

CLADES, CAPGRAS, AND PERCEPTUAL KINDS

Jack Lyons

University of Arkansas

Perceptual states represent the world as being certain ways, as having certain properties. Which ways and properties are these? When I hold out my hand and look at it, it seems that I have a visual experience *of* a hand. One traditional view has held that my perceptual state is not of a hand but merely of an array of color patches, or the like, which disposes me to believe that there's a hand without itself actually representing anything as being a hand; the perceptual state, that is, is not actually *of* a hand. A very different sort of view might allow into the contents of perceptual states not just hands, but perhaps even psychological states, semantic properties, causal relations, such counterfactual properties as Gibsonian affordances, and maybe even highly specific properties like that of being a pileated woodpecker. Either view purports to express a deep fact about the nature of (human) perception, one that is not merely a matter of one's individual circumstances. Given my cognitive and perceptual apparatus, what ways can perception represent the world as being? What sorts of properties are represented in perception? What are the contents of perceptual states?

In case such questions do not seem intrinsically interesting, notice that how we answer them is likely to have serious epistemological implications. If my perceptual states represent things as hands rather than, say, color patches, this would go a long way toward a defense of the claim that what I *see* is that there is a hand in front of me, and of the claim that my belief that there is a hand in front of me is a perceptual belief. This latter claim would go a long way in support of the view that beliefs about hands and the like are epistemologically basic—i.e.,

justifiable independently of evidential support from other beliefs. On the other hand, if perception delivers to us not a world of tables and dogs and hands, but an array of color patches at various retinal locations or an aggregate of variously angled uniformly colored surfaces at egocentrically specified locations, then our beliefs about the former would presumably have to be inferred from beliefs about the latter, which would strongly suggest that beliefs about hands and tables and such are neither perceptual beliefs nor epistemologically basic.

What properties do perceptual states represent things as having? I want to give a partial answer to this question, by answering a different question, about what I will call “perceptual kinds”. My approach will be one that begins by taking seriously the phenomenology of perception. There are reasons to be suspicious of a phenomenological approach, which is why I have used a very different method elsewhere in addressing this question. In my (2005) I tried to articulate the conception of perceptual systems implicit in cognitive neuroscience and used that to specify the contents of perceptual states; the latter I claimed are simply whatever consciously accessible representational states are tokened in these perceptual systems. In any case, my current goal is to answer this same question about the contents of perceptual states, though this time by appealing to phenomenological factors, which were intentionally absent from the cognitive neuroscientifically motivated account just mentioned. The phenomenological approach has seen a resurgence in popularity recently, and in the end, I think that the results of this phenomenological investigation will mesh fairly well with the results of the scientifically motivated approach, though I won’t argue that here.

It is common to argue *directly* from the phenomenology, e.g., “it seems to me that my perceptual states represent this thing *as a tree*; therefore *tree* is part of the content of my

perceptual states”. Such arguments, however, do little to convince anyone who does not already accept the relevant conclusions, and the resulting clash of intuitions has done little to recommend this direct phenomenological method. Instead, I will argue indirectly, using phenomenological considerations to develop a conception of “perceptual kinds” and using that to specify (in part) the contents of perceptual states.

I should note from the outset that my concern is not with conceptual vs. nonconceptual content; that debate is about the “lower end”, as it were, of perceptual representation; my worries are about the upper end. Nor is my concern with psychosemantics; the goal is not to start with a set of perceptual states and determine their contents, but to take a set of contentful states as given and determine which of them are perceptual. Finally, I frame the question in terms of the contents of *perceptual states*; the question is frequently approached instead in terms of the contents of *experience* (see, e.g., Siegel 2005). I do it my way, because, for reasons that will become more clear below, (a) not all experience is perceptual, and (b) not all perceptual states are obviously experiential (or at least, not all differences in the content of the perceptual states are comfortably viewed as differences in the content of perceptual experience).

Before explaining the notion of perceptual kinds and its relation to the contents of experience, I want to say a bit more about what options one might take concerning the contents of perception, the options among which my notion of perceptual kinds is supposed to help us choose.

1. LIBERAL AND CONSERVATIVE THEORIES OF PERCEPTUAL CONTENT

It is well known that there is something like a continuum along which various theories

about the content of perception might fall. A conservative theory of the contents of perceptual states is one that tries to locate as much content as possible outside of perception; a liberal theory would allow a great deal of content to count as perceptual. The notion of a continuum here is useful even though obviously flawed if taken too strictly. I will concentrate on visual representation, though analogous claims could be made for other sense modalities.

Locke's theory of sense perception (1690/1970) is in most respects, quite conservative: "When we set before our Eyes a round Globe, of any uniform colour . . . , 'tis certain, that the *Idea* thereby imprinted in our Mind, is of a flat Circle variously shadow'd, with several degrees of Light and Brightness coming to our Eyes. But . . . the Judgment . . . frames to itself the perception of a convex Figure and an uniform Colour . . . (p. 145)." Russell expresses a similar view (1912/1997), and such a restrictive construal of perceptual states was central to the introspectionist psychology of the 19th century (see, e.g., Titchener 1910/1926) and a main reason for the movement's infamous need for trained introspectors. A "noninferential theory", as I will call these, employs an emphatic distinction between perception and inference, holding that an inferential state is *eo ipso* not a perceptual state.

A more liberal view would resist drawing the line just here and allow that even though certain features are inferable from earlier representations, even though representations of surface boundaries and orientations may in fact be generated by an actual computational process of unconscious inference, these inferred representations are nevertheless elements of perceptual states. Such unconscious inference is arguably not inference in a sense that necessarily precludes perception; and the mere fact that surface orientations are in some sense inferable from shading

does not obviously indicate that no representations of orientation are perceptual.¹

Thus one might hold a view slightly more liberal than the noninferential view by allowing, in addition to the features countenanced by the latter, that visual states also represent surface boundaries, discontinuities, and orientations. Perhaps amodal completions, size and shape constancy, and the like are also represented perceptually, rather than inferentially, as well. We might hold the contents of perceptual states to be roughly similar to Peacocke's (1992) scenarios, or to the contents of Marr's 2½-D sketch (1982). We might allow additional computation or inference, to the point that perceptual states provide viewpoint independent representations, replete with information about the sides of the object that are hidden from view. If we are willing to allow inferred information to figure into the contents of perceptual representations, we might admit as visual the representations of solidity, opacity, object boundaries, and 3-D properties like cylindricality and such.

Taking all of these even further, we might claim that visual states represent objects as members of commonsense categories; i.e., as chairs, dogs, mountains, rocks, and the like. This sort of view strikes me as quite a bit more liberal than the ones just mentioned. Classifying some particular thing as a rock, or a chair, involves relating that particular to other, absent, perhaps nonexistent objects, in a way that representing something as presenting an elliptical aspect from this angle, or even as being to the left of the green blob, does not. In addition, the inferential-

¹ Another way to a more liberal view is to claim in Gibsonian spirit that we “directly pick up” high-level information about tables and rocks and such. Even if this worked as a psychological theory of perception, it addresses only part of the motivation behind noninferentialism. There is an epistemological motivation as well, according to which if one piece of information is inferable from another and the latter is perceptually accessible to us, the former is nonperceptual. So the last clause above, or something of the sort, is still be needed.

cum-perceptual processes posited by the category theory go much further beyond their inputs than do the processes posited by the more conservative theories. Plausibly, what *makes* something a dog is that it has a particular genotype; what *makes* something a chair is that it was built to serve a particular function. Such categorization involves inference to unperceived essences on the basis of features that are merely statistically related to doghood and chairhood.

All representations represent things as belonging to categories; it's just that the categories invoked by the more conservative views are categories like *trapezoidal-looking thing* or *shiny surface* as opposed to *brick*, *bat*, and *boat*. As we will see shortly, what is important for this view is that the represented categories occur at the *level* of commonsense categories, not that they necessarily are themselves commonsense categories. It is categories at this level that we normally have in mind when speaking of categories in these contexts, so I'll reserve the term "category theory" for one that holds that perceptual states represent things as belonging to commonsense categories and/or categories at this same level.

Category theories invite a host of questions about which categories are represented. Suppose something can look like a shoe. Can it look like a size 11.5 Brooks Cascadia? Can it look like—i.e., look to be—the very shoe I lost on the bus last month? Certain fine-grained discrimination tasks, like sexing day-old chicks or telling a genuine DaVinci painting from a counterfeit, might count as visual, if the relevant categories are perceptually represented.

But what is to stop us from going even further? Gibson (e.g., 1979) famously held that we perceive "affordances", that we see things in terms of what they offer us: graspable protrusions, swimmable volumes and the like. This is perhaps most plausible regarding evolutionarily salient affordances, like food and shelter and the like; it amounts to the claim that perceptual

representations can have counterfactual content: if I were to do so-and-so, such-and-such would (likely) result. Sean Kelly (1999) holds not only that perceptual states have counterfactual content, but that they have *normative* counterfactual content: if I were to do such-and-such, I'd have *better* experiences, i.e., my view would be closer to optimal. Susanna Siegel (2006) holds that perceptual states represent (some) natural kinds and also that they represent semantic properties. And though he never meant to have a liberal view about perception, Locke (1690/1970) seems to have been forced by his empiricism into the claim that we perceive causal relations.

These conservative and liberal proposals vary along a number of dimensions, not just one. The two that interest me the most are the distinctions between high and low level *properties* on the one hand and subordinate and superordinate *categories* on the other. In some fairly intuitive sense, category theories ascribe to the contents of perceptual states “higher level properties” than do noninferentialist theories. The noninferentialist says we see (perceptually represent something as) “a circle variously shadow’d”; a more liberal view that we see a uniformly colored surface with a certain smoothly continuously changing orientation; more liberal yet that we see a solid sphere; the category theory that we see a bowling ball. The difference here is often described in terms of high and low level properties (e.g., Siegel 2005, 2006): the liberal theorist allows “higher level” properties to be contents of perception than does the conservative theorist. This is standard and convenient terminology, but it is important not to be misled by it. The higher/lower level property distinction invoked here is clearly not the standard higher/lower level property

distinction in metaphysics, which is cashed out in terms of (asymmetric) supervenience.² The properties of interest to the more liberal theories do not supervene on the properties of interest to the noninferential view, for the relation is explicitly contingent. The “low level” properties are indicative of, but not metaphysically sufficient for, the instantiation of the “high level” properties.

The fundamental distinction here seems to be a psychological rather than a metaphysical one; our views about which properties are high and low level are parasitic on our tacit assumptions about perceptual processing. We can distinguish higher and lower level *representations* in terms of causal dependencies (the higher level states/representations causally depend on the lower level states, but not vice versa) and distinguish high and low level properties in terms of these (the higher level properties are the ones represented by the higher level states). Thus, the question of whether perceptual states represent high or low level properties becomes the question: at what stage in perceptual processing do the states cease to be genuinely perceptual? For example, is so-called “late vision” genuinely vision? Is representation of causation, of affordances, of category membership perceptual or *post*-perceptual? Locke and Russell might not have cast the matters in these terms (as Pylyshyn 2003 does), but surely they thought that things seem spherical because they seem variously shadowed, and not vice versa.

One way to endorse a liberal theory of perception is to allow high level properties to be represented in perception; another way is to broaden the range of categories one takes to be

² Thus, liquidity is a higher level property than the intermolecular relations that realize liquidity; liquidity supervenes on intermolecular relations but not vice versa. Similarly with pain and the relevant brain states, etc. (Though supervenience is usually employed as an asymmetric relation, the standard definitions make it technically only nonsymmetric. Higher-level-ness really does need to be asymmetric; hence the “not vice versa” clause.)

represented. The subordinate/superordinate category dimension concerns nature rather than cognitive processing. Categories form nesting hierarchies: Rin Tin Tin is a particular German shepherd, which is a kind of dog, which is a kind of animal, which is a kind of material object, etc. Psychologists working on concepts frequently invoke “basic level” categories, like *dog*, *chair*, *apple*, which are to be contrasted on the one hand with subordinate categories, like *German shepherd*, *Macintosh*, etc., and on the other hand with superordinate categories, like *animal*, *fruit*, etc. (Rosch, et al. 1976). The basic level categories are by and large the commonsense categories; they are the ones subjects usually cite in identification tasks.³ Thus, a (more) liberal version of the category theory can be gotten by allowing (more) superordinate or subordinate categories to be represented in perception.

These two dimensions, level of property and order of category, are orthogonal. Though the category dimension is most evident toward the high end of the high/low level property dimension, at the level of commonsense categories, category distinctions exist at every stage of processing. Moderate views might agree about the level of processing that is compatible with perceptual status but still disagree about what level of specificity perceptual representations enjoy. One could hold that perceptual states represent something as being merely three-dimensional, or as a roughly rectilinear block, or as a 1' x 4' x 9' block, etc. The early visual category of *shiny surface* is subordinate to the early visual category of *surface*, and so on.

These are the basic options. Which do we choose, and how do we decide?

³ Intuitive though it is, the idea of a stable, unique, privileged basic level is a controversial one (Jolicoeur, et al. 1984), and I won't assume it has any psychological reality. I will invoke it merely as a convenient way of talking about, say, subordinate categories full stop, without explicit reference to the level to which they are subordinate.

2. PERCEPTUAL KINDS

Representation, perceptual and otherwise, is a twofold phenomenon, a matter of both classification and description. To classify things is merely to sort them, to put them into classes, to “file” certain things together and other things separately. Describing these classes is the very different matter of labeling these files. All representation involves representing something *as* something (as blue, or as a rock, etc.), and in that sense contains a descriptive element. Though this element gets the most press, I want to focus on the other one. Standard, direct phenomenological arguments concentrate on representation-*as*, thus primarily on the descriptive component of perceptual representation. Concentrating on the classification component draws our attention to perceptual kinds, the categories that are implicated in perceptual representation.

The objects of perception form similarity clusters. Some things look similar to each other; others look different. There is a way that gray things look, and there is a way that round things look, and the way that gray things look is different from the way that blue things look and also from the way that round things look. Gray things, and round things, constitute perceptual kinds.

I use the term ‘kinds’ here for a reason. Kinds are classes that in some sense or other “cut nature at its joints;” any division of the world into kinds must respect genuine differences and similarities. To say that *K* is a kind is to say that the members of *K* constitute a homogeneous group and are at the same time relevantly different from the members of other classes. Thus, the kind *gold* is internally homogeneous, in that its members are all similar with respect to atomic number; it is distinct from other kinds in that their members don’t have this atomic number. Cambridge properties, like that of being my left ear or the Eiffel Tower, fail to pick out kinds because the members of the corresponding classes have no real similarity that isn’t shared by

nonmembers. Arbitrarily truncated categories like *all the gold in this room* fail to constitute kinds because their members are not—relevantly—different from other things.

There are various sorts of kinds, depending on the dimensions of homogeneity and distinctness that unify and distinguish the groups. Microstructural kinds are categories whose members are microstructurally similar to each other and microstructurally different from other things. Functional kinds are categories whose members are functionally similar to each other and functionally different from other things, and so on. If perceptual kinds are genuine kinds in this sense, then they will have to exhibit the homogeneity and distinctness typical of kinds more generally, and obviously the relevant dimensions of homogeneity and distinctness in this case will be perceptual. Thus, *K* is a perceptual kind just in case the members of *K* are perceptually similar to each other in some respects and perceptually different from other things in those same respects. To say that cows constitute a visual kind is to say both that cows look similar to each other and that cows have a distinctive look; i.e., they look unlike other things. The notion of a perceptual kind will have to be relativized to a class of perceivers at a given time, though I will usually leave the relativization tacit. What counts as a perceptual kind for me is quite different from what counts as a perceptual kind for rattlesnakes, or sharks, or even (though this has yet to be argued) entomologists.

Acid is a representative perceptual—in particular, a gustatory—kind. Acids are similar to each other and dissimilar from non-acids in this respect: all acids taste sour and only acids taste sour.⁴ For this reason, *acid* is a perceptual kind; the class of acidic things is perceptually

⁴ This is true in normal conditions, at least, e.g., at concentrations above detection threshold but not so great as to burn the taste buds off the tongue, etc.

homogeneous in certain respects, and in these respects, the members are different from nonmembers; the class is closed under the similarity relation that unifies it.

Perceptual similarity is a phenomenological notion. What makes acids a perceptual kind is that the perceptual state normally produced by one acid is introspectibly similar to the perceptual states normally produced by the others. Narrower perceptual kinds can be nested within broader ones, e.g., *scarlet* might constitute a subkind of *red*. What is important is that if x and y are members of some kind, then nothing that is not also a member of that kind lies between x and y in phenomenological similarity space; topologically speaking, a perceptual kind thus forms a convex region in similarity space. It does not follow from my understanding of perceptual kinds that the members are indistinguishable, or that misrepresentation (false negatives or false positives) is impossible; nor does it follow that the members of a given kind cannot resemble members of another kind.

If K is a perceptual kind, then members of K are perceptually similar to each other yet perceptually different from other things—that is, there is a way that members of K look. The converse seems to be true as well; if there is a way that members of K look—in this robust sense of the phrase—then K constitutes a perceptual kind.⁵ Thus, I take the following to be more or less equivalent:

- K is a perceptual kind for S at t
- there is a way that members of K perceptually appear (look, sound, etc.) for S at t

⁵ I realize this is a slightly specialized use of the phrase ‘there’s a way K members look’, which might ordinarily be taken to impute similarity but not distinctness. What I mean when I say that there is a way that members of K look is that there is a look that K members have and that non- K -members don’t.

- the members of K constitute a perceptual similarity class for S at t .

Water is not a perceptual kind; there is not a way that water looks. Though different samples of water do look similar, they also look like too many other things: vodka, vinegar, etc. Water is homogeneous but not (perceptually) distinct and thus does not constitute a perceptual kind. Similarly, though there is a way that cows look, there is not a way that cows named Mabel look; they don't look any different from other cows. For slightly different reasons, there is not a way that my colleagues look, even though I can easily identify them by sight; there's a way that Tom looks, and a way that Lynne looks, and a way that Barry looks, but there is not some way they all look. The class is not homogeneous enough to constitute a perceptual kind. If my department were highly nepotistic or had a facial tattoo policy, things might have been different.

Some classes seem to fail in their candidacy for perceptual kindhood for reasons of heterogeneity (e.g., my colleagues), others (e.g., cows named Mabel) for lack of distinctness. In fact, however, perceptual kindhood is neither simply a matter of similarity nor of distinctness, but of similarity *at a level of abstraction at which kind members look different from non-kind-members*. My colleagues are members of a perceptual kind, but only of a fairly large one that contains lots of other humans. Cows named Mabel might look different from other cows, but only individually, not as a group.

Perceptual representation-as is intensional: the standard substitution arguments apply, but perceptual kinds are extensional. *Acid's* status as a perceptual kind doesn't determine what perceptual states represent acidic things *as*. My gustatory states represent things as sour, not as acidic. This is one major reason for separating the (intensional) descriptive component of representation from the (extensional) classification component; it is often easier to tell how our

perceptual states classify stimuli than what they represent these stimuli as. Ravens and crows might look different to me, even though I don't know which is which. They might therefore make up distinct perceptual kinds for me, though it would be implausible to say my perceptual states represent anything as being a crow. One can have *crow* as a perceptual kind without having the ability to represent (perceptually or otherwise) something *as* a crow.

Another benefit of focusing on perceptual kinds is that it allows us to distinguish three importantly different perceptual changes that might result from learning. First, learning might affect the detection of low-level perceptual properties, thereby changing the way things actually look or sound or taste, etc. Language learning seems to have this effect: what used to sound like an uninterrupted string of phonemes now sounds like it has actual pauses between words, pauses that are not visible in a spectrogram. Visual discrimination improves with practice, so that lines whose orientations could not be visually distinguished come to be distinguishable. More controversially, perhaps experience with certain images (e.g., the closure figures of Street [1931], or R. C. James's famous hidden dalmation picture) might result in new subjective contours. In such cases, learning results in a given stimulus's perceptually appearing in a way that is different from the way it used to perceptually appear.

But this is not the only way perceptual learning could work. As a second possibility, learning might take the form of integrating existing similarity classes with conceptual information about the members. I have always been aware that these birds cluster together in similarity space, close to, but separate from, this other cluster of birds. Now I learn that the former group are called 'crow' and are a different species from the other group, which are called 'raven'. Though it would be controversial, one might hold that this change counts as perceptual.

What I used to perceptually represent with a disconnected, arbitrary bit of Mentalese, I now see—perceptually represent—as a crow. My present purpose is not to endorse this controversial assertion but to distinguish such “perceptual learning” from other kinds.

A third, more interesting, type of perceptual learning might involve a reorganization of the similarity spaces. Repeated experience or top-down conceptual information might result in changes to my similarity groupings. Because it was important to me to distinguish (harmless) water snakes from the similar looking (venomous) water moccasins, I have become perceptually sensitive to the differences that are diagnostic; my similarity measurement gives, say, head shape and body pattern more weight than overall color and tail length. These may be differences that I had explicitly learned to be diagnostic, or just differences that covaried reliably enough to be picked up by statistically sensitive perceptual learning mechanisms. In fact, they need not even be diagnostic of the division I was after: I might accidentally end up with a similarity partition that has nothing to do with an interspecific distinction but rather with males and females of a single species.

The primary problem that needs to be solved by learning here is one of sorting; it is a problem of classification rather than of description (though there is a problem with that, too). If I am given one known exemplar of *A* and one known exemplar of *B* and given some new target to match to one of the two given exemplars, I might not know whether to sort by size, shape, posture, color, or some other feature. One of the exemplars has a thicker body than the other, but if *A* and *B* are not already perceptual kinds for me, I might have no idea whether this is an idiosyncratic feature of this exemplar (at this time) or whether this is characteristic of its kind.

The point is that two particulars can come to look similar to each other without there

necessarily being any change in the intrinsic way either of them looks. Thus, this third kind of possible perceptual learning would involve a change in an organism's repertoire of perceptual kinds, without requiring any change either in what the stimuli are represented *as*, or in the intrinsic look of any individual member.

3. PERCEPTUAL KINDS AND PERCEPTUAL CONTENTS

I started out with questions about the contents of perceptual states, and I have been discussing perceptual kinds instead. To extract even a partial answer to such questions from the notion of perceptual kinds, we will need some linking principles. Because perceptual kindhood is extensional, and property representation is intensional, we can't simply hold that perceptual states represent something as being *K* just in case *K* is a perceptual kind.⁶ There is a connection, however.

Perceptual states don't represent acids as acidic but they do represent them as sour, and the class of sour things just is the class of acids. *The first front-wheel drive Cadillac* constitutes a perceptual kind for me, even though the property of being the first front-wheel drive car is not a perceptible property and thus is not the content of a perceptual state. Instead, my perceptual states represent members of that kind as 1967 Eldorados or, more likely, something not easily translated into English. All perceptual states represent perceptual kinds, though how they

⁶ Strictly speaking, kinds are classes of things or of property instances, not properties themselves, and the phrase 'being *K*' suggests that '*K*' ranges over properties. Constant use of the phrase 'perceptual states represent something as being a member of *K*', however, would be both cumbersome and potentially misleading—misleading in that the representations in question don't represent category membership as such; they represent things as being red or being cats or the like, rather than as being members of the kind *cat*, etc. Consequently, I'll use the more convenient phraseology.

represent them, i.e., what they represent them *as*, is an open question. The important point is that something is being represented as something here; the class's having a certain look is a perceptual phenomenon, and it is not merely a matter of non-intentional qualia. If there are such qualia, they aren't the whole story. The perceptual kindhood of acidity implies that my perceptual states represent acidity (though, again, not *as* acidity); all the more so for such high level properties as that of being a '67 Eldorado. The perceptual similarity of a class of stimuli is, at least in part, a matter of their being classified together by perceptual states. Thus, I think we can say that if there is a way that *K* members look to *S*, then there is some *F*, coextensive with *K*, such that some of *S*'s perceptual states represent something as being *F*.

I think we can say more than this. To say that something—literally—looks like a cow (looks to be a cow, looks as if it is a cow, etc.) is to say, among other things, that there is a way that cows look. This is why nothing can literally look like it is named Mabel—there isn't a way such things look. (Of course, something can look to be Mabel, whom I know to be named Mabel, but this is different.) If water doesn't look any different from vodka or vinegar, then something might look to be a clear liquid, but it cannot look to be water. Nothing can visually appear to be water, because there isn't a way that water looks. This seems to hold for failures of homogeneity as well as for failures of distinctness. Dangerous things aren't perceptually homogeneous. There isn't a way that dangerous things look, though there is a way that tigers look and a way that Chevy Corvairs look, etc. This is why our perceptual states don't represent things as being dangerous but as being tigers or Corvairs. Thus, it seems, a perceptual state can represent something as being *K* only if there is a way that *K*s look, i.e., only if *K* is a perceptual kind.

An opponent is sure to object to this claim by reminding us how natural it is to say that

certain things look dangerous. (“You sure you want to stand on that, Jim? It looks dangerous.” “Odd that hippopotami are responsible for more human casualties than crocodiles; they don’t *look* as dangerous.”) However, there are notoriously many senses of ‘looks’ and similar verbs; such language does not always literally and accurately describe the content of perceptual states. Some animals might literally look like predators or carnivores, and since I know these can be dangerous, they might “look” dangerous in some oblique sense of ‘look’. But the property my *perceptual states* thereby attribute to tigers is not one that perceptual states ever attribute to Corvairs, except perhaps in odd cases of radical misrepresentation. The point is not merely that the *word* ‘dangerous’ is multivocal when applied to cars, animals, and behavior; the point is that there is not a univocal *look* shared by dangerous things. Thus, in order for something to “look” to be dangerous, i.e., “look” to be a member of the class of dangerous things, it would have to actually—literally—look to be a member of some class narrower than the class of dangerous things, a class of things known or believed to be dangerous, e.g., a tiger, a shark, a predator, a thing with large sharp teeth, etc.

I have been arguing for two important principles:

PK1 : If K is a perceptual kind for S at t , then there is some F , coextensive with K , such that

some of S ’s perceptual states at t represent something as F

and

PK2: Some of S ’s perceptual states at t represent things as being K only if K is a perceptual kind

for S at t .

If these principles are sound, they can take us some way toward answering questions about the contents of perceptual states. PK1 supports a fairly liberal view about perceptual contents in that

it allows perceptual states to represent fairly high level properties. Perceptual states are not limited to representing low level properties like color and surface orientation. There is a way that rocks look and a way that cats look and (to some of us) a way that '67 Eldorados look; thus, these are all perceptual kinds for the relevant agents. Therefore, properties coextensive with such properties as *being a cat* or *being a rock* or *being a '67 Eldo* are represented in perception. This is not quite a category theory, but it is fairly close. A category theory holds that perceptual states represent things as instantiating properties at the level of commonsense categories, i.e., such properties as *being a cat* or *being a rock*. I haven't argued this, but I have argued that perceptual states represent things as instantiating properties coextensive with these.

I am even willing to hold that some of the properties represented in perception may be properties that seem intuitively to be *very* high level. I am inclined to think that for most social species there is a way aggressive conspecifics look (though probably not a way that aggressive animals, or even primates, look); aggression, annoyance, and other psychological states (in humans, at least) may thus constitute perceptual kinds for us.

The view endorsed here is liberal not only with respect to the property dimension but also with respect to the category dimension. The standard examples of basic level categories—*bird*, *rock*, *airplane*, *car*, *mountain*, and the like—all make good candidates for perceptual kinds. Most superordinate categories won't constitute perceptual kinds, but some will. Importantly, perceptual kinds can come and go as one ascends or descends the ontological hierarchy. *Platypus* is a perceptual kind, and so is *echidna*, but *monotreme* (the class of egg-laying mammals, which consists of just platypuses and echidnas) is not. Monotremes are no more perceptually similar to each other than they are to quadrupeds more generally. *Quadruped* itself, however, is a

perceptual kind. So the perceptual kindhood enjoyed by echidnas is lost and then regained as one climbs to more superordinate categories. This example reemphasizes the earlier claim that perceptual kindhood is not simply a matter of intrakind similarity. It's not that quadrupeds are more homogeneous than monotremes (it is hard to see how this could be true, since the quadrupeds contain the monotremes); it is just that monotremes don't perceptually resemble each other any more than they do the other quadrupeds.

The more interesting cases concern subordinate categories, where the main issue is distinctness, rather than homogeneity. Perceptual learning has a "liberalizing" effect on perception by rendering increasingly subordinate categories perceptually distinct, thus yielding ever more perceptual kinds, and thus, according to PK1, increasing the field of perceptual content. This might happen as a result of either the first or third type of perceptual learning described above; either the intrinsic looks of the members change as a result of very low level discrimination enhancement, or the similarity classes get restructured. Subjects with various types of expertise—ornithologists, histologists, musicians, wine tasters, etc.—seem to have highly subordinate categories as perceptual kinds and thus perceptually represent (properties coextensive with) such fine-grained properties as *being a year-old pileated woodpecker* or even *being a genuine da Vinci painting*. The result of perceptual learning seems to be genuinely new perceptual kinds, of a level subordinate to the earlier perceptual kinds.⁷

The view I have been endorsing so far has been quite liberal. How far should it go? Is

⁷ Even without genuine perceptual learning or consequent changes in one's repertoire of perceptual kinds, a subject may attend to increasingly narrow regions of similarity space. This, it seems, would be more a matter of changing what the subject *does* perceptually represent than of changing what the subject *can* perceptually represent.

there any way to stop it from being excessively liberal? Even what I have argued so far has not been without limitations. Although I am willing to allow highly subordinate categories as perceptual kinds, this is only for the relevant experts, and even then, there are psychophysical limits to how far this can go. No amount of learning is likely to give me more olfactory kinds than my dog already has.

Notice also that many of the more lavish claims sometimes made about the contents of perception involve perception-*as*, claims that my principles about perceptual kinds do not commit us to. This is true of claims that go too far along the properties dimension and the categories dimension as well. Thus, for example, even if some Gibsonian affordances constitute perceptual kinds, this doesn't imply that we represent things *as* affordances. There may be a way that graspable protrusions look, but it doesn't follow that they literally look graspable, as opposed to looking some way that we know indicates graspability. In addition, there may be a characteristic way that a proton looks as it travels across a cloud chamber, but even if moving protons in cloud chambers constitute a perceptual kind, it is a huge and inadmissible leap to go from this to the claim that our visual states represent things *as* protons. The inference from perceptual kindhood to these very liberal—I think implausibly so—claims about the contents of perception, i.e., perception-*as*, will require additional premises. In a way, the extensional nature of my project is a limitation, but in a way it is an asset, for it does not lure one into giving facile answers to what are genuinely very difficult questions of representation-*as*.

Just as PK1 supports a fairly liberal view of perception, PK2 can be used as a tempering principle, to block certain immoderate claims about the scope of perceptual content. If *K* is not a perceptual kind, then perceptual states don't represent anything as being *K*. Water isn't

perceptually distinct; hence water isn't a perceptual kind; therefore our visual states don't represent anything as water. Causal relations are too perceptually heterogeneous to constitute a perceptual kind. More importantly, narrower classes of causal relations are non-distinct in that real causation doesn't look any different from spurious correlation. Thus, we don't perceive causal relations. The same considerations hold for the above examples of non-perceptual-kind classes: monotremes, my colleagues, and so on.

PK1 and PK2 give us principled grounds for accepting certain claims about the contents of perception and for rejecting other claims. They do so without our having to make a problematic and often question begging direct appeal to the phenomenology of the particular case at issue.

4. KINDS, PERCEPTUAL AND OTHERWISE

To apply these principles to a concrete proposal, consider a recent paper by Susanna Siegel (2006), who claims that perceptual states represent things as instantiating such properties as (a) the kind property of *being a pine*, and (b) the semantic properties of a bit of Cyrillic script, presumably a property like *meaning that grass is green*. I think that neither property picks out a perceptual kind, and thus, by PK2, neither property is represented in perception.

It is doubtful that our perceptual states can represent something as being a pine, though for relatively uninteresting reasons. *Pine* is too heterogeneous to constitute a perceptual kind: the towering Scotch pine and the shrubby mugho pine bear little perceptible resemblance that isn't

shared by needle-leafed conifers more generally.⁸ However, at least one of her main points here, if I understand her, is sound: *conifer*, *Scotch pine*, and other high-level properties can pick out perceptual kinds and are thus reasonable candidates for properties represented in perception.⁹ Unfortunately, she tends to run this point together with a quite different one. Siegel's official conclusion is what she calls "Thesis K: In some visual experiences, some K-properties are represented" (2006, 482). K-properties are so-called "[b]ecause they include, though are not limited to, natural kind properties, and because one of my examples will involve such a property, and finally because 'kind' begins with 'k'" (482). It is never made clear exactly what K-properties are, but part of the point seems to be that there is some interesting connection between perceptual kinds and other kinds. On the contrary, however, I think that an extremely important feature of perceptual kinds is that there is very little systematic connection between them and other sorts of kinds.

What makes a collection of items constitute a perceptual kind is that they look similar, but this is a famously rare and accidental feature of other kinds. The dimensions of homogeneity and distinctness for ordinary kinds will frequently turn out to be imperceptible. Microstructural kinds, for instance, are unified and individuated by microphysical structure, and this is a poor predictor of perceptual kindhood. *Gold* is a microstructural kind, but it is not a perceptual kind: white gold doesn't look like normal gold, and a lot of what glitters (looks like gold) isn't gold.

⁸ *Pine* is in this sense like *dog*. Several, presumably overlapping, types of dogs constitute perceptual kinds, but *dog* itself doesn't. There is no perceptual similarity class that contains shih tzus and great Danes and pointers but excludes wolves, jackals, and Tasmanian wolves.

⁹ Strictly speaking, it is only *mature* Scotch pines that make up a perceptual kind; seedlings and saplings of various species all look alike to all but perhaps the very most specialized experts and horticulturists.

Even if microstructural similarity did provide for intrakind perceptual homogeneity, microstructural difference from other things wouldn't predict perceptual distinctness from other kinds. *Silver* fails to make up a perceptual kind, not because some silver doesn't have the standard look but because too many other things look this way.

Functional kinds are famous for their perceptual heterogeneity, although some functional kinds are perceptual kinds. *Acid*, in fact, is a paradigmatic example of both.¹⁰ Once again, however, this is more or less coincidental.

Pine, of course, is neither a microstructural nor a functional kind, but a biological kind. Though *gold* may be the philosopher's standard example of a natural kind, biological kinds are in many ways more illustrative. Biology has had to put a lot of explicit thought into its taxonomies, and according to current orthodoxy, the primary biological kind is a clade, which is any branch on the family tree of life that includes all the subsidiary limbs of that branch.¹¹ The (folk) category of reptiles is famously not a clade and therefore not a genuine biological kind. The most recent common ancestor to turtles, alligators, lizards and snakes is also ancestral to birds, so any grouping that excludes birds but includes all the rest fails to cut nature at the relevant joints. Reptiles might constitute a perceptual kind, but they don't constitute a well-formed family. Nor, for very different reasons, do what we ordinarily think of as cacti. Cacti proper are an American

¹⁰ An acid is any compound that donates a hydrogen ion in (aqueous) solution (a base is any compound that accepts one). *Acid* and *base* are thus functional kinds, contrary to the assumption on the part of many neoreductionists that chemistry reduces (in a strong sense that is incompatible with multiple realizability) to physics.

¹¹ More strictly, a clade is a monophyletic grouping, which consists of an ancestor species along with all of its descendants and only its descendants. For a brief overview of the controversies involved in systematics, see Sterelny and Griffiths 1999.

family, which, due to convergent evolution, look just like certain African euphorbiae. Together, the cacti and euphorbiae constitute a perceptual kind, even though they are only distantly related and thus not a biological kind. Similarly, the smallest perceptual kind that includes all the dogs also includes some marsupials, like the Tasmanian wolf, and thus doesn't map onto any biological kind. Biologists, like other scientists, want a taxonomy that reveals real and interesting similarities and differences. For them, the space that needs to be cut up to reveal this is phylogenetic distance, not perceptual similarity space.¹²

Thus, there seems to be no systematic or otherwise interesting connection between perceptual kinds and the various types of natural kinds. Perceptual kinds have their own dimensions of homogeneity and distinctness, which are different from those of the various other sorts of kinds. The real issue here is not whether perceptual states represent items as belonging to *kinds* in any robust sense of the term, but whether it represents them as belonging to certain *categories*, in particular, whether it represents them as belonging to commonsense categories and other categories at or beyond that level on the properties dimension. What is important about such classes as *Scotch pine*, *gold*, *acid*, and *dog* is not that they are kinds but that they are represented at a relatively late stage of perceptual processing.

Siegel's other main example involved the semantic properties of a bit of Cyrillic script. Her claim appears to be that something can literally *look* like it means that grass is green, that visual states can represent something as meaning that grass is green. I find this implausible. Things that mean that grass is green do not constitute a perceptual kind, for there is not a way

¹² There are taxonomic systems that are based on similarity and ascribe kindhood on phenotypic grounds. Even so, however, the relevant similarities will typically be nonperceptual (including, e.g., phenotypic properties of internal organs, etc.).

that these things look, or sound or smell, etc. The problem is obviously not that visible script and audible phonemes can share semantic properties while being perceptually very different; there might simply be separate visuo-semantic and auditory-semantic kinds. The problem is rather that bits of script that look nothing alike can share semantic properties, as can strings of phonemes that sound nothing alike; even within a given perceptual modality, things that mean that grass is green are wildly heterogeneous.

It is clear that language learning affects perception, though this is most obvious in audition, especially concerning the auditory perception of word boundaries. It is tempting to conclude from such phenomena that some things sound like words after learning a language. But this can't be right. Lots of nonwords *sound* just like words; on any reasonable auditory similarity metric, 'fork' sounds more like 'vork' than like 'autoclave'. The more accurate account is more interesting as well: there is a way that strings of phonemes sound and a way that word *boundaries* sound (there's an audible though endogenously imposed gap), but aside from these, there isn't some way that words sound. The case is analogous to what we want to say about vision: certain visual states represent object boundaries, and there is a (fairly abstract) way that object boundaries look, even though *object* is too heterogeneous to make up a perceptual kind.

Perhaps learning could make a string of Cyrillic text now look like a token of some particular Russian *sentence* type.¹³ However, Siegel surely has a much stronger claim in mind:

¹³ Even this is unlikely, since the same sentence type can be written in uppercase or in lowercase (not to mention in different fonts) and these will make up distinct perceptual kinds, since the lowercase letters frequently don't look anything like their uppercase counterparts. It works a little better in Russian than it does in English, Russian having fewer upper/lower case differences. It is likely that one could get 'O' and 'o' to fall into a single kind that excludes 'Q' by adjusting the similarity metric, e.g., weighing number of components more heavily than size. It is unlikely that any such adjustment could result in a kind that includes 'Q' and 'q' but leaves

that the perceived property is not just one shared by Russian sentence tokens of the same type, but by various Russian sentence types, and various English, Finnish, and Arabic sentences as well.

A committed defender of this extremely liberal view could simply meet my complaint head on by insisting that the property of meaning that grass is green is indeed a visual property and that certain bits of English, Russian, and Arabic writing do indeed look similar—though only to people in the know—not with respect to such properties as color or symbol shape or the like but merely with respect to meaning that grass is green. Such a move clearly threatens to trivialize the whole project, sending it down a very slippery slope. The liberal theorist is ill served by holding that *any* property that can be ascribed on the ultimate basis of sensory stimulation is therefore a perceptual property; the claim would no longer concern *perception* in any interesting sense. In this new, relaxed sense of ‘look’, there is a way that things that mean *p* look, but in this sense, there is also a way my colleagues look (like my colleagues), and a way that cows named Mabel look, a way that my left ear and the Eiffel Tower look, etc.¹⁴

out all the other letters.

¹⁴ There is another move that might save an extremely liberal view. One could hold that even though some class doesn’t constitute a visual kind, or an auditory kind, etc., it can still be a perceptual kind relative to some sense modality beyond the traditional list of five. In certain cases, this might even be plausible. Fodor (1983) suggests that language should be considered a perceptual system. A virtue of this proposal is that it is partially testable using standard neuropsychological methodology (e.g., double dissociations and the like); we can discover empirically whether there is a separate language system that is in other ways similar to standard perceptual systems. Such tests should be of interest to anyone who wants to hold that we (literally) perceive God (e.g., Alston 1991), causation (Locke 1690/1975), familiarity, and the rest. I take it that danger might be a perceptual kind for, say, Spiderman, who has a special cognitive faculty, a special *sense*, for detecting danger. We don’t, and so it isn’t a perceptual kind for us. I think this general approach is certainly interesting and might even be promising, but I won’t pursue it here, partly because I think that the proponents of the liberal view typically intend

There is something introspectible going on in us each time we see a piece of text that we understand, but there is no reason to think that this something is visual. Not all experience that is connected with perceptual experience is itself perceptual. Chocolate ice cream tastes good, and bacon tastes good, but this doesn't mean that the two taste similar; there isn't a way that things that taste good taste. (Sweet things taste alike in at least this sense: put a number of them in a blender, and the result will still taste sweet. Put a number of things that taste good in a blender, however, and all bets are off.) 'Yummy' (for lack of a better term) picks out an *introspective* kind, perhaps, an *experiential* kind, maybe, but not a perceptual kind. The experience of something's tasting good to me is not a perceptual experience, any more than, if a certain odor were to produce a feeling of nostalgia in me, this nostalgia would somehow be an olfactory state. This is one major reason I have chosen to frame the issues here in terms of perceptual states, rather than in terms of experience.

Similarly, I experience a sense of familiarity in response to some stimuli, and these experiences of familiarity resemble each other. But the stimuli don't. Familiarity couldn't literally be part of the content of my visual experiences, for there simply isn't a way that familiar things look. My car keys look familiar, and the Santa Catalina mountains look familiar, but this doesn't imply that my keys look more like the Santa Catalinas than do the Sierra Nevadas, which I've never seen before. The class of familiar things doesn't constitute a perceptual kind.

Some authors have suggested (Siegel 2006, Siewert 1998) that something can't look familiar without *ipso facto* looking different than it did when it didn't look familiar. "It is not just that the visual experience is 'accompanied by' some 'feeling of familiarity'—the way the face

for the claims to be about the familiar sense modalities, not about new hypothetical ones.

looks to you changes” (Siewert 1998, 257; italics in original).¹⁵ It reads like an analytic proposition to say that when an unfamiliar looking thing comes to look familiar, the way it looks thereby changes; but in fact it is an equivocation. Contra Siewert, to “look familiar” is to be accompanied by a (nonperceptual) feeling of familiarity, and this can happen without any change in the perceptual states these things produce.

I have been arguing this on the basis of PK2, but the famous Capgras delusion (Capgras and Reboul-Lachaux 1923, Ellis and Young 1990) seems to provide an actual case in point. Patients with this syndrome are convinced that certain familiar things, especially spouses and family members, have been replaced by perfect imposters. The delusion is sometimes modality specific, so a patient will recognize his mother unproblematically when she calls on the telephone or speaks from the other room, but if she is presented visually, he is convinced it is not his real mother but a lookalike posing as his mother. Central to the syndrome is that the patient insists that it is not his mother and at the same time that it looks exactly like his mother. The standard explanation of this phenomenon (Ellis and Young 1990, Hirstein and Ramachandran 1997) is that the patient’s visual system is intact, producing a ‘mother’ output just as it normally would, but that this output does not get fed in the normal way into the affective system, so the patient does not have the normal emotional response that a family member ought to evoke. Thus, the

¹⁵ I have had a number of people offer the same objection in conversation. I suggested elsewhere (Lyons 2005) that perceptual learning might change the way things look, i.e., change the way perceptual states represent things as being, without changing the perceptual experience. (This is the second reason for framing the issue in terms of perceptual states rather than experiences.) Thus, I held that a familiar face may not look—experientially—any different than it did before, though now it looks like Joe, where before it just looked like some person. An apparently popular response to this is to hold that something can’t come to look familiar without thereby coming to look different.

patient senses that something is wrong, and because the current stimulus *looks* just like the familiar object but doesn't *feel* familiar, the patient creates the confabulated story about imposters, thereby explaining why someone who isn't Mom would look like, act like, and claim to be Mom.

The straightforward interpretation of such cases is that the subject with the delusion undergoes a change in overall experience, though not a change in *visual* experience or in visual representations more generally. Certainly there is something introspectibly different for the patient before and after acquiring the syndrome, but it is not at all obvious that this is a visual difference. The patient does, after all, insist that the person *looks just like Mom*. This straightforward interpretation does seem to present us with a coherent possibility: that the visual representations are the same (i.e., have the same content) before and after the onset of the Capgras delusion, even though the subject's whole experience is obviously different.

Together, PK1 and PK2 argue for a theory of perceptual kinds and perceptual contents that is liberal but not, I think, too liberal.

5. THE BOUNDARIES OF PERCEPTUAL KINDS

I have been insisting that there is a way that acids taste and a way that hands look, and so on. However, there's a crucial ambiguity in any such claim. If the claim is merely about the similarity clustering among mental states, it's relatively unproblematic; the visual state that I'm in right now (I'm looking at my hand, the lighting conditions are normal, etc.) is introspectively/phenomenologically significantly similar to a host of other perceptual states, and collectively these states are introspectively/phenomenologically significantly different from other

perceptual states. But this similarity clustering is also supposed to pick out stimulus classes (perceptual kinds), and there are some obvious difficulties determining the exact membership of these classes, and this raises interesting problems. I say that hands look a certain way and thus constitute a perceptual kind. But of course, some hands don't look this way (e.g., they're badly disfigured or observed in bad lighting conditions), and some nonhands (e.g., movie props) do look this way. Now what is to prevent us from saying that the relevant perceptual kind was not *hands* after all, but some other class that includes some hands, but also includes things that merely look like hands and excludes hands that don't?

There are two problems here, one concerning false negatives and the other concerning false positives. I've said that monotremes, for instance, aren't a perceptual kind because they are too diverse a lot. But the same could be said for any candidate kind. Hands aren't a perceptual kind, because some of them are so badly disfigured, they're not recognizable as hands, some are viewed in bad light, etc. What makes the relevant kind *hands*, rather than *normal-hands-in-good-viewing-conditions*? This is the first problem. The second is that some movie props look like hands; so what makes the relevant kind *hands*, rather than *hands-or-movie-props*?

A quick way to solve these problems would be to hold that perceptual states represent kinds. Hands make up a real kind; these other classes don't. But this is not open to me, for I've been insisting that perceptual kinds cross-classify things vis-a-vis natural kinds. Instead, I will have to answer the first problem by appealing to an unfortunately undefined notion of normalcy. Thus, I will have to say that disfigured hands are abnormal instances of hands in a way that echidnas are not abnormal instances of monotremes. This strikes me as an intuitive claim, but it is admittedly imprecise. I suspect that this is a fairly general problem and not just a problem for

me. Perhaps it is one that will be solved by a detailed and successful theory of content.

The second problem and its solution are a bit more interesting. Whether a group of things constitutes a kind or not depends on what else is out there. If the birds and certain other non-reptiles hadn't evolved, reptiles would have made up a biological kind. Birds do make up a biological kind, but only because, *inter alia*, no subsidiary branch happened to develop. Had some of the ancestors of today's birds given rise to a non-bird lineage, birds wouldn't constitute a biological kind. I want to say similar things about perceptual kinds: whether *K* is a perceptual kind or not depends on what else is out there, in particular, on what else (normally) looks that way. Water fails to be a visual kind because it's indistinguishable from paint thinner and the rest—*not* because it's indistinguishable from XYZ. There *is no* XYZ, and its mere metaphysical possibility is no more relevant to the present issue than the metaphysical possibility of non-bird descendants of birds.

Incorporating these insights adds an interesting wrinkle. Perceptual kindhood now has to be relativized not just to the perceiver's perceptual apparatus and learning history, but to the viewing conditions and environment more generally. A still hand glimpsed for a moment and/or in bad lighting doesn't look any different from a movie prop. But an articulated, moving hand in good lighting conditions looks unlike any actual movie prop. So in the first case, what it looks like is a member of the disjunctive kind; in the second case, what it looks like is a hand. The articulated, moving thing at the end of my wrist looks like a hand, while the detached lifeless thing under the desk over there looks like a hand-or-a-fake-hand. When animatronics reaches the technological level that convincing, moving fake hands exist, the content of some of our visual states will be different; things that used to look like hands (*viz.*, hands) will then look like hands-

or-fake-hands.¹⁶ These strike me as being the intuitively correct things to say. Moreover, this move is not merely an *ad hoc* attempt to wriggle out of the problem; the view follows straightforwardly from the more general notion of kinds. All kinds are contextual in the sense that what else is out there—in the actual world, not merely what *could have* been out there—contributes to the determination of kind boundaries.

Perhaps an even stronger kind of contextualism is in order. How can my perceptual state represent Mom, as opposed to Mom-or-her-doppelgänger? One possible answer is simply that Mom doesn't *have* a doppelgänger; if she does, then my perceptual state has the disjunctive content after all.¹⁷ Maybe we want to say that if I'm in fake barn country, then my perceptual states will represent barns-or-barn-facades; otherwise they will represent barns. Something like this might even be required by any view more liberal than the noninferential theory. Something's looking to be a cylinder, for example, is different from its looking to be a cylinder-or-cylinder-facade. Thus if we really want to say that something literally looks to be a cylinder even in conditions where the subject has not directly observed the occluded sides, it is not obvious how we can do this unless we appeal to the fact that the world—or the neighborhood—turns out not to be rife with cylinder facades. Similarly for things that appear to be shiny, etc.

I have been trying to give a partial answer to the question of the contents of perceptual

¹⁶ This won't be quite the same kind as the one referred to in the previous sentence as 'hands-or-fake-hands' since some of these don't look at all like the articulated, moving things.

¹⁷ I mean 'doppelgänger' here in the old sense of a person or ghostly double, not in the Twin Earth sense. Having a doppelgänger is thus a matter of having an *Earthy* double, perhaps even one that is sufficiently local and that frequents some of the same or nearby places.

states, and I have taken a phenomenological approach. My appeal to phenomenology, however, has not been the direct sort mentioned at the beginning of the paper. The direct appeal to the phenomenology of particular experiences amounts to the insistence that *pine*, e.g., seems to me to be part of the content of my *visual* state rather than of some other, postperceptual state. Such an appeal to phenomenology is typically offered in lieu of an argument, and it is always open to the opponent to insist that it doesn't seem so to her.

Instead, I have approached such questions indirectly, by trying to systematize more general phenomenological considerations of perceptual similarity, which gives us a notion of perceptual kinds. This, in turn, can be used to answer or at least constrain the answers to questions about particular cases. The hope is that this will render direct phenomenological appeal in particular cases unnecessary. We now have *arguments* about particular cases, like those offered above concerning *familiar* and *pine*, rather than just brute appeals to intuition.

Perceptual kindhood is an extensional notion, and as such, it cannot provide full answers to the question of how perceptual states represent the world as being. But these are exceedingly difficult questions, and trying to give responsible answers to them quickly gets us neck deep in other problems, such as the pragmatics of mental state ascription. We may be better off by asking first which *categories* are represented in perception and using these answers to constrain our answers to the question of which *properties* perceptual states represent things as having. By constraining our answers to this latter question, attention to perceptual kindhood might allow us to steer a middle course between the excessively conservative and the excessively liberal options.

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