One of the obstacles to understanding perception is finding a middle way between equally unattractive poles of psychology and epistemology. In psychology, the doctrines are (a) the holist who claims that the brain processes all perceptual input in light of background beliefs and (b) the naive empiricist who thinks that we always perceive the world without any "infection" from background beliefs. In epistemology, the extremes are (a) the holist (either confirmationalist or coherentist) who claims that justification is a feature of the entire system of beliefs and is only derivatively a feature of theoretical beliefs and (b) the naive empiricist who thinks that we form perceptual beliefs independently of background beliefs, all perceptual beliefs must be non-inferential.

I am assuming that epistemology should be naturalized and that knowledge is a natural product of the human neurological system, something that humans do not have to aspire to one day possess but already have in spades. From the perspective of naturalized epistemology, the psychological and epistemological debates about holism are at bottom the same. First, if the psychological holist is correct that the brain processes perceptual input in light of background beliefs, then it would follow that background beliefs play some role in justifying perceptual knowledge and that epistemological holism is true. Similarly, if the epistemological holist is correct in thinking of justification as belonging primarily to the entire system of beliefs, then for the web of beliefs to maintain its coherence while admitting new members at the fringes, new perceptual beliefs probably have to be formed in light of background beliefs. Hence, psychological holists entail and is entailed by epistemological holism. Similarly, if the naive empiricist in psychology is correct in holding that the process of forming perceptual beliefs is encapsulated from background beliefs, then the justification of the perceptual belief is non-inferential. Similarly, if all justifiable perceptual beliefs have non-inferential justification, then it is likely that all perceptual beliefs are formed independently of background beliefs. Hence, psychological naive empiricists entail and is entailed by epistemological naive empiricism.

Why are holism and naive empiricism unattractive in psychology and epistemology? The problem with naive empiricism is widely understood: the mind is not a tabula rasa; rather, we are accepting new impressions and the world; sensory stimulation undermines perceptual judgments, and a perceptual belief sometimes is kept in the gap. For instance, if a person is in a wax museum, then no matter how convincingly a wax apple in a display may appear to be, the person is likely to see it not as a real apple but as a wax apple—the contextual knowledge that the display is a wax one will affect her perceptual beliefs (Cornwell 2002).

Some holists argue that because sensory stimuli undermine and epistemological judgments, background beliefs always make up the difference. I doubt that anybody thinks that all background beliefs bear up under given experiences; the brain doesn't have enough resources. Rather, the holists conceive of a subset of background beliefs is brought to bear on perceptual judgments. Background beliefs are sometimes offered in favor of holism in that the concepts a person holds construe the types of perceptual judgments that a person can form and that concepts are individuated in terms of their inferential or theoretical roles, so theory necessarily "contaminates" all observational judgments. The argument is tendentious, because it is far from clear that inferential roles supervene is the best account of concepts. Indeed, I prefer teleosemantics (Cornwell 2002). As far the "pacity of stimuli" argument, background beliefs are not the only candidates to fill the gap between measurer sensation and complex perceptual judgments. Furthermore, holism would make all perceptual belief theorists, and as Jerry Fodor has vigorously and rightly objected, one purpose of observables is to provide a theory-independent basis for constraining or choosing between theories: without thinking, theory of theories, and other epistemic maladies would be even more dangerous if our perceptual judgments always had to conform to those beliefs.

We are left trying to reconcile the claims that background beliefs influence our perceptual beliefs and that many, perhaps most, of our background beliefs do not and should not influence our perceptual beliefs. There is no contradiction between these claims, so we could accommodate both simply by saying that sometimes background beliefs influence perceptual beliefs and sometimes not, but to stop here would be to avoid the obvious and difficult question that this synthesis of holism and naive realism raises: what determines when background beliefs can influence in the process of forming perceptual beliefs? Providing an answer to that question is one purpose of this paper, although I have enough space only to sketch but not to defend the answer.

I am presupposing a version of Jerry Fodor's faculty psychology. Fodor offers a Hierarchical, tripartite cognitive model. At the lowest level of cognition are transducers, which lawfully transform stimulus energy into representational forms (Fodor 1990, 46). The transducers are informationally encapsulated (i.e., have limited or no access to the person's beliefs), and pass on to the more complex transcoding systems. The input system produces contextually accessible representations about the causes of the stimuli represented by the transducers' output. The input system is assumed to be the input system. When performing its computations, the input system might access to background beliefs, but not all of them. That encapsulation from the full system of beliefs is what makes inputs to which systems modular. The input systems' judgments are "hypothetical" (Fodor 1983, 136 n. 31) since it can be corrected by central procedures (Fodor 1990, 262). Not all modules are observational (for instance, there are also linguistic modules), so I will put those hypotheses that are the product of observational modules "observational hypotheses." According to Fodor, hypotheses are not beliefs but have all of the attributes of a belief - propositional content, the ability to cointegrate in inferences with other beliefs or hypotheses, etc. — except that the central processor does not have to take a hypothesis as being true, whereas to have a belief is to take it as true. For instance, in the Miller-Lyar illusion, the visual modules produce the observational hypothses that the lines are of unequal length, but if someone already has been applied it is an illusion, that person's central processor should take that hypothsis as false. This person should not
believe that the lines were unequal. Sitting atop the modulus is the central processor, which is non-modular and domain-unrestricted. It can compare the input systems' outputs against each other and against the beliefs that the person has already in order to fix perceptui

Now that we understand Fodor's architecture, we can examine the decision engine. The central processor is divided into two parts: observation, which provides observational hypotheses, and perceptual belief, in which the perceptual beliefs (1990a, 1990b). Observation is the work of the input system and is encapsulated. By contrast:

...the notion of belief, perceptual or otherwise, is a central process (since what one believes is sensitive to what one takes to be the state of the evidence aber- tance, including the beliefs previously arrived at). I am supposing that input systems offer central processes hypotheses about the world, such hypotheses being responsive to the current, local distribution of proximal stimulations. The evaluation of these hypotheses light of the rest of what one knows is... the fixation of percep-

Fodor is a holistic.

Building off of Kant Bach's 'take-for-granted principle' (1981), I propose that the default setting for perception is non-inferential, but if the person is aware of reasons to examine the observational hypotheses, then the central processor should intervene. For instance, I might observe that the leaves of a particular tree are autumn as I walk outside on a sunny July day without making any inferences about the lighting conditions, but if I want to observe the same tree from the scarlet nighttime illumination of fireworks, the central processor should compensate for the module's visual hypotheses. When things are normal (i.e., conditions in which the modules were designed or "natural" work) and we have no reason to suspect otherwise, we do not first have to satisfy ourselves that conditions are Normal before accepting our module's observational hypotheses. The perceptual systems have a default. Fodor's theory of conditions, or denominations. The output of the modules to be accepted as true, and this default setting works well because in normal conditions the perceptual systems are reliable and because normal conditions are what we usually encounter. If one is usually in conditions in which the perceptual modules are highly reliable, then it is a good cognitive design to take the observational hypotheses as true as long as one also is good at defending when there is a substantial probability that conditions are not normal. Similarity, we do not have to be cautious in checking the temperature of every thing you touch in order to avoid scalding your dance. A default setting of taking that things are not too hot to touch works pretty well, as long as one is in an environment in which most things do not burn you and as long as one is pretty good at recognizing which things might bum you.

Suppose that we think of the human mind as having major components the modules, the central processor, the belief box, and the decision engine, which is similar to "the will." I propose that for mature thinkers we think of there being a forked pathway leading to a terminal module (i.e., a module whose output does not go to another module). The fork occurs at a switch that determines the survival of the observational hypotheses. If the switch is in the "off" position, the hypotheses go to the central processor, leading ultimately to an inferential belief or to revisions of background beliefs. If the switch is

,on," the hypothesis goes straight to the belief box, where the belief is available for use by either the decision engine or the central processor.

The central processor and the decision engine control modules' on/off switches. The decision engine, the seat of volition, can choose to make the central processor scrutinize the output of a terminal module by turning the module's on/off. From an epistemic standpoint, this is not a bad thing, unless it distracts the central processor from more important tasks, but the decision engine could be motivated by non-epistemic concerns, so I will ignore its influence and instead examine why the central processor would turn a module's switch off. Sometimes the central processor can anticipate a situation in which the observa-
tional modules are unlikely to generate true output, so, as in the wax museum example, the central processor consciously and systematically compensates for the modules' erratic output. In other cases, the modules themselves raise the alarm for the central processor to intervene. The modules can have built-in biases or expectations, as, for example, that objects are spatiotem-
porally continuous. Hence, if something in the field of view were simply to disappear and not merely recede out of site or move behind something else, the module that had been tracking the object would "notice" the central processor that there had been an anomaly, and the central processor would intervene to examine the module's output. Secondly, modules can acquire sensory frames that are similar to Sumeria's association of ideas. For instance, a module might through repeated exposure be "trained" to expect a certain spatial layout, and if an item were moved or missing, the module would alert the central processor to investigate further. Similarly, a module may through repeated exposure expect a grouping of properties in a given individual or substance. For instance, if I sat on my sofa and contrary to the module's expectation the sofa felt hard, my central processor would be recruited to determine whether the sofa really was hard or the module's output was mistaken. The encapsulation of the module ensures that even if the central processor determined that the sofa was not hard, the module would continue to expect the sofa to feel hard. The central processor does not permit the erratic observational hypotheses explains why I would say that the sofa continues to alarm hard.

My theory avoids the empirical Catch-22 of insisting that all knowledge comes from the senses and the senses should not be trusted unless one has good reasons to think that they are trustworthy. Because the perceptual modules are designed for common environments in which the modules are highly reliable, the cognitive systems are well within their epistemic rights and are entitled to try their alternative recognition patterns to treat the observational hypotheses as true unless the central processor intervenes because there are serious reasons to doubt their hypotheses. But as a matter of good design the default position for a module's switch is to sit on. There is no question that is necessary for many non-inferential perceptual beliefs to be justified. There can be justified empirical beliefs that arise from modular beliefs but that do not require any sort of knowledge, including knowledge about the perceptual process. One does not always have to know how the sensory work, how reliable they are, under what conditions they work best, whether conditions are present normal, and so on in order to have perceptual knowledge. Sometimes, a perceptual belief could prevent a belief from being justified, one does not
necessarily have to know that there are no deceiving
conditions in order for the belief to be justified. If I
knowingly ingested LSD, then I ought to distrust my
senses, but that does not mean that I should trust my
senses only if I believe that I am not on LSD or that there
are no aliens in my closet who are using gamma rays to
manipulate my mind. Although some perceptual knowl-
edge is and ought to be inferential, we often assume, and
rightly so, that the world is as it appears to be.

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