Perceiving Indeterminately

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It has been argued recently that perception is indeterminate. But there are more than one ways of spelling out what this means. The standard line is that perceptual states attribute different probabilities to different propositions. I provide an alternative to this view, where it is not the attitude, but the content of perceptual states that is indeterminate, inasmuch as it consists of the representation of determinable properties. This view does justice to the more general claim that perception is indeterminate without appealing to probability either in the attitude or in the content.

1. **Introduction**

You wake up and it’s dark outside. It is getting gradually lighter, and the way you perceive the objects in your room also changes gradually. Suppose that you’re looking at a scarlet dress on your chair. If it’s dark outside and the light is not on, you may see the outlines of the dress, but not a lot of color information will get into your visual system, so you perceptually represent the color of the dress in a very indeterminate manner. But as there is more and more light in the room, your perception changes. You perceptually represent the dress differently. First as reddish, then maybe as bright red, and finally as scarlet.

So your perceptual representation of the dress’s color changes. The question is how we can describe this change. One recent and influential response is that we should borrow the concept of confidence from the theory of probability in order to do so (Morrison 2016, 2017, Munton 2017, see also Denison 2017, Block 2018). The proposal is that just as beliefs (or partial beliefs) represent their objects with a certain confidence, perceptual states also represent their objects with a certain confidence. Just as we can be more or less confident about whether we will get tenure, we can be more or less perceptually confident about the color of the dress on the chair at dusk. In short, perceptual states assign a certain probability to the state of affairs they represent.

My aim is to question this picture and replace it with a much simpler one where what changes as the room gets lighter is that my perceptual state attributes more and more determinate color properties (and also more determinate properties of other kinds) to the dress. I agree with the perceptual confidence approach that there is something indeterminate about perception. But while they take the attitude (or, more rarely, the content) to be probabilistic, I argue for an alternative, according to which the content of perceptual states is indeterminate inasmuch as the content involves determinable properties. And as we have independent reasons to assume that perceptual states represent determinable properties, this way of accounting for the indeterminate nature of perceptual states is preferable on grounds of simplicity.

**II. Perceptual confidence**

Epistemologists make a distinction between beliefs and partial beliefs (or credences). Beliefs represent with 100% certainty. Partial beliefs represent the world probabilistically. Perception also represents the world. But do perceptual states, just as beliefs, represent with 100% certainty or do they, like partial beliefs, represent probabilistically? And how can we decide?

One important consideration here (besides the somewhat questionable reliance on introspection) is an epistemic one (see esp. Munton 2017). Perception can justify beliefs. But perception can also justify partial beliefs. If a perceptual state justifies a partial belief that represents probabilistically, then there are two options. If the perceptual state does not represent probabilistically, then there seems to be a mismatch between the two mental states: the non-probabilistic perceptual state and the probabilistic partial belief state. Probability is somehow put in as part of the process of perceptual justification. The other option is that both the perceptual state and the partial belief represent probabilistically. In this case, there is no mismatch: the probabilistic perceptual state justifies the probabilistic partial belief. On the face of it, these epistemic considerations should give us at least some prima facie reasons to conclude that perceptual states represent probabilistically.

A major assumption that this argument relies on is that perceptual states are propositional attitudes (an assumption not widely shared these days, see Crane 2009, Burge 2010, Nanay 2013). So both perception and (partial) belief amount to an attitude towards a proposition. The attitude is different (perception vs. (partial) belief), but the proposition is of the same kind. If the perceptual state is an attitude toward a proposition that the dress has a certain color property and the (partial) belief is an attitude towards a proposition that the dress has a certain color property, then we can use simplicity considerations about how this color property shows up in the proposition the perceptual state represents and how this is related to the color property that shows up in the proposition the partial belief represents.

And it is important to note that the proponents of the perceptual confidence approach all seem to assume that perceptual states are propositional attitudes (this is most explicit in Morrison 2016 and 2017). Morrison takes perceptual states to consist of the propositional content and the probability distribution. The propositional content in the dress at dusk example is that the dress is scarlet. And the probability distribution at the beginning of the time frame assigns a lower probability to this proposition than at the end. Jessie Munton is also very explicit that in scenarios like the one with the dress, what changes about our perceptual state is the probability distribution (Munton 2017). Our perceptual state has the same content, but different probability assigned to this content.

What I take to be the core claim of the perceptual confidence approach is not that perceptual states represent indeterminately, but a very specific account of how they do so. They represent the probability distribution of various different propositions. They assign a certain probability to the proposition that the dress is scarlet and another probability to the proposition that the dress is crimson, and so on.

In other words, in these versions of the perceptual confidence account, probability shows up in the attitude and not the content. The content is not probabilistic at all (it is the proposition that the dress is scarlet). But perceptual states assign different probabilities to these non-probabilistic propositions. In the original scarlet dress at dusk scenario, the content of the perceptual state is the same throughout, but our perceptual state attributes different probability to this content (see esp. Munton 2017).

My alternative is that indeterminacy shows up in the content of perceptual states, not in their attitude. It is the perceptual content that is indeterminate. This, in itself, would not be a completely new proposal. Sarah Moss suggested, in passing, that perceptual content is probabilistic, thus, indeterminate (Moss 2018, pp. 93-103). But her focus is on beliefs and she only mentions perception briefly and tentatively (without committing to the view that perceptual states have propositional content). And John Morrison’s official line is that he is neutral between the attitude and the content view: about whether perceptual states attribute probabilities to the non-probabilistic content or probabilities showing up in the content (Morrison 2016 and Morrison 2017). My aim is to argue that perceptual states have indeterminate content in a very specific sense – and one that is very different from the claim that they have probabilistic content: they represent determinable properties.

According to the attitude view (a good example of which would be Munton 2017), the propositional content of the perceptual state is that x is F. But the probability assigned to this proposition is, say, 70%. According to the content view Morrison considers (and Moss explores without endorsing), the propositional content of the perceptual state is that there is a 70% chance that x is F. This is the sense in which the content is probabilistic (and in this sense, it might, as Morrison suggests, be equivalent to the claim that the attitude is probabilistic).

My view aims to do justice to the more general claim that perception is indeterminate without appealing to probability either in the attitude or in the content. The perceptual content is that x has a determinable property – a determinable of F-ness. And a simple and straightforward way of cashing out what that means is by appeal to the distinction between determinable and determinate properties.

**III. Perceiving determinables**

My claim is that what happens in the dress at dusk scenario is that our perceptual state attributes more and more determinate color properties to the dress. My perceptual state does not represent probability distributions. It represents determinable properties.

Property-types can be more or less determinate. Metaphysicians often use the determinable-determinate relation to describe this (Johnston 1921, Funkhouser 2006). Being red is a determinable of being scarlet. But being red is also a determinate of being colored. This is to say that being scarlet is one way of being red. Being crimson is another way of being red. And being red is one way of being colored.

We get a hierarchical ordering of property-types from very determinable property-types (like being colored) to very determinate property-types (like having a very specific shade of crimson). Determinates without further determinates (if they exist) are called superdeterminates. Determinables without further determinables (if they exist) are called superdeterminables.

 It is important to emphasize that the determinable/determinate relation is not the same as the genus/species relation. Importantly, magnitudes come in various degrees of determinacy. A range of magnitudes that fully contains a smaller range could be thought of as the determinable of the latter. In fact, if we think of color representation as magnitude representation in a three-dimensional quality space (where the three dimensions are hue, saturation and brightness), red is a determinable of scarlet precisely because the range of magnitudes that marks red fully contains the smaller range of magnitudes that marks scarlet.

It is not possible to have a determinable property without having a determinate of this determinable property. It is not possible to be red simpliciter (without being either scarlet or crimson or…). While it is not possible for something to be red simpliciter (without being either scarlet or crimson or…), it is possible to represent something as red simpliciter (without representing it as either scarlet or crimson or…). I can represent the dress you bought as red (if all you told me about it is that it is red), without representing it as having any of the more determinate color properties of being red.

 We have plenty of empirical evidence that perception represents determinable properties (see, e. g., Green 2017, for a summary). In fact, anywhere outside the fovea we can only have very determinable perceptual representations. Vision in the periphery can attribute only very determinable properties. And even stimulus in the fovea is mostly represented in a determinable manner (see Hansen et al. 2009). In other words, knowing what we know about the perceptual system, we have independent reason to hold that perceptual states can represent determinate or determinable properties, and they often can only manage to represent determinables (Nanay 2010, Stazicker 2011). The perceptual representation of determinables needs to be part of any empirically informed account of perception. It is not something we need to postulate as an extra feature.

 Further, taking perceptual states to represent a variety of determinable and determinate properties has important explanatory advantages. The first one comes from understanding perceptual attention. Attention increases (or attempts to increase) the determinacy of the represented property (Yeshurun and Carrasco 1998, Prinzmetal et al. 1998). If I am attending to the color of my office telephone, I attribute very determinate (arguably super-determinate) properties to it (Nanay 2010). If, as it is more often the case, I am not attending to the color of my office telephone, I attribute only determinable properties to it (of, say, being light-colored or maybe just being colored).

Blurry vision (a darling of bespectacled philosophers of perception) is another important application of the determinable/determinate distinction in the context of perceptual representation. What happens in blurry vision is the perceptual attribution of determinable spatial location properties (Nanay 2018). This is different from peripheral vision inasmuch as it is only the representation of spatial location properties that is determinable (not, for example, the color property). This view should not be confused with Michael Tye’s explanation of blur as the ‘failure to comment’ (Tye 2002). Blurry vision does comment. But it comments in a determinable manner.

 The final advantage of this theoretical framework comes from the debate around intentionalism. Intentionalism is the view that perceptual phenomenology supervenes on perceptual content. It has become an important tenet of naturalistic approaches to the mind. According to the general naturalistic approach, if we can explain perceptual content, then, assuming that intentionalism is true, we are almost done explaining perceptual phenomenology as well. The most important counterexamples to intentionalism come from the two phenomena discussed above: attention and blurry vision.

The first counterexample is this. Two perceptual states have the same content, but if the allocation of attention is different, the phenomenology is also different. If you are looking at two spots against a black background, a red on the left and a green on the right and you attend to the red one and then you shift your attention to the green one, your perceptual content is the same, but as your attention changes, your phenomenology also changes. Same content – different phenomenology: we have a counterexample to intentionalism (Chalmers 2004, p. 161). If we think of attention as a matter of the determinacy of represented properties, then this argument fails to go through. The content of these two perceptual states is not the same. One of them attributes more determinate properties to the red spot, the other one more determinate properties to the green spot. As perceptual content is at least partially constituted by the sum total of represented properties, these two perceptual states have very different content as the attributed properties differ in their degree of determinacy (Nanay 2010). Not a counterexample to intentionalism.

The second counterexample comes from blurry vision. Seeing a fuzzy contour sharply and seeing a sharp contour blurrily have the same content but different phenomenology (Boghossian and Velleman 1989). A counterexample to intentionalism. But do these two perceptual states have the same content? No, as long as we think of blurry vision as attributing determinable spatial location properties. Seeing a fuzzy contour sharply attributes determinate spatial location properties to the fuzzy contour. But seeing a sharp contour blurrily attributes determinable spatial location properties to a sharp contour (Nanay 2018). Again, not a counterexample to intentionalism.

 In short, we have independent reason to postulate that perception can attribute more or less determinate properties. And this fact helps us to explain some puzzling facts about attention and blur (and also help us defend intentionalism). But it also helps when it comes to perceptual uncertainty – in a way that is much more economical than the perceptual confidence approach. What happens in the dress at dusk scenario is that we attribute increasingly determinate color properties to the dress. First, we attribute a very determinable property (we see the dress as reddish), then a somewhat determinable property (red), then a somewhat determinate property (bright red) and finally a quite determinate property (scarlet).

 All that we need to postulate for this explanation are determinable and determinate color properties, which we have independent reason to postulate. We do not need to postulate complex mental entities such as the representation of probability distributions and the assignment of various probabilities to various propositional contents. On the face of it, this is a major advantage of my approach. In the next section, I give a fuller comparison between the determinable/determinate approach and the perceptual confidence approach.

**IV. Confidence versus determinables**

One reason for preferring the determinable/determinate view of perceptual uncertainty is that it can explain the changes in our perceptual state without postulating any extra features of perceptual states. We have independent reasons to postulate the perceptual representation of more or less determinate properties. And that is all that is needed for the determinable/determinate view to work. The perceptual confidence approach, in contrast, needs to postulate the representation of probability distributions. My account does not need to postulate anything new.[[1]](#footnote-1)

But here is a potential objection to the determinable/determinate approach (a version of this objection is raised in Morrison 2016). When I see the dress at dusk, not all possible colors look equally likely. It is not seem to me that all possible colors or all possible shades are equally probable. It is more likely that there is a bell curve-like distribution of probabilities, with one shade getting the highest probability assignment (and that is what the top of the bell curve would correspond to).

 But would such bell curve distribution be consistent with the determinable/determinate approach? The worry is that attributing a determinable property entails that all the possible determinates of this determinable are equally likely. This is an important worry, but one that is based on a misunderstanding of what it means to represent determinable properties.

We have seen that representing a determinable property does not – in general – entail representing any determinate of this determinable property (while having a determinable property does entail having a determinate of this determinable). However, sometimes it does. Take the following example.

If I tell you that my armchair is red and I ask you to visualize my armchair, your imaginative episode attributes the determinable property of being red to my armchair. But what does this attribution of determinable property amount to? Does this imaginative episode represent all possible determinates as having equally likely? No. It tends to represent some determinates as more likely than others. I have seen armchairs before and some shades of red are more often represented among them than others. So there is no prima facie reason to assume that representing a determinable property entails that all the determinates of this determinable are represented as equally likely. In fact, there is a prima facie reason to hold that representing a determinable would amount to a Bell shape-like representation of determinates, which depends on our previous exposure (in the case of the present example, our previous exposure to armchairs).

And the same goes for the perceptual case: when I see the red dress at dusk, not all possible determinate shades of the determinable color property seem equally likely. Some will seem more likely than others – depending on the determinate color of reddish dresses I have been exposed to. In short, it does not follow from my view that all determinates of the represented determinable property appear equally likely. I am not a fan of using phenomenological considerations when debating about the nature of perception, but the phenomenological considerations Morrison brings up are equally consistent with the perceptual certainty view and mine own account.

**V. Conclusion**

The examples of perceptual uncertainty can be explained fully in terms of this determinable/determinate economy of the perceptual system. There is no need to posit sui generis extravagant representations of probability distributions. We can explain all that needs to be explained about examples like the dress at dusk scenario with the help of the perceptual representation of determinable properties.

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1. One may object that we have independent reasons to posit the perceptual representations of probability distributions from the empirical sciences of perception, especially the Bayesian approaches to vision science. Thus, the perceptual confidence approach does not need to posit anything new either. My response is that while Bayesian cognitive science does in fact work with representations with indeterminate content (which update roughly in a way that satisfy the probability axioms), it does not posit the perceptual representation of probability distributions. My account is as consistent with Bayesian cognitive science as the perceptual confidence approach. [↑](#footnote-ref-1)