures and expert perceivers is illusory—they are no threat at all. The reason is that *Pylyshyn is not even concerned with perceptual experience.* Pylyshyn is only concerned with early vision. And perceptual experience is not part of early vision. He says it best himself when he writes that "what we see—the content of our phenomenological experience—is the world as we visually apprehend and know it; *it is not the output of the visual system itself*" (p. 362, emphasis added).

This passage is ambiguous for a number of reasons. First, seeing something is not equivalent to apprehending it. This is the mistake many make in conflating perceptual experience with perceptual judgment. Second, by "the content of our phenomenological experience" does Pylyshyn mean that phenomenological content of experience is distinct from or unrelated to contents of perceptual experience? If so, this claim would require significant argument, as it is uncontroversial that this is not the case. Is Pylyshyn implicating that there is non-phenomenological experience? If so, this again needs significant argument. In fact, if this is what he means, he is just conceptually confused. Or does Pylyshyn mean that there is a distinction between phenomenological experience and perceptual experience? Again, this would require significant argument. Perhaps he means that the output of the visual system is something like states of the brain. And since we don't have phenomenological experience of those, the content of phenomenological experience is not the output of the visual system. I think that the most plausible reading of this passage is that Pylyshyn means that perceptual experience as philosophers, including myself, think of perceptual experience is not the output of the visual system. He thinks that perceptual experience, conceived of as implying some degree of consciousness and being available in "the global workspace"—or how things look to a subject—is not the output of the visual system. If this is right, then his arguments are no threat to CP or CPT. They are no threat to the cognitive penetrability of *perceptual experience*

4.3 The cognitive penetrability of 3-D representation

There is a lingering worry, however. If Pylyshyn is right and early vision is cognitively impenetrable and 3-D representation is a proprietary domain of early vision, then the extent to which one's background cognitive states can penetrate one's perceptual experience is limited. Fortunately, there is an argument that perceptual experience of 3-D representations is cognitively penetrable. Some recent empirical evidence is required to set up the argument.

Recall that Bruner's New Look psychology used the notion of inference to account for the fact that visual scenes are ambiguous, or they underdetermine what will be represented. Consider Figure 11, for example.

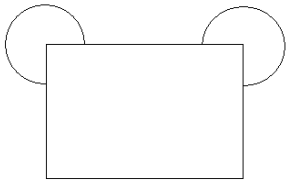

Figure 11

The image in Figure 11 is ambiguous between seeing a rectangle in front of or occluding two circles and two "Pac-man" like circles feeding on a rectangle. Yet it is difficult to see it as anything other than a rectangle occluding two circles. To explain this phenomenon—to explain the seemingly inferential character of the visual system—vision scientists have recently proposed to apply Bayes' Theorem to perception.

The visual system infers what the scene is by applying Bayes' Theorem. In Figure 11, there are two possible ways one could see it, or two different hypotheses. The more likely visual scene is the one that will be represented in perceptual

experience. It can be put more formally, where H is the hypothesis of how the world is and D is the image or the data that has reached the relevant parts of the eye:

$$Pr(H \mid D) = Pr(D \mid H).Pr(H)$$[21]

The posterior, Pr(H|D), with the highest value will be the one that is represented in experience. This is just to say that the hypothesis with highest probability of being veridical given the data from the eye will be the one that is represented in experience. This obviously crucially depends on the likelihood and the prior. The likelihood, Pr(D | H), corresponds to the probability of the image or the data given that the hypothesis under consideration is true. The prior, Pr(H), corresponds to assumptions that the visual system makes about what is likely to be in visual scenes. These are thought to be primarily innate, though as recent evidence suggests they are highly context-dependent and plastic.

An example may be helpful. Suppose that the visual system is trying to decide what to represent given Figure 11. There are two hypotheses: that the scene is of a rectangle occluding two circles or that two Pac-men are eating a rectangle. In this case, the probability of the image or data given each hypothesis will be quite similar, as the image itself is ambiguous. Moreover, in this case the likelihood for each hypothesis will be 1 or approaching 1. The priors for the hypotheses, however, will differ significantly. Given the native construction of the visual system and previous experience, the visual system "believes" that it is much more likely that a rectangle is occluding two circles than two Pac-men are eating a rectangle (unless one has played

[21] The probability in the denominator, Pr(D), drops out as it presumably would remain constant (at 1 or approaching 1) for all human perceivers.

an unhealthy amount of Pac-Man). Because of this, the product of the prior and the likelihood for the hypothesis that a rectangle is occluding two circles will be much higher than the product of the likelihood and prior for the hypothesis that two Pac-men are eating a rectangle. And because the posterior for the former hypothesis is greater, a rectangle occluding two circles is represented in experience.

It is debatable both whether a Bayesian inference system is used at all and whether such a system operates cognitively or non-cognitively. Pylyshyn, at least, thinks that it operates at a post-perceptual level (p. 412). If it operates at a cognitive level, then the priors used in the calculations will be cognitive and if it operates at a non-cognitive level, then the priors used in the calculations will be non-cognitive.

Recent experiments have shown that priors can shift quite dramatically, causing different perceptual experiences when attending to the same distal stimulus. One of the priors that visual systems use is the assumption that light comes from above. This prior can shift resulting in different perceptual experiences of shape. Adams, Graf, and Ernst (2004) showed subjects the following image (Figure 12).

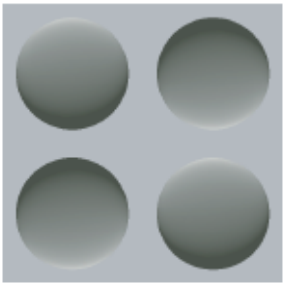

Figure 12

Two of the circles in the figure appear as concave and the other two appear as convex. When the figure is turned upside down, the concavity and convexity reverses. What before appeared concave now appears convex and what before appeared convex now appears concave. The phenomenon can also be seen in Figure 13.[22] Figure 13 is a photograph of a crater on the moon. But when it is looked at upside down, the photograph appears to be of mountains.

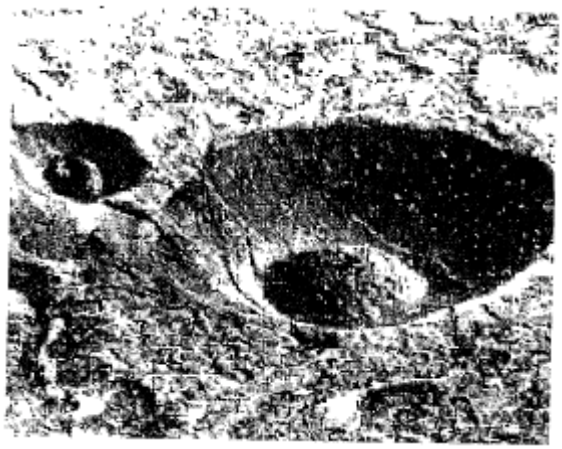

Figure 13: Crater/mountain

This happens because our visual system "assumes" that light is coming from above. Adams et al. then provided subjects with haptic stimuli that were inconsistent with the subjects' previous judgments about the concavity or convexity. For instance, if subjects earlier judged a circle to be a concave dimple, when they touched that part the stimuli were of a convex bump. They then judged the circle convex. After making judgments about the concavity or convexity of the circle, subjects were asked whether the circle appeared as concave or convex. Curiously enough, subjects

[22] The figure is taken from Scholl (2005).

reported that it appeared the way they felt it. That is, the subjects' perceptual experience of the concavity or convexity of the circle after touching it differed from their perceptual experience of the circle prior to touching it. This is supposed to show that the subjects' prior assumption that light was coming from above shifted after touching the circles. This is what accounts for the different appearances of the same distal stimuli.

Whether a circle appears convex or concave is a matter of how it is represented 3-dimensionally. In other words, dimples and bumps are different 3-dimensional representations. If the prior assumptions that the visual system makes are cognitive, then there is a straightforward argument for the cognitive penetrability of perceptual experience of 3-D representation. In other words, a change in a cognitive feature, a prior assumption, would result in a change in perceptual experience. It may not be the case, however, that prior "assumptions" are cognitive. If so, there is still an argument that perceptual experience of 3-D representation is cognitively penetrable. The prior assumptions of the visual system change. In the case of the above experiment, a plausible reason for this change is that the subject has acquired a belief that what initially appeared concave is actually convex. This belief results in a change in the prior assumption, thereby generating a different perceptual experience of 3-D representation.[23]

[23] An example may make the point clearer. Suppose that a normal human was put in a cave where the light source comes from below for 5 or 10 years. Upon coming out of the cave, the cave-dweller and a normal human would have different perceptual experience while looking at the same distal stimuli.

There are explanations of the above experiment that do not support cognitive penetration. One explanation is that the subjects do not actually have the belief by touch that the circles are concave (or convex, whatever the case may be). The explanation might continue by saying that there is a direct, non-cognitive link between haptic stimulation and visual experience. The problem with this explanation is that even on the most conservative account of what it is to have a belief, the subjects in the experiment will count as having the belief by touch that the circles are concave (or convex). And as long as the subjects have that belief, it is very plausible that it is penetrating the subjects' second visual experiences such that if the subject had not had the belief by touch they wouldn't have had the visual experiences that they did.

Another explanation that may not support cognitive penetration agrees that the subjects have the belief by touch about the circles, but claims that it is causally inert with respect to the subjects' second visual experience. This explanation may continue by agreeing with the first alternate explanation that what is causing the second visual experience is just the haptic stimulation, which is directly and non-cognitively linked with the subjects' second visual experiences. In other words, this explanation claims the only causal relation between the subjects' beliefs by touch and their second visual experiences is that they have the same cause. The belief itself is not in the causal chain that leads to the second visual experience.

Although it may be difficult to decide between cognitive penetration and the second alternate explanation, I think that there is an issue with the second that nevertheless suggests cognitive penetration. In the experiment, it only took 90

minutes for the subjects' beliefs by touch to penetrate their visual experiences of the circles. That is, after having the initial visual experiments representing the convexity or concavity of the circles, the subjects had the haptic experiences of the circles, and only 90 minutes after having the first visual experiences, had the second visual experiences. Their second visual experiences were not simultaneous with or seconds after the haptic stimulation. This suggests that there is no direct link, cognitive or not, between the haptic stimulation and the second visual experiences. Moreover, it seems that the subjects' memory had a significant role in determining the character of their second visual experiences. Even on this alternate explanation, it seems right that had the subjects not had the memory about the haptic stimulation, they would not have had the second visual experiences that they did. And the things that get stored in memory are representations. This is sufficient for the CPT to hold. So, even though it may be the case that the subjects' haptic beliefs about the circles are not penetrating their second visual experiences, representations stored in memory are doing the penetrating. And this is sufficient for the CPT to hold.

This experiment also indicates the plausibility of synchronic cognitive penetration. It took 90 minutes for the haptic belief to penetrate the second visual experience. This is not clearly below the line above which penetration is diachronic and below which penetration is synchronic. But 90 minutes is not a long time and it doesn't seem to qualify as diachronic. Rather it pretty intuitively counts as synchronic cognitive penetration.

There are two more relevant conclusions that can be inferred from the above experiment. First, 3-D representation is cognitively penetrable. This entails that

perceptual experience of shape is cognitively penetrable. Second, since 3-D representation is cognitively penetrable and 3-D representation is an output of early vision, Pylyshyn's claim that early vision is cognitively impenetrable is false.

5 Conclusion

I have argued for the claim that perceptual experience is cognitively penetrable. More specifically, I have argued that low-level perceptual experience—experience of low-level properties like color, shape, and lines and angles—is cognitively penetrable. I have not argued for the claim that perceptual experience of high-level properties like tree-ness or car-ness are cognitively penetrable. This is because I have not argued for the claim that high-level properties are represented in perceptual experience, though I will do so in the next chapter. And in order to show that perceptual experience of high-level properties is cognitively penetrable, one must first show that perceptual experience represents high-level properties. But on the assumption that high-level properties are represented in perceptual experience, perceptual experience of them is also cognitively penetrable. This is because for every high-level property represented in experience there will be a low-level property represented. For instance, tree-ness couldn't be represented in experience without some color or shape being represented in experience. And since perceptual experience of low-level properties is cognitively penetrable, perceptual experience of tree-ness or any other high-level property is cognitively penetrable. More generally, because perceptual experience of high-level properties includes perceptual experience of low-level properties, and perceptual experience of low-level properties is

cognitively penetrable, perceptual experience of high-level properties is cognitively penetrable.[24]

My argument for the cognitive penetrability of low-level properties is primarily supported by empirical evidence. Though this evidence can be disputed, it strongly suggests that perceptual experience is penetrated by one's background cognitive state, where this can include some or all of one's beliefs, expectations, concepts, recognitional capacities and assumptions,. The evidence is at least strong enough to make it reasonable to believe that perceptual experience is cognitively penetrable and, unless one has alternative reasonable interpretations of the data, unreasonable to deny that perceptual experience is cognitively penetrable.

It is crucial to recognize what I have not claimed. I have not argued for the position that background cognitive states fully determine one's perceptual experience. The content of perceptual experience is only partly determined by background cognitive states. For instance, background cognitive states can make the difference between seeing something as red and seeing something as brown, but it is unclear whether they could make the difference between seeing something as red and seeing something as blue.

I have also made no claim about whether one's whole background cognitive state or merely parts of one's background cognitive state assist in determining the

[24] This leaves open the possibility for an overall perceptual experience to have some contents penetrated and some contents not penetrated. This is also not to say that if perceptual experience of high-level properties is cognitively penetrable, then such penetration is always in virtue of the cognitive penetration of perceptual experience of low-level properties.

content of perceptual experience. I have claimed that one's beliefs, concepts, assumptions, recognitional capacities, and expectations contribute to the content of perceptual experience, but this is consistent with either of the above options.

I have addressed the depth of cognitive penetration, but not the pervasiveness of it. The evidence suggests that prior beliefs, concepts, expectations, assumptions, and recognitional capacities influence how the world appears. It is thus plausible that anytime one has prior beliefs, concepts, recognitional capacities, expectations, or assumptions about a potential object of perception, a perceptual experience distally stimulated by that object is cognitively penetrable. This happens most of the time. As we perceptually navigate the world, we are more often than not confronted with objects of which we have concepts, beliefs, assumptions, recognitional capacities, and expectations. Indeed, it is difficult to think of actual instances of perceptual experiences of objects of which we have no prior concepts, beliefs, assumptions, or expectations.[25] If you look around whatever perceptual environment you are currently in, you will find that for most of the objects perceivable, you have a "prior". Thus, not only do background cognitive states penetrate deeply, they also do so pervasively.

[25] There are of course arguments for nonconceptual contents of perceptual experience. That there may be nonconceptual content of perceptual experience does nothing to mitigate the pervasiveness of cognitive penetration.

CHAPTER 2

REPRESENTING HIGH-LEVEL PROPERTIES IN PERCEPTUAL EXPERIENCE

When one looks at a Dachshund, what properties of the dog does one's perceptual experience represent? This is just to ask: of which properties of the dog does one become aware solely via one's perceptual capacity? Two answers are common. The first is that one can become aware in this way only of "low-level" properties such as shape, illumination, color, and motion by one's perceptual capacity. Thus, one can only become aware of the dog's brown and black coloring, the light surrounding the object, the four things that an oblong body seems to be resting on, and the speed at which those four things are moving. I will refer to this first view as "low-level theory" and proponents of the view as "low-level theorists." The second answer is that one can become aware of low-level properties by one's perceptual capacity, but one can *also* become aware of "high-level" properties, such as being a mammal, being a dog, and being a Dachshund. I will refer to this view as "high-level theory"[26] and its proponents as "high-level theorists."

All parties to the debate agree that one can represent high-level properties *in consciousness*. What they disagree on is whether such representation is at the level of *perceptual* consciousness. Low-level theorists think that high-level properties are not represented in perceptual experience. They hold that when one looks at an object instantiating high-level properties, representation of those high-level properties

[26] This view is sometimes put in terms of rich content. I am assuming that rich content and representation of high-level properties in experience are identical.

occurs only at the level of perceptual *judgment* and is the result of cognitive "interpretation" of perceptually represented low-level properties.[27] For instance, when one looks at a police officer standing on a street corner, one can represent in experience only properties such as the relevant shapes and colors of the officer and his or her uniform. At a later stage one "interprets" this low-level information, in some sense. The interpretation results in a representation of a police officer, but that representation occurs only in perceptual judgment, not in perceptual experience. High-level theory, by contrast, claims that high-level properties, such as the property of being a police officer, can be represented in perceptual experience itself.

Whether experience represents high-level properties or merely low-level properties has significant implications. If one's perceptual experience represents the (high-level) property of being a Dachshund, this complicates the justificatory relation between one's experience of a Dachshund and one's perceptual judgment that there is a Dachshund. Furthermore, if perceptual experience represents high-level properties, then the opportunities for a perceiver to misrepresent the scene before him or her are more common. Perceptual illusions would seem to be more frequent. These are both interesting implications of the position that I will argue for in this paper, namely, that perceptual experience can represent high-level properties such as the properties of being a dog, a pair of lips, an apple, etc.[28]

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[27] This judgment may be "in consciousness," in some sense, but it is not in perceptual consciousness, and therefore is not a perceptual experience.

[28] It is not clear that there is any criterion by which one could determine whether a property of an object is high or low-level. There are the clear cases of low-level properties (e.g., perhaps all of the properties that would be categorized as either

The paper is divided into two sections. The first details what are currently taken to be the two strongest sources of support for high-level theory and argues that they inadequately support high-level theory. The first source is inadequate because it is compatible with low-level theory, the other because empirical research falsifies it. The second section offers an argument for high-level theory that relies on both empirical research as well as the relation between one's perceptual experience and one's background cognitive state. One's background cognitive state is the collection of one's beliefs, memories, concepts, recognitional capacities, and so on. Moreover, the argument proposed in the second section does not have the weaknesses that the current sources of support for high-level theory have.

Before starting, I want to clarify my assumptions that I take to be neutral between high and low-level theory. First, I am assuming that perceptual experiences are necessarily contentful states of a subject. The content of a perceptual experience is what the experience represents. To claim that certain high-level properties can be represented in perceptual experience is to claim that these properties can in some way be part of perceptual content. Secondly, I am assuming that elements of one's background cognitive state, or *cognitive elements*, are representational in nature; they have content.[29] Thirdly, I am assuming that some dependence relation holds between the phenomenal character of a perceptual experience and the experience's

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primary or secondary qualities) and there are clear cases of high-level properties (being a brother, mother, friend, mammal, angry).

[29] For examples: concepts may be a group of representations in a mental file; recognitional capacities may be capacities that in some way manipulate representations; memories may be imagistic representations or representations of meaning; and beliefs are attitudes towards representations.

content. I wish to remain neutral on the precise relation between phenomenal character and perceptual content: it may be that phenomenal character supervenes on content, that content supervenes on phenomenal character, that phenomenal character is identical to content, or that some other relation holds. Fourthly, I am assuming that perceptual *experiences* are not the same as perceptual *judgments*. When the low-level theorist claims that one becomes aware of high-level properties of objects at the level of perceptual judgment and the high-level theorist claims that such awareness occurs at the level of perceptual experience, this is not merely a terminological dispute; there is a substantive disagreement here. Fifthly, I am assuming that having a perceptual experience entails that the subject of the experience is consciously aware of that which is represented, though such awareness may come in degrees.

1 Why think that experience represents high-level properties?

There are two main sources of support for the view that perceptual experience represents high-level properties. The first is intuition. When we perceptually interact with the world, it doesn't seem as though we are interacting with things like brownish horizontal and vertical planks, white empty cylinders, rectangular two-dimensional objects illuminating smaller shapes, and small, hard buttons that we press with our fingers. Rather, we seem to perceive things like bookshelves, coffee cups, computer monitors, and keyboards. It seems to us that we are perceptually aware of high-level properties. It doesn't seem to us that perception only offers low-level properties from which we cognitively interpret the scene before

us.[30] For instance, when we see a bicyclist wearing brightly colored spandex ride by, it just seems to us that we are perceptually aware of a bicycle, a person, and spandex.[31] P.F. Strawson puts the point nicely when describing the layperson's response to the prompt, "Give us a description of your current visual experience":

> Uncautioned as to exactly what we want, he might reply in some such terms as these: "I see the red light of the setting sun filtering through the black and thickly clustered branches of the elms; I see the dappled deer grazing in groups on the vivid green grass…" (1979, p. 93)[32]

Strawson's imagined response uses expressions for high-level properties such as the properties of being the sun, the setting sun, branches, elms, deer, and grass. This response is, intuitively, the right sort of response to the prompt. The wrong sort of response seems to be that one sees vaguely circular redness being partly occluded by brownish elongated things and some medium sized object that is not uniformly colored with a large patch of uniformly green underneath it.

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[30] Charles Siewert (1998) gives several nice cases that show how intuitive it is that high-level properties are represented in perceptual experience. Here are some examples that suggest that perceptual experience represents high-level properties: how a house in one's neighborhood looks before and after becoming familiar with it will be different; how a person's face looks will be different before and after getting to know and recognize them; the perceptual experience of a victim of prosopagnosia (someone who can see perfectly what a face looks like—he or she can describe in great detail the shapes and colors of a face—but is unable to recognize it) before acquiring the impairment will be different from the experience after acquiring the impairment.

[31] In such a case, it seems that one is especially perceptually aware of the spandex.

[32] This passage is also quoted in Phillips (2005).

But intuition can offer little support to high-level theory, as the low-level theorist can explain such intuitions. It is open to the low-level theorist to claim that what the high-level theorist thinks is represented in experience is actually represented in judgment. Consider the passage from Strawson. The above passage is supposed to lend intuitive support to high-level theory. But there is nothing in the passage, or any other example meant to lend intuitive support to high-level theory, that can determine whether high-level properties are represented in experience or in judgment. The imagined layperson in the response may be judging that the dappled deer is grazing rather than representing in experience the properties of being a deer and grazing. Or one may represent in judgment the property of being grass rather than representing that property in experience. No aspect of the intuition about how things seem to one will be able to decide between high-level theory and low-level theory. So it will do no good for a high-level theorist to argue for her theory from intuitions that the low-level theorist can easily explain. What the high-level theorist needs is a reason to think that high-level properties are represented in experience that is independent of intuitions about phenomenal character and perceptual content. In the second section I will provide such a reason.

Intuitions about phenomenal character also guide an argument for high-level theory that comes from Susanna Siegel (2006), the second main source of support for high-level theory. She considers two experiences of the same individual, one experience had before acquiring a recognitional capacity and the other experience

had after acquiring the recognitional capacity.[33] Suppose that one knows almost nothing about trees and is instructed to cut down all of the pine trees in a particular forest. Not knowing what a pine tree looks like, one requires that pine trees be pointed out. The first time one sees a pine tree and it is identified as such, one has perceptual experience E1. As others point out pine trees to one, one becomes gradually better at recognizing pine trees. After several weeks, one acquires a capacity to recognize then. After acquiring the recognitional capacity, one looks at a pine tree and has perceptual experience E2. E1 and E2 have perceptual phenomenal character that is part of the overall phenomenal character, which possibly includes non-perceptual phenomenal character.

In order for the argument to get going, one must have the intuition that there is a difference in the overall phenomenal character of which E1 is a part and the overall phenomenal character of which E2 is a part. The argument then proceeds as follows:

(1) If the overall phenomenal character of which E1 is a part differs from the overall phenomenal character of which E2 is a part, then there is a difference in the perceptual phenomenal character of E1 and E2

(2) If there is a difference in phenomenal character of the perceptual experiences E1 and E2, then there is a difference in perceptual content of E1 and E2.

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[33] Siegel's argument is typical of a strategy to ground high-level theory. Other instances of the strategy can be found in Siegel (2006) and Searle (1983). See Price (2009) for criticism of the general strategy.

(3) If there is a difference in content between E1 and E2, it is a difference with respect to the high-level properties represented in E1 and E2.[34] (Siegel, 2006, p. 491)

The argument claims that the best explanation for the intuitive phenomenal difference between E1 and E2 is that E2 represents high-level properties and E1 does not represent those high-level properties.

There are several ways for the low-level theorist to resist Siegel's argument. One is that the low-level theorist can simply deny the intuition that the argument requires. In other words, the low-level theorist can deny that there is a difference in phenomenal character between E1 and E2. The intuitions here just are not that clear. It is hard enough to try to figure out one's own phenomenal character at any given time. It is even more difficult to try to figure out another's occurrent phenomenal character and then compare it to one's previous phenomenal character. Is there an overall phenomenal difference between E1 and E2? It is hard to say. Intuitions can be useful to build theories when the intuition is strong and pervasive. But when it comes to intuitions about phenomenal character, it is not even clear what the object of the intuition is.[35]

Another point of resistance is (1). Assuming one even has the initial intuition, one could deny (1) and claim that the phenomenal difference between E1 and E2 is non-

[34] The argument is supposed to argue for Thesis K, which is that some K-properties are represented. K-properties are natural kind properties, but may also include other high-level properties.

[35] I do not mean to express skepticism about intuitions in general. But I am dubious of intuitions about phenomenology, especially when they are being used to guide theory-building.

perceptual; the phenomenal difference between E1 and E2 is a difference in cognitive phenomenology, or what it's like to have a thought e.g., a belief. Cognitive phenomenology is non-perceptual phenomenology.

Some doubt the existence of cognitive phenomenology, but there are nice examples that strongly suggest its existence. Consider the sentence, "Visiting relatives can be boring".[36] This sentence is ambiguous between two interpretations: you are going to visit relatives or relatives are coming to visit you. The phenomenology associated with the thought about going to visit relatives is different from the phenomenology associated with the thought about relatives coming to visit you, in spite of the fact that sentence expressing each thought is the phonologically and orthographically the same. [37]

Another sort of example commonly used to point out cognitive phenomenology comes from Galen Strawson (1994). Suppose that two people, one a monolingual French speaker and one a monolingual English speaker, are listening to a radio broadcast in French. Although the perceptual phenomenology for the two listeners will be the same, what it's like for the French speaker to listen to the broadcast will be different from what it's like for the English speaker to listen to the broadcast. The phenomenological difference is a difference in cognitive phenomenology. So one might claim that the phenomenal character of looking at the trees in E1 and E2 are perceptually identical. But the phenomenal difference is in

[36] See Horgan and Tienson (2002).

[37] David Pitt (2004) uses similar examples and offers a detailed argument for the existence of cognitive phenomenology.

virtue of one's belief that that kind of tree is familiar, or one's belief that that tree is a pine tree, or some other suitable belief content.[38]

Siegel anticipates this sort of resistance. Her response appeals to the fact that beliefs are commitment-involving—beliefs are not neutral with regard to how the world is. Siegel responds:

> Suppose that you're an expert pine-spotter looking at some pine trees in the forest. Then someone tells you that the forest has been replaced by an elaborate hologram, causing you to cease to dwell on the belief that you're looking at a familiar tree. If an event such as [having the belief that that kind of tree is familiar] were what contributed to the phenomenological change before and after acquiring the disposition to recognize pine trees, then we would expect your acceptance of the hologram story to make the hologram look as the forest looked to you before you knew how to recognize pine trees. But intuitively, the hologram could look exactly the same as the forest looked to you after you became an expert. So the familiarity with pine trees does not seem to have its phenomenological effects at the level of belief. (2006, p. 494)

The main premise of this argument from Siegel is that if having the belief that that kind of tree is familiar is the reason for the phenomenological difference, then losing that belief would decrease the phenomenological contribution of the belief such that how things appear before and after acquiring the recognitional capacity would be the same. That is, after accepting that how things appear is not how things are, we

[38] One need not believe that there is cognitive phenomenology to reject Siegel's argument. One could deny that there is a phenomenal difference. But assuming that one has the preliminary intuition, I think the best response to her argument is to deny (1).

should expect that how things appear revert to how things appeared prior to acquiring the recognitional capacity, back to how things were before you had the belief that that tree is familiar. But this is counterintuitive, so she concludes that it cannot be that one's belief that that kind of tree is familiar is making the phenomenological difference.[39]

The argument hinges on the idea that when you are told that the scene before you is a hologram you lose the belief that that kind of tree is familiar. Beliefs are commitment-involving. So when you have a belief that that kind of tree is familiar, as opposed to your belief that pine trees are familiar, you are committed to the existence of that kind of tree before you. But when you are told that the scene before you is a hologram, you can no longer be committed to the existence of that tree—you can no longer be committed to the successful demonstrative use of 'that'. Thus you can no longer have the belief that that kind of tree is familiar. [40] This reasoning relies on the claim that once you accept that your demonstrative reference

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[39] Siegel's claim is something like Evans' (1982) claim that demonstrative identification, or demonstrative thought, requires an information link with the world. And since there is no information link it the case of hallucination, there is no demonstrative thought. Siegel's claim differs from Evans' in one crucial respect, however. The above passage from Siegel suggests that she thinks that you had a belief before you found out the scene before you was a hologram. That is, you had a belief to lose. Evans, however, would treat the case as though you never even had the original belief—you never had one to lose. This difference suggests that Siegel thinks that it is not one's actual relation to the world that secures demonstrative reference, but that what one thinks one's relation to the world is secures demonstrative reference.

[40] Though you would still be able to have the belief that pine trees are familiar. The fact that Siegel thinks that you would lose the belief in which one demonstratively refers but not the belief that pine trees are familiar (it is wildly implausible that you would lose this belief upon learning that the scene before you is a hologram) is an indication that what is at issue is successful demonstrative reference.

doesn't actually refer, you lose the belief that that kind of tree is familiar. In other words, by accepting that the scene before you is a hologram you are accepting that you cannot have the belief that that kind of tree is familiar because you are accepting that your use of 'that' refers to nothing.

There is obviously a vast literature discussing the relations between demonstrative reference, thought, and perception. My intention here is just to motivate resistance to Siegel's response to the objection to (1) on the grounds that the phenomenological change is in virtue of a change in cognitive phenomenology. It is not clear that you would lose your belief that that kind of tree is familiar. It may be that you can still be committed to something, namely that things appear to you a certain way and 'that' may just refer to an appearance. Suppose that one is unknowingly hallucinating that a pig is eating from a trough. One turns to one's friend and says, "That pig sure is hungry". Such a statement seems unproblematic. Calmly and with a smirk, one's former friend then says "I put hallucinogens in your drink; you are only hallucinating a pig". Ignoring one's anger at being drugged, it seems reasonable for one to respond, "Even though I am hallucinating, that pig sure is hungry". In this last statement one is referring to the pig in the appearance. Even though one knows that the pig is not actually in the room, it seems right for one to keep one's commitment and corresponding belief about the pig in the appearance. One need not make an explicit statement; one could think that that pig is hungry, mentally pointing to the pig in the hallucination. The point is that just because one loses one's belief about how the world is does not entail that one loses one's belief about how the world appears. And how the world appears seems to be sufficient to

secure demonstrative reference. So it's reasonable to think that even when one knows that one is hallucinating a pig, one can still have the belief that that pig is (appears) hungry. And since one can still have the belief that that pig is hungry despite knowing that one is hallucinating, it seems reasonable to claim that you can have the belief that that tree is familiar despite knowing that the scene before you is a hologram. And this is sufficient to preserve the claim that the phenomenological difference between E1 and E2 is in virtue of cognitive phenomenology—the cognitive phenomenology associated with the belief that that tree is familiar. So (1) is plausibly false.

Some philosophers may be displeased with the possibility of referring to non-existent pigs, and so one may wish to resist the idea that one can demonstratively refer to aspects of hallucination. I believe there is a fallback position that does not rely on reference to non-existent entities though is able to preserve the claim that in Siegel's case you don't lose your belief that that tree is familiar. Demonstrative reference in the case above where one knows one is hallucinating may be similar to how children demonstratively refer when they are pretending. For instance, suppose two children are pretending that they are characters in *The Sword in the Stone*—they are pretending that one of them is Merlyn, one of them is the young King Arthur, and that a tree-branch lying on a stump is a sword stuck in a stone. When the child pretending to be the young King Arthur removes the tree-branch from the stump, the child pretending to be Merlyn points at the branch and exclaims, "You removed that sword from the stone! You will be king!" Now suppose the young King Arthur's parent approaches and, pointing to the tree-branch, asks, "Is

that a sword?" The child pretending to be the young King Arthur proudly replies, "Yes, that is my sword". But if the parent then asks, "Is that *really* a sword?" the child will probably respond, "No, it's not really a sword". Perhaps one's demonstrative reference to an aspect of a hallucination one knows one is having or a hologram one knows is before one is like this case of pretending. One first claims, "that kind of tree is familiar". But if one's friend were to ask "Is that *really* a tree?" one would probably respond, "No, there really is no tree."

Something similar could be said about the beliefs of the young King Arthur. Does the child believe that that is a sword? In some respect, yes. Does the child *really* believe that that is a sword? Probably not. Similarly, does one believe that that kind of tree is familiar? In some respect, yes. Does one *really* believe that that kind of tree is familiar? No, what one *really* believes is that there is no tree. The point is just that so long as it is plausible that in some respect one has the belief that that kind of tree is familiar (whether or not one is pretending), it is plausible that what makes the phenomenological difference between E1 before acquiring the recognitional capacity and E2 after acquiring the recognitional capacity is cognitive phenomenology.

Aside from its reliance on intuitions about phenomenal character and the above strategy one might employ to deny (1), Siegel's argument faces a deeper problem. The low-level theorist will not accept (3). Siegel's argument appeals to the subject's acquisition of a recognitional capacity for, or expertise in, identifying pine trees. (3) states that the difference in perceptual content between the experiences before and after acquiring the expertise is a difference in high-level properties represented; after acquiring the expertise, one represents high-level properties. The

low-level theorist will deny that after one acquires the expertise, one represents high-level properties. Rather, the low-level theorist will claim that even if there is a difference in perceptual content, the difference is one of low-level properties represented. The low-level theorist may claim, for example, that one's expertise allows one to easier distinguish the shade of green of pine trees from other shades of green and identify the particular length of the pine needles and angles of the branches, for examples. Thus, when one has an experience of a pine tree after acquiring the expertise, one represents a certain shade of green that one has learned to distinguish from other shades of green or a certain length of pine needles or a certain angle, whereas before acquiring the expertise, one would not have been able to make such a distinction or identifications.

Another, similar way the low-level theorist might deny (3) is by claiming that when one acquires expertise in identifying pine trees, what one is acquiring is knowledge of where to direct one's visual attention to find the relevant identifying information. Thus, when one identifies pine trees, one directs one's visual attention to a specific part of the tree where one will find the identifying information. And the identifying information located at the specific part of the tree could be low-level properties of the tree. So, for instance, after one acquires the expertise, one knows where on a tree to look to determine if a tree is a pine tree or not. And what one looks for are certain low-level properties, like a certain color, shape, or size of some particular feature of the tree.

Indeed, there is empirical evidence that supports this way of denying (3). When writing about the effects of learning upon perception, Zenon Pylyshyn states:

> People who are able to notice patterns that novices cannot see (bird watchers, art authenticators, radiologists, aerial-photo interpreters, sports analysts, chess masters, and so on…[have not learned] a "way of seeing" as such, but rather some combination of task relevant mnemonic skill with a knowledge or where to direct attention. (1999, p. 358-359)

The point Pylyshyn is making is that what experts at identifying pine trees, for example, acquire is knowledge of where the relevant identifying information is located. To support this point, Pylyshyn cites several studies on the perceptual abilities of elite athletes. He claims that these studies show that elite athletes are not better at perceiving than novices. Rather, the athletes are better than novices at finding the relevant locations of motion, for example, and anticipating subsequent movement. In other words, "visual expertise in sports…appears to be based on nonvisual expertise related to the learned skills of identifying, predicting, and attending to the most relevant places" (Pylyshyn, 1999, p. 359).

Pylyshyn further supports the claim that perceptual expertise is the acquisition of knowledge of where to look by appealing to a study conducted by Biederman and Shiffrar (1987) on the perceptual abilities of "chicken sexers." Chicken sexing is determining the sex of a chick by vision and is notoriously difficult. Acquiring the expertise of chicken sexing apparently takes years. Biederman and Shiffrar first studied novices' ability to determine the sex of a chick and found that their accuracy was at about what chance would predict. But after being told by experts where the relevant information for determining the sex of a chick is located, the novices were able to increase their accuracy almost to the level of that of an

expert. Moreover, the properties that the chicken sexers look for are the low-level properties of concavity or convexity. Although it is right to say that the novices' experiences prior to learning where to look were different from their experiences after learning where to look, it is not necessarily that upon acquiring expertise the novices were able to represent the properties of being male or being female in experience. Rather, they acquired the knowledge of where to look for the low-level properties of concavity and convexity. Pylyshyn concludes from this that what the expert chicken sexers had learned is "how to bring the independent visual system to bear at the right spatial location, and what types of patterns to encode into memory" (p. 359).

Given the study from Biederman and Shiffrar, Pylyshyn's conclusion seems to be warranted. And if it is true that "An expert's perceptual skill frequently differs from a beginner's in that the expert has learned where the critical distinguishing information is located within the stimulus pattern" (p. 359), then it is plausible that when one acquires expertise in pine trees, one is acquiring knowledge of where to look to find distinguishing features of the pine tree. And just as chicken sexers look for low-level properties to identify sex, one identifying pine trees might do so by looking for low-level properties such as color, shape, or size properties located at the relevant location. Thus, Pylyshyn's claim and the empirical work support the claim that the content of one's experience of the pine tree prior to acquiring expertise is different from the content of one's experience after acquiring the expertise, but it is different in virtue of the fact that one represents different low-level properties. In

other words, it is plausible that (3) is false. In the absence of empirical data supporting (3), the denial of (3) is warranted.[41]

Siegel anticipates an objection that is related to the above denial of (3). She supposes that one who acquires the ability to recognize certain emotions, doubt, for example, on a acquaintance's face—one who acquires expertise in indentifying emotions by looking at one's face—will represent different properties before and after acquiring the expertise. Moreover, according to Siegel, it is implausible that the properties represented are not high-level properties. So, it must be the case that after acquiring the expertise, the difference in perceptual content is in virtue of the presence of represented high-level properties.

This response does not work. Given the above considerations from Pylyshyn, it is plausible that when one acquires the ability to identify doubt, for example, one has really only learned where to find the relevant information. Perhaps one has learned that one's acquaintance is feeling doubtful, if her brow is furrowed and her nose is scrunched slightly. To identify her emotion, one looks to her brow and her nose. In such a case, one may represent low-level properties such as the shape or orientation of her brow (but not the property of being a brow) and the shape of small wrinkles around the nose.[42] Thus, in Siegel's case it could be that when one learns how to recognize how one expresses doubt, one really just learns

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[41] See also Price (2009) for similar criticism of Siegel's argument.

[42] Empirical work suggests that emotion recognition is a process performed by both the visual system and the auditory system. The research also indicates that people visually recognize emotion by a combination of shape and motion of certain locations on one's face. See, for example, (Ekman et al., 1972; Bassili ,1979).

where on one's face to look and in doing so represents low-level properties like shape in perceptual experience.[43]

In this section I presented what appear to be the two best sources of support for high-level theory. The first is the intuitiveness of the view that high-level properties are represented in perceptual experience. This way of supporting high-level theory, however, is compatible with low-level theory, as the low-level theorist can simply claim that what we think is represented in experience is actually represented in judgment. The second source of support is Siegel's argument. Her argument does not adequately support high-level theory for two reasons. First, it rests on intuitions about phenomenal character, and doing so fails to offer a solid foundation for a controversial theory. Second, empirical research indicates that (3) is false.

The weaknesses of the sources of support for high-level theory leave the view vulnerable to philosophical impeachment. What is needed is an argument that does not have these weaknesses. In the next section, I offer an argument that, first, does not rely on intuitions about phenomenal character and, second, is closed to the sort of strategy employed by the low-level theorist in denying Siegel's argument. The argument has three premises, two of which rely on empirical research. The argument puts the low-level theorist in an awkward position. There is only one premise that can plausibly be denied. And the denial of the premise entails the falsity of low-level theory.

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[43] For example, suppose one learns to look at a specific point on one's brow as opposed to the corners of one's mouth.

2 Cognitive penetration and high-level properties

In this section, I offer an argument for high-level theory. The argument relies on the psychological notion of cognitive penetration. Recall the experiment from Delk and Fillenbaum (1965). In Delk and Fillenbaum, different shapes were cut from the same reddish-orange paper: lips, apple, heart, all typically red shapes; an oval, circle, or ellipse, all typically neutral shapes; and a bell, mushroom, and horse's head, all typically non-red shapes. The shapes were placed right in front of a color wheel under white illumination. Subjects were divided into three different groups. One group was told what the color and shapes were. For instance, as the horse appeared, subjects in this group would be told that it is a reddish-orange horse cutout. A second group was told only what the cutouts were. For instance, when a cutout in the shape of lips appeared, subjects in this group would be told that it is a pair of lips. A third group received no information about the color or shape of the cutouts. Subjects were instructed to turn the color wheel in the background until the shape was indistinguishable from the background. Delk and Fillenbaum found that subjects turned the color wheel more towards red for the lips, apple, and heart, and that subjects turned the color wheel more towards brown for the bell, mushroom, and horse's head. That is, although the shapes were cut from the same piece of paper, it took a much redder background to make the typically red shapes indistinguishable from the background than it did for the typically neutral shapes. And it took a much browner background to make the typically non-red shapes indistinguishable from the background than it did for the typically neutral shapes in spite of the fact that all of the cutouts were the same shade. These results were stable

for all three groups.[44] This experiment seems to make it clear that how colors of objects appear is significantly impacted by which of one's beliefs, concepts, or other background cognitive elements are invoked—that perceptual experience is cognitively penetrable.[45]

There are strategies to deny that in the Delk and Fillenbaum experiment the subjects' cognitive elements cognitively penetrate their perceptual experiences. One such strategy is to claim that the subjects in fact do not experience redness when looking at the lips. Rather, the subjects experience the correct reddish-orange color and judge that the lips are red. In other words, the represented redness is at the level of perceptual judgment, not at the level of experience.

Fiona Macpherson (forthcoming) discusses at length this response to the Delk and Fillenbaum experiment.[46] She argues that this strategy is unmotivated, as it postulates brute and inexplicable misjudgment on the part of the subject. Consider the scenario postulated by the proponent of this strategy. The subjects had accurate experiences of the cutout and the differently colored background, but incorrectly judged that they were the same color. That is, the subjects were consciously aware of the reddish-orange color of the cutout, the redness of the background, but misjudged them as the same color. There are several reasons to think that such a gross error of misjudgment on the part of the subjects is not the appropriate analysis of the results

[44] The subjects were not asked to compare the colors of non-neutral shapes with the colors of the neutral shapes.

[45] See also Hansen et al. (2006) for a similar experiment with similar results.

[46] Macpherson discusses the Delk and Fillenbaum experiment to establish that there is cognitive penetration. She does not argue for high-level theory.

of the experiment. First, the error must be systematic, occurring whenever the experimental conditions are satisfied. Second, there is no evidence that the subjects actually experienced the cutouts as differently colored from the backgrounds. Third, there is no available explanation for why the subjects categorically misjudged their experiences. Because there is no available explanation for the misjudgment, the strategy is ad hoc.

A second strategy agrees that the subjects experienced redness when looking at the lips—redness was not merely represented in judgment—but disputes the claim that the subjects' cognitive elements penetrated their experiences. Instead, the strategy proposes an alternative explanation for the subjects' experiences of redness. The explanation is that the subjects had been conditioned to respond to the recognition of certain shapes, and that such response occurred independently of the intervention of any cognitive element about the object of perception. So, for instance, the subjects learned to associate redness with the recognition of the shape of lips; the recognition of that shape triggered the experience of that shape as red. There is no need for the intervention of cognitive elements to explain the experience of redness. So, this strategy can explain the phenomenon without appealing to cognitive penetration.

According to this strategy, the explanation for the subjects' experiences of redness, for example, is that the subjects had conditioned responses to the shapes *and* that their experiences were not cognitively penetrated. So, the explanation is a legitimate alternative only if the proponent of it can show that it is plausible that there was no cognitive penetration. And as long as it is plausible that the subjects had

cognitive elements about the objects represented by the cutouts, then it is plausible that their experiences of redness were cognitively penetrated. Thus, the proponent of the strategy must show that the subjects lacked any cognitive elements about the object represented by the cutouts. It is implausible, however, that all of the subjects lacked beliefs about the typical colors of all of the non-neutral shapes. The subjects were undergraduates at the University of North Carolina in the 1960s. They were apparently normal, competent young adults. We know that the subjects had cognitive elements about the objects represented by the cutouts because competent young adults usually have beliefs about and memories and concepts of objects they ordinarily encounter.[47] Though it is a possible explanation, the alternative explanation does not give a reason to think that the subjects' experiences of redness were not cognitively penetrated.

3 High-level theory

Recall the second group from the Delk and Fillenbaum experiment, the group that was told the identity but not the color of the cutouts. The facts that subjects in this group experienced the lips as much redder than either the shapes that are typically neutral-colored or the shapes that are typically non-red and that the best explanation for such experience is that the subjects' experiences were cognitively penetrated establishes the truth of the following:

[47] For the argument for high-level theory that follows to go through, it only needs to be the case that one of the subjects in one of the experimental groups had an experience that was cognitively penetrated. So, for the purposes of the argument, the alternative explanation must show that none of the experiences were cognitively penetrated. And this requires the explanation to show that none of the subjects had a cognitive feature about any of the objects represented by the cutouts.

(4) If one of the subjects in the second group had not had a cognitive element about lips, he or she would not have experienced redness when looking at lips.

To deny (4) would be to claim that the reason the subjects experienced redness had nothing to do with the subjects' background cognitive states. One would also need to make similar claims with regard to subjects' color experiences of the other objects. In effect, the denial of (4) claims that the subjects' color experiences of the shapes had nothing to do with their concepts, memories, background beliefs, recognitional capacities, expectations, etc. about the various objects. They experienced them as red for some other reason. The previous section argued that this strategy does not work. So, unless one has a better explanation of the data—unless one can show how it is possible for all of the subjects to experience the lips as red in the absence of a cognitive element about lips—one ought not deny (4).

I now want to argue that the following is true:

(5) If one of the subjects in the second group had not represented the property of being lips in experience when looking at lips, then he or she would not have a cognitive element about lips.

At first, (5) looks obviously false. One of the subjects can have a cognitive element about lips without representing the property of being lips in perceptual experience. Indeed, one could be looking right at lips, have a vivid memory of lips and not represent anything at all. In such a case, (5) would be false. But I want to argue that the Delk and Fillenbaum experiment shows that (5) is true. For the subjects that

were told the identity of the shape but not given information about the color, it is true that if one had not represented the property of being lips in experience when looking at lips, then one would not have had a cognitive element about lips.

(5) rests on the idea that subjects in the group receiving information on only the identity of the cutout will be more likely to represent the property of being lips. The subjects are in effect being told what to represent. Given that they are being told what to represent, a failure to actually represent lips is likely to be the result of not having a cognitive element (memory, background belief, etc.) about lips. Suppose S is one of the subjects in this group. S is a normally functioning adult human and has a normal visual system. S is looking at the cutouts in the experiment. When the cutout of the lips appears to S, the experimenter tells S that what he is looking at is a pair of lips. Now suppose that S fails to represent in experience the property of being lips. Why does he fail to represent in experience the property of being lips? (5) says that he fails to represent lips in experience because he doesn't have a cognitive element about lips. This is to say that when S hears the experimenter say that what he is looking at is a cutout of lips he has no beliefs, memories, concepts, etc. of lips; he has no idea what the experimenter is talking about.

With (5), there is a straightforward argument for high-level theory:

High-Level Theory

(4) If one of the subjects in the second group had not had a cognitive element about lips, then he or she would not have experienced redness when looking at lips.

(5) If one of the subjects in the second group had not represented the property of being lips in experience when looking at lips, then he or she would not have a cognitive element about lips.

(C1) If one of the subjects in the second group had not represented the property of being lips in experience when looking at lips, then he or she would not have experienced redness when looking at lips.

(C1) by itself does not establish high-level theory. But (C2), which does establish high-level theory, follows from (6) and (C1).

(6) The subjects experienced the lips as red.

(C2) One of the subjects (at the least) in the second group represented the property of being lips in experience when looking at lips.

If (C2) is true, high-level theory is true. The argument is valid. And it is clear that in the absence of a better explanation for the data from Delk and Fillenbaum, one ought not deny (4). (6) represents the fact that the subjects experienced redness when looking at lips. Denying it would require one to hold that the subjects represented redness only at the level of perceptual judgment, and I argued above that this is not a plausible option. That leaves only (5).

Consider the denial of (5). By denying (5), the low-level theorist is claiming that (i) the subjects in the second group do not represent the high-level property of being lips in experience, but (ii) they do have background beliefs and such about lips. And by accepting (4), the low-level theorist is claiming (iii) that the subjects looking at the lips experience redness and (iv) that the experience of redness is caused by

one's background belief, memory—one's representation—of lips. So, with respect to the Delk and Fillenbaum experiment and the argument for high-level theory, the low-level theorist must make four claims:

> (i) subjects in the second group do not represent the high-level property of being lips in experience;
>
> (ii) the subjects have background beliefs, memories, etc. about lips;
>
> (iii) the subjects looking at the lips experience redness;
>
> (iv) the experience of redness is caused by one's representation of the high-level property of being lips.

According to (iv), the subjects' experience of redness is caused by one's representation of lips. And according to (i), the causally efficacious representation of lips cannot occur at the level of perceptual experience. But it must occur somewhere, either before or after the subjects' experience of redness. On the plausible assumption that there is no backward causation with respect to mental events and so cannot occur after the experience of redness, the causally efficacious representation of lips must occur prior to the subjects' experience of redness. Thus, by holding both (i) and (iv), the low-level theorist is committed to the view that high-level properties can be represented in perception at the sub-personal level prior to experience, but can never be a part of it. If low-level theory is the view that when one looks at an object instantiating high-level properties, representing those high-level properties can

only occur at the level of perceptual judgment, then the truth of the conjunction of (i) and (iv) entails the falsity of low-level theory.[48]

But one might hold a significantly weaker version of low-level theory that claims that high-level properties can be represented in perception at the sub-personal level and at the level of perceptual judgment, but never at the level of experience. Philosophers typically hold low-level theory for at least one of the two following reasons, neither of which can establish this weakened version of low-level theory.

Some hold low-level theory based on intuitions about phenomenal character and perceptual content. But intuitions about phenomenal character and perceptual content will not help establish the weaker version of low-level theory because representation in perception at the sub-personal level is non-experiential, thus non-phenomenal. And if the low-level theorist cannot use intuitions about phenomenal character or perceptual content, it begins to look like the only reason one who holds low-level theory based on intuitions would have to hold this weakened version of low-level theory is to preserve the theory in the face of my argument. And this is not a good reason.

Others—call them externalist low-level theorists—hold low-level theory based on the following reasoning. Suppose that one is looking at a perfect replica of a tomato. One cannot represent in perception the high-level property of being a

[48] Though the model of perception used here is very simple, perhaps too simple, it does not assume that there can be no feedback between high-level processing and low-level processing. That is, it does not necessarily assume that perception is a linear process. All I am claiming here is that representation of lips, according to the low-level theorist, occurs in the perceptual process prior to or upstream of S's conscious perceptual experience or redness, whatever the structure of perception may be.

tomato *because the replica tomato does not instantiate that property*. But because phenomenologically identical experiences represent the same properties, and when one looks at a real tomato the experience is phenomenologically identical, when one looks at a real tomato one cannot represent in experience high-level properties such as being a tomato. Since for any object there could be a perfect replica, one cannot represent high-level properties in experience.[49]

The externalist low-level theorist cannot compatibly hold the weakened version of low-level theory. Suppose that the weakened version of low-level theory is correct—when one looks at a real tomato, for instance, one can represent in perception at the sub-personal level the high-level property of being a tomato. But when one looks at a perfect replica of a tomato, the same information—the same light, for example—will enter the visual system. So, if when one looks at a real tomato and can represent in perception at the sub-personal level the high-level property of being a tomato, then one should be able to do the same when one looks at a perfect replica. But when one looks at a perfect replica and represents in perception at the sub-personal level the property of being a tomato, one is doing so *even though the replica tomato does not instantiate that property*. This admission, however, undercuts the very reason that externalist low-level theorists hold low-level theory in the first place, which is that one cannot represent in perception properties that the object of perception does not instantiate.

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[49] See McGinn (1982, p. 40) for an argument similar to this one. There are several significant issues with this reasoning, but they are not sufficiently relevant to the present purpose to warrant the extended discussion that would be required to adequately address them.

The weaker version of low-level theory cannot be established by the typical motivations for low-level theory. But this is not to say that the view is not open to the low-level theorist. There is no apparent reason, however, to hold the view other than to counter my argument. Until a good reason is forthcoming, there is no good reason to think that the weakened version is true.

The low-level theorist does not have a lot of options. If she denies (i), then she is denying low-level theory. Denying (ii) has no substantive implications for the argument. If she denies (iii), then she is denying the data from the Delk and Fillenbaum experiment. This is not a plausible option. If she denies (iv), then she is denying (4) and owes us some alternative explanation of how the subjects ended up experiencing the lips as red. This is also not a plausible option.

Other options are to deny the assumptions of the argument. The first assumption is that the background beliefs, memories, etc. that cause the subjects' experiences of redness are representational. The second assumption is that there can be no backward causation of mental events. To deny the first assumption would be to deny that background beliefs or memories, for examples, represent, or have content. This is prima facie implausible. To deny the second assumption is to claim that backward causation of mental events can occur. This claim is untenable. In the absence of such claims, the low-level theorist must accept (4) and (5). Since (4) and (5) are true and entail (C1), and (C1) together with (6) entail (C2), high-level theory is true.

To summarize the argument, the low-level theorist can either deny (5) while accepting (4) or accept both (4) and (5). If she denies (5) while accepting (4), then she is committed to holding (i-iv), which together contradict low-level theory, entailing that high-level theory is true.[50] If she accepts both (4) and (5), then (C1), (C2), and so high-level theory, are true, entailing that low-level theory is false. Either way, low-level theory is false and high-level theory is true.

The above argument does not have the weaknesses that other arguments for high-level theory have. First, the argument does not rely on intuitions about experience and phenomenal character. Second, the above argument is invulnerable to the claim that the subjects in the experience just know where to find the relevant information and so do not actually represent high-level properties. This strategy will not work here mainly for two reasons. The first reason is that the above argument does not rely on comparing one experience prior to acquiring expertise to an experience after acquiring expertise. The second reason is that the above argument does not rely on claims about expertise to argue for high-level theory. Rather, the argument argues from facts about the experience of low-level properties to high-level theory.

4 Conclusion

I have only argued that there is at least one instance in which a high-level property is represented in experience. This is enough to make high-level theory true and low-level theory false. I have not argued that such representation is frequent

[50] Unless the weakened version is correct. But there is no reason to think that it is.

(though I think it is). I have also not addressed the mechanisms by which either high-level perceptual representation occurs or experiences are cognitively penetrated.[51] I have also argued neither for a comprehensive high-level theory nor some theory of perception that is compatible with high-level theory; though there does not in principle seem to be any reason why a theory of perception that claims that experiences have representational content would not be able to accommodate representation of high-level properties.

I have argued that perceptual experience can represent high-level properties in perceptual experience. High-level properties are not merely represented at the level of perceptual judgment—they are not necessarily the products of cognitive interpretation of experience of low-level properties. I argued for this position by considering empirical data from psychology. These empirical data allow for the construction of two premises that, together with facts about the subjects' perceptual experiences, entail that high-level theory is true. This argument does not have the weaknesses that other arguments for high-level theory have. The argument does not depend on intuitions about perceptual content or phenomenal character. And the strategy that is effective against Siegel's argument is not effective against the argument given here. Thus, the argument given here provides stronger support for high-level theory.

[51] For such a mechanism for cognitive penetration, see Macpherson (forthcoming).

CHAPTER 3

PENETRATING PERCEPTUAL JUSTIFICATION

When one has a perceptual experience of a vase of white lilies on a table, one is compelled to believe that there is a vase of white lilies on a table. Or when one has a perceptual experience of the sun setting behind a nearby mountain, one is compelled to believe that the sun is setting behind a nearby mountain. These are just two examples of the compulsion that we generally have to believe whatever it is that perceptual experience delivers. If our perceptual experience is that *a* is F, then we will believe, in most cases, that *a* is F. Moreover, we will usually have justification to believe that *a* is F.

More specifically, we are compelled to believe the contents of perceptual experience. Perceptual experiences represent states of affairs in the perceivable world. These representations express the contents of perceptual experiences. When one has a perceptual experience of a vase of white lilies on a table, one's experience represents that there is a vase of white lilies on a table and the content of the experience is that there is a vase of white lilies on a table. Perceptual experiences compel us to take the attitude of belief towards the perceptual content of a perceptual experience. When we do take the attitude of belief towards the perceptual content of a perceptual experience, we usually do so in a way in which we have justification to hold that belief.

This chapter is about perceptual justification, or how one's perceptual experiences contribute to one's justification to hold a perceptual belief. One's belief that p is a perceptual belief that p if and only if that p is part of the perceptual

content of one's perceptual experience. If one takes the attitude of belief towards a proposition, and that proposition is not part of the perceptual content of one's perceptual experience, then the belief is not a perceptual belief. For example, suppose that one's perceptual experience represents that there is a police officer standing on the street corner. If one takes the attitude of belief towards the perceptual content that there is a police officer on the street corner, then one's belief is a perceptual belief. But some philosophers think that perceptual experiences only represent properties like color, shape, and size. According to these philosophers, when one looks at a police officer on the street corner, one's experience will only represent the color, shape, and size properties of the police officer. If this were the case, then one's belief that the object before one is blue would count as a perceptual belief, as blueness is a property represented in experience. But one's belief that there is a police officer on the street corner would not be a perceptual belief, as one's experience does not represent a police officer on the street corner. The belief would presumably be an inferential belief, a belief arrived at by inferring from the perceptual contents of one's experience and what one knows about the typical color, size, and shape of police officers.

1 The Simple View

There is a family of theories of perceptual justification whose simplicity and potency against the skeptic have convinced many philosophers that it is worth advocating. These theories are members of what I will call the "Simple View." The theories start with the intuition that perceptual experiences themselves justify one in

holding perceptual beliefs. Michael Huemer (2001) proceeds from this intuition with "phenomenal conservatism":

> Compare the legal concept of the presumption of innocence: the defendant is presumed innocent, until proven guilty. This means that the defense need not present evidence proving the defendant's innocence…[similarly] the epistemological default position is to accept things as they appear. The appearances are presumed true, until proven false. That means that when it seems as if *P* and no evidence emerges contravening *P*, it is reasonable to accept *P*. (2001, p. 100)

The idea is that we should take at face value our experiences until we have reason to think otherwise. And if we do this, then if we have an experience that p, we have justification to belief that p.

James Pryor (2000) defends the method by which this conclusion is reached: "[We] start with what it seems intuitively natural to say about perception, and we retain that natural view until we find objections that require us to abandon it. This is just sensible philosophical conservativism (p. 538)." The notion is that we take at face value what philosophically seems to be the case until we have a reason to think otherwise. Philosophically, it seems that experiences justify one in holding perceptual beliefs. So, until we have philosophical reasons to doubt this, we should think that when one has an experience that p, one has justification to hold that p.

Huemer and Pryor argue for essentially the same theory of perceptual justification. Pryor's theory is Dogmatism. Pryor writes, "whenever you have an experience as of *p*, you thereby have immediate *prima facie* justification for believing *p*" (2000, p. 536). In other words, Pryor's claim is that if one has an experience that

represents that p, then one has immediate *prima facie* justification to hold the perceptual belief that p. To say that justification is *prima facie* is to say that the justification is defeasible.

To say that justification is immediate is to say that one's justification does not depend on one's justification to hold other beliefs (e.g., that perception is reliable, that it is false that not p). The only source of perceptual justification is the experience itself. The experience alone suffices for *prima facie* perceptual justification. To say that justification is mediate is to say that some other epistemic property or entity intervenes in the justification for the belief. For instance, my justification to believe that the Detroit Tigers won the World Series in 1968 is mediated by my justification to believe that sports almanacs are reliable and my justification to believe that witnesses to them winning are trustworthy. If one's perceptual justification to believe that p is *mediate*, then the justification one's experience confers depends in part on some other epistemic entity or property.

The second member of the Simple View comes from Michael Huemer (2001, 2007). He argues for the Principle of Phenomenal Conservatism: **"**If it seems to S that p, then, in the absence of defeaters, S thereby has at least some degree of justification for believing that p" (2007, p. 30). Huemer's claim is essentially the same as Dogmatism.[52] A perceptual experience that p suffices for one to have *prima facie* perceptual justification to hold perceptual belief that p, and such justification "does

[52] Phenomenal Conservatism is a more general claim that is supposed to also be true for the justification of moral an introspective beliefs

not depend on other beliefs for its justification" (2001, p. 100).[53] In other words, Phenomenal Conservatism is the principle that if one has a perceptual experience that p, then one has immediate *prima facie* justification to hold the perceptual belief that p. Since both Dogmatism and Phenomenal Conservatism share this conditional claim, I will refer to these two members of the Simple View as constituting Immediatism:

> **Immediatism:** if one has a perceptual experience that p, then one has immediate *prima facie* justification to hold the perceptual belief that p.

The final member of the Simple View is Liberalism, which simply denies Conservatism.[54] Conservatism claims that, necessarily, in order for a perceptual experience that p to provide one justification to hold perceptual belief that p, one must have justification to hold other beliefs (e.g., that perception is reliable or that not p is false). Thus, Liberalism claims the following:

> **Liberalism**: it is possible for a perceptual experience that p to provide one with immediate *prima facie* justification to hold perceptual belief that p.

Of the three members of the Simple View, Liberalism is the weakest, as it is only a claim about possibility. Immediatism entails Liberalism.

There are supposed to be several virtues of the Simple View. One is that they offer a simple and elegant structure of justification. Moreover, though the theories

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[53] Pryor and Huemer use '*prima facie*' differently, so I am adopting Pryor's use of the expression where *prima facie* justification is defeasible justification.

[54] See Silins (2007) and Neta (forthcoming) for discussion of Conservatism and Liberalism.

are compatible with both coherentism as well as foundationalism, they go well with foundationalism.[55] One can have justification to hold a belief without such justification depending on other beliefs, ending a potential regress.

The theories are also supposed to be effective against certain skeptics. One way they can be effective against skepticism is by explaining how the key premise in G.E. Moore's anti-skeptical argument (e.g., "Here are my hands" or "I have hands" or, at least, "Here are fleshy-colored objects") can be justified by perceptual experience alone. Another way it can be effective against the skeptic is by denying a key premise in some anti-skeptical arguments. Indeed, by denying Conservatism, or by holding Liberalism, the Simple View can deny the skeptic's premise that, roughly, in order for one to have perceptual justification to believe that p, one must have justification to believe that one is not a brain in a vat.

Note that these views about perceptual justification are not about what it is for a belief to be justified. Rather, they are about what it is for one to have justification to believe a proposition. This familiar distinction is between doxastic justification and propositional justification. Propositional justification is the justification one has to believe a proposition—what sorts of things confer justification upon a proposition for a person. One could have propositional justification without actually believing the proposition that one has justification to believe. In such a case, one would have propositional justification but lack doxastic justification. Beliefs are doxastically justified. One can only have doxastic justification

[55] This is the intent of Phenomenal Conservatism.

when one has propositional justification and actually believes the proposition for the very reasons for which one has propositional justification.

In what follows, I argue that in most cases the perceptual justification one has to hold a perceptual belief is mediate. More specifically, the perceptual justification one actually has in most cases is epistemically mediated by one's background cognitive state, the collection of one's background beliefs, memories, concepts, and so on. In other words, usually the perceptual justification one actually has depends in part on one's background cognitive state; the justification one's experience confers upon one to hold a perceptual belief goes through one's background cognitive state.

My claim that the perceptual justification one has in most cases is mediated by one's background cognitive state is problematic for the Simple View. Though, as I argue, such mediation is compatible with Liberalism, the weakest member of the family, it falsifies Immediatism.

I argue that in most cases one's perceptual justification is mediated by one's background cognitive state by considering empirical data showing that perceptual experience is cognitively penetrable. The cognitive penetrability of perceptual experience is the notion that one's background cognitive state partly determines the content of one's perceptual experience. Given that perceptual experience is usually cognitively penetrated, and that, as I argue, anytime an experience is cognitively penetrated the justification one has to hold the corresponding perceptual belief is mediate, the perceptual justification one usually has is mediate.

The next section offers cases constructed around the empirical data. The cases show that first, for experiences that are cognitively penetrated, the perceptual justification they confer is mediated by one's background cognitive state and, second, that this mediation occurs for most of one's perceptual experiences and beliefs. The third section discusses how the epistemic mediation of one's background cognitive state is problematic for the Simple View. I finish with discussion of qualifications and implications of the view that perceptual justification is usually epistemically mediated by one's background cognitive state.

In arguing for the view that one's background cognitive state epistemically mediates one's justification to hold a perceptual belief, I am assuming several things. I am assuming that the default position of our cognitive system is to take the attitude of belief towards the perceptual contents of perceptual experience. Coming to have a perceptual belief is an automatic, passive operation.[56] It is very difficult and rare to do anything but believe the contents of our perceptual experiences. I am also assuming other views in the philosophy of mind. One assumption that should by now be obvious is that perceptual experiences have content—they represent. Another assumption is that having a perceptual experience entails that the subject of the experience is to some degree conscious or aware of that which is represented. A related assumption is that some supervenience relation between perceptual content and phenomenal character holds; though I am not assuming any specific relation between perceptual content and phenomenal character.

[56] There are of course cases in which given an experience with content that p, one will suspend belief that p. There are also cases in which one has an experience with content that p and one believes that not p. These cases are extraordinary, however.

2 Some cases

In this section, I construct some cases around the experiment from Hansen et al., some of the data that show that perceptual experience is cognitively penetrable. The cases are such that the subjects in them have the same perceptual experience with identical perceptual contents and come to have identical perceptual beliefs. Yet the intuition about the cases is that there is a difference in the justification they have to hold their perceptual beliefs. The relevant difference between the subjects is that they have different background cognitive states. The psychological data show that one's background cognitive state plays a causal role with regard to one's perceptual belief. The following cases show that one's background cognitive state also plays an epistemic role in one's perceptual belief.

Cognitive Penetration 1 (CP1)

> Suppose that Koko has never seen a real banana or plantain or similarly shaped fruit. She has, however, seen grayscale pictures of bananas. Also suppose that she has no other beliefs or concepts about bananas. She has never heard anyone talk about them in any regard, she has never read anything about them. She has only seen a few grayscale pictures of bananas so that she has the ability to identify a banana by shape. One day, she comes across a large picture depicting a yellow banana. Having no reason to suspect that the picture is not an accurate depiction of a banana, she comes to believe that bananas are yellow. She dwells on this belief for quite some time. Also suppose that Koko is a subject in the Hansen et al. experiment. While

participating in the experiment, Koko's belief that bananas are yellow penetrates her perceptual experience so that the banana only appears to her as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. The content of her perceptual experience of looking at the achromatic banana on the screen is that the banana is yellow. She thus has the perceptual belief that the banana is yellow.

Cognitive Penetration 2 (CP2)

Suppose that Koko has been taught all of her life that bananas are yellow. Her parents always gave her yellow bananas. Every time Koko would see a picture of one, it would be yellow. People in her community would talk as though bananas are yellow. They would point to grayscale outlines of bananas and tell her that bananas are yellow, the same color as the school bus, the sun, and her pencil. Koko thus believes that bananas are yellow. Moreover, she has no reason to think that bananas are any other color. Also suppose that Koko is a subject in the Hansen et al. experiment. While participating in the experiment, Koko's belief that bananas are yellow penetrates her perceptual experience so that the banana only appears to her as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. The content of her perceptual experience of looking at the achromatic banana on the screen is that the banana is yellow. She thus has the perceptual belief that the banana is yellow.

In CP1 and CP2, Koko's perceptual experience of the achromatic banana is the same. That is, in each case the perceptual content of her experience is the same. Her perceptual beliefs are the same as well. In both cases, when she looks at the achromatic banana and has her perceptual experience, the resulting perceptual belief is that the banana is yellow.[57] The only difference between Koko in CP1 and Koko in CP2 is her background cognitive state.

The intuitions about the cases are quite clear. Koko has more justification to believe that the banana is yellow in CP2 than she has justification to believe that the banana is yellow in CP1. But the only difference between Koko in CP1 and Koko in CP2 is that in CP2 she has a vastly different background cognitive state. Koko's background cognitive state thus affects her perceptual belief's epistemic status. In other words, her background cognitive state plays both a causal role and an epistemic role in her perceptual belief that the banana is yellow. Since her background cognitive state plays an epistemic role with regard to the perceptual justification of the proposition that the banana is yellow, her background cognitive state epistemically mediates her perceptual belief that the banana is yellow; her perceptual justification for the belief that the banana is yellow goes through her background cognitive state.

At this point, some readers may think that the difference in justification between CP1 and CP2 is simply a difference in non-perceptual justification. One might think that the cognitive penetration in the cases makes no difference to the

[57] Also suppose that Koko does not know about cognitive penetration.

perceptual justification. Rather, the difference in justification can still be traced to differences in Koko's background cognitive state, but the difference is a difference in what evidence Koko has or a difference in inferential justification; so it is not difference in perceptual justification. But consider the following cases in which all of the other relevant epistemic factors are held fixed, but the experiences are not cognitively penetrated.

No Cognitive Penetration 1 (NoCP1)

Koko has never seen a real banana, but she is familiar with most other fruits common to Western cultures. Bananas were never around as a child; they were never pointed out by her family; her local grocer did not make them available for purchase; and she never heard friends or family talk about them. She has only ever seen grayscale pictures of bananas identified as such, so she has the ability to recognize them by shape. She does, however, have experience with other yellow things like school buses, pencils, and so on. While walking one day, she passes by a storefront which displays a photograph of a variety of fruits: red apples, green pears, purple grapes, and yellow bananas. Noticing the color of the bananas, and having no reason to think that her perception is unreliable or that the photograph is inaccurate, Koko comes to believe that bananas are yellow. Sometime later, she sees a picture of a banana in an advertisement for Chiquita in a magazine. The banana is yellow. Her perceptual experience represents it as yellow. She thus comes to hold the perceptual belief that the banana on the page is yellow.

No Cognitive Penetration 2 (NoCP2)

> Koko is like many others in that she has had a lot of experience with bananas. She eats them everyday for lunch; they were common in her childhood household; and she frequently buys them at the grocery store. She thus believes that bananas are yellow. One day, she is paging through a magazine and comes across an advertisement for Chiquita that pictures a banana. The banana is yellow. Her perceptual experience represents it as yellow. She thus comes to hold the perceptual belief that the banana on the page is yellow.

Just as in CP1 and CP2, Koko's perceptual experience and perceptual belief in NoCP1 and NoCP2 are the same. And just as in CP1 and CP2, the only difference between NoCP1 and NoCP2 is that Koko has a different background cognitive state with regard to bananas. But unlike CP1 and CP2, there is the strong intuition that Koko in NoCP1 and Koko in NoCP2 have *the same* justification to hold the perceptual belief that the banana on the page is yellow.

If the difference in justification between CP1 and CP2 were a difference in what evidence Koko has or a difference in inferential justification, then we should expect that there is the same difference in justification between NoCP1 and NoCP2. After all, Koko in NoCP1 has the same evidence and inferential justification as she does in CP1, and Koko in NoCP2 has the same evidence and inferential justification as she does in CP2. The only relevant difference between CP1 and CP2 and NoCP1 and NoCP2 is that in CP1 and CP2 the perceptual experiences are being penetrated

by her background cognitive state.[58] The cases present a challenge to my opponent: what features of the cases that account for the difference in the alleged non-perceptual justification are present in CP1 and CP2 but absent from NoCP1 and NoCP2?

If it were true that the difference in justification between CP1 and CP2 is not a difference in perceptual justification, then Koko in NoCP1 and Koko in NoCP2 should be differently justified in the same way that she is in CP1 and CP2. But there is not the same difference in justification between NoCP1 and NoCP2. Thus, the difference in justification between CP1 and CP2 is a difference in perceptual justification in virtue of the fact that the experiences are penetrated. Since the only difference between CP1 and CP2 is a difference in her background cognitive state, Koko's background cognitive state epistemically mediates her perceptual justification to hold the perceptual belief that the banana on the screen is yellow.

That one's background cognitive state epistemically mediates one's perceptual justification in two cases is not that interesting. But the cases can be generalized to most cases in which one has a perceptual experience with a content that is penetrated by a background cognitive state. The generalization begins by considering two more cases in which the perceptual experience is veridical and the perceptual belief is true.

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[58] There is another difference between the pairs of cases. In NoCP1 and NoCP2, the experience is accurate and the belief true, whereas in CP1 and CP2, the experience is inaccurate and the belief false. But this difference is irrelevant, as we are concerned with comparisons of the individual cases in a pair. So, as long as in a pair of cases that feature is held fixed, it does not matter whether the experience is accurate or the belief true.

Cognitive Penetration 3 (CP3)

Suppose that Koko has never seen a real banana or plantain or similarly shaped fruit. Also suppose that she has no other beliefs or concepts about bananas. She has never heard anyone talk about them in any regard, she has never read anything about them. She has only seen a few grayscale pictures of bananas so that she has the ability to identify a banana by shape. One day, she comes across a large picture depicting a yellow banana. Having no reason to suspect that the picture is not an accurate depiction of a banana, she comes to believe that bananas are yellow. She dwells on this belief for quite some time. Also suppose that Koko is a subject in the Hansen et al. experiment. While participating in the experiment, Koko's belief that bananas are yellow penetrates her perceptual experience so that the banana only appears to her as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. But when she looks at a yellow banana on the screen, the content of her perceptual experience of looking at the yellow banana on the screen is that the banana is yellow. She thus has the perceptual belief that the banana is yellow.

Cognitive Penetration 4 (CP4)

Suppose that Koko has been taught all of her life that bananas are yellow. Her parents always gave her yellow bananas. Every time Koko would see a picture of one, it would be yellow. People in her community would talk as though bananas are yellow. They would point to grayscale outlines of

bananas and tell her that bananas are yellow, the same color as the school bus, the sun, and her pencil. Koko thus believes that bananas are yellow. Moreover, she has no reason to think that bananas are any other color. Also suppose that Koko is a subject in the Hansen et al. experiment. While participating in the experiment, Koko's belief that bananas are yellow penetrates her perceptual experience so that the banana only appears to her as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. But when Koko looks at a yellow banana on the screen, the content of her perceptual experience of looking at the yellow banana on the screen is that the banana is yellow. She thus has the perceptual belief that the banana is yellow.

In CP1and CP2, Koko's perceptual belief is false. She believes that the banana is yellow, but in fact the banana is gray. In CP3 and CP4, both Koko's penetrating belief and her perceptual belief are true: bananas are yellow and the banana she is looking at is yellow. Again the only difference between CP3 and CP4 is Koko's background cognitive state. And the intuitions in CP3 and CP4 are the same as the intuitions in the other cases. Koko has more justification to believe that the banana is yellow in CP4 than she does in CP3. And since her background cognitive state is the only difference between the two cases, it is her background cognitive state that is making the epistemic difference. Thus in both CP3 and CP4, her background

cognitive state is epistemically mediating the justification she has for the belief that the banana is yellow.[59,60]

Now comes the crucial step in the generalization. Koko's perceptual situation in CP4 is no different than the perceptual situations most of us are in with most of our perceptual experiences. Koko's background beliefs are true, just as most of ours are. The content of Koko's perceptual experience is accurate, just as the contents of most of our experiences are. And her perceptual belief is true, just as most of our perceptual beliefs are. The only difference between Koko's perceptual situation in CP4 and our typical perceptual situation is that Koko is a subject in a psychological experiment. And this is certainly not a reason to think that the analogy between Koko in CP4 and us is not a good one. Since Koko's background cognitive state epistemically mediates her perceptual justification for the perceptual belief that the

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[59] One objection to the cases may be from cognitive phenomenology. The idea is that the epistemic difference between a pair is in virtue of differences in cognitive phenomenology. I think the objection will not work, but introducing the concept of cognitive phenomenology and discussing the various faults with this objection would hijack the paper. See Horgan and Tienson (2002), and e.g., Siewert (1998), Strawson (1994), Pitt (2004) for discussions of cognitive phenomenology.

[60] There is another potential objection to the cases, but I think very few philosophers would endorse it. The objection is that in a pair, the subjects have different perceptual experiences with different perceptual contents given that they have slightly different background cognitive states. This view plus the plausible assumption that we take the attitude of belief towards the perceptual content of experience yields content holism. Aside from Quine (1951) and Davidson (1984), I anticipate that very few philosophers endorse content holism. This is why the objection is relegated to a footnote. In any case, my position is easily defended from the threat of content holism. Simply, assuming that the subjects in a pair have the same perceptual content and the same perceptual belief in spite of minor differences in their background cognitive states is similar to assumptions made in other, but highly influential, arguments in epistemology. So denying me this assumption would require a revision of these highly influential epistemological theories, and thus much of the epistemology of the past two decades.

banana is yellow in CP4, and her perceptual situation is so similar to most of ours, I conclude that in most of our perceptual situations our background cognitive states epistemically mediate the perceptual justification we have for our perceptual beliefs. Or in other words, in most cases one's perceptual justification goes through one's background cognitive state.

I have claimed that one's background cognitive state epistemically mediates the perceptual justification one has to hold a perceptual belief and that this happens most of the time. But what do I mean by "most"? There are really two questions here. The first is: When does cognitive penetration happen? The second is: When do background cognitive states epistemically mediate one's perceptual justification? The desired answer is the answer to the second question. But to answer the second question, an answer to the first is required.

With regard to the first question, the data suggest that cognitive penetration happens whenever one perceives lemons, grapes, oranges, bananas, carrots, zucchini, lettuce, strawberries (the fruits and vegetables from Hansen et al.), lips, apples, hearts, horses, bells, mushrooms, and coins (objects tested in other experiments showing that experience is cognitively penetrable; see Delk & Fillenbaum (1965) and Bruner and Goodman (1947)), and has background beliefs, concepts, memories, etc. about these objects. It's not obvious that there is any feature of these particular objects that causes perceptual experiences of them to be cognitively penetrable.[61] So,

[61] One might think that the feature of the objects that makes perception of them cognitively penetrable is that they are instances of natural kinds, and then give some evolutionary story about why perception of natural kinds is cognitively penetrable. But the heart cutout in the Delk and Fillenbaum is not a cutout of the sort of heart

presumably cognitive penetration happens whenever one perceives an object about which one has background beliefs, concepts, memories, recognitional capacities, expectation, or biases. And most of the things that we perceptually encounter are objects that we have beliefs, concepts, etc. about. It is rare for us to perceptually encounter an object that is entirely novel. It's not that this never happens. It's just that one's perceptual experiences are usually about the things one encounters in one's home, one's workplace, and other places with which one is familiar. Since cognitive penetration happens whenever one perceives an object about which one has a background belief, concept, etc., and such perception is commonplace, cognitive penetration is commonplace.

With regard to the second question, it is plausible that any time there is cognitive penetration, the background cognitive state epistemically mediates one's perceptual justification for one's perceptual belief. Anyway, any time one has a perceptual experience of an object about which one has background beliefs, it is plausible that the experience is cognitively penetrated and a case similar to CP1-CP4 could be constructed to show that in that case the background cognitive state epistemically mediates one's perceptual justification for a perceptual belief. Given that cases similar to CP1-CP4 could be constructed around any experience that is cognitively penetrated, and that CP1-CP4 show that one's background cognitive state contributes to the perceptual justification one has to hold a perceptual belief, the following is true: if the perceptual content of one's experience is the result of that

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that one finds in chest cavities. Rather, it is the sort of shape that is sometimes used to express one's loving attitude towards a person or place. And this is not a natural kind.

experience being cognitively penetrated, then the justification the content can confer is epistemically mediated by one's background cognitive state. Since cognitive penetration is commonplace, it's commonplace for background cognitive states to play an epistemic role in one's perceptual belief.

The claim that one's background cognitive state epistemically mediates one's perceptual justification to hold perceptual beliefs is supported by the intuitions of the cases. For the claim to stand, it is not necessary that I provide a detailed explanation for the differences in justification in the cases. Yet I want to suggest that the feature of the background cognitive state that makes the epistemic difference in the cases is the coherence of the cognitively penetrating background cognitive state. The reason that Koko in CP2 has more justification to believe that the banana is yellow than Koko in CP1 has is because Koko's background cognitive state in CP2 is more coherent than Koko's background cognitive state in CP1. Similarly, in cases CP3 and CP4 the background cognitive state of Koko in CP4 is more coherent than Koko's background cognitive state in the CP3. This is to say that the collection of background concepts, beliefs, memories, expectations, and biases that penetrate her experience cohere with each other to a greater degree in CP4. In the cases in which Koko has greater justification, her background cognitive state as it pertains to bananas is very coherent. She has had many experiences of bananas, has heard a lot of confirming testimony about bananas, and knows quite a bit about them. But in the cases in which Koko has less justification, her background cognitive state as it pertains to bananas is not as coherent. She has had few experiences of bananas, heard no confirming testimony, and she knows very little about bananas.

3 Epistemically mediated perceptual justification and the Simple View

The fact that usually one's perceptual justification is epistemically mediated by one's background cognitive state is problematic for the Simple View because it falsifies Immediatism. Immediatism claims that if one has a perceptual experience that p, then one has immediate *prima facie* justification to hold perceptual belief that p. The cases show that this conditional is false.[62] In the cases, Koko has a perceptual experience that the banana on the screen is yellow. But the perceptual justification she has for the perceptual belief that the banana on the screen is yellow is mediated by her background cognitive state. The perceptual justification is defeasible, however. If Koko were to learn that her perception is unreliable, then she would no longer have perceptual justification to hold the perceptual belief that the banana on the screen is yellow. Because her perceptual justification is defeasible, her perceptual justification to hold the perceptual belief that the banana on the screen is yellow is *mediate prima facie* justification. Since Immediatism does not allow for this, the cases show that it is false.[63]

Though the epistemic mediation of one's perceptual justification by one's background cognitive state falsifies the most substantive members of the Simple

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[62] Siegel (forthcoming) also argues against Immediatism from the cognitive penetrability of perceptual experience, though she does so in a very different way.

[63] Pryor (2000, p. 541) considers the possibility that in virtue of cognitive penetration perceptual justification could be mediate, showing Immediatism to be false. He claims that we have no good reasons to think that such mediation occurs. I claim to have given such reasons.

View, it is compatible with Liberalism. Liberalism, recall, is the view that for one's perceptual experience that p to provide one with justification to hold perceptual belief that p, it is not necessary that one have justification to hold other beliefs: there can be immediate perceptual justification. I have argued that usually one's perceptual justification is mediate, not that all perceptual justification is mediate. In particular, perceptual justification is mediate when the experience that confers justification is cognitively penetrated by one's background cognitive state. This leaves open the possibility that for experiences that are not cognitively penetrated—the minority of cases—the justification they confer is immediate. So, it is possible both for it to be the case that usually one's perceptual justification is mediated by one's background cognitive state and that there can be immediate perceptual justification.

This compatibility is a virtue for both my proposal as well as the Simple View. It is a virtue for the Simple View because it indicates that there is room for the Simple View to accommodate the empirical data showing that there is cognitive penetration. The compatibility is a virtue for my proposal because it can take on whatever anti-skeptical potency Liberalism has.

For Immediatism to be compatible with the above cases, the proponents of it would need to show how the difference in justification between CP1 and CP2 is a difference in non-perceptual justification. If she can do that successfully, then she can claim that the perceptual justification is immediate, preserving Immediatism. But to do this she must also show that whatever feature or features of CP1 and CP2 that account for the alleged difference in non-perceptual justification are absent from NoCP1 and NoCP2 (i.e., meet the challenge proposed above). In these two cases,

Koko has the same background cognitive state as she does in CP1 and CP2, the same perceptual experience, and the same perceptual belief. The only difference is that in NoCP1 and NoCP2 the experiences are not cognitively penetrated. But there is also the strong intuition that Koko in NoCP1 and NoCP2 has the same justification that the banana on the page is yellow. So, for the proponents of Immediatism, the intuitions about the cases conflict with the theory.[64] But we should retain these intuitions until we have to good reasons to abandon them. This is, after all, sensible philosophical conservativism.

4 Conclusion

In this chapter, I first outlined the Simple View and explained the psychological data that show that there is cognitive penetration of perceptual experience. I then constructed cases around this data. The cases show that a subject's background cognitive state usually epistemically mediates what one has perceptual justification to believe. Finally, I considered the implications of this claim for the Simple View. I argued that though it is compatible with Liberalism, it falsifies Immediatism. I want to be clear about what I have not claimed. First, I have not addressed the mechanism by which background cognitive states penetrate perceptual experience.[65] This is an entirely different project. The goal here is to show that background cognitive states affect one's perceptual justification. This suffices for

[64] There is no conflict for my view, because the experiences are not cognitively penetrated in NoCP1 and NoCP2, so there need not be epistemic mediation of her perceptual justification.

[65] See Macpherson (forthcoming) for such a mechanism.

them to epistemically mediate one's perceptual justification. But to show this, it is not necessary to also show how they do so.

Second, I have not made any claim about how to tell which features of one's background cognitive states are relevant for one to have justification for a particular belief. Background cognitive states are mass collections of beliefs, concepts, memories. Aside from the obvious relevance of a background belief about bananas to a perceptual belief about bananas, a more precise way of determining whether a feature of a background cognitive state is relevant for one's justification for a particular belief has not been given.[66]

Third, I have not discussed the epistemic status of background cognitive states. I have argued that they mediate perceptual justification. That they mediate perceptual justification suggests that they themselves need to have justification to pass along. That is, background cognitive states need to at least have some positive epistemic status in order to provide justification. If so, this presents a further problem: In virtue of which property or properties does one's background cognitive state have a positive epistemic status? And once we have a good account of what makes a background cognitive state justified or have a positive epistemic status, what are the implications of such an account for the structure of justification?

Fourth, I have not claimed that the epistemic contribution that one's background cognitive state makes towards the perceptual justification one has to hold a perceptual belief is sufficient for one to have justification to hold that belief.

[66] Though it is plausible that there are two notions of relevance: metaphysical relevance and epistemic relevance.

And I have not claimed that the contribution is necessary for one to have justification to hold a perceptual belief. It is for this reason that my view is compatible with Liberalism. Given that I have not made any claims about the necessity or sufficiency of the epistemic contribution of one's background cognitive state, one might wonder why what I have claimed is informative. It is informative because it points out a significant aspect of our epistemic situation that has so far gone unnoticed. In most cases, the perceptual justification we in fact have to hold a perceptual belief is epistemically mediated by our background cognitive states. Suppose you are looking at an apple on your desk. It looks red. You have no reason to think that it's not red or that your perception is in some way unreliable. You have perceptual justification to believe that it is red. But the perceptual justification you have partly comes from your background cognitive state. The epistemic mediation of one's background cognitive state is not necessary, and it's not sufficient. But it is what actually happens much of the time.

CHAPTER 4

THE EPISTEMIC STATUS OF BACKGROUND COGNITIVE STATES

In the last chapter, I argued that one's background cognitive state—the collection of one's background beliefs, concepts, recognitional capacities, memories, expectations, biases—epistemically mediate the justification one has to hold a perceptual belief. I argued for this by constructing cases around data from psychology that show that one's perceptual experiences are cognitively penetrable. This epistemological point has significant implications. One implication, the subject of this chapter, is that if background cognitive states provide epistemic support to perceptual beliefs, then, intuitively, they themselves need to have some positive epistemic status. In other words, it seems as though one's background cognitive state needs to be justified, or at least have some positive epistemic status, in order for it to pass along epistemic support to perceptual beliefs. This presents a problem, however. How are we to evaluate the epistemic status of a mass of largely unconscious beliefs, concepts, recognitional capacities, memories, expectations, and biases? I will try to answer this question in this chapter.

After pointing out an epistemic difference between the subjects in the cases, in the last chapter I suggested an explanation for this difference. The explanation I suggested was that the less justified subject in a pair was as such because the relevant elements of her background cognitive state are not as coherent. If this explanation is correct, to determine the epistemic status of one's background cognitive state, we must determine the conditions under which one's background cognitive state is coherent.

The first section argues that in order for one's background cognitive state to contribute epistemic support to the justification one has to hold a perceptual belief, the background cognitive state itself must have some positive epistemic status. In the second section, I suggest that the property in virtue of which a background cognitive state has a positive epistemic status is the property of being coherent. I also argue that this is compatible with foundationalism. In the third section, I elaborate on my suggestion that the property in virtue of which a background cognitive state has a positive epistemic status is the property of coherence. In doing so, I say which sorts of entities coherence ranges over, gesture at what the relation of coherence is, and make some suggestions about which entities are relevant for evaluating the justificatory status of a perceptual belief. I consider several objections in the fourth section.

1 Background cognitive states must be epistemically evaluable

In the last chapter, I argued that one's background cognitive state epistemically mediates the justification one has to hold a perceptual belief and does so most of the time. To argue for this, I considered several pairs of cases. Recall CP1 and CP2:

Cognitive Penetration-1 (CP1)

> Suppose that Koko has never seen a real banana or plantain or similarly shaped fruit. She has, however, seen grayscale pictures of bananas. Also suppose that she has no other beliefs or concepts about bananas. She has never heard anyone talk about them in any regard, she has never read

anything about them. She has only seen a few grayscale pictures of bananas so that she has the ability to identify a banana by shape. One day, she comes across a large picture depicting a yellow banana. Having no reason to suspect that the painting is not an accurate depiction of a banana, she comes to believe that bananas are yellow. She dwells on this belief for quite some time. Also suppose that Koko is a subject in the Hansen et al. experiment. While participating in the experiment, Koko's belief that bananas are yellow penetrates her perceptual experience so that the banana only appears to her as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. The content of her perceptual experience of looking at the achromatic banana on the screen is that the banana is yellow. She thus has the perceptual belief that the banana is yellow.

Cognitive Penetration-2 (CP2)

Suppose that Koko has been taught all of her life that bananas are yellow. Her parents always gave her yellow bananas. Every time Koko would see a picture of one, it would be yellow. People in her community would talk as though bananas are yellow. They would point to grayscale outlines of bananas and tell her that bananas are yellow, the same color as the school bus, the sun, and her pencil. Koko thus believes that bananas are yellow. Moreover, she has no reason to think that bananas are any other color. Also suppose that Koko is a subject in the Hansen et al. experiment. While participating in the experiment, Koko's belief that bananas are yellow penetrates her perceptual experience so that the banana only appears to her

> as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. The content of her perceptual experience of looking at the achromatic banana on the screen is that the banana is yellow. She thus has the perceptual belief that the banana is yellow.

Clearly Koko in CP1 has less justification to believe that the banana is yellow than does Koko in CP2. But Koko in CP1 and Koko in CP2 have the same perceptual experience with the same perceptual content. They also come to hold the same perceptual belief. They only differ with respect to their background cognitive states. Since the difference in justification can only be traced to a difference in background cognitive states, it must be the case that one's background cognitive state epistemically mediates one's justification to hold a perceptual belief.

Given that one's background cognitive state epistemically mediates the justification one has to hold a perceptual belief—it provides epistemic support—intuitively, the background cognitive state itself must have a positive epistemic status. This notion is certainly not new. It is usually supposed that in order for something to pass along justification to a belief, it must itself be justified. For instance, in order for my belief that the Tigers won the 1968 World Series to confer justification upon my belief that Tigers have won at least one World Series, it must itself be justified. And the justification for this belief comes from some other belief of mine, perhaps some belief about how I arrived at this information, some experiential states, or some memory. Similarly, in order for one's background cognitive state to epistemically contribute to the justification one has to hold a perceptual belief, the background cognitive state itself must have positive epistemic status.

Foundationalists have proposed that some things can confer justification without themselves being justified. These sorts of things are supposed to end the regress of justification that results from the requirement that a justified belief be supported by a further justified belief, and so on. But as I will point out, background cognitive states cannot be treated the same way.

Some foundationalists claim that some non-doxastic states (e.g., experiences or recognitional capacities) can confer justification without themselves requiring justification. Experiences are not the sort of thing that can be justified or unjustified, but it seems right that they provide much epistemic support for beliefs, especially beliefs about the external world. These states are also supposed to provide the foundation for all other justified beliefs. But we cannot treat one's background cognitive state the same way because one's background cognitive state isn't non-doxastic. Background beliefs are a significant aspect of one's background cognitive state, and background beliefs are the sort thing that can be justified or unjustified.

Other foundationalists have claimed that some allegedly basic beliefs, beliefs about our experiences, can confer justification on all other beliefs without themselves requiring any further justification. They are supposed to have this element because they are allegedly infallible. For instance, it is supposed to be the case that when one has a belief that he or she is experiencing red, that belief is infallible. Because of this infallibility, basic beliefs can confer justification without requiring further justified beliefs to support them. But we cannot treat one's background cognitive state the same way because one's background cognitive state includes elements that are certainly not infallible. One's background cognitive state

will include background beliefs about the world, and these are quite fallible. Since background cognitive states don't share the properties of other things that allegedly confer justification on other beliefs but don't themselves require support by a further justified belief, in order for one's background cognitive state to contribute epistemic support to what one has justification to believe, one's background cognitive state, or the relevant elements of it, must itself have a positive epistemic status.

2 Background cognitive states, coherentism, and foundationalism

In order for one's background cognitive state to contribute to the justification one has to hold a perceptual belief, the background cognitive state itself must have some positive epistemic status. The property or properties of a background cognitive state in virtue of which it has a positive epistemic status must be identified. I am suggesting that a background cognitive state contributes to the justification one has to hold a perceptual belief in virtue of it being coherent. In other words, the different elements that constitute one's background cognitive state must cohere with each other in order for the mass, the background cognitive state, to have a positive epistemic status and that such coherence is sufficient for the state to have a positive epistemic status. Though the account appeals to coherence, it is compatible with foundationalism and thus not a version of coherentism. Consider CP1 and CP2. It could be that Koko has good enough justification in both cases. That is, it could be that Koko in CP1 and Koko in CP2, in virtue of having perceptual experiences with the same content, share some justification. It could be

that this shared justification is good enough for knowledge (only if in the first place one thinks that Koko in CP1 has justification). And it could be that the perceptual experiences that confer this shared justification do not themselves require any justification, and so can end a potential regress of justification. This is just a form of foundationalism.

That Koko in CP1 and CP2 could share some justification does not change the fact that their background cognitive states epistemically mediate the justification they have to hold the belief that the banana is yellow. Koko in CP2 has more justification than Koko in CP1. And this further justification is in virtue of her background cognitive state. The point is just that the epistemic mediation of one's background cognitive state is compatible with foundationalism. Because of this compatibility, the account developed here is not a version of coherentism.

The way to motivate the claim that the property in virtue of which a background cognitive state has a positive epistemic status is the property of coherence is by appealing to intuition. It is simply intuitive that a background cognitive state has a positive epistemic status when it is coherent. A background cognitive state is a mass of beliefs, concepts, memories, recognitional capacities, etc. And these different elements are interdependent: one's concept may have been different had one not had a particular belief; one may not have had a belief had one not had a particular memory; and one may not have a had a recognitional capacity for an object had one not had certain concepts, beliefs, and memories. A natural way of thinking about what makes this mass of interdependent cognitive elements have a positive epistemic status is that the different elements cohere with each other. And

this intuitiveness suffices to motivate the claim that the property in virtue of which a background cognitive state has a positive epistemic status is the property of coherence. In the next section, I elaborate on this claim.

3 Coherence and background cognitive states

The cases that motivate the view that one's background cognitive state epistemically mediates the perceptual justification one has to hold a perceptual belief present a datum that requires explanation. In the cases, the subjects have perceptual experiences with the same content and come to have the same perceptual beliefs. But they differ with respect to both how much perceptual justification they have as well as their background cognitive state. The datum is this difference in justification. The appeal to the coherence of one's background cognitive state is intended to be an explanation of this datum: the reason they differ with respect to how much perceptual justification they have is that their background cognitive states differ with respect to how coherent they are.

In this section, I elaborate on the claim that the property of one's background cognitive state in virtue of which the state has a positive epistemic status is the property of being coherent. In doing so, three questions must be adequately answered. The first is, which sorts of things does coherence range over? The second is, what is coherence? Also, intuitively some elements of one's background cognitive state are going to be irrelevant to the justificatory status of a perceptual belief. So, third, of the sorts of things that coherence can range over, which ones are relevant

for determining the justificatory status of a given perceptual belief? I will address each of these three important questions in this section.

3.1 Which sorts of things does coherence range over?

The first question gets perhaps the most straightforward answer. I am claiming that what makes a background cognitive state have a positive epistemic status is that the state is coherent. So, coherence can range over all of the elements that constitute one's background cognitive state. And a background cognitive state has many different types of elements. One's background cognitive state has background beliefs, concepts, recognitional capacities, memories, expectations, biases. So, coherence can range over all of these different types of elements.

This marks a departure from typical coherentist accounts. Typically, coherence is defined only over beliefs. But that's not the case here. Some elements of one's background cognitive state are non-doxastic. For instance, recognitional capacities, expectations and many memories are plausibly non-doxastic. And concepts plausibly have non-doxastic aspects. All of the elements of one's background cognitive state share at least one property, however. All of the elements are representational, or at least propositional. For instance, one's concept of tigers may be associated with propositions about cats, stripes, and India. One's experiential memories of tigers, like one's perceptual experiences, will have propositional content. And one's capacity to recognize tigers may include all of the above. So, coherence can range over all of the propositions in one's background cognitive state,

whether they are in the form of beliefs, concepts, memories, recognitional capacities, expectations, or biases.

3.2 What is coherence?

The answer to the second question is considerably more complicated. To date, a precise account of coherence has been notoriously absent from the epistemological discourse. But there are some robust intuitions about what counts as coherent and what counts as incoherent. So it is not my intention to give a full account of the coherence relation. Rather, I will evoke these intuitions about coherence by considering a number of cases. I will then briefly discuss the BonJour's (1985) notion of coherence and note some changes that might need to be made to his account in order to accommodate the fact that coherence can range over different types of elements of one's background cognitive state and not just one's beliefs. I hope the elicited intuitions and BonJour's account will be enough to proceed in giving an account of what makes a background cognitive state have a positive epistemic status.

There are clear cases of a coherent background cognitive state. Consider one whose background cognitive state consists of only the beliefs that bachelors are unmarried men, that Jerry is a man, that Jerry is unmarried, and that Jerry is a bachelor. Compare such a background cognitive state to one who has all of these beliefs plus the beliefs that Jerry is one's brother, that Jerry is currently dating, that Jerry is thirty years old, and that one and Jerry lived together for many years. Such a background cognitive state would be even more coherent than the state with just the

first few beliefs. Indeed, many, if not most, of our background cognitive states are like one's background cognitive state in this latter case.

Another example of an intuitively coherent background cognitive state, although less coherent than the one pertaining to Jerry, is one that consists only of the belief that God exists because the Bible says so and the belief that the Bible is right because God wrote it.

Consider another case of a background cognitive state consisting of several false beliefs. Suppose the background cognitive state of a blacksmith in the Middle Ages consists of the widely held belief that the alignment of the stars determines what happens to him and how he feels and behaves. Suppose he also believes that the current alignment of stars usually means that some unfortunate, but not tragic, event will happen to him. While hammering out a totem the blacksmith believes can assist him in bringing about an alignment of stars that would bring about good fortune, he smashes his finger. This event confirms for him the beliefs that the alignment of the stars determines what happens to him and that the current alignment will bring about misfortune. After finishing his totem and performing a few rituals, he puts it to use. Shortly thereafter, the blacksmith discovers that metal from which the totem was hammered contains many small chunks of gold. He thus believes that the totem works and that the alignment of the stars has changed. Although several of the blacksmith's beliefs are false, intuitively, his background cognitive state is coherent.

The background cognitive state of a conspiracy theorist can also be coherent. Some people hold the belief that the attacks on the World Trade Center and the Pentagon in September of 2001 were perpetrated not by religious fanatics, but by sizable group of co-conspirators headed by President Bush (or perhaps his puppet master, as some of them contend). They cite alleged scientific evidence about the heat threshold at which steel collapses and the temperature at which jet fuel combusts, the combustion properties of thermite, video evidence of an alleged missile, as opposed to a jet, crashing into the Pentagon, and social factors such as the desire of the powers that be that the citizens of the United States unite against a common enemy. If one's background cognitive state included only these beliefs, intuitively, it would be coherent.

There are also clear cases of incoherence. Consider a person whose background cognitive state only consists of background beliefs that today is Tuesday, that Picasso was a famous painter, that tanzanite is found only in Tanzania, that today is Thursday rather than Tuesday, that Picasso was not a famous painter, and that tanzanite is found in many different regions of the world. Such a person's background cognitive state is incoherent. After all, most of one's background beliefs contradict other of one's background beliefs.

But just because one's background cognitive state doesn't have contradictions does not mean that one's background cognitive state is coherent. Suppose one's background cognitive state consists of the beliefs that Homer wrote *The Odyssey*, that tweed jackets are the best jackets, that lawn maintenance is important, that the capital of Turkmenistan is Ashgabat, that the year is 2010, and

that the death penalty is a permissible form of punishment. In this case, one's beliefs are consistent, but the intuition is still that such a background cognitive state is incoherent in virtue of the fact that the background beliefs are unrelated to each other. But if one were to additionally believe that *The Odyssey* details the travels of a king, or that Turkmenistan was part of the former Soviet Union, one's background cognitive state would be slightly more coherent than it is without these beliefs.

Moreover, just because one's background cognitive state contains contradictions does not mean that the background cognitive state is incoherent. Suppose that one has all of the above beliefs about Jerry. One is also participating in a 10,000 ticket fair lottery, and so believes that one ticket will win. One believes that one's ticket won't win. One also believes that for every ticket, that ticket won't win. One does some inferring and concludes that no ticket will win. But this contradicts one's other belief that one ticket will win. Intuitively, however, this contradiction does not render one's background cognitive state, including one's beliefs about Jerry, incoherent. It is merely less coherent than it would be if one didn't have the belief that no ticket will win. Or consider the physicist who believes both general relativity and quantum mechanics. These two systems of belief are famously inconsistent. The belief system of the physicist who believes both general relativity and quantum mechanics will have at least one belief about general relativity which is inconsistent with another belief about quantum mechanics. Intuitively, however, the physicist's background cognitive state is nevertheless coherent.

The above cases point out a number of important features of coherence. Logical consistency of the elements of one's background cognitive state is important,

though it is neither necessary nor sufficient. Moreover, the elements of a background cognitive state need to be related to each other in some way. It is also clear from the cases that coherence can come in degrees—it's not an all or nothing matter.

BonJour (1985, p. 95-99) gives an adequate, but by no means complete, account of coherence that captures the intuitions from the above cases. It has five conditions:

> 1. A system of beliefs is coherent only if it is logically consistent.
>
> 2. A system of beliefs is coherent in proportion to its degree of probabilistic consistency.
>
> 3. The coherence of a system of beliefs is increased by the presence of inferential connections between its component beliefs and increased in proportion to the number and strength of such connections.
>
> 4. The coherence of a system of beliefs is diminished to the extent to which it is divided into subsystems of beliefs which are relatively unconnected to each other by inferential connections.
>
> 5. The coherence of a system of beliefs is decreased in proportion to the presence of unexplained anomalies in the believed content of the system.

The first condition simply states the standard necessary condition for coherence that the beliefs be logically consistent. But logical consistency is not enough, as logical consistency does not entail probabilistic consistency. Thus, BonJour places a condition of probabilistic consistency on coherence. The third condition captures

the intuition that inferential connections matter for coherence. Suppose one believes that p, q, and r and that these beliefs are logically and probabilistically consistent, but have no inferential connection between them. This system may be coherent. But it is not as coherent as the system that has the beliefs that s, t, and u when s, t, and u are logically and probabilistically consistent and one can infer u from s and t. The fourth condition simply says that the more unified by inferential relations a system of beliefs is, the more coherent it is. The fifth condition states that coherence depends on how well the beliefs in the system are explained (and how well they explain). These five conditions seem to explain the intuitions about the above examples of coherent and incoherent background cognitive states.

Comparing the intuitions about the cases to BonJour's account quickly reveals tension. The intuitions are that logical consistency is neither necessary nor sufficient for coherence. But BonJour's first condition states that logical consistency is necessary for coherence. That is, according to his account, the background cognitive state of one who believes both that one ticket will win the lottery and that no ticket will win the lottery, or the physicist who believes both classical physics and quantum mechanics, is incoherent. There are a couple of ways one might resolve this tension. One way is to explain away contradictions by appealing to a paraconsistent logic. Paraconsistent logics are characterized by the denial that from a contradiction anything can be inferred. Thus, they deny that contradictions are necessarily trivial. By denying that contradictions are necessarily trivial, paraconsistent logics claim that some contradictions are informative. So, appealing to paraconsistent logic may enable one to substitute BonJour's first condition relying on classical logic with some

other condition about paraconsistent logic. In any case, developing such a substitution would be tangential to the project at hand, which is to show that it is in virtue of being coherent that a background cognitive state has a positive epistemic status.

Another way of resolving the tension is by claiming that some inconsistencies are not as important, or central, as other inconsistencies. For instance, suppose that one's beliefs about Jerry include the belief that Jerry is married. This belief is central to one's other beliefs about Jerry and contradicts several of them. The inconsistencies that are concomitant with this further belief make one's background cognitive state incoherent. But one's inconsistent beliefs about the lottery are not as central to his background cognitive state. So, in spite of having inconsistent beliefs, one's background cognitive state could still be coherent. However, if one spends all of one's leisure time playing the lottery, frequently performing the aforementioned reasoning, then one's inconsistent beliefs would intuitively render one's background cognitive state incoherent. In any case, to pursue this solution a more detailed account of importance or centrality is required. Like the solution that appeals to paraconsistent logic, such a pursuit would be tangential to the present purpose. It should be enough to note that, intuitively, consistency is neither sufficient nor necessary for coherence.

In addition to modifying the condition that BonJour places on logical consistency, a further modification is required. Observe that on BonJour's account coherence is defined only over beliefs. But one's background cognitive state includes elements that are non-doxastic. For examples, it could be that one's concept of a

thing requires one to have beliefs about that thing, but the concept itself is plausibly non-doxastic. Similarly, recognitional capacities intuitively do not require beliefs. Consider facial recognition. It is easy to recognize a face one has only seen a few times, but one usually doesn't have beliefs about the distinguishing features of the face.

Given that some elements in one's background cognitive state may be non-doxastic, some of BonJour's conditions don't seem to apply to some of the elements of one's background cognitive state. It is clear how probabilities can be applied to beliefs—one can either have a belief about a probability or have a degree of belief expressed probabilistically. But how can probabilities be applied to non-doxastic elements of a background cognitive state, like an expectation? How can a recognitional capacity be probabilistically consistent with one's memories? Moreover, recognitional capacities may not play the inferential role that BonJour requires for coherence. One's recognitional capacity itself may not be the sort of thing that can be a premise or a conclusion in an inference.

So, it might be that some of the time some of BonJour's conditions don't apply. But that some of the conditions some of the time don't apply shouldn't have an effect on the coherence of the system, or the background cognitive state. If one's background cognitive state as it pertains to bananas, for example, consists only of expectations and recognitional capacities, it shouldn't be considered less coherent simply because expectations and recognitional capacities are not the sorts of things that can be probabilistically consistent or play the required inferential role. In order to accommodate this and the fact that coherence ranges over different types of

elements, two further modifications to BonJour's account should be made. This first change is that in the first five conditions, 'system of beliefs' should be substituted with 'background cognitive state'. This reflects the fact that coherence is a relation between several different types of elements. The second change is the addition of the following condition:

> 6. The coherence of a background cognitive state is not decreased by the presence of elements to which other conditions of coherence do not apply.

Now that an intuitive notion of coherence should be sufficiently clear, consider Koko from CP1 and CP2. In CP1, Koko has very few beliefs and memories about bananas. But in CP2, Koko has very many beliefs and memories of bananas. Her belief that bananas are yellow is explained by all of her memories of seeing bananas and testimony from trustworthy individuals that bananas are yellow. Given that she has many memories of bananas appearing yellow, it is probable that her belief that bananas are yellow is true. And her belief the next banana she sees will appear yellow can be inferred from her other belief that every ripe banana she has so far encountered has been yellow. But in CP1, Koko's background cognitive state as it pertains to bananas is very sparse. She has very few memories and beliefs about bananas. And though the memories and beliefs may explain each other, make each other probable, and support inferences, Koko's background cognitive state in CP1 is intuitively not as coherent as it is in CP2. The difference in coherence between Koko's background cognitive state in CP1 and her background cognitive state in CP2 is like the difference between the layperson's background cognitive state about

the heart and a cardiologist's background cognitive state about the heart. They may both be coherent, but the cardiologist's is more coherent.

Next consider CP5 and CP6. These are just like CP1 and CP2, except any instance of 'yellow' in CP1 and CP2 should be substituted with 'red' in CP5 and CP6. Though all of Koko's belief in CP5 and CP6 are false, her background cognitive state is nonetheless equally coherent as the background cognitive state in CP1 and CP2. That is, her background cognitive state in CP5 is just as coherent as it is in CP1 and her background cognitive state in B6 is the same as it is in CP2. The fact that all of her beliefs about bananas are false does nothing to change the intuition that her background cognitive state is just as coherent as its veridical counterpart.

But suppose that Koko in CP5 and Koko in CP6 were both shown a yellow banana by a botanist and told that bananas are yellow (and that they know that botanists are plant experts). Also suppose that they believe the botanist—they come to believe that bananas are yellow—and that they continue to hold their previous beliefs about the redness of bananas. Before hearing the testimony, Koko's background cognitive state in CP6 is more coherent than it is in CP5. But after hearing the testimony and coming to believe that bananas are yellow while continuing to hold her previous beliefs about bananas, Koko's background cognitive state in CP6 is intuitively more *incoherent* than it is in CP5. In CP5 and CP6, her beliefs about the redness of bananas are inconsistent with the expert testimony, improbable given the testimony, and lose much of the explanatory power they once had. And this incoherence is much more pervasive in CP6 than it is in CP5.

So, what is coherence? Coherence is the way the various types of elements of a background cognitive state fit together. And it is measured by the logical consistency, the degree to which it is probabilistically consistent, the number and strength of inferential links between the elements, and the degree to which there are explanatory relations between the various elements.

Given intuitions about what counts as coherent and incoherent, and the above remarks about the conditions of coherence, it should be possible to say of two different background cognitive states which one is more coherent. It should also be possible to say of one background cognitive state whether it is coherent or not. Given the above remarks, however, we are not in a position to say of one background cognitive state exactly how coherent or incoherent it is. But this is not an obstacle to proceeding with the claim that the property in virtue of which a background cognitive state has a positive epistemic status is the property of being coherent. It would only be a problem if I were claiming that the property in virtue of which a background cognitive state has a positive epistemic status is the property of being coherent to degree n. But I am not claiming that. My claim only requires coarse judgments about coherence, and the intuitions from above permit such judgments.

3.3 Of the sorts of things that coherence can range over, which ones are relevant for determining the justificatory status of a given perceptual belief?

With regard to the perceptual justification one has to hold a given perceptual belief, only some of the elements of one's background cognitive state are going to be relevant; some will be irrelevant to one's perceptual justification. But it's difficult to say with any precision which elements of one's background cognitive state are relevant to one's perceptual justification to hold a perceptual belief. Instead of attempting to give a general account that picks out all of the relevant elements in any given case, I will gesture at the cases that are undoubtedly relevant and the cases that are undoubtedly irrelevant. For other cases, our intuitions about what counts as relevant or irrelevant will hopefully suffice.

Consider the cases in which one's background cognitive state penetrates one's perceptual experience. In these cases, in virtue of the fact that elements of one's background cognitive state penetrate one's experience, one's background cognitive state epistemically mediates one's perceptual justification. For instance, in both CP1 and CP2, Koko's belief that bananas are yellow penetrates her experience, causing her to have perceptual experience that represents that the banana is yellow, and she forms her perceptual belief upon this representation. In virtue of this penetration, Koko's background cognitive state epistemically mediates her perceptual justification. So, the elements that penetrate are certainly relevant to her perceptual justification. But we don't know exactly which elements penetrate. So to play it safe, we should say that elements that could penetrate are relevant.

It is not just elements that could penetrate that are certainly relevant to one's perceptual justification. Elements that have contents similar to that of the perceptual experience are also relevant. For instance, suppose Barry is an amateur bird-watcher

with a particular interest in the birds of the New England. His background cognitive state includes elements one would expect an amateur bird-watcher to have: beliefs about the different characteristics of different genera and species of birds, semantic and experiential memories of birds, the capacity to recognize a wide variety of birds, expectations of what sorts of birds he will find while watching in New England, concepts of birds in general and some birds specifically. When Barry goes into the forest looking for birds, it seems that all of these elements, in virtue of being related to birds, are going to be relevant to his perceptual justification to hold perceptual beliefs about the birds he sees. If Barry is looking for cardinals, certainly his capacity to recognize cardinals, his concept of cardinals, his beliefs that male cardinals are bright red, that cardinals have crests on their heads, and that cardinals have beaks suitable for eating seeds will all be relevant. But it also seems right that his general beliefs, concepts, memories, etc. (e.g., his belief that birds have feathers and his belief that binoculars are helpful) will be relevant as well. It might be that some of these could penetrate and that some could not. But these elements pertaining to birds and bird-watching seem relevant whether or not they could penetrate.

Possessed defeaters are also clearly relevant to the perceptual justification one has to hold a perceptual belief, though it's less clear whether possessed defeaters could penetrate one's perceptual experience. Suppose one day Barry enters the forest with the additional belief that his eyes aren't working properly that day. When looking for cardinals, this additional belief is certainly relevant to his perceptual justification to hold the perceptual belief that the bird over there is red. But it's not clear that such a belief could penetrate his perceptual experience. Either way, the

belief is relevant. Or suppose that Barry is looking at a particular bird that he has identified as a cardinal and comes to have the perceptual experience that the bird over there is red. Shortly thereafter, he notices that the sunlight is such that things look a different color than they typically do. He forms the belief that his experience of a red bird is likely false. This belief, though it may not penetrate his experience, is clearly relevant to his perceptual justification.

There are also cases in which some of the elements of one's background cognitive state are clearly irrelevant to one's perceptual justification. Suppose that while in the forest looking for birds, Barry dwells on his belief that the Battle of Hastings was in 1066. This belief is clearly irrelevant to his perceptual justification that the bird over there is red. Similarly, his experiential memory of the video of the assassination of John F. Kennedy is irrelevant to his perceptual justification, as are his recognitional capacities for great works of architecture and his concept of justice.

I have identified the cases that lie on either end of the spectrum of elements that are relevant. For cases in the middle of these extremes, for now we will simply have to rely on our intuitions about what counts as relevant. However, our judgments about the cases that are in the middle can be guided by the cases we know to be on either end of the spectrum. Though it is difficult to say of any particular case which elements are relevant and which are irrelevant, such difficulty does not have much bearing on my main point: of the elements of one's background cognitive state, it is the ones that are relevant, whichever those happen to be, that need to cohere with each other in order for one's background cognitive state to have a positive epistemic status, allowing it to contribute to one's perceptual justification. In

other words, a background cognitive state has a positive epistemic status if and only if the relevant elements of one's background cognitive state exhibit coherence. Coherence is measured by the degree to which there are inferential, explanatory, and probabilistic relations between the relevant elements. And it ranges over one's beliefs, concepts, memories, recognitional capacities, expectations, and biases.

This concludes my account of how a background cognitive state can have a positive epistemic status, allowing it to contribute to the perceptual justification one has to hold a perceptual belief. I began this section by noting that the justificational difference between Koko in CP1 and Koko in CP2 is a datum requiring explanation. The explanation is that Koko's background cognitive state in CP2 is more coherent than it is in CP1. The relevant beliefs, concepts, recognitional capacities, etc. in CP2 share stronger explanatory, probabilistic, and inferential relations and are greater in number than the relevant elements of her background cognitive state in CP1.

4 Objections

I have argued that usually, when one's background cognitive state penetrates one's perceptual experience, one's background cognitive state contributes to the perceptual justification one has to hold a perceptual belief. In order for it to contribute to one's perceptual justification, the state itself must have a positive epistemic status. In the previous section, I argued that the relevant elements of the background cognitive state must be coherent in order for it to have a positive epistemic status and thus contribute to the perceptual justification one has. In this section, I look at two objections to the view that the coherence of the relevant

elements of the background cognitive state is what makes the background cognitive state have a positive epistemic status.

The first objection is the Isolation Objection, or as BonJour calls it, the input problem. The idea is that since coherence is a purely internal relation between beliefs, or for the present purposes elements of one's background cognitive state, it is possible that one's background cognitive state could be coherent, thus having a positive epistemic status, while being totally cut off from the external world. It could then contribute to the justification of a perceptual belief without having any relation with the external world.

To further illustrate the objection, consider a case in which one has a totally coherent background cognitive state, yet one's visual system fails to respond to sensory input. The background cognitive state of one, the objection alleges, has a positive epistemic state and so can contribute to one's perceptual justification.

There is a fairly straightforward response to this sort of case. If one, or rather one's visual system, fails to respond to sensory input, then one doesn't have a perceptual experience. And if one doesn't have a perceptual experience, then there is no proposition such that one could have or lack perceptual justification to believe it. If there is no perceptual experience, then there is nothing to which one's coherent background cognitive state can epistemically contribute.

Moreover, it is not an aspect of the view argued for here that all of one's perceptual justification to hold a perceptual belief comes from the coherence of one's background cognitive state. The coherence of one's background cognitive state

is just one source of perceptual justification. The other source is the experience itself. So when there is no perceptual experience, there is no perceptual justification.

This is not to say that the view argued for here does not allow perceptual input into one's background cognitive state. Here is how perceptual input might get into one's background cognitive state. When one's background cognitive state penetrates one's perceptual experience, it will partly determine the content of the perceptual experience. In doing so, the coherence of the relevant elements of the background cognitive state will determine whether the background cognitive state has a positive epistemic status. If it is coherent, then it can contribute to the perceptual justification one has to hold the proposition that constitutes the perceptual content. If it is incoherent, then the state either cannot contribute to the perceptual justification or decreases the justification one has. The penetrated perceptual experience then typically results in one holding a perceptual belief the content of which is just the content of the perceptual experience. The perceptual belief can then become an element of one's background cognitive state in the form of an imagistic memory, a background belief, a constituent of a concept, etc. Though it is not clear exactly how this process of conversion works, it is clear that it happens. When one looks at a scene before one, one has certain perceptual beliefs. Sometime later, one is no longer looking at the same scene, but one can have an imagistic memory of it. This shows that some perceptual beliefs sometimes get converted into imagistic memories. I am assuming that sometimes they also get converted into background beliefs, constituents of a concepts, etc.

After one's perceptual belief is entered into one's background cognitive state in the form of some other new element, when one has a perceptual experience that is cognitively penetrated by one's background cognitive state, and the new element is relevant, whether the background cognitive state is coherent or not will partly depend on how well the new element—the element that was originally a perceptual belief—coheres with other relevant elements. Thus, one's background cognitive state is not cut off from the external world.

Here is an example of how this might work. Suppose that Barry is looking for cardinals in the forest. He has the aforementioned elements in his background cognitive state. In addition, he has the expectation that he will see a cardinal. When he spots something on a branch many yards away, his background cognitive state penetrates his perceptual experience, so he identifies it as a cardinal, has the perceptual experience of it being red, and comes to hold the perceptual belief that the bird over there is red. Given that his background cognitive state is coherent, it has a positive epistemic status and can thus contribute to his perceptual justification to believe that the bird over there is red. Sometime after holding the perceptual belief, the belief is converted into an imagistic memory of a red bird over there. Several days later when he is again looking for cardinals in the forest, he sees a bird in the distance. Again, his background cognitive state penetrates his perceptual experience. But this time the imagistic memory of the bird over there—the memory that came from the perceptual belief that the bird over there is red—also penetrates his perceptual experience. Given that this new imagistic memory is relevant, it must cohere with the other relevant elements of his background cognitive state. If

inclusion of the new element, in this case an imagistic memory, increases the degree of coherence exhibited by his background cognitive state, then the state has a greater epistemic status. Thus, Barry would have more perceptual justification to believe that the bird over there is red the second time he went into the forest than he did the first time he went to the forest and looked for cardinals. But if inclusion of the imagistic memory decreases the degree of coherence, then his background cognitive has lesser epistemic status and so Barry has less perceptual justification. This is how perceptual input can get into one's background cognitive state.

But one might still press the objection and claim that the view argued for here doesn't require that perceptual input get into one's background cognitive state, and to avoid the objection I need perceptual input to be necessary. We can easily imagine an individual who has perceptual experiences and forms perceptual beliefs upon those experiences, but whose perceptual beliefs never get converted to any other element and so perceptual input can't get into the system. Also suppose that such an individual generally cannot update his or her background cognitive state—the state is static.

The view argued for here would claim that if one's background cognitive state is coherent, then there is nothing about the background cognitive state that would inhibit one having perceptual justification to hold the perceptual beliefs one does. But if one's background cognitive state is static, one is unable to improve the epistemic status of one's background cognitive state. So in the cases in which one's background cognitive state epistemically mediates one's perceptual justification, one will not be able to acquire more perceptual justification. If the background cognitive

state is incoherent and static, then in cases in which one's background cognitive state epistemically mediates one's perceptual justification, one will never have perceptual justification to hold perceptual beliefs. Moreover, neither of these claims is problematic. We shouldn't suppose that the amount of perceptual justification one has can increase when the background cognitive state of that individual cannot even be updated. And we shouldn't suppose that one can have perceptual justification even when one of the primary sources of perceptual justification—one's background cognitive state—itself has a negative epistemic status. So, neither the possibility of a coherent subject that doesn't respond to sensory input nor the possibility of an individual who cannot get perceptual input into the system present a problem for the view argued for here.

I have claimed that the relevant elements of one's background cognitive state must cohere in order for it to contribute to one's perceptual justification. And what counts as relevant partly depends on which elements penetrate one's perceptual experience. The second objection is that since for any particular case of cognitive penetration we don't know exactly which elements penetrate, we don't know how much justification one has to hold a particular perceptual belief.

I think that a similar objection can be brought against any theory of justification. For instance, evidentialists say that justification supervenes on evidence, but we don't know exactly what evidence a subject has. We can speculate or, using what we do know about the subject, get an idea of what evidence a reasonable person would have. But to know exactly what evidence a subject has, we would need to get inside his or her head. Similarly, to know exactly which elements of one's

background cognitive state penetrate, we would need to get inside one's head. But given what we may know about a subject, we can get an idea of what elements are in one's background cognitive state. In doing so, we can get an idea of which elements penetrate.

For similar reasons, I think that it also won't do to object to the view argued for here on the grounds that we haven't identified the psychological mechanism by which elements of one's background cognitive state penetrate one's perceptual experiences. Consider a theory of justification that says that belief-forming processes must be reliable. We haven't identified the psychological process by which beliefs are formed. And this is not a good reason to think that reliabilism is false. Similarly, we shouldn't think the view argued for here is false just because we haven't identified the mechanism by which elements penetrate.

CHAPTER 5

AN ANALYSIS OF PERCEPTUAL JUSTIFICATION

In the first chapter, I discussed the excellent experimental evidence for the psychological notion that perceptual experience is cognitively penetrable. In the second chapter, I used the data from the first to argue that perceptual experience represents high-level properties. This view, high-level theory, is opposed to low-level theory, which claims that high-level properties are only represented at the level of judgment and are the result of cognitive interpretation of the low-level properties that experience represents. In the third chapter, I constructed cases around the experimental data showing that perceptual experience is cognitively penetrable in order to argue for the claim that one's background cognitive state epistemically mediates the perceptual justification one has to hold a perceptual belief. This is to say that some of the perceptual justification one has to hold a perceptual belief comes from one's background cognitive state. Given that one's background cognitive state typically contributes some of the perceptual justification one has to hold a perceptual belief, and that in order for something to contribute justification the thing itself must have a positive epistemic status, one's background cognitive state must have some positive epistemic status in order to contribute perceptual justification. In the fourth chapter, I claimed that one's background cognitive state has a positive epistemic status in virtue of the relevant elements of one's background cognitive state being coherent.

1 Problems for the Simple View

In the third chapter I argued that the following view, Immediatism, is false:

> **Immediatism:** if one has a perceptual experience that p, then one has immediate *prima facie* justification to hold the perceptual belief that p.

I also argued that the epistemic mediation of perceptual justification by one's background cognitive state is compatible with another member of the Simple View:

> **Liberalism**: it is possible for a perceptual experience that p to provide one with immediate *prima facie* justification to hold perceptual belief that p.

I argued for such claims by considering cases of cognitive penetration and intuitions about the subjects' perceptual justification. In addition to these cases, in this section I set out other problems for the Simple View. Some are problematic only for Immediatism, and some are problematic for Liberalism and, by implication, Immediatism. In the succeeding section, I argue for an analysis of perceptual justification. In the third section, I argue that the problems for the Simple View outlined in this section are not problematic for the proposed analysis. In the fourth section, I indicate how the proposed analysis may respond to skepticism.

There are several allegedly problematic cases for Immediatism. Some come from Susanna Siegel (forthcoming). Other similar, yet ultimately more effective, cases come from my third chapter. Others come from Cohen (2002, 2005) and Vogel (2008).

The cases from Siegel attempt to show that Immediatism would have to claim that some individuals have perceptual justification to hold a perceptual belief but, intuitively, that subject does not have perceptual justification to hold that perceptual belief. For instance, consider the following case:

Angry

> Suppose that Jared suddenly has the belief that his friend, Ronald, will be angry with him the next time he sees him. Jared is unsure why he believes this, but has no reason to think it's false. Nevertheless, Jared dwells on the belief for several days. Finally after several days, Jared sees Ronald coming from a distance. Ronald is, and has been for quite some time, neither angry nor happy with Jared. When Ronald approaches Jared, Jared's belief that Ronald will be angry with him the next time he sees him penetrates his perceptual experience and causes it to have the content that Ronald is angry with him. Jared thus believes that Ronald is angry with him.[67]

Siegel supposes that, intuitively, Jared does not have perceptual justification to hold the perceptual belief that Ronald is angry. But Jared has a perceptual experience that represents Ronald being angry (and he possesses no defeaters), so Immediatism would have to claim that Jared has perceptual justification to hold the perceptual belief that Ronald is angry. Since this is supposed to be counterintuitive, it is a problem for Immediatism.[68]

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[67] Siegel gives several cases that are similar in structure.

[68] This is not to say that the Immediatist may not have good responses.

Other cases that are problematic for Immediatism come from my third chapter. Recall cases CP1 and CP2:

Cognitive Penetration-1 (CP1)

Suppose that Koko has never seen a real banana or plantain or similarly shaped fruit. She has, however, seen grayscale pictures of bananas. Also suppose that she has no other beliefs or concepts about bananas. She has never heard anyone talk about them in any regard, she has never read anything about them. She has only seen a few grayscale pictures of bananas so that she has the ability to identify a banana by shape. One day, she comes across a large picture depicting a yellow banana. Having no reason to suspect that the picture is not an accurate depiction of a banana, she comes to believe that bananas are yellow. She dwells on this belief for quite some time. Also suppose that Koko is a subject in the Hansen et al. experiment. While participating in the experiment, Koko's belief that bananas are yellow penetrates her perceptual experience so that the banana only appears to her as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. The content of her perceptual experience of looking at the achromatic banana on the screen is that the banana is yellow. She thus has the perceptual belief that the banana is yellow.

Cognitive Penetration-2 (CP2)

Suppose that Koko has been taught all of her life that bananas are yellow. Her parents always gave her yellow bananas. Every time Koko would see a

> picture of one, it would be yellow. People in her community would talk as though bananas are yellow. They would point to grayscale outlines of bananas and tell her that bananas are yellow, the same color as the school bus, the sun, and her pencil. Koko thus believes that bananas are yellow. Moreover, she has no reason to think that bananas are any other color. Also suppose that Koko is a subject in the Hansen et al. experiment. While participating in the experiment, Koko's belief that bananas are yellow penetrates her perceptual experience so that the banana only appears to her as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. The content of her perceptual experience of looking at the achromatic banana on the screen is that the banana is yellow. She thus has the perceptual belief that the banana is yellow.

Though CP1 and CP2 are similar to Siegel's case, they are problematic for a different reason. In CP1 and CP2, Koko has the exact same perceptual experience. And in neither case does Koko possess any defeaters. Since the experiences are the same, according to the Immediatist, so should be the perceptual justification. But Koko in CP2 has far more justification to hold the perceptual belief that the banana on the screen is yellow than does Koko in CP1.[69]

In both my cases and Siegel's case, the Immediatist has several lines of response, some of which are reasonable. For instance, in response to Siegel's case,

[69] Again, there are responses open to the Immediatist. The cases are merely to show how my view can elegantly handle cases that are allegedly problematic for Immediatism.

the Immediatist could simply deny the intuition that Jared lacks perceptual justification. It is simply not clear whether Jared lacks perceptual justification. Similarly, the Immediatist could say that in CP1 and CP2, Koko has the same degree of perceptual justification, but that they differ with respect to non-perceptual justification.[70]

There are other cases that are problematic for Liberalism and, by implication, Immediatism. Though they are not explicitly directed at Liberalism, they are problematic for it.[71]

Suppose that one is looking at an apple on a table a few feet away and that one has the perceptual experience that the apple is red (and that one possesses no defeaters). According to Liberalism, one can have immediate perceptual justification to hold the perceptual belief that the apple is red. From this perceptual belief, one can deduce that the apple is not white illuminated by red lights. Since one has justification to hold the belief that the apple is red and one can competently deduce from this that the apple is not white illuminated by red lights, one can come to have justification to hold the belief that the apple is not white illuminated by red lights. This way of ruling out skeptical hypotheses just seems too easy. But Liberalism, among other views of perceptual justification, seems to entail that one can rule out skeptical hypotheses this way.

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[70] In other words, the Immediatist could meet the challenge proposed in the third chapter.

[71] See Cohen (2002, 2005) and Vogel (2008) for discussion of the problems.

The second problem is that one can come to be justified in the belief that one's perceptual system is reliable in an epistemically inappropriate way. Suppose that one is unfamiliar with color perception. One has seen very few colors and has never once thought about whether one's perception is reliable. When one walks into a room, the walls appear to one as yellow. Liberalism permits the following reasoning: the walls appear yellow, so the walls are yellow. In other words, Liberalism claims that one can have immediate justification to believe that the walls are yellow, or that one's belief that the walls are yellow is true. Also suppose that one has a bit of self-knowledge. When one has a belief, one knows, and so believes, that one has that belief. So when one has the belief that the walls are yellow, one believes that one believes that the walls are yellow. Now one has justification to hold two distinct beliefs. The first is that one believes that the walls are yellow. The second is that the walls are yellow. From these two beliefs that one has justification to believe, one can conclude that one's perceptual system is reliable. The reasoning might goes as follows: I believe that the walls are yellow, and the walls are yellow, so my perception worked. The first premise is justified by self-knowledge and the second premise is justified by Liberalism. One can then repeat the process. After enough instances of going through the reasoning above, one will be able to know that one's perception is reliable. But this cannot be right. This way of coming to know that one's perception is reliable—this "bootstrapping"—is epistemically inappropriate.

2 The analysis

The analysis of perceptual justification that I will argue for can quite easily handle all of these problems that face the Simple View. It is very intuitive that perceptual experience plays perhaps the most important role in providing justification for our perceptual beliefs. The Simple View honors this intuition by making it the sole source of perceptual justification. My view, though it does not claim that perceptual experience is the sole source of perceptual justification, also honors the intuition the perceptual experience is central to the justification we have to hold our perceptual beliefs. The analysis proceeds in two steps.

Step 1

S has perceptual justification to hold perceptual belief that p at time t if and only if:

1. S's perceptual experience at t represents that p;
2. The relevant elements of S's background cognitive state exhibit coherence at t.

The cases I have been using show that perceptual justification can come in degrees—the amount of epistemic support from one's perceptual system can vary in degree. Coherence also comes in degrees. This prompts the second step of the analysis.

Step 2

The degree to which one has perceptual justification to hold perceptual belief that p at t is proportional to the degree to which the set of relevant elements of one's background cognitive state exhibits coherence at t.

Coherence of the relevant elements of one's background cognitive state cannot be the only variable that affects the degree to which one has perceptual justification. The vivacity of one's perceptual experience also can affect one's degree of perceptual justification. For instance, suppose that one has a green apple in one's hand and off in the distance is a bushel of green apples. The bushel is far enough away from one that it is not perfectly clear whether the bushel is full of green apples or some other greenish fruit. When one looks at the apple in one's hand, one will represent in experience that there is a green apple. When one then looks at the bushel of apples, one will also represent that there is a green apple. But one has more perceptual justification to hold the perceptual belief that there is a green apple when one is looking at the apple in one's hand. One difference between the two experiences is that the experience of the apple in one's hand is phenomenally richer than the experience of the apple in the distance. The two experiences will differ in other ways. One's experience of the distant apples may represent different size or distance properties, so the total perceptual content will be different. But the two experiences will share some perceptual content. And of this content that the two experiences share, one will have more perceptual justification to hold the perceptual belief that comes from the phenomenally richer perceptual experience.[72]

The notion of phenomenal richness may seem vague to some, but there are some intuitive examples of differences in phenomenal richness. Suppose one is tuning a radio and is hearing mostly a static-laced voice. Finally, when one tunes to

[72] The above remarks are compatible with any supervenience relation between perceptual content and phenomenal character.

the right frequency, one hears the voice loud and clear. With respect to the representation of the voice, this experience is phenomenally richer than hearing the static-laced voice. Or suppose that on a cold day one gets into one's car and the windows fog up. One can still see the objects outside of the car, but they are not that clear. When the defrost kicks in, one can see more clearly—one's experience of the objects outside of the car is phenomenally richer. Phenomenal richness is the vivacity of perceptual seemings—the vivacity of perceptual contents.

At some point, however, the degree to which one's perceptual justification can be affected by the phenomenal richness of one's perceptual experience is constant; it tops out. Suppose one is holding a green apple in one's left hand and a red apple in one's right. All other things equal, one will have equal perceptual justification to believe that there is a green apple as will one to have perceptual justification that there is a red apple. In other words, the richness of the two experiences is the same, so the degree to which the richness of the experiences can affect one's perceptual justification is the same. Most of our perceptual experiences would seem to fall into this category. That is, many, if not most, of our experiences are maximally phenomenally rich, so that the degree to which the phenomenal richness of our experiences affects our perceptual justification is usually the same. In such cases, the coherence of the relevant elements of one's background cognitive state will be the only variable that affects the degree to which one has perceptual justification. From here on, I will be assuming that the perceptual experiences in question fall into this category. But in cases in which one's perceptual experience is not maximally phenomenally rich, the degree to which one has perceptual

justification will depend on both the degree to which the relevant elements of one's background cognitive state cohere and the degree to which one's experience is phenomenally rich. These considerations prompt a revision of Step 2:

Step 2

> The degree to which one has perceptual justification to hold perceptual belief that p at t is proportional to the degree to which the set of relevant elements of one's background cognitive state exhibits coherence at t and the degree to which one's experience that p is phenomenally rich.

There are several things to note about the analysis. First, there is no "no defeater" condition. If one satisfies conditions 1 and 2 above and has no defeaters, one has both perceptual justification as well as all things considered justification. Second, Immediatists agree that satisfaction of the first condition is sufficient for perceptual justification. The crucial difference between Immediatism and the proposed analysis is the inclusion of the second condition. The satisfaction of the second condition seems to imply that perceptual justification is not always immediate, as the coherence of one's background cognitive state is a further source of justification. Third, note that the analysis of perceptual justification is internalist in one sense but externalist in another. A plausible assumption is that mental duplicates will have the same experiences and the same background cognitive states. It is in this sense that the analysis is internalist—mental duplicates will be equally justified. But sometimes justification internalism is thought to be the view that in order to have justification one must be aware of, or at least have access to, one's reasons for one's

belief. In this sense, the analysis is externalist. There is no requirement that S has access to all of the relevant elements of one's background cognitive state or even the coherence of such elements. Fourth, the second condition can be satisfied even when one's background cognitive state has very few or no relevant elements. For instance, suppose that one's experience represents that p, one possess no defeaters for the proposition that p, and one's background cognitive state has no relevant elements. In such a case the second condition would be satisfied, as it's false that the relevant elements of one's background cognitive state are incoherent.

Continuing with this fourth point, I want to emphasize that the analysis is compatible with the existence of immediate perceptual justification. In a case in which one's experience represents that p and one's background cognitive state includes no relevant elements, the second condition will be satisfied. But in such a case the perceptual justification one has will be immediate. It will be immediate because one's background cognitive state, in virtue of having no relevant elements, will not contribute at all to the justification one has. The only source of perceptual justification in such a case will be one's experience that p. But immediate justification is quite rare because one's background cognitive state usually includes relevant elements. For instance, suppose a normal adult looks at a red color square. Unless one is a color square enthusiast or for some other reason has many background beliefs about color squares, one's background cognitive state as it pertains to color squares will have no relevant elements. The only source of perceptual justification is one's perceptual experience—one's perceptual justification is immediate.

Moreover, one factor that affects the degree of coherence of a set of elements is the number of elements in the set. A set consisting of two elements that cohere with each other exhibits some degree of coherence. But a set consisting of three elements that cohere with each other exhibits a greater degree of coherence. A set consisting of zero elements will be coherent, but it will exhibit a very low degree of coherence. Thus, in cases in which one's perceptual justification to hold the perceptual belief that p is immediate—cases in which one's background cognitive state includes zero relevant elements—the degree to which one has perceptual justification will be very low.

3 The analysis and some cases

It is this point that allows my analysis to provide an adequate response to some of the problems for the Simple View. Consider first the problematic transition from one's having justification to hold the perceptual belief that the apple is red to one having justification to believe that it is false that the apple is white illuminated by red lights. Liberalism seems committed to the problematic result that one can have justification to rule out skeptical alternatives simply by having a perceptual experience.

My view is able to easily handle this problem. Suppose that one is a normal perceiver. One has lots of beliefs, memories, etc. of apples. Among these, one remembers apples appearing red in a grocery store, believes that many types of apples are red, believes that rarely do people construct elaborate tricks, and believes that usually skeptical alternatives do not obtain. Given that these elements are

relevant, assuming they cohere with each other (and the other relevant elements), these elements will epistemically mediate one's initial perceptual justification one has when one looks at an apple and comes to believe that the apple is red. That is, these elements contribute to the perceptual justification one has to hold the initial perceptual belief that the apple is red.[73] When one has epistemic support for the proposition that the apple is red in addition to the experience with the content that the apple is red, it seems less bad to say that one also has justification to believe that the apple is not white illuminated by red lights. So, when one's perceptual justification is epistemically mediated by one's background cognitive state, the problem seems to go away.

Now suppose as Liberalism, Immediatism in particular, does that one has immediate perceptual justification to hold the perceptual belief that the apple is red. According to my view, one has immediate perceptual justification only if one's background cognitive state includes no relevant elements. And if a background cognitive state includes no relevant elements, the coherence of the set of relevant elements will be very low. Thus, according to Step 2, the perceptual justification one has in such a case will be to a very low degree. In other words, when one has immediate perceptual justification that the apple is red, the degree to which one has such perceptual justification will be very low. Since the initial perceptual belief—the belief that the apple is red—is justified only to a low degree, the resulting belief that the apple is not white illuminated by red lights will also have a low degree of

[73] As previously argued, such mediation is not in virtue of the elements counting as evidence for the proposition that the apple is red.

justification. So, in cases of immediate perceptual justification, the justification one has to rule out skeptical alternatives will have a low degree of justification. And it seems less bad to say that one has a low degree of justification to rule out skeptical alternatives.

Either one's perceptual justification is mediate or immediate. In either case, the analysis proposed here can mitigate the problem. A similar strategy can be used to solve the problem of "bootstrapping." Bootstrapping is the epistemically illicit way of coming to have the justified belief that one's perceptual system is reliable. One first comes to have the justified perceptual belief that the walls are yellow, for example. But one knows what one believes, so one also believes that one believes that the walls are yellow. Combining these two beliefs, one can come to hold the justified belief that one's perceptual system worked. After one does this enough times, one can come to have the justified belief that one's perceptual system is reliable. One can come to have this justified belief simply by using one's perceptual system and having a bit of self-knowledge.

The proposed analysis can make the problem seem less severe. The cases that allegedly result in bootstrapping start out by stipulating that the subject has never considered the reliability of one's perceptual system and has very few beliefs about color. This is just to stipulate that one's background cognitive state includes very few elements relevant to the proposition that the walls are yellow. Since the initial perceptual belief that the walls are yellow is epistemically mediated by a set that has very few relevant elements, according to the proposed analysis, the initial perceptual belief will have a low degree of perceptual justification. Since the initial

perceptual belief will have a low degree of perceptual justification, when one infers from this belief and one's belief that one believes that the walls are yellow, one will have a low degree of justification to hold the belief that one's perceptual system worked. In other words, the fact that the initial perceptual belief has a low degree of perceptual justification means that the belief that one's perceptual system worked will also have a low degree of justification.

In order for one to have a high degree of justification to hold the belief that one's perceptual system worked, one will have to have a high degree of perceptual justification to hold the perceptual belief that the walls are yellow. And in order for one to have a high degree of perceptual justification to hold the perceptual belief that the walls are yellow, the relevant elements of one's background cognitive state must exhibit a high degree of coherence. This requires among other things very many experiences, memories, and beliefs, the sorts of things that one acquires as one navigates the perceivable world. Thus, one can have a high degree of perceptual justification to hold the perceptual belief that one's perceptual system worked only if one has had many experiences, memories, and beliefs.

Since in order for one to have a high degree of justification to hold the belief that one's perceptual system is reliable one must have a high degree of justification to hold the belief that one's perceptual system worked, it follows that in order for one to have a high degree of justification to hold the belief that one's perceptual system is reliable by appealing to one's past experiences one must have had many experiences, memories, and beliefs. In other words, one can come to have a high degree of justification to hold the belief that one's perceptual system is reliable only if one has

had very many experiences, memories, and beliefs—only if one has had a lot of experience navigating the perceivable world. But this is just what we should expect.

Consider one whose background cognitive state has no, or very few, relevant element about one's perceptual system or colors. Suppose this person goes through the illicit reasoning and comes to hold the belief that one's perceptual system is reliable. Immediatism allows for this person to come to have justification to hold the belief that one's perceptual system is reliable by reiterating the same process over and over. But the proposed analysis does not allow one to come to have justification this way; one cannot simply reiterate the same process and come to be justified in believing that one's perceptual system is reliable. One whose background cognitive state is already incoherent, or just sparse, will have a low degree of perceptual justification to hold the initial perceptual belief. Thus, one will have a low degree of justification to hold the belief that one's perceptual system is reliable. Repeating the same process adds little to one's background cognitive state, so one can never come to have a high degree of justification to hold the belief that one's perceptual system is reliable in this way. The only way one can be justified in holding the belief that one's perceptual system is reliable by appealing to one's perceptual experiences is by ensuring that one has a high degree of justification to hold perceptual beliefs. And, according to the proposed analysis, one can only do this by coming to have a more coherent background cognitive state.

The consequence of the proposed analysis as it applies to the alleged problem of bootstrapping is that initially one has very little justification to think that one's perceptual system is reliable, and only acquires a high degree of justification

after spending a lot of time in the perceivable world. This does not at all seem counterintuitive or epistemically dubious. When the proposed analysis is applied to the alleged problem of bootstrapping, the problem seems to go away.

The proposed analysis can also easily handle other alleged problems for Immediatism. Recall the case from Siegel in which Jared suddenly has the belief that Ronald is angry with him. This belief penetrates his experience so that when Jared sees Ronald next he has the perceptual experience that Ronald is angry with him. Given that Jared's experience represents that Ronald is angry with him, the Immediatist seems committed to the claim that Jared has perceptual justification to hold the perceptual belief that Ronald is angry with him. Siegel supposes that it is counterintuitive that Jared has perceptual justification to hold the perceptual belief that Ronald is angry with him. Thus, the case is a problem for Immediatism.

Even if this case is a problem for Immediatism, it is not a problem for the proposed analysis. In the case, it is not clear whether the set of relevant elements of Jared's background cognitive state is robust. As stated, Jared has only one, or at least very few, relevant elements in his background cognitive state. If this is the case, then the same strategy used above can be used here: the number of relevant elements is small; so the set of relevant elements exhibits a low degree of coherence. Thus, Jared has a low degree of perceptual justification to hold the perceptual belief that Ronald is angry with him and the analysis returns the correct intuition.

The proposed analysis can also explain the difference in justification between the cases, CP1 and CP2, that are problematic of Immediatism. The proposed analysis

explains the difference in perceptual justification between CP1 and CP2 by appealing to the coherence of Koko's background cognitive state. In CP1, the set of relevant elements of Koko's background cognitive state includes very few elements. But in CP2, the set of relevant elements of Koko's background cognitive state is very robust and the individual elements cohere with each other. Because of this, the set of relevant elements of Koko's background cognitive state in CP2 exhibits a high degree of coherence. And the other conditions for perceptual justification are satisfied. Thus, Koko in CP2 has a higher degree of perceptual justification to hold the perceptual belief that the banana on the screen is yellow than does Koko in CP1.

I first pointed out several significant problems with the Simple View. I then proposed an analysis of perceptual justification appealing to the coherence of one's background cognitive state. This analysis both honors the intuition that perceptual experiences are primary sources of justification as well as explains away the problems that face the Simple View. But the proposed analysis can explain intuitions for other cases.

Consider first standard cases of hallucination. Suppose one is looking out the window and hallucinates a brown dog walking on the sidewalk. One has no reason to think that one is hallucinating. The standard intuition is that one has justification to believe that a brown dog is walking on the sidewalk. The verdict of the proposed analysis is that one has justification to believe that a brown dog is walking on the sidewalk. One's experience represents that the dog is walking on the sidewalk; one has no reason to think that it is false that the dog is walking on the sidewalk and no reason to think that one's perception in this case is untrustworthy; and presumably

the set of relevant elements of one's background cognitive state exhibit a high degree of coherence. That is, the relevant elements—one's memories of previous dogs walking on sidewalks, one's beliefs about where dogs typically walk, the typical color of dogs, etc.—cohere with each other. So, one has a high degree of perceptual justification to hold the perceptual belief that a brown dog is walking on the sidewalk.

Another intuition that many philosophers have is that brains in vats have perceptual justification to hold their perceptual beliefs. Indeed, it is plausible that a criterion for the adequacy of a theory of justification is that it results in brains in vats having such justification. According to the proposed analysis, in the standard brain-in-vat scenario the brain in the vat will have a high degree of perceptual justification in the same way that one has a high degree of perceptual justification when one is hallucinating. Moreover, according to the proposed analysis, the envatted brain will have the same perceptual justification as its non-envatted mental duplicate. This is a virtue of a theory of justification.

There are cases, however, that some may find problematic for the proposed analysis. Suppose that one has a perceptual experience that represents that p, but the set of relevant elements of one's background cognitive state is robustly incoherent. This is to say that the set contains many elements that exhibit logical and probabilistic inconsistency and lack explanatory and inferential connections. The degree to which one has perceptual justification to hold the perceptual belief that p will be zero in such a case. Now suppose that one forgets, or in some other way loses, all of the elements of the set of relevant elements. The set of relevant elements

is now empty. When one then has the perceptual experience that represents that p, according to the proposed analysis one will have perceptual justification to hold the perceptual belief that p. But the degree to which one has perceptual justification will be very low. By losing one's beliefs, memories, etc., one has drastically improved one's epistemic situation with respect to the proposition that p. And some may find this counterintuitive.

The above case does not strike me as counterintuitive, but I understand why one might think it is. However, there are some clear cases in which it is intuitive that one's loss of beliefs, memories, etc. results in an improved epistemic situation. Suppose that one has a lot of justification to believe that p at t1 on the basis of one's total body of evidence E. At t2, one acquires a lot of evidence that not p. One will no longer have justification to believe that p. Now suppose that at some distant t3, one loses all of the evidence that not p, but retains E. One's epistemic situation with respect to the proposition that p will be drastically improved. One may not have the same degree of justification as one had prior to acquiring the countervailing evidence, but it will be reinstated to some degree. This is a clear case in which losing beliefs, memories, etc. can result in an improved epistemic situation. So that the proposed analysis allows for such epistemic improvement is not a problem.

4 The analysis and skepticism

The proposed analysis also implies a response to skepticism. Consider one looking at what one thinks is one's hand and going through the following reasoning:

(a) I am justified in believing that this is my hand.

(b) If I am justified in believing that this is my hand, then I am justified in believing that it's false that I merely have stumps with holograms at the end of my arms.

(c) then I am justified in believing that it's false that I merely have stumps with holograms at the end of my arms.

The proposed analysis endorses this Moorean response to skepticism. Here is why. The justification for one to hold (a) is solely from one's perceptual system. That is, one's justification to hold the perceptual belief that this is my hand is perceptual justification. One's justification need not come from other independently justified beliefs.[74] Since one need not have independent justification to hold (a), and (c) follows from (a) and (b), the justification one has to hold (c) will not depend on independently justified beliefs.

The justification one has to hold (a), however, is not immediate. In other words, the perceptual justification one has to hold the perceptual belief is not totally in virtue of one having an experience that represents one's hands. The perceptual justification is mediated by one's background cognitive state. So one cannot rule out skeptical alternatives simply by having an experience. And as pointed out above, even when one's perceptual justification is immediate, the degree to which one has perceptual justification will be so low that it would be counterintuitive to claim that one can rule out skeptical alternatives. Rather, for one to rule out skeptical

[74] This is not to say that such perceptual justification is immediate. There are more ways one's justification can be mediate than by being mediated by independently justified beliefs. For example, it can be mediated by one's coherent background cognitive state.

alternatives on the basis of one's perceptual justification to hold (a), one must have a high degree of perceptual justification to hold (a). As I have argued, one can have a high degree of perceptual justification only if the relevant elements of one's background cognitive state exhibit a high degree of coherence. And in order for one's background cognitive state to exhibit a high degree of coherence, one must have had a lot of different experiences, memories, beliefs, etc.—one must have spent a lot of time perceiving things in the world and forming beliefs about and memories of them. Thus, in order for one to rule out skeptical alternatives on the basis of one's perceptual justification, one must have spent a lot of time perceiving things in the world and forming beliefs and memories about them.

According to the proposed analysis, one's ability to rule out skeptical alternatives depends on the range of experiences, memories, beliefs, etc. one has or has had and one's ability to coherently conceptualize these elements. This should seem intuitive. A perfectly reasonable adult who has had many experiences and formed many memories, beliefs, and concepts about the things she has experienced will have a greater ability to rule out skeptical alternatives than will an unreflective, incoherent adult. Simply by having an experience and a coherent background cognitive state, the former adult's ability to rule out skeptical alternative will be greater than the latter adult's.

The perceptual justification one has to hold a perceptual belief depends on the epistemic status—the coherence of relevant elements—of one's background cognitive state. So, the justification one has to rule out skeptical alternatives based on perceptual justification alone is also dependent on the epistemic status of one's

background cognitive state. Also, it seems plausible that what the range of one's experiences, memories, beliefs, concepts, is determines whether one is an expert or not. For instance, one is a bird expert if and only if one has had a wide range of bird experiences, formed many bird memories, holds all of the appropriate beliefs, formed the appropriate concepts, and acquired the appropriate recognitional capacities. In virtue of one's background cognitive state, one is a bird expert. Since the justification one has to rule out skeptical alternatives by perceptual justification alone depends on the range of one's background cognitive state, and the range of one's background cognitive state is one's expertise in that domain, then the justification one has to rule out skeptical alternatives by perceptual justification alone depends on one's expertise.

The dependence of one's ability to rule out skeptical alternatives according to one's domain of expertise might explain why Moorean reasoning holds for local skeptical alternatives but not global skeptical alternatives. Almost all adults are experts at perception. They hold the appropriate beliefs, have had a wide range of experiences, formed the right memories, and so on. So one's background cognitive state as it pertains to perception will be robust and coherent, just like the bird expert's background cognitive state as it pertains to birds is robust and coherent. Since adults are experts about perception, and one's ability to rule out skeptical alternatives by perceptual justification alone depends on one's expertise, adults have the ability to rule out skeptical alternatives by perceptual justification alone when those skeptical alternatives fall within the domain of expertise.

The type of skeptical alternatives that will fall in adults' domain of expertise will be local skeptical alternatives, skeptical alternatives such as the possibility that funny lights are shining on the object of perception or that what one thinks are one's hands are actually fake plastic hands affixed to one's stumps. These skeptical alternatives fall within adults' expertise in the domain of perception. For instance, most adults have beliefs about lighting conditions and how plastic feels in comparison to how skin feels. Because these local skeptical alternatives fall within adults' domain of expertise, adults can rule them out by perceptual justification alone.

The above remarks might explain how the Moorean response to skepticism works for local skeptical alternatives, but they also provide a way of explaining why the Moorean response to global skeptical alternatives does not work. Simply, no one is an expert in brains in vats, evil demons, or computer matrices. No one has the appropriate beliefs, memories, concepts, recognitional capacities, etc. to count as an expert in these domains. Since no one is an expert in these areas, no one can rule these skeptical alternatives out by perceptual justification alone. To rule out these global skeptical alternatives, one must have independently justified beliefs.

Recall that above I claimed that the proposed analysis endorsed the following Moorean reasoning:

(a) I am justified in believing that this is my hand.

(b) If I am justified in believing that this is my hand, then I am justified in believing that it's false that I merely have stumps with holograms at the end of my arms.

(c) I am justified in believing that it's false that I merely have stumps with holograms at the end of my arms.

I also claim that the proposed analysis does not endorse the same reasoning when the skeptical alternative is a global skeptical alternative:

(d) I am justified in believing that this is my hand.

(e) If I am justified in believing that this is my hand, then I have justification to believe that I am not a handless brain in a vat.

(f) I have justification to believe that I am not a handless brain in a vat.

But a normal adult will have the same justification to hold (a) as one has to hold (d). And (c) and (f) follow from these premises and (b) and (e), respectively. Thus, if the proposed analysis endorses reasoning in the case of local skeptical alternatives but not in the case of global skeptical alternatives, then the difference in the reasoning must have to do with the conditional premises, (b) and (e). In other words, it must be a difference between (b) and (e) that explains why the Moorean response works for local skeptical alternatives but not for global skeptical alternatives.

Although I do not want to firmly commit to the forthcoming claim, it might be a good way of distinguishing (b) from (e). The relevant difference between the premises could be that (b) holds because both the antecedent and consequent fall

within the domain of expertise but in (e) the consequent does not. In other words, a normal adult can reasonably deduce from one's experience of having hands that one does not have stumps with hands at the end because one is in expert in perception and what one's body parts are. But one cannot reasonably deduce from one's experience of having hands that one is not a handless brain in a vat because one is not an expert in brains in vats. This claim depends on the further claim that what one can reasonably deduce from perceptual experiences depends on one's area of expertise.

Although I do not intend to provide a defense of this further claim, there are some examples that lend intuitive support. Consider a bird expert watching for birds in the forest. The bird expert has an experience of robin. From this experience, the bird expert can reasonably deduce that it is not a nuthatch. But the bird expert intuitively cannot reasonably deduce that she is not a brain in a vat. A world-class chef can reasonably deduce from his experience of capers on a dish that they are not red pepper flakes. But the chef intuitively could not reasonably deduce from his experience of capers that he is not being deceived by an evil demon. A paleontologist could reasonably deduce from her experience of a six-inch long sharp fossil of a tooth that the tooth did not come from an herbivore. But intuitively she could not reasonably deduce from her experience of the fossil that she is not in the matrix. So, there is intuitive support for the idea that what one can reasonably deduce from one's perceptual experience depends on one's area of expertise. And if this is right, then this could explain why the Moorean response works in the case of local skeptical alternatives but not in the case of global skeptical alternatives.

5 Conclusion

I began by outlining problems for the Simple View, Immediatism in particular. I then proposed an analysis of perceptual justification. The main point of the analysis is that the perceptual justification one has to hold a perceptual belief depends on the coherence of one's background cognitive state. This analysis improves on Immediatism in that it can provide good responses to all of the problematic cases while honoring the epistemic force that perceptual experiences seem to have. I finished by considering how the analysis applies to other cases, including skepticism. I claimed that the analysis endorses a Moorean response to local skepticism but not to global skepticism.

CHAPTER 6

TWO COUNTEREXAMPLES TO EVIDENTIALISM

In the third and fourth chapters, I indicated that there may be a serious objection to both the thesis that one's background cognitive state epistemically mediates one's perceptual justification to hold perceptual beliefs and the thesis that it does so by being coherent. In the third chapter, I briefly discussed a response to the objection. In this chapter, I will discuss at length my response to it.

Recall that the objection comes from the evidentialist and states that epistemic differences between Koko in the cases are not due to her respective background cognitive states and their degree of coherence. Rather, the objection states, the reason Koko has greater justification in the latter case of a pair is that she has more evidence that that banana is yellow.

My response will take the form of two counterexamples to evidentialism. The paper is divided into three sections. The first section offers the first counterexample and argues that background beliefs, memories, etc. cannot count as evidence for perceptual beliefs. The counterexample just is the pair of cases from the third chapter. So, in giving this counterexample, I am also defending against the objection. The second section presents an experiment that shows that one's desires can cognitively penetrate one's perceptual experience.[75] The second counterexample will be presented in the third section and is constructed around the data showing that desires can cognitively penetrate one's perceptual experience. There are two possible

[75] Dustin Stokes (forthcoming) uses this experiment to provide a comprehensive argument that desires can cognitively penetrate perceptual experience.

evidentialist responses to the second counterexample, and I argue in the fourth section that both are implausible. Given the two counterexamples, I conclude that evidentialism is false and, because evidentialism is false, it is no threat to my view that one's background cognitive state epistemically mediates one's perceptual justification and does so in virtue of it being coherent.

Evidentialism is the widely held view that what one has justification to believe is entirely determined by the evidence one has. Conee and Feldman (1985) write:

> Doxastic attitude *D* toward proposition *p* is epistemically justified for *S* at *t* if and only if having *D* toward *p* fits the evidence *S* has at *t*.

Though evidentialism makes no claim about what evidence is, for many evidentialists experiences that represent that p—seemings—count as evidence.[76] These can include perceptual experiences, imagistic memories, intuitions, or introspective experiences. Beliefs can also count as evidence for a proposition. One's belief that it is after 8:30 AM may be evidence that helps to justify for one the proposition that the newspaper has been delivered.

Evidentialists can also have different accounts of what it is to have evidence. Some evidentialists claim that in order for one to have evidence, one must be aware of the thing that is supposed to be evidence—it must be occurrent. Others

[76] The things that count as evidence, on this view, are phenomenal states: memories, experiences, beliefs.

evidentialists think that for one to have evidence, the thing that is supposed to be evidence must merely be available to the subject (e.g., stored memories, beliefs, etc.).

Evidentialism is supposed to be the view of justification with the most initial plausibility (Conee and Feldman, 1985). It initially seems right that what one has justification to believe depends entirely on what reasons one has to believe that proposition. For examples, the reason one has justification to believe that Neil Armstrong was the first person on the moon is that one has visual and testimonial evidence that he was; the reason one has justification to believe that sun will rise tomorrow is that one has a lot of inductive evidence that it will; the reason one has justification to believe that McDonald's is on Fifth Street is that the man at the gas station said so.

Evidentialism also has an easy way of explaining common practices of epistemic criticism. We often criticize one and say one lacks justification to believe a proposition when one does not have sufficient reasons to hold that proposition. And when our justification is being challenged by others, we appeal to evidence, or the reasons we hold the belief the justification of which is being challenged.

Evidentialism is a view about what propositions are justified for a person. Justification in this sense is something that a subject has in relation to a particular proposition. This is called *propositional justification*, and it is distinct from *doxastic justification,* or *well-foundedness*. Doxastic justification is a property of beliefs. A belief is doxastically justified if and only if one has propositional justification to believe the proposition and one actually believes the proposition for the reasons it is

propositionally justified. One can have propositional justification but lack doxastic justification. Suppose one has a lot of evidence that the Tigers won the game yesterday (one read it in the newspaper; heard from a reliable friend) but one believes that the Tigers won based on an astrological report. In this case, one would have propositional justification but lack doxastic justification.

The evidentialist claims that evidence is what confers propositional justification. And if one actually believes a proposition because that is the appropriate thing to do given one's total evidence, the belief is doxastically justified. This paper is about propositional justification and the conditions under which a subject has it. None of what follows will require that the subject actually believes the propositions in question.

Given evidentialism, we would expect that two individuals with the same total evidence for a proposition would be equally justified in believing that proposition. A counterexample to evidentialism would be a case in which it is possible for two otherwise equal individuals with the same evidence for a proposition to have different degrees of justification to believe that proposition. Philosophical cases constructed around empirical evidence from psychology can do just that. In other words, there is more to justification than evidence.

In presenting the experiments and the counterexamples, I will be making two assumptions. The first assumption is that perceptual experiences have content—they represent. The second is that a belief is a perceptual belief if and only if one takes the attitude of belief towards the content of one's perceptual experience. For instance, if

one's experience represents that the tree is green and one takes that attitude of belief towards that content, the belief is a perceptual belief. But if one ceases to have the experience that the tree is green and the belief that the tree is green persists, then the belief is no longer a perceptual belief.

1 The First Counterexample

The first counterexample is just the first pair of cases from the third chapter, CP1 and CP2.

CP1

Suppose that Koko has never seen a real banana or plantain or similarly shaped fruit. She has, however, seen grayscale pictures of bananas. Also suppose that she has no other beliefs or concepts about bananas. She has never heard anyone talk about them in any regard, she has never read anything about them. She has only seen a few grayscale pictures of bananas so that she has the ability to identify a banana by shape. One day, she comes across a large picture depicting a yellow banana. Having no reason to suspect that the painting is not an accurate depiction of a banana, she comes to believe that bananas are yellow. She dwells on this belief for quite some time. Also suppose that Koko is a subject in the Hansen et al. experiment. While participating in the experiment, Koko's background cognitive state penetrates her perceptual experience so that the banana only appears to her as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. The content of her perceptual

experience of looking at the achromatic banana on the screen is that the banana is yellow. She thus has the perceptual belief that this banana on the screen is yellow.

CP2

Suppose that Koko has been taught all of her life that bananas are yellow. Her parents always gave her yellow bananas. Every time Koko would see a picture of one, it would be yellow. People in her community would talk as though bananas are yellow. They would point to grayscale outlines of bananas and tell her that bananas are yellow, the same color as the school bus, the sun, and her pencil. Koko thus believes that bananas are yellow. Moreover, she has no reason to think that bananas are any other color. Also suppose that Koko is a subject in the Hansen et al. experiment. While participating in the experiment, Koko's background cognitive state penetrates her perceptual experience so that the banana only appears to her as achromatic when it is actually slightly blue. And when she looks at the achromatic banana, it appears to her as yellow. The content of her perceptual experience of looking at the achromatic banana on the screen is that the banana is yellow. She thus has the perceptual belief that this banana on the screen is yellow.

The cases elicit strong intuitions about Koko's justification. Koko in CP2 has more justification to hold the perceptual belief that the banana on the screen is yellow than she does in CP1. But they have the same perceptual experience with the

same perceptual content and come to have the same perceptual belief. All that remains to make a difference in the justification Koko has in the cases are the elements of her background cognitive state: her background beliefs, concepts, recognitional capacities, memories, expectations, biases. Given that these are the only things that can make an epistemic difference, it is obvious that the evidentialist should say that these things count as evidence for the perceptual belief that the banana is yellow. And since Koko has more or better evidence in CP2, the evidentialist can account for the difference in justification.

Again, I agree that the obvious move is to claim that differences in Koko's evidence between CP1 and CP2 account for the difference in her justification to believe that the banana on the screen is yellow. Though this seems like the obvious way to account for the difference in justification, it is mistaken. It is mistaken because the things that are supposed to be evidence for the proposition that the banana on the screen is yellow actually are not evidence for that proposition—they do not properly count as evidence for the proposition that *this* banana is yellow.

Suppose that Koko in CP2 has an imagistic memory of yellow bananas in a grocery store display. Koko in CP1 does not have this memory. This memory is typical of what the evidentialist would claim constitutes the difference in evidence. In other words, the difference in justification can be traced back to a difference in evidence, and this memory, or some other such element of her background cognitive state, constitutes this difference in evidence.

But this memory that Koko in CP2 has but not Koko in CP1 is not evidence for the proposition that the banana on the screen is yellow—it is not a reason for her to believe that this banana on the screen is yellow. Suppose that upon hearing that Koko has the perceptual belief that this banana on the screen is yellow, we ask her why she thinks it is yellow. She will not say she thinks this banana is yellow because she remembers yellow bananas in a grocery store display. To do so would be inappropriate. She will say that she thinks this banana is yellow because it looks yellow.

Now suppose that Koko in CP2 has the background belief that she has seen over one hundred yellow bananas, but Koko in CP1 does not have this belief. This belief, again, is typical of the sort thing the evidentialist would want to claim constitutes the evidential difference. Like her memory of the bananas in the grocery store, this background belief is not evidence for the proposition that this banana on the screen is yellow. If asked why she thinks this banana on the screen is yellow, she would not cite her background belief that she has seen over one hundred yellow bananas as a reason. Again, to do so would be inappropriate. She would say that she believes it is yellow because it looks yellow.

This point generalizes: when one has a perceptual belief that p, background beliefs, memories, and other such states do not count as evidence for the proposition that p. They are not reasons to hold the perceptual belief that p.[77] For instance, consider the perceptual scene before you. Attend to the color of the paper of the

[77] It is obvious that this generalization will not hold for non-perceptual belief.

document you are reading. When you attend to the paper and come to hold the perceptual belief that the paper is white, among your reasons for this belief is not the belief that other philosophy papers you have read have been written on white paper. And your memory of the first page of the present document and its whiteness is not evidence that *this* page is white. If you were asked why you hold the perceptual belief that this page is white, you would not cite as a reason your memory that the first page was white. You would say that you believe that this page is white because it looks white.

Suppose for the sake of argument that the evidentialist is right: Koko in CP2 has more evidence for the proposition that this banana on the screen is yellow in virtue of having the memory of the bananas in the grocery store. If this is right, then it should also be right that your memory of the first page of this document and its whiteness is evidence you have for the proposition that this page is white. Now suppose that you show this page, and only this page, to a colleague. As you are both looking at the page, you both come to hold the perceptual belief that this page is white. You have the memory of the first page of the document and its whiteness, but your colleague does not. Do you thereby have more evidence for the proposition that this page is white than your colleague does? Of course not. Telling your colleague that you do have more evidence would be inappropriate. So, your memory of the first page of this document and its whiteness is not evidence for the proposition that *this* page is white. Analogously, Koko's grocery store memory, or any other element of her background cognitive state, is not evidence for the

proposition that this banana on the screen is yellow. The evidence she has for the proposition that this banana is yellow is that it looks yellow.

Here is another example showing that memories, background beliefs, and so on do not count as evidence for perceptual beliefs. Suppose that you have been to your favorite restaurant dozens of times and each time the walls were painted red. You have formed vivid memories of the restaurant, have lots of background beliefs about it, and so on. One day, while hosting and out of town friend, the two of you go to your favorite restaurant. When the two of you walk in, the walls have been repainted blue. Both of you have a perceptual experience representing the walls as blue and form the perceptual belief that the walls are blue. But if your memories, background beliefs, etc. count as evidence for your perceptual belief, then you would have a lot of evidence that the walls are not blue, as your memories and background beliefs of the walls being red constitute evidence against the proposition that the walls are blue (because they are evidence that the walls are red). Since you have all of this evidence that the walls are not blue, when you and your friend both form the perceptual belief that the walls are blue, you are in a worse epistemic situation with respect to the proposition that the walls are blue than is your friend. Your total evidence provides less support for the proposition that the walls are blue. But this is implausible—the two of you are in the same epistemic position with respect to the proposition that the walls are blue. So, memories, background beliefs, etc. do not count as evidence for perceptual beliefs, perceptual experiences do.

None of this is to say that Koko's memory of the yellow bananas in the grocery store or the background belief that she has seen over one hundred yellow

bananas cannot be evidence for something. For instance, the background belief that she has seen over one hundred yellow bananas might be evidence for the proposition that she will likely see another yellow banana. Or her grocery store memory (together with the belief that yellow bananas are ripe bananas) might be evidence for the proposition that grocery stores sometimes sell ripe bananas.

Indeed, the memory and the background belief could even be evidence for the proposition that the banana on the screen is yellow (when there is no demonstration of the banana). Suppose that Koko is on the telephone with one of the experimenters. The experimenter tells her that someone is looking at a banana on a screen and he asks, "What color is the banana on the screen"? Koko could claim that she believes that the banana on the screen is yellow. In this case, legitimate reasons for this belief could be her grocery store memory or her background belief. That is, she would probably cite as reasons for her belief that the banana on the screen is yellow her memory or background belief. The memory or background belief might also be evidence for the proposition that the banana on the screen *looks* yellow. But it is not with respect to this proposition that Koko in CP1 and Koko in CP2 epistemically differ.

It may be true that Koko's background beliefs, memories, etc. contribute to bringing about the evidence she does have for the proposition that this banana on the screen is yellow. That is, it may be true that Koko's grocery store memory partly brings about the evidence she does have, that the banana looks yellow, for the proposition that this banana on the screen is yellow. But this fact does not entail that these things are evidence for the proposition that this banana on the screen is yellow.

It may also be true that Koko in CP1 has less evidence than Koko does in CP2. But the difference in evidence is a difference in evidence for other, irrelevant propositions (e.g., that grocery stores sometimes sell ripe bananas). She does not have less evidence for the proposition that this banana is yellow than does Koko in CP2. When she is looking at the banana and comes to believe that this banana is yellow, it is false that her memory or background belief is evidence for the proposition that this banana is yellow. And it is the proposition that this banana on the screen is yellow that Koko in CP1 has less justification to hold than does Koko in CP2.

Since elements of Koko's background cognitive state (memories, background beliefs, etc.) in CP2 are not evidence for the proposition that the banana on the screen is yellow—or the proposition that this banana on the screen is yellow—and the only differences between Koko in CP1 and Koko in CP2 are differences in their background cognitive states, the difference in justification they have to hold the perceptual belief that this banana in yellow cannot be in virtue of the evidence they have for the proposition that this banana is yellow. This supports two conclusions. The first is that evidentialism is false: it is possible for there to be a difference in justification without a corresponding difference in evidence. The second is that there must be some other epistemic feature of Koko's background cognitive state that contributes to the justification she has to hold the perceptual belief that the banana on the screen is yellow.

2 Cognitive penetration and desires

Using experimental data, Dustin Stokes (forthcoming) has argued that desires can cognitively penetrate perceptual experience. In other words, one's desire that p can partly determine the content of one's perceptual experience. This notion is familiar to many, especially sports fans. For instance, suppose that in a baseball game a pitcher for the home team throws a pitch. The pitch is called a ball, but the fans of the home team have the desire that the pitch be a strike. It seems possible in this case that the location of the ball thrown will look different to the fans of the home team in virtue of their desire that the pitch be called a strike. Such an occurrence may be followed by "boos" and allegations that the umpire has poor eyesight.[78]

To support the idea that desires can cognitively penetrate one's perceptual experience, Stokes appeals to an experiment conducted by Bruner and Goodman (1947). Bruner and Goodman tested the effect the judged value of an object has on perceived size of that object. The assumption is that objects judged as having value will be desired. Bruner and Goodman performed the experiment on three groups of normal 10-year-old children with ten children in each group. The children were seated in front of a medium-sized box with a glass screen in the middle upon which a circular patch of light was directed. The diameter of the light patch could range between 1/8 of an inch and 2 inches and was manipulated by a knob on the bottom right corner of the box.

[78] For readers who may not be familiar with baseball, similar disputes commonly arise in soccer matches about whether a particular player played a handball.

Bruner and Goodman tested the perceived size of coins of varying value. Two of the groups of children were given coins of varying value, which they held in their left palm six inches to the left of the circular patch of light. They were then instructed to match the size of the circular patch of light with the size of the coin in their hand by changing the diameter of the light patch. The third group was given gray circular cardboard cutouts identical in size to the corresponding coins. Bruner and Goodman discovered that the experimental groups, the groups with the coins, by matching the patch of light to the perceived size of the coin, perceived the coins as larger than they actually were. For instance, on average the children with coins perceived the quarter as nearly 40% larger than it actually was. And the control group, the children with the cardboard cutouts, perceived the quarter-sized cutouts as only about 2% larger. The children with the coins also perceived the dime as almost 30% larger than it actually was and the children with the cardboard cutouts perceived the dime-sized cutout almost 2% smaller than it actually was.

Bruner and Goodman also took into consideration the wealth of the children's families. Some of the children were from rich families and some were from poor families. The assumption is that poor children will have a stronger desire for money than will the rich children. Bruner and Goodman discovered that the poor children perceived the coins as larger than did the rich children. For instance, the poor children on average perceived the quarter as more than 50% larger than it actually was, whereas the rich children on average perceived it as about 22% larger than it actually was. And the poor children perceived the dime as more than 40%

larger than it actually was, whereas the rich children only perceived the dime as 16% larger.

On the reasonable assumptions that people desire what they judge to have value and that children judge currency to have value, these data constitute strong evidence that children's desire for money causes them to represent coins a certain way. The size properties represented by the children were dependent on the children's desires. In other words, children's desire for money partly determines the perceptual content of their experiences of coins. This is good evidence that desires can cognitively penetrate one's perceptual experience.

3 The Second Counterexample

Again, some may want to dispute the evidence and argue that desires cannot penetrate perceptual experience. The present purpose is not to give a comprehensive defense of the cognitive penetrability of perceptual experience by desires.[79] Rather, all that is required is that the cases are plausible. And the results from the above experiment are enough to make it plausible that desires can cognitively penetrate perceptual experience.

To see that the cognitive penetrability of experiences by desires presents a counterexample to evidentialism, consider the following examples. Suppose that Oliver is a normal adult perceiver: he has a typical visual system and typical beliefs, memories, concepts, recognitional capacities, and so on. Oliver has been watching with his friend Tom under normal lighting conditions pink and red balls be drawn

[79] See Stokes (forthcoming) for such a defense.

from an opaque sack and then replaced. They have been watching for a while and noticed that for every three pink balls drawn one red ball is drawn. Consider two different scenarios.

Scenario 1

Oliver and Tom decide to bet on the color of the next ball drawn. Oliver bets that the next ball will be red at 3 to 1 odds, and so puts $500 down to profit $1500 if a red ball is drawn. He thus has a strong desire that the next ball be red. When the next ball is drawn, Oliver's desire that it be red penetrates his experience so that what is in fact a pink ball appears red to him—his experience represents that the ball is red.[80] Thus, from wishful thinking and his subsequent perceptual experience he forms the perceptual belief that the ball is red.[81]

Scenario 2

Though Oliver has noticed the distribution of balls drawn, he is indifferent to the color of the next ball. He is merely a casual observer. Unbeknownst to Oliver and having no reason to be suspicious of him, Tom has constructed

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[80] It should not be hard to imagine such a scenario. Just as the 10-year-olds desire money because they judge it to have value, Oliver desires that the ball be red because he judges that the redness of the ball has value. So if one thinks that results from the Bruner and Goodman experiment are plausible, then one should have no problem with the claim that Oliver's desire that the ball be red penetrates his perceptual experience of it.

[81] Though his experience of redness and the resulting perceptual belief will perhaps only last a few moments, we can imagine taking a snapshot of his mind right as the ball is pulled. Doing so would reveal a moment in which he represents the ball as red and forms the perceptual belief that the ball is red.

> an elaborate lighting apparatus. The apparatus is designed to shine a finely directed beam of light on each ball drawn, and only the ball, so that every ball drawn, no matter its actual color, will appear red. After the apparatus is turned on, the next ball drawn is in fact pink, but the lighting apparatus makes it look like it is red. Oliver's perceptual experience thus represents the ball as red and he forms the perceptual belief that the ball is red.[82]

There is the strong intuition that Oliver in Scenario 2 has greater justification to hold the perceptual belief that the ball drawn is red than he does in Scenario 1.[83] The two scenarios constitute another counterexample to evidentialism, as in each scenario Oliver has the same evidence for the proposition that the ball is red. After all, up until the time he places the bet in Scenario 1, Oliver's evidence in the two cases is the same. Moreover, he has the same perceptual experience that results in the same false perceptual belief. Either evidentialism is false or the evidentialist needs to support one of the following two claims: Oliver in Scenario 1 has less evidence than

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[82] The reader may wonder why Scenario 2 is a skeptical scenario instead of a scenario in which Oliver perceives normally. Scenario 2 is skeptical because I want to eliminate all possible variables in the scenarios, and Oliver's perceptual belief in Scenario 1 is false.

[83] Interestingly, when Scenario 1 is compared to an alternate scenario in which Oliver takes an irrational bet, say, 1 to 1 that the next ball is red, the intuition is that Oliver in Scenario 1 is more justified than he is in the alternate scenario. But in the two scenarios there is the same evidence. The fact that he takes an irrational bet does not constitute a difference in evidence. So if Scenario 1 does not elicit strong intuitions, think of Scenario 1', which is like Scenario 1 in every way except that Oliver takes irrational odds. For example, suppose he takes 1 to 1 odds or even 1 to 3, where he stands to lose $1500 if a pink ball is drawn. Then compare the scenario to Scenario 2.

he has in Scenario 2; Oliver in Scenario 2 does not actually have the justification we think he has but in fact has the same justification as he does in Scenario 1.

It is implausible, however, that the evidentialist can show either that Oliver in Scenario 1 has less evidence or that Oliver in Scenario 2 has less justification. With regard to the first strategy, that Oliver in Scenario 1 has less evidence, since the only difference in the cases is the possession of the desire, the evidentialist needs to show how having a desire that p decreases one's evidence for the proposition that p.[84] In other words, the evidentialist needs to show how desires are defeaters. Doing so will be difficult, as it is implausible that desires can generally play the role of defeaters.

Desires are not the sort of things that can properly count as evidence. Defeaters are a type of evidence. But desires cannot be evidence. It is widely presumed that a necessary condition for something to count as evidence is that it increases the likelihood of the hypothesis it is supposed to support. That is, for something to count as evidence it must be the case that the likelihood of the hypothesis conditional on that which is supposed to be evidence must be greater than the likelihood of the hypothesis. For instance, the likelihood of the hypothesis that dinosaurs walked in some particular spot is increased by the fact that paleontologists found fossils of T-Rex in that spot. If the likelihood that dinosaurs walked in that particular spot was not increased by the fact that paleontologists found fossils of T-Rex, as is the case with the hypothesis that the earth is getting

[84] There is another difference, but it is irrelevant to the discussion of evidentialism. The difference is that in Scenario 1 there is cognitive penetration, but not in Scenario 2. This difference is irrelevant because the fact that there is penetration certainly cannot count as a bit of evidence that Oliver has.

warmer, for example, then that proposition could not be evidence for the hypothesis that dinosaurs walked in that particular spot.

But desires cannot satisfy this condition. For instance, right now I desire that when I go to my car later there is a suitcase with $1,000,000 cash sitting on my front seat with a note saying, "Spend me." But the likelihood of the hypothesis that there is a suitcase of cash on my front seat conditional on my desire that there is is certainly not greater than the likelihood that there is a suitcase of cash on my front seat. So, my desire is not evidence for the hypothesis that there is a suitcase of cash on my front seat. For another example, consider some Brazilian's desire that Brazil win the World Cup this year. The Brazilian's desire does not increase the likelihood that Brazil will actually win the World Cup this year. Desires do not increase the likelihood of hypotheses. This failure to satisfy the necessary condition holds for all desires.[85] Thus, Oliver's desire that the ball be red cannot be counted as evidence and so it does not defeat any evidence he has.

Since the evidentialist has no way of supporting the claim that Oliver in Scenario 1 has less evidence than he does in Scenario 2, if the evidentialist is going to escape the counterexample, she must show that Oliver in Scenario 2 has the same justification as he has in Scenario 1. Since Oliver in Scenario 1 has a low degree of justification, in Scenario 2 his justification is low as well. Now consider an indistinguishable non-skeptical scenario:

Scenario 3

[85] A moment of reflection will reveal the absurdity of the claim that desires can be evidence, though I wish that they could be.

> Though Oliver has noticed the distribution of balls drawn, he is indifferent to the color of the next ball. He is merely a casual observer. The next ball drawn is red. Oliver has a perceptual experience representing that it is red and forms the perceptual belief that it is red.

There is a strong intuition that mental duplicates are necessarily justificational duplicates. For instance, it seems right that one and one's duplicated brain in a vat have the same justification. From Oliver's perspective, there is no difference between Scenario 2 and Scenario 3, and they are mentally identical. So, the evidentialist can agree with the strong intuition that mental duplicates are necessarily justificational duplicates and claim that Oliver has the same justification in Scenario 2 and Scenario 3. But since the evidentialist strategy under consideration is to claim that Oliver in Scenario 1 and Scenario 2 have the same justification, if the evidentialist claims that Oliver has the same justification in Scenario 2 and Scenario 3, then she must also claim that Oliver has the same justification in Scenario 1 and Scenario 3. In other words, holding both that mental duplicates are necessarily justificational duplicates and that Oliver in Scenario 1 has the same justification as Oliver in Scenario 2 commits the evidentialist to the claim that Oliver has the same justification in all three scenarios.

There are two problems with the evidentialist response that holds that Oliver in all three scenarios has the same justification. The first is that since Oliver in Scenario 1 has a low degree of justification, if he has the same justification in Scenario 3 as he does in Scenario 1, then he has a low degree of justification in Scenario 3. But Scenario 3 is a typical case of perception, and in typical cases of

perception one has perceptual knowledge. So, if Oliver in Scenario 3 has the same low degree of justification that he has in Scenario 1, then he does not appear to have enough justification for knowledge and skepticism ensues.

The second problem with the claim that Oliver has the same justification in all three scenarios is that it is intuitively implausible that Oliver in Scenario 1 has the same justification as he does in Scenario 3. Even if the evidentialist could avoid skepticism, it is implausible to deny that Oliver in Scenario 3 has more justification than he does in Scenario 1.

The evidentialist strategy of evading the counterexample under consideration is the strategy that claims that Oliver in Scenario 1 and Oliver in Scenario 2 have the same justification. But when a non-skeptical scenario is considered and compared to Scenario 1 and Scenario 2, the evidentialist cannot claim that Oliver in the indistinguishable non-skeptical Scenario 3 has the same justification as he does in either Scenario 1 or Scenario 2. Thus, the evidentialist must deny the intuition that mental duplicates are necessarily justificational duplicates and claim that Oliver in Scenario 3 has more justification than he does in Scenario 2.[86] In other words, the evidentialist must claim that one in a skeptical scenario has less justification than does one's duplicate in an indistinguishable non-skeptical scenario.

[86] One might think that denial of the view that mental duplicates are justificational duplicates necessarily requires one to deny evidentialism. I am not assuming anything about evidentialism other than what is contained in the formulation of evidentialism discussed in the beginning of the paper. And in that formulation there is no mention of any requirement that mental duplicates be justificational duplicates.

Even if the evidentialist still wants to maintain her position, she can only do so if evidence is externalistically individuated. So far, the evidentialist is committed to the claim that one in a skeptical scenario has less justification to hold a perceptual belief that p than does one's duplicate in an indistinguishable non-skeptical scenario. On the assumption that the evidentialist still wants to claim that justification is entirely dependent on evidence, it follows that the evidentialist is committed to the claim that one in a skeptical scenario can have less evidence than does one's duplicate in an indistinguishable non-skeptical scenario. This entails the view that evidence is externalistically individuated.

It is counterintuitive that mental duplicates are not equally justified. For some, the fact that a theory of justification entails that mental duplicates are not justificational duplicates warrants denial of that theory.[87] Aside from the counterintuitive result that one and one's mental duplicate in an indistinguishable skeptical scenario do not have the same total evidence, evidential externalism faces other problems.[88] But the point here is that if desires cognitively penetrate perceptual experiences, then evidentialism can only be true if evidence is externalistically individuated.[89]

Even if it were true that evidence is externalistically individuated, evidentialism requires that in order for evidence to justify a proposition for a person,

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[87] For instance, reliablists have for many years been proposing various ways to accommodate this intuition.

[88] See, for instance, Silins (2005).

[89] Williamson (2000) and perhaps McDowell (1994) hold the view that evidence is externalistically individuated.

the person must *have* the evidence; the evidence must be available to the person. Evidential externalism does not require that one *has* the evidence in the same way that evidentialists require. Some evidentialists claim that in order for one to have evidence, it must be something of which one is aware (Conee and Feldman, 1985; Feldman, 1988).[90] But one in a non-skeptical scenario and one's duplicate in an indistinguishable skeptical scenario are aware of the same things (that's just what 'indistinguishable' means here).

Other evidentialists think that all that is required for one to have evidence is that the thing that is supposed to be evidence is available to the subject. Things that are available include occurrent states and stored memories and beliefs. This less restrictive notion of availability will not help. If the available evidence were different, then one in a skeptical scenario could come to know that one is in a skeptical scenario. Suppose one has been envatted by the standard trickster scientists overnight while one sleeps. When one wakes up in the morning, on this view, one would have less available evidence. By comparing the total available evidence prior to being envatted to the total available evidence when one awakes one would be able to tell that one is envatted. In other words, with a bit of self-knowledge, one in a skeptical scenario would be able to notice that one has lost a substantial amount of evidence overnight. This is false by stipulation—everyone agrees that when one is in a skeptical scenario, one is not in a position to know that one is in a skeptical

[90] This conception of having evidence is more restrictive than other evidentialist conceptions which claim that even stored or non-occurrent mental states of a subject can also count as evidence that one has. However, both conceptions require that the evidence be available in some sense to the subject. And for the above argument to go through all that is required is this unrestrictive notion of availability.

scenario. So it cannot be that one and one's duplicate in an indistinguishable skeptical scenario have different total *available* evidence if evidential externalism is right. And if they cannot have different available evidence, according to the evidentialist, then they cannot have different evidence.

Even if evidentialism could technically be salvaged by an appeal to evidential externalism, it would run aground when it comes to the evidence one *has*—one in a non-skeptical scenario and one's duplicate in an indistinguishable skeptical scenario have the same *available* evidence.[91] The evidentialist's reliance on the availability of evidence to the subject is incompatible with evidential externalism. And since evidential externalism is the only tenable way of addressing the scenarios above that is faithful to the supervenience of justification on evidence, the scenarios above constitute a counterexample to evidentialism.[92]

I have argued that the cognitive penetrability of perceptual experience by desires presents a counterexample to evidentialism. I first considered two scenarios in which the subjects have the same evidence but there is a clear difference in justification. I then considered the possible ways the evidentialist might address the scenarios. The first way is by claiming that desires count as evidence, more

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[91] Again, evidential externalism does not have this availability requirement. In other words, it is compatible with evidential externalism that they have the same available evidence but different total evidence.

[92] Williamson's (2000) view could be seen as evidentialist in that justification is entirely dependent on evidence. For him, knowledge is what confers justification, and knowledge is identical to evidence, so justification is dependent on evidence. But according to his view there is no availability requirement. In other words, Williamson's view is not evidentialist because one need not have evidence in the same way that is required of the evidentialist. Because of this lack of an availability requirement the scenarios are not a counterexample to his view.

specifically, defeating evidence. This was supposed to account for an evidential difference. But I argued that desires are not the sort of thing that can properly count as evidence. The second way of addressing the cases is by attempting to show that there is no difference in justification between the cases. The evidentialist is thus committed to evidential externalism. And this view is incompatible with the evidentialist claim that something can count as evidence only if one has it. The evidentialist's failure to escape the counterexample supports two conclusions. The first is that evidentialism is false: it is possible for there to be a difference in justification without a corresponding difference in evidence. The second is that there must be some other epistemic feature of Oliver's background cognitive state that contributes to the justification he has to hold the perceptual belief that the ball is red.

It is my contention that the epistemic feature that contributes to Oliver's perceptual justification to hold the perceptual belief that the ball is red is his background cognitive state and it does so in virtue of being coherent. The analysis of perceptual justification that I advocate can explain why Oliver has less perceptual justification to hold that that ball is red in Scenario 1 than he does in Scenario 2. Oliver has less perceptual justification in Scenario 1 because the inclusion of his desire in his background cognitive state renders it less coherent than his background cognitive state in Scenario 2. Here is why.

Recall from the fourth chapter two of the dimensions upon which a background cognitive state can be coherent:

4. The coherence of a system of beliefs is diminished to the extent to which it is divided into subsystems of beliefs which are relatively unconnected to each other by inferential connections.

5. The coherence of a system of beliefs is decreased in proportion to the presence of unexplained anomalies in the believed content of the system.

Oliver has a desire in Scenario 1 that he does not have in Scenario 2. This desire can be either explained or unexplained by other elements of his background cognitive state. If it is unexplained, then his background cognitive state is straightforwardly less coherent than it is in Scenario 2. If it is explained, it cannot be explained by his belief that the next ball will be red. To say that he even has the belief that the next ball will be red would mean that his background cognitive state is less coherent by virtue of being less probabilistically consistent than it is in Scenario 2. Something else must explain his desire that the next ball be red.

So, what could answer the question, why does Oliver desire that the next ball be red? Answers to this question are going to be like the following: because he desires money; because he believes he needs money; because he has a gambling problem; because he believes a family member is terminally ill and this is the only way he knows how to get money; because he wants a new stereo and it costs $1500; because he wants to make Tom poor. Notice, however, that if something similar to these explanations is the actual explanation, then a new subsystem has been introduced. That is, by bringing in factors about Tom's financial situation, for example, a new subsystem of his background cognitive state has been introduced.

According to the fourth dimension upon which a system can be coherent, a system decreases in coherence when there are subsystems that are relatively unconnected by inferential connections. And it is not at all clear how a subsystem about Oliver's financial situation, for example, is robustly inferentially connected to his beliefs about the distribution of balls in the sack or his beliefs about what color the next ball will be.

Oliver's background cognitive state in Scenario 2, however, has neither unexplained anomalies nor any inferentially disconnected subsystems. So, if his desire in Scenario 1 is unexplained, then it is less coherent on the grounds of having unexplained anomalies. And if it is explained by some other element, beliefs about his financial situation, for example, then it is less coherent on the grounds that there is a relatively inferentially unconnected subsystem. Either way, his background cognitive state is less coherent in Scenario 1 than it is in Scenario 2. Thus, the analysis of perceptual justification that I advocate can explain the apparent difference in Oliver's perceptual justification to hold the perceptual belief that the ball is red.

4 Conclusion

Using cases constructed around data from psychology experiments, I argued that the cases present a counterexample to evidentialism. Because background beliefs, memories, concepts, and so on do not properly count as evidence for perceptual beliefs, like Koko's perceptual belief that this banana is yellow, the cases show that it is possible for two individuals to have the same evidence for a

proposition yet have different degrees of justification to hold that proposition. This is the first counterexample to evidentialism.

I then presented data that show that desires can penetrate one's perceptual experience. Using the notion that desires can penetrate one's perceptual experience, I constructed an example that shows that it is possible for one to have different degrees of justification without a corresponding change in evidence. I argued that the only ways the evidentialist can respond to the example are implausible. This is the second counterexample.[93]

The fact that evidentialism fails to account for the differences in justification that occur in the two counterexamples entails that what one has justification to believe is determined by other factors. The fact that I have not attempted to identify such factors does not diminish the point that what one has justification to believe is not entirely determined by one's evidence. Though, for all that has been argued for here, these factors may be facts about the proper functioning of one's belief-forming capacities, facts about the reliability of one's belief-forming process, the coherence of one's background cognitive state, or especially if desires are epistemically relevant, the epistemic virtues that one possesses. The counterexamples do not show that evidence plays no role is determining what one has justification to believe. They only

[93] One may be tempted to respond to the counterexamples by claiming that all they show is that the subjects have the same propositional justification but differ with respect to doxastic justification. This is wrong because the cases are equally effective if I just stipulate that the subjects stop short of believing the propositions in question. So, if the subjects stop short of believing the propositions, then they cannot differ with respect to doxastic justification. Yet they will still differ with respect to propositional justification.

show that evidence is not the only factor in determining one's justification to hold a belief.

CONCLUSION

I have argued for a theory of perceptual justification. I first argued that perceptual experience is cognitively penetrated by evaluating both the philosophical reasons as well as the empirical evidence. On balance, these reasons and evidence show that experience is cognitively penetrable.

After arguing that experience is cognitively penetrable, I used considerations of empirical evidence to argue that one can represent high-level properties, properties such as the property of being a brother, a mother, or a friend, in perceptual experience. This argument not only improves on previous arguments for high-level theory, but it also puts the low-level theorist in an awkward position. The argument entails that high-level theory is true, and denial of the premises entails that low-level theory is false. Either way, I argue, high-level theory is true.

After arguing that experience can represent high-level properties, I started the epistemological project of constructing a theory of perceptual justification. The first part of this project was to show that a person's background cognitive state frequently epistemically mediates one's perceptual justification to hold perceptual beliefs. I argued for this position by constructing cases around empirical data. The cases show that in some cases a person's background cognitive state epistemically mediate one's perceptual justification. Since the case is easily generalized, a person's background cognitive state frequently epistemically mediates one's perceptual justification.

Given that a person's background cognitive state epistemically mediates one's perceptual justification, the background cognitive state itself must have a positive epistemic status. The goal of the fourth chapter is to provide a way of determining whether a background cognitive state has a positive epistemic status. I argue in this chapter that a background cognitive state has a positive epistemic status if the relevant elements of the state are coherent. I frame that account in a way that avoids traditional objections to coherentist account.

I finish the positive account of perceptual justification in chapter five, in which I propose an analysis of perceptual justification that both builds upon the arguments in chapters three and four as well as lacks the problems that other, influential accounts of perceptual justification have. The central component of the analysis is that a necessary condition for perceptual justification is that the relevant elements of one's background cognitive state are coherent. I finish the chapter with some suggestions of how the account could support responses to the external world skeptic.

In the final chapter, I argue that evidentialism—the view that justification supervenes on evidence—is false. To do this, I appeal to empirical evidence that shows that desires can cognitively penetrate one's perceptual experience and then construct a counterexample to evidentialism. I evaluate several lines of response and show that they are all insufficient.

The result of the dissertation is a theory of perceptual justification that appreciates the importance of the culmination a person's education, experiences,

social and cultural practices, and cognitive capacity in determining both what one experiences as well as what one has justification to believe.

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APPENDIX A

ANIL GUPTA'S THEORY

Anil Gupta (2006) has proposed a theory of perceptual justification that, on the face of it, is similar to mine. It may appear similar to mine because a central feature of this theory is that an individual's "view," what I call a "background cognitive state," is crucial to determining one's perceptual justification to hold a perceptual belief. In this appendix, I will briefly explain Gupta's theory and the argument for it. I will then outline some of the similarities it has with the theory that I propose.

1 Gupta's negative argument

Gupta is concerned with the epistemic contribution of perceptual experiences to perceptual beliefs. He refers to such contribution as the "given." He motivates his theory by first arguing for what the given is not: propositions. The given cannot be propositions, as if all experience gave us were propositions, then we would be fated to a Cartesian inner realm where we only perceptually interact with the bugaboos of philosophy of perception: sense data.

Gupta's argument that the given cannot be propositional relies on two constraints on theories of perceptual experience. The first constraint is *Equivalence*. This constraint claims that the given for any two subjectively indistinguishable experiences is the same. From one's point of view, any subjectively indistinguishable experience will yield the same epistemic contribution. So, the epistemic contribution of the experience to one's justification for one's perceptual belief will be the same. For instance, suppose you have a veridical perceptual experience of a scoop of ice cream melting on the cement. Several moments later, you hallucinate a scoop of ice

cream melting on the cement. These two experiences seem the same to you. So, the epistemic contribution your experiences of the ice cream, the given of the experiences, is the same.

The second constraint is *Reliability*. This constraint places restrictions on what the given can be. According to the constraint, the given in experience cannot be anything false or erroneous. Thus, when you have an experience of ice cream melting on the cement, the experience must be veridical or true.

The combination of these constraints entails that if the given is propositional, then we can only ever be aware of sense data. For example, you have a perceptual experience of ice cream melting on the cement. By Equivalence, a subjectively indistinguishable hallucination of ice cream melting on the cement would yield the same given. But by Reliability, the given must be true or accurate. Since you are hallucinating, the only thing that can make the given proposition true is if what you are aware of is some mental entity. So, for your hallucination the given must be some mental item, like a sense datum. But by Equivalence again, the given of your actual perceptual experience of ice cream melting on the cement must also be a sense datum. Thus, if the given is propositional, then we can never really get outside of our own heads. Since this is apparently unacceptable, Gupta claims that the given cannot be propositional. But if the given is not propositional, then what is it? Gupta's theory of perceptual justification is supposed to provide the answer.

Though I think that the given is propositional and that *Reliability* is incorrect, I am most interested in his positive theory of perceptual justification. I will thus focus on what Gupta thinks the given is, if it is not propositional.

2 Gupta's theory

Gupta contends that the epistemic contribution of perceptual experience, the given, is that experiences provide rational links between views, or background cognitive states, and perceptual beliefs. Experiences themselves do not pronounce how the world is. Instead, experiences link views and perceptual beliefs in the way similar to how that p links if p, then q, and q.[94] Experiences can only epistemically contribute if they are had in the context of a view. Moreover, one cannot even have a perceptual belief unless one brings a view to bear on an experience. An experience all by itself yields nothing.

A general formulation of his proposal is the following:

Experience + View = Perceptual Belief.

Perceptual beliefs inherit their content from the combination of one's view and one's experience. One could have the same experience in the context of different views and come to have different perceptual beliefs. The nature of the experience does not depend on the view, and by itself has no propositional content. What depends on the view is the epistemic status and propositional content of the resulting perceptual belief. And different experiences in the context of the same view will yield different

[94] The example of modus ponens is merely an illustration. Gupta of course claims that experiences are not propositional, so experience will not technically provide propositions from which one infers.

perceptual beliefs. Experiences, then, rationally link the epistemic status of a particular view with the resulting perceptual belief.

Views are collections of propositions. Roughly, views are one's beliefs, concepts, memories, and so on. Thus, if one's view is justified, and has an experience in the context of that view, then one will have justification to hold the resulting perceptual belief. The justification for the perceptual belief, however, is conditional: *if* the view is justified, then one has justification to hold the perceptual belief.

Once one has a perceptual belief, that belief can then be entered into the view in the context of which one had the experience. Then when one has another experience in the context of that view, it will include the perceptual belief. This process results in an interdependence between perceptual beliefs and views. The perceptual beliefs one has will depend on what one's views are and what one's views are will depend on what one perceptually believes. Note that in no way does what one experiences depend on either what one perceptually believes or what one's views are.

As one continues to bring views to bear on perceptual experiences and hold perceptual beliefs, the input of perceptual beliefs to one's views will result in revision of one's views. If one has a perceptual belief that p, that p may affirm some of one's beliefs that constitute one's view and contradict others. The beliefs that it contradicts will then be deleted from the view. So, continuing to have experiences in the context of views will result in continual revision of one's views.

Eventually, the revision process will result in a convergent view. A convergent view is a view that is the product of other views that, under the process of revision, have come to consist of all of the same propositions. As one's views undergo revision and converge with each other, so does one's rational obligation to accept those views. So, the more convergent a view is, the greater rational obligation one has to accept that view.

Though the above explication is lacking in detail, it is enough to compare Gupta's theory of perceptual justification and mine, a comparison to which I now turn.

3 Comparing the theories

The most important point of similarity between Gupta's theory and my theory is the central role that a person's background beliefs, concepts, or memories play in determining what one comes to perceptually believe. For both theories, what one perceptually believes partly depends on what one's background beliefs, concepts, and memories are. This influence of one's view, or background cognitive state, creates two other points of similarity. First, both theories claim that what one perceptually believes and one's background cognitive state are interdependent. Gupta's theory claims that the view one brings to bear on an experience partly determines what one perceptually believes, and what one perceptually believes gets entered into one's view. So, the next time one brings that view to bear on an experience it will include the perceptual belief (or the non-perceptual version of it). On my theory, one has the experience one does partly in virtue of one's background

cognitive state, and the resulting perceptual belief gets entered into one's background cognitive state. So, one's new background cognitive state will influence one's later perceptual experiences. For both theories, the interdependence between perceptual beliefs and one's background beliefs, concepts, or memories creates a revision process of one's view, or background cognitive state. As one has more and more experiences and perceptual beliefs, one's background cognitive state will be updated.

The second point of similarity between the two views that stems from the shared claim that one's background cognitive state influences what one perceptually believes is that according to both theories one's justification to hold a perceptual belief depends on the epistemic status of one's background cognitive state. If one's background cognitive state does not have a positive epistemic status, then one cannot have justification to hold the resulting perceptual belief. Indeed, this point is central to both theories. For Gupta's theory, perceptual justification is conditional on one's view. For my theory, a background cognitive state with a positive epistemic status (which is measured by coherence) is necessary for perceptual justification. Other theories of course claim that one has to have justified background beliefs in order for one to have perceptual justification. But the claim that one's background cognitive state must have a positive epistemic status because it influences one's perceptual beliefs is, as far as I know, unique to Gupta's theory and mine.

There are, however, important differences between Gupta's theory and mine. One difference is how the theories evaluate the epistemic status of background cognitive states. For Gupta's theory, a background cognitive state has a positive epistemic status to the extent that it is convergent. For my theory, a background

cognitive state has a positive epistemic status to the extent that the relevant elements of it are coherent.

The most important difference between the two theories is that they claim that the influence of one's background cognitive state on one's perceptual belief occurs at different levels of the perceptual process. According to Gupta's theory, one's background cognitive state influences one's perceptual belief between experience and belief. According my theory, a background cognitive state affects the experience, which in turn affects the perceptual belief. Though both theories claim that one's background cognitive state influences one's perceptual belief, Gupta's theory does not claim that it effects one's perceptual belief by influencing one's perceptual experience.

In principle, however, there is no reason Gupta cannot also hold the view that perceptual experiences are cognitively penetrable. So long as he claims that experiences have content, which he does, he can claim that one's background cognitive state can partly determine the content of perceptual experience and thereby partly determine the content of one's perceptual belief.

To hold that perceptual experience is cognitively penetrable, one need not also hold that perceptual content is propositional. But holding both that experience is cognitively penetrable and that the content of experience is non-propositional could make explaining whatever cognitive mechanism governs cognitive penetration more difficult, as presumably the things that penetrate—beliefs, memories, desires—are propositional.

Another difference between my theory and Gupta's theory is that my theory allows for experiences to immediately justify perceptual beliefs for a person. On Gupta's theory, experiences themselves do not make any epistemic contribution; in order for an experience to do so it must be had in the context of a view. Since experiences themselves cannot provide one with justification to hold a perceptual belief, they cannot immediately justify beliefs for one.

Though Gupta's theory precludes immediate perceptual justification, it is not necessarily a problem for his theory. Rather, my theory benefits from the fact that it can accommodate immediate perceptual justification—the perceptual justification one has when one's experience has not been cognitively penetrated. My theory of perceptual justification will have whatever anti-skeptical virtues theories like mine and Gupta's have in addition to whatever anti-skeptical virtues are concomitant with allowing for immediate perceptual justification. Gupta's theory will not have these latter anti-skeptical virtues.

A final important difference between my theory and Gupta's is that my theory denies *Reliability*. Indeed, by accepting that the experience is cognitively penetrable and that the truthmakers for perceptual beliefs are states of affairs of mind-independent entities, denying *Reliability* seems necessary. Consider some of the empirical data. The subjects in the Hansen et al. experiment had intuitively inaccurate experiences. But by *Reliability,* these experiences could not contribute to one's justification. But it must be right that the experiences contribute to one's perceptual justification. The only options are to deny *Reliability* or to deny that the experiences

are inaccurate. My theory denies *Reliability* and can thus retain the strong intuition that the experiences are inaccurate.

Though there are these differences between my theory and Gupta's, the important theoretical points that they share reflect the, I think correct, notion that the justification one's perceptual system confers upon one's perceptual beliefs is highly dependent on one's view of the world.

APPENDIX B

A version of Chapter 2, "Representing High-Level Properties in Perceptual Experience," is forthcoming from *Philosophical Psychology*.

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