Siegel's get rich quick scheme

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Susanna Siegel has done much in recent years to reanimate and redirect debates about the content of perception. Her rich, forcefully argued, and provocative book is a major contribution to the literature (Siegel 2011). In it, she helps to defend two pillars of the orthodoxy in the philosophy of perception against recent outbreaks of schismatic dissent: she argues the perceptual content is representational and that veridical vision shares a common core with hallucination. Her central positive thesis, however, may be regarded as a break from the orthodoxy. Wherever most would agree that visual experience represents shapes and colors, Siegel argues that it also represents properties that transcend mere appearances, such as natural kinds and causation, and it does so in a non-derivative way. That is, when visual experience represents natural kinds and the like, it adds something above and beyond the representations of superficial forms. This claim may align with commonsense, insofar as we take ourselves to see lions and tigers and bears, but it breaks from the kinds of information processing stories that dominate in vision science, and a long philosophical tradition that places strong limits on what we can experience in perception. I will focus on this thesis in Siegel's book, and the method by which she arrives at it.

I will begin by comparing Siegel's generous view of perceptual content to what I take to be its closest competitor. I will then critically examine the strategy she deploys in defending her position, and argue that it cannot rule out the alternative. Then I will suggest some reasons for preferring the alternative.

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1 Two routes to rich content

Just about everyone would agree that normally developing people can see certain spatial properties that are present in the distribution of light. These properties include color, shape, motion, and illumination. There is little doubt that such features figure in ordinary visual experiences. Controversy begins when we ask whether vision can represent anything other than these properties. For example, can vision represent natural kinds? On many theories, that is precisely what vision is for: we use vision to recognize water and walruses. But this raises a vexed question about how such kinds are presented in experience. When we see a walrus, do we also experience it as such?

Siegel says that we do. She defends the following thesis:

> **The Rich Content View**: In some visual experiences, some properties other than spatial properties, color, shape, motion and illumination are represented.

Siegel call properties that outstrip color and the rest "K-properties," because they include natural kinds. The term is not ideal, since some people think colors are natural kinds, and K-properties include things that are natural kinds, such as causation and complex relational properties. But I will stick to this terminology. A more pressing worry is that Siegel's formulation of the Rich Content View is underspecified with regard to an issue that will be very important for our discussion. In saying that experience represents K-properties, the formulation doesn't specify whether those properties are represented in a way that makes an experiential difference. Representation is a relation between mind and world, and, according to many theories, experiential qualities (or "phenomenal character") depends on states inside the perceiving organism. That raises the possibility that two tokens of the same type of experience could represent different things. If so, then representational content does not always impact the character of experience, and therefore, one could have a Rich Content View while insisting that K-properties are represented by experience, but do not add anything to the character of experience. This would be a weaker position than the one Siegel would like to defend.

For clarity, then, let's distinguish two variants of the Rich Content Views:

> **Phenomenal Richness**: In some visual experiences, K-properties are represented, and the phenomenal character of such experiences differs from the phenomenal character of experiences that do no represent K-properties.

> **Phenomenal Modesty:** In some visual experiences, K-properties are represented, but the phenomenal character of such experiences is just like the phenomenal character of experiences that do no represent K-properties.

Phenomenal Modesty may look odd at first, but it is easy to see the appeal if we recall again that theories of representational content tend to be relational. This is true on both causal theories of representation, and on functional role theories. A defender of Phenomenal Modesty might adopt the following picture. Visual states respond to patterns in light, and every difference in visual qualities corresponds to a difference in the light patterns they register, but we can learn to use light patterns to

recognize things whose essences are not optically available. For example, we can learn to recognize a tiger by its stripes. When we see a tiger, all we experience visually is those stripes and a tiger contour, but we use this experience to detect tigers and to draw inferences about the presence of tigers, and, thus, the experience comes to represent the property of being a tiger. We represent tigerhood, by means of tiger appearances. Elsewhere, I have argued that we can represent just about anything this way (Prinz 2006).

Given that causal and functional theories of representation are all that we have, it's easy to see why the Rich Content View should be attractive. Leading theories of content are consistent with the possibility that perceptual content is rich. If the causal precursors or use of visual states can put them in relation with K-properties, then we should admit that visual states can represent natural kinds and the like. Thus, the most controversial aspect of Siegel's position is not Rich Content as such, but Phenomenal Richness. I turn to her case for that now.

2 Inconclusive contrasts

Siegel argues for Phenomenal Richness by a method of phenomenal contrast. To determine whether a K-property is represented by experience, she considers pairs of experiences that differ phenomenally, and argues, that, for some such pairs, the best explanation is that one of these experiences represents a K-property. If that is the best explanation, then it would seem to follow that some experiences that represent K-properties have phenomenal qualities above and beyond experiences that don't represent such properties.

Siegel summarizes this strategy as an argument. For some pair of experiences, E1 and E2:

(0)   E1 differs in its phenomenology from E2.
(1)   If (0), then there is a phenomenological difference between E1 and E2.
(2)   If (1), then E1 and E2 differ in content.
(3)   If (2), it is a difference with respect to K-properties represented in E1 and E2.

We are treated to three intuitive examples in Chap. 4. One involves a contrast between reading words in Russian before and after learning the language. Before learning, a page of Russian text gives you only a pattern of Cyrillic characters, but after learning, we seem to move immediately from these characters to their meanings, and this changes the phenomenology; thus, is it plausible that semantic properties, including K-properties, contribute to phenomenal character. Another example involves learning to recognize pine trees. Seeing a pine after learning seems different phenomenally than seeing one before learning, even though shape and color remain constant. A third example is the alleged phenomenal change that takes place after learning to recognize a facial configuration as an expression of doubt. In Chap. 5, Siegel uses the same method to argue that we can experience some causal relations, as in Michotte's classic studies in which billiard ball events are perceived as causal only when spatiotemporal relations fall within certain boundary conditions. In Chap. 7, Siegel suggests that we can even perceive the

property of subject-independence: some hallucinations and veridical perceptions differ experientially in that objects in the latter look like they remain fixed in space when we change our perspective on them.

In all these cases, we are invited to conclude that K-properties contribute to phenomenal character. But one can resist Siegel's argument from phenomenal contrast in multiple ways. Let's grant that, in each of these cases, the experiences before an after learning differ. Still, one can deny that the contrasting experiences are visually different (contra (1)), one can deny that there is a difference in content (contra (2)), and one can explain the phenomenal difference by appeal to modest visual qualities (contra (3)). Let me consider all of these strategies. To deny a phenomenal difference, one need only place the contrast elsewhere: it can be part of our cognitive phenomenology, unconscious, or in a sense modality other than vision. As a defender of Phenomenal Modesty, I think cognitive phenomenology has no allure (Prinz 2011), but the other options are plausible. In the Russian case, knowledge of meaning may lead to lexical retrieval, which has a profound impact on information processing. For instance, if you know the meaning of a sentence, the inferences you draw, the decisions you make, and the actions you perform can be effected. These changes may not be immediately felt, but, when you introspect to ask yourself whether the text seems different after learning the language, you may register these unconscious changes and report an affirmative answer. Alternatively, there may be non-visual differences before and after learning: a feeling of bewilderment is replaced by familiarity and speech sounds imagined, as well as the sounds of associated words (e.g., Kurby et al. 2009). Within vision, there will also be changes, but these need not be changes in content. For example, we may attend to the words differently, ignoring serifs and other extraneous decorative details, and our eyes may flow effortlessly across the page. There is also evidence that we bind familiar words together as holistic visual unities, rather than assemblies of parts (Glezer et al. 2009). Such attentional changes may involve changes in content, but they may also involve changes in the intensity and resolution of the same contents. Finally, there may be changes in visual content that indirectly involve K-properties; we may visualize the appearance of objects that the words represent. This is consistent with empirical literature that shows spontaneous visualization during reading (e.g., Chao et al. 1999).

Likewise for the other examples. Learning to recognize pines may lead us to focus attention on conical shapes and needle shaped foliage, along with tactile, olfactory, and verbal imagery ("pine!"). Recognizing doubt may involve associated emotional states; the empirical literature suggests that we recognize emotions by feeling them (Adolphs 2002). Seeing causation effects visual expectations. When one object hits another, we expect to see displacement; this is born out by the fact that causal perception induces predictive eye movements (Badler et al. 2010). Seeing an object as subject-independent is also a matter of visual expectation. These expectations may consist entirely in imagined shapes and movements, though in the case of subject-independence there is also evidence that we use gravity in drawing visual expectations (Barnett-Cowan et al. 2011). It unclear from introspection whether these expectations actually enter into experience in the form of faint imagery, or merely arise unconsciously and produce surprise when violated.

Siegel is aware of these strategies, of course. For example, she considers the proposal that learning to recognize pines involves the acquisition of a shape-gestalt. Against this, she argues that some objects have shape-gestalts that are the same across multiple categories and other objects lack shape-gestalts. Both of these moves seem unpromising, however, since the very fact that we can recognize a kind by its appearance would suggest that recognizable kinds have configurationally properties that are, at least, highly diagnostic. Moreover, Siegel's contrast cases do not establish that the features represented after learning could not have been experienced before learning. For example, suppose that while reading "кошка на ковре" a monolingual English speaker just happened to visualize a cat on a mat, which is what the Russian sentence represents. Is it so obvious that her experience differs from what she would experience if she knew the language? Contrast cases establish that learning changes how certain stimuli are ordinarily experienced, but they do not prove that learning generates experiences that would have been impossible before. To insist otherwise begs the question.

In defending the view that causal perception has rich phenomenology, Siegel devises a clever pair of contrast cases, which seem to have all visual features in common. In both cases, we draw open a window curtain, and we experience an increase in light coming in, but in one case, these events are perceived as causally tied and, in the other, the increase in light is attributed to a shift in a cloud that was blocking the sun, and happened to move just as the sun curtain was drawn. Siegel is going out on an empirical limb here, when she says that we can experience the second case without a causal construal. If the curtain opens at exactly the rate that the light increases, causal attribution may be inevitable, even if correctable. Another possibility is that the two cases differ with respect to visual expectation. If we draw an opaque curtain, we may expect light to increase, and if we draw a translucent curtain, we may not, leading to surprise when the light increases. Against this, Siegel might point out that we might have expected the cloud to move in the latter case, so expectations could be the same. She might also point out that some events are perceived as causal even when the effects are unexpected (she gives the example of lights going out just after a ball hits the ground). Such cases are problematic for an account of causal perception that relies exclusively on expectations. But other resources are available to the defender of Phenomenal Modesty. Perhaps in causal events, we tend to gaze back at the putative cause or attend to cause and effect jointly. We also tend to simulate causal events with congruent movements in our bodies (Glenberg and Kaschak 2002), and we may project kinesthetic imagery onto objects that we perceive as exerting causal force. If we subtract expectations, kinesthetic imagery, and joint attention, it's not clear that there is anything left to the phenomenology of causation beyond temporal contiguity, and then the alleged contrast between cases disappears.

The point of this exercise is to show that the contrast cases with drive Siegel's argument for Phenomenal Richness are amenable to alternative interpretations, which are consistent with Phenomenal Modesty. It's very hard to tell which of these interpretations is right by phenomenology alone, even if we grant that there are contrasting pairs. By analogy, it's worth recalling that introspectionist psychology collapsed precisely because different labs offered different explanations of the same

phenomenal states. For example, Wundt argued that the experience of action intentions involves bodily imagery, and Külpe denied this. Introspection couldn't settle who was right, and that entire approach to psychology went down in flames. This does not mean such debates are irresolvable. One can use empirical methods to move beyond introspection. For example, Wundt's account of intentions predicts neural activity in sensorimotor systems and Külpe's does not; here the evidence seems to favor Wundt. Siegel tries to bypass the pitfalls of introspection by resisting the temptation to assign content by introspection alone. The method of phenomenal contrast assigns only content differences between pairs of states, and then K-properties are introduced to explain those differences. But I've tried to argue here that there are modest interpretations of all Siegel's examples. That means, even if she can show that attribution of K-properties can alter ordinary experiences, she cannot show by the method that the alteration results directly from K-properties, and not associated changes in attention, cross-modal associations, or imagery involving superficial visual features. In other words, she has not established that there are phenomenal contrasts between cases that attribute K-properties and cases that represent a complex of associated properties that are more modest. If I am right, the method of phenomenal contrast unwittingly falls back on the method of introspection, which Siegel is at pains to reject. If we are left with Rich and Modest interpretations of the same contrasts, we can't rely on introspection to settle the debate. I cited some empirical evidence favoring my modest interpretations, but the evidence I've offered is weak at best. The best conclusion at this point is a Scotch verdict. Given alternative interpretations, Siegel has not established that K-properties make a direct contribution to phenomenology.

3 A plea for modesty

Given the Scotch verdict, we might wonder whether there is any way to adjudicate the conflict between Phenomenal Richness and Phenomenal Modesty. In this final section, I want to offer four general considerations tell in favor of the modest approach.

One of these considerations is discussed by Siegel, but deserves closer analysis. Many philosophers are content externalists, especially when it comes to representations of natural kinds. If such externalism is right, then representing a natural kind is not always a matter of forming a singular description that uniquely picks out that kind, but is rather a matter of having reference fixing information, which picks out different kinds in different worlds. A resident of Earth refers to pine trees and not twin-pines, because pines are the pine-like trees in this world. This is hard to square with Phenomenal Richness, since it implies that kinds enter into the relational aspect of representation, rather than the experiential. If I moved to twin-Earth and my pine experiences became twin-pine experiences, I wouldn't notice any difference. Siegel concedes that representing pine trees, as opposed to twin-pines, may make no phenomenal difference. But she replies that even if externalism is true, visual phenomenology may nevertheless supervene on the content of visual experience. I don't see how this reply would help. Defenders of the modest view can happily

succeed that every phenomenal difference corresponds to a content difference. What externalism shows is that natural kind properties make no phenomenal difference. And that suggests that any phenomenal change that comes about when we learn to recognize a natural kind must be a change in something other than the property of representing that kind; it must involve the acquisition of whatever me and my twin-share in common. But it's widely assumed that what twins share are reference-fixing descriptions, and those, in turn, are representations of superficial appearances (such as the clarity and wetness of water or the brightness of lightening or the yellowness of gold). Thus, externalism implies that the phenomenally available aspects of content are modest, not rich.

Another reason for modesty comes from sensory neuroscience. Perception scientists think they have a pretty good idea of where visual systems are located in the brain. This can be done in multiple ways: looking for what's active when we see, using tracers to see which areas are connected to the visual input mechanisms, and determining which brain injuries effect visual performance. We also have techniques for figuring out what cells in the visual pathway respond to. One can see what cells get activated by a broad range of stimuli. Such methods have led to detailed models of visual representations. Lower level visual areas seem responsive to simple oriented edges, colors, and movement trajectories, while higher areas respond to more complex shapes. There are even cells that respond to faces, and other familiar objects. But it would seem extravagant to say that any cells in the visual system respond to K-properties without also corresponding to modest properties. One gets a face cell to fire by presenting a configuration of shapes, for example. There are no visual cells known to fire invariantly across presentations of natural kinds that differ dramatically in appearance. For example, no one has identified a cell that respond to dogs regardless of whether they are sitting or standing or lying or snub nosed or long-haired, and so on. Vuilleumier et al. (2002) demonstrated this using repetition priming; they presented people with a series of objects that were either identical, different in orientation, or different shaped instances of the same lexical category (such as an open and closed umbrella). They scanned the brain to measure which areas diminished in activity as the series continued, in order to test which areas registered sameness along these three dimensions. Identity of form and preservation of form across changes in orientation were both associated with reductions in the visual system, but preservation of category with different forms, was only associated with a reduction in the frontal operculum, which is not regarded as a visual area. Thus, I think it is unlikely that kinds are represented in the visual system. Elsewhere I have also argued based on a large body of evidence, including whole brain scans, unit recordings, and brain injuries that only relatively low levels of visual activity are implicated in consciousness (Prinz 2012), but the present argument does not depend on that contentious claim.

A third consideration is more philosophical than empirical. In making her case for Phenomenal Richness, Siegel invokes the intuition that there is a change in phenomenology after learning the meaning of a word. It is important to her argument that this is a change in visual phenomenology. But, if we were to allow that argument, it would prove way too much. Words can represent just about

anything. If each word we learned resulted in a visual change corresponding to the content of that word, then there would be a visual quality corresponding to everything words can represent. That is a very extravagant conclusion. To block it, Siegel would have to say that some cases of word learning do not affect visual phenomenology or she could say that the visual changes are not at the level of content. Until such a move is offered, the argument from word learning must be taken with a grain of salt. Similar conclusions follow for other arguments from learning. After all, the presence of a visual stimulus can be taken as a sign for an arbitrary range of properties. Suppose I ask a class to raise their hands if they are hungry on one occasion, and if they are married on another, or bilingual on a third, or Kantians on a fourth, and so on. Each time, the raised hands take on new meaning. Is there a difference in phenomenology here? If so, it cannot be a visual difference on pain of saying every property that can be polled in a classroom has a distinctive visual phenomenology. We need a principled way of saying when leaning changes the phenomenology of a perceived stimulus, and of saying when those changes are visual. Siegel tries to avoid this by providing a detailed discussion of cases, but the intuitions she draws on may generalize in ways that prove embarrassing for the theory.

Finally, if K-properties make a phenomenal difference in vision, then we should be able to experience them in isolation. After all, uncontroversial cases of visual qualities can be experienced in different combinations and on their own (a red ganzfeld, a solitary circle, etc.). But can we experience pinehood without a shape? Causation without forms coinciding in time? An expression of doubt without facial features? Presumably not, at least not visually. And that leads me to think these are not visual qualities at all.

In conclusion, I am not persuaded by Siegel's case for Phenomenal Richness. Her move from phenomenal contrasts to rich experience is too hasty, given thriftier alternatives. That said, her book has raised the bar for those who believe in Phenomenal Modesty, and it will help set the agenda, in welcome ways, for the current generation of philosophers of perception.

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