14

HUSSERL TAKES SANTONIN

Abnormality, embodiment, and intersubjectivity

Michael Madary

According to the *British Pharmacopedoeia* of 1914, "Santonin, $C_{15}H_{18}O_3$, is a crystalline principle which may be obtained from santonica, the dried unexpanded flowerheads of Artemisia maritima, *var.* Stechmanniana" (332). It was widely used in the early twentieth century to treat intestinal parasites. It was also used as an example by Edmund Husserl to illustrate a particular kind of perceptual abnormality in his *Ideas II* and elsewhere. The perceptual abnormality mentioned by Husserl is a curious side effect of santonin: *one's entire field of vision becomes tinted yellow.* Another side effect of santonin is the irreversible cessation of vital functions, which is why it is difficult to find in pharmacies these days.

In this chapter, I will present three themes in Husserl's work on perception that can all, in different ways, be illustrated by his example of yellow vision due to the ingestion of santonin. These themes have received some treatment in the secondary literature on Husserl and within the phenomenological tradition but have not figured largely in contemporary philosophy of perception and perceptual psychology. I intend to show how these themes might both complement and challenge the contemporary research in these areas. The themes that I will cover are as follows:

1 The possibility of perceptual abnormality reveals the role that the lived body plays as the medium of all perception.
2 Characterizing perception as normal or abnormal motivates a consideration of high-level global features of perceptual content that are always relative to the perceiver.
3 Abnormal perceptual states suggest that intersubjectivity plays an essential role in the possibility of perceptual objectivity.

Before entering into each of these three themes, I will present some of the relevant features of Husserl's account of perception as well some of the relevant passages on perceptual abnormality.

Husserl on perception and abnormality

If one were to characterize Husserl's philosophy in its most general form, one might say that he was concerned with essences (Sokolowski 1974: Chapter 3), especially with the essential

features of consciousness. He emphasized, as is well known, that the perceptual modality of consciousness is *essentially perspectival*. Husserl addresses this fact in some of his earliest works (Husserl 1900/1901: VI §10) and throughout his main writings (Husserl 1966: §1–4) up until some of his latest works (Husserl 1973: §63, for example). In doing so, he offers one of the most sophisticated treatments of perspective to be found in the history of philosophy (Madary 2012). The perspectival nature of perception is philosophically puzzling. The properties that we typically perceive, such as size and volumetric shape, are perspective-independent. That is, the size and volumetric shape of objects do not typically change and do not typically appear to change, as one perceives objects from different perspectives. But, and here is the puzzle, the way in which those properties appear to us as we take different perspectives on objects does appear to change. The appearance of the table is different when our eyes are a few centimeters from it compared with the perspective we have when our eyes are a few meters from it. Despite the changing appearance of the table, there is no sense in which we perceive the table itself to change. The table itself remains constant, which is why this aspect of perception is now referred to as perceptual constancy.

Husserl's account of perceptual constancy is built upon two main concepts: anticipation and fulfillment (Madary 2017). Our perception of a table always includes unfulfilled anticipations of how that table would appear from different perspectives. As we move and take different perspectives on the table, those anticipations are typically fulfilled through sensations (Husserl 1993: VI; Hopp 2008). We experience the perspective-independent properties of objects through fulfilled anticipations of how those properties appear from our current perspective as well as unfulfilled anticipations of how those properties would appear from other perspectives. When we move, those unfulfilled anticipations become fulfilled. Of course, there are also instances in which we are wrong about the perspective-independent properties of the world, in which case our anticipations are wrong and would not be fulfilled as we move. In those cases, we experience surprise, or disappointment of our anticipations, instead of fulfillment. There are also cases in which we are unable to gain perceptual fulfillment due to unfamiliarity and due to perceptual abnormalities. Here is an example of each case.

Unfamiliar environments can be a source of disappointment for our perceptual anticipations. Consider a situation in which one visits a foreign country for the first time. In such situations, we have anticipations about how things will appear as we move, and those anticipations are usually more or less fulfilled—tables continue to look like tables. But those anticipations are less determinate and more likely to be disappointed than the anticipations we have for our home environments. In unfamiliar environments, we have only a vague notion of how novel objects will appear as we gain different views on them. Perhaps the patterns of ornamentation are new to us. Perhaps the layout of the environment itself is surprising. In contemporary terms, we might say that these situations involve surprising sensorimotor contingencies (O'Regan and Noë 2001; Noë 2004). That is, the perceptual content of "if I move in this manner, then I will see this" is generally indeterminate in the consequent and quite often false in unfamiliar environments.

Now consider a case of perceptual nonfulfillment due to the abnormal. Note that the meaning of the abnormal for Husserl is different from the way we might identify something as abnormal in science or medicine (Steinbock 1995a: 241–242). Husserl is concerned with abnormality in a phenomenological sense, which means an abnormality of experience itself.[1] For the abnormal in Husserl's sense, consider some of the most common occurrences of perceptual abnormality that we experience due to external conditions preventing us from having an adequate perception of the properties of objects. Some lighting conditions generate a kind of perceptual abnormality relative to the color of objects because they make it difficult

to distinguish the colors of different objects. Here is an example from Husserl of perceptual situations in which we experience abnormality due to lighting conditions:

> [C]ertain conditions prove to be the "*normal*" ones: seeing in sunlight, on a clear day, without the influence of other bodies which might affect the color appearance. The "optimum" which is thereby attained then counts as the *color itself*, in opposition, for example, to the red light of the sunset which "outshines" all proper colors. *(Husserl 1989: §18b)*[2]

Note an important difference between the first example of visiting an unfamiliar environment and the second example of our inability to detect the colors of objects due to a red sunset. In the first example, our anticipations are indeterminate and likely to be partially disappointed. In the second example, there is a sense in which our anticipations are relatively determinate and are fulfilled: the objects will continue to be outshined by the sunset as we move and gain different views on them. But there is also, I suggest, a sense in which our anticipations are unfulfilled in the case of the sunset. Namely, if we understand perceptual fulfillment as having an adequate view of objects, as does Husserl (2004: 144–148; Husserl 1993: VI §16 and §24), then the case of the sunset is one in which we lack perceptual fulfillment for the case of color. When we cast abnormality as a lack of fulfillment due to an inadequate view of things, then normality becomes a form of *optimality*, as indicated in the passage above (also see Steinbock 1995b: Chapter 9). This second sense of fulfillment, the fulfillment that we lack in cases of perceptual abnormality, will be important for what follows.

The case of the red sunset outshining the proper colors of objects is a case of perceptual abnormality due to external conditions. Husserl also presents cases of perceptual abnormality due to a change in the perceptual organ itself, which brings us back to santonin: "If I ingest santonin, then the whole world 'seems' to change; e.g., it 'alters' its color … Afterwards, as is the case with every change of colored lighting, etc., I once again have a world which matches the normal" (Husserl 1989: §18b).

With santonin, we are unable to see the normal colors of things—we are unable to discern the colors of objects in an optimal way—because our entire field of vision takes on a yellow tint. Another way in which perceptual abnormality can occur due to a change in the perceptual organ itself would be cases such as a touching something with a blister on one's finger or when we are crossing our eyes (Husserl 1989: §18b).

So far, I have presented cases of unfulfilled perceptual anticipations due to unfamiliarity, when sensorimotor contingencies are disappointed, and cases of unfulfilled perceptual anticipations due to perceptual abnormality, when we are unable to gain an optimal view of objects due to either the environment or a change in the perceptual organ itself. Going beyond Husserl's examples in his *Ideas II*, we can also consider cases in which there is both unfamiliarity and abnormality. The unfamiliarity may be so extreme as to prevent coherent visual perception entirely, thus engendering perceptual abnormality. One such case can be brought about using technology. Imagine, say, you were to put on a pair of up-down inverting goggles of the sort used in experiments by the Gestalt psychologist Ivo Kohler (1964; Stratton 1896; Harris 1965; Degenaar 2014), or a contemporary version using a head-mounted virtual reality display with a feed from a 360-degree camera that has been systematically inverted. When you look up, you see what is below you, and when you look down, you see what is above. In this case, the pattern of sensorimotor contingencies is unfamiliar initially. And the unfamiliarity is so extreme as to prevent you from making any sense at all of the visual scene. Such a perceptual situation would obviously prevent you from having an adequate view

on things, and would thus be abnormal in Husserl's sense. As some readers may be aware, the subjects in Kohler's experiments eventually adapt to the inversing goggles if they are able to explore freely while wearing them. They regain the ability to perceive the environment as the unfamiliar becomes familiar over time. As this adaptation occurs, the perceptual situation gains normality. The case of inversing goggles is not a change in the perceptual organ itself, at least initially. For a change in the perceptual organ itself that engenders an experience that is both unfamiliar and abnormal, one might ingest a classical hallucinogen—also difficult to find in pharmacies these days.

This section of the chapter has presented, using examples, some of the key concepts for the three main themes that will follow. Perception, for Husserl, is an ongoing process of anticipation and fulfillment. In unfamiliar environments, anticipations lack determinacy and those anticipations are more likely to be disappointed. In cases of perceptual abnormality, perception lacks fulfillment due to the fact that we are prevented from gaining adequate views on objects. Abnormality can occur due to external or internal conditions, due to an abnormal perceptual environment or a change in the perceptual organ itself. Now I turn to the three main themes of the chapter, as mentioned above.

The body as medium of perception

Leading up to the passages cited above, Husserl asserts that "The Body is, in the first place, the *medium of all perception*; it is the *organ of perception* and is *necessarily* involved in all perception" (Husserl 1989: §18b). Cases of perceptual abnormality illustrate this claim nicely because they make the fact that the body is a medium directly manifest to us as perceivers. When one has ingested santonin and sees everything with a yellow tint, or when one tries to perceive the surface of an object by touching it with a blistered finger, the temporary abnormality of the body itself changes the way in which the world appears to us. When things are going well and the world appears to us normally, the fact that the body is a medium can be easily overlooked, but it would be an error to do so. The important insight from cases of perceptual abnormality is that the body is always the medium of perception, even in normal cases.

Another way of putting this point is to consider two possible ways of describing the return to normally colored vision after santonin wears off. First, one might say that the difference is that we return to perceiving the true colors of things. There is a sense in which this first way of describing the change is appealing, entirely unobjectionable in everyday discourse. But another, more accurate, way of describing the change is to say that the medium of perception has changed from an abnormal state to a normal state. This second way of describing the change draws our attention to the fact that the change is merely a change in the medium from one state to another: it is not a change that removes the medium entirely so as to allow direct access to the world of color as it is in itself. The "color itself" is determined by the optimum view that bodies such as ours can have, as Husserl indicates in the passage cited above. Even when normal, our sense organs always remain, as Husserl writes, "a kind of distorting eyeglasses" (Husserl 1989: 90). An understanding of perceptual properties in this way, as depending on the normality of bodies such as ours, introduces a role for intersubjectivity in the analysis of perception, which will be discussed in further detail below in the third theme of the chapter.

A point that follows from the fact that the body is the medium of perception is that the optimal way of perceiving properties is determined by the nature of the body itself. Just as we might adjust the lens on a microscope or a pair of binoculars in order to gain the best view of something, so we must move our bodies through continuous action. Some of these

movements are similar to adjustments of the lenses on microscopes, such as fine-grained adjustments of the eyes themselves (Merleau-Ponty 1962: 302; Steinbock 1995b: 141–142). But movements of the entire body are also relevant here, as in Merleau-Ponty's well-known example of one's being drawn to a particular spot in a museum in order to obtain the best view of a painting (Merleau-Ponty 1962: 302). Norms of action proceed out of our natural tendency toward optimal perceptual states (Husserl 1973a vol. XIV: 123: 123; Taipale 2012).

The perceptual organ which is our entire body makes it so that there is a proper way to act in order to perceive. Note that in these remarks I am not going so far as to suggest that we are always inclined to adjust the body so as to gain a better view on objects. We must keep in mind the obvious cases of properties in the world that we may not care to perceive, such as unpleasant odors or distasteful images. Thus, I would add a qualification to the way that Kelly puts the point in his commentary on Merleau-Ponty, in his claim that "Lighting leads the gaze in the sense that I have a direct bodily inclination to look where the lighting is best in order to see the color of a thing" (Kelly 2004: 101–102). The qualification is that we are only inclined to seek the optimal for some properties. My point is that optimal perceptual conditions *for the properties that we do care to perceive given our interests and goals* always involves an adjustment of the medium of perception, which is the lived body (Doyon 2018; Husserl 1973b §36). Also, the way in which we seek the optimal for one kind of property might exclude the actions that would enable us to seek the optimal for another kind of property. Seeking optimality is always constrained by the limitations of our embodiment.

Before moving to the second main theme of this chapter, I would like to make some remarks about how this first theme might be relevant for one of the main areas of dispute in contemporary philosophy of mind. Philosophers have appealed to something like G. E. Moore's claim that experience is transparent as a motivation for representationalism about perceptual experience, for rejecting that the view that we are aware of intrinsic properties of experience, or qualia (Harman 1990; Tye 1995, 2000). It would require a separate work to investigate properly how the body as medium of perception would figure precisely in the large literature on qualia and the transparency of experience, but here are some brief comments as to how the insight might be helpful. The main point of Moore's that has received so much attention is that our efforts to introspect qualities of experience always leave us attending to properties of objects in the world. Moore wrote: "That which makes the sensation of blue a mental fact seems to escape us: it seems, if I may use a metaphor, to be transparent—we look through it and see nothing but the blue" (Moore 1993: 37).

Contemporary representationalists about experience appeal to transparency in order to deny that there are intrinsic, or nonrepresentational features of experience. A typical positive formulation of the representationalist view is that phenomenal character supervenes on representational content. That is, if experience A has the same representational content as experience B, then experiences A and B have the same phenomenal character (Tye 2000: 45). The representational content "exhausts" the phenomenal character of the experience in the sense that there is nothing to the phenomenal character outside of representational content.

But is Moore's claim about transparency accurate? One immediate objection is that, as the preceding remarks of this chapter should make clear, we do not simply see "nothing but the blue." We see the blue, say of a carton of blueberries, from various distances and in various lighting conditions. We also see the blue in various states of the perceptual, in this case visual, organ: the eyes and the brain. Of course, the state of the visual organ does not typically fluctuate in a noticeable manner, but it can do so, and this point should not be neglected. It can change, for example, after receiving a blow to the eye, while adjusting to dim lighting conditions, during double vision and afterimages, and after ingesting some substances, such as santonin.

Representationalists, in denying that there are intrinsic properties of experience, have come up with replies to some of these concerns. For example, one reply to the fact that we always perceive properties from particular perspectives is to claim that we represent properties that objects have "from here" (Harman 1990; Tye 2000: 78) or "perspectival properties" (Noë 2004). A standard reply to cases of double vision, afterimages, and other "oddities" is to maintain that those cases always involve a change in representational content along with the change in phenomenal character (Tye 2000: Chapter 4). In the case of santonin ingestion, the representationalist reply would be that the yellow tint to the visual field does represent the world as having turned yellow, even though we do not form the conceptual judgment that the world has in fact become yellow.

This representationalist strategy for dealing with perspective and other perceptual oddities strikes me as flawed due to the fact that it is *ad hoc*. It is *ad hoc* because the theory itself is not set up to account for these cases in an effective manner. Each perceptual "oddity" requires a new case to be made to the effect that the change in phenomenal character is always a change in representational content. The *ad hoc* nature of these replies is especially troublesome due to the fact that the perspectival nature of perception is universal; it is not something that only occurs when we look at tilted coins or rows of trees (see Madary 2017: Chapter 2). The purported change in representational content for each of these cases departs from the usual understanding of representational content. That is, representational content is typically understood as representing the world to be one way or another. These cases add troublesome and suspicious qualifications, prompting claims that we have content that represents the world to be a particular way "from here" or that the world is represented to be a particular way even though it is not actually judged to be that way on the conceptual level.

Husserl's point that the body is the medium of all perception offers a way forward that has been missed by both sides of the controversy. The representationalist has it that all perceptual experience is purely a matter of how we take the external world to be, and the opposition has it that experience has a phenomenal character that is a property of the experience itself (Block 1996). The alternative to both extremes is to say that *experience always involves a medium which is the body*. *Qua* medium of perception, the body is neither external nor internal: it is the medium through which the external is made manifest. All of the cases that prompt *ad hoc* responses from the representationalist are cases that involve changes to the body. Changes in perspective involve changes in the spatial location of the body (or changes in the external world relative to the body) and the other "oddities" such as double vision, afterimages, and santonin involve changes in the body itself as organ of perception. The representationalist has committed the error of understanding normal perception as an unmediated report on the way the world is and then finds a challenge in accounting for perceptual "oddities" or abnormalities. The way to avoid this challenge, I suggest, is to understand both normal and abnormal perception to occur always through the medium of the body. Changes in perspective bring about fluctuations in the optimal vantage point for perceiving properties and changes in the perceptual organ itself alters the normality of the medium of perception. The cases that do not involve "oddities" are not returns to transparency but rather are returns to normalcy.

Global and perceiver-relative perceptual content

Now consider the second theme that perceptual abnormality raises. If one describes all perceptual content as more or less optimal, then we have a way of describing perceptual content in terms of a high-level global feature. This description marks a departure from the standard way to approach perceptual content, which is in terms of propositional content regarding the

particular properties that are represented (Searle 1983: 40; Byrne 2001). For instance, on the standard approach, perceptual content tells us that such and such is the case: that the cat is on the mat, that the milk has gone sour, that the cold front has arrived. The standard approach has perceptual content constituted by representations of multiple features of the perceptual environment. Understanding perceptual content in terms of a deviation from normality, or as more or less optimal, is different from the standard approach in two main ways. First, it presents a type of perceptual content that is global. Second, it introduces a type of content that always relative to the perceiver; it is not purely world-directed.

The consideration of perceptual content as more or less optimal introduces a global parameter for content. In the previous section, I discussed optimality relative to particular properties that we would like to perceive. It is an oversimplification to say that we perceive, say, the spherical shape of an object. We always perceive the sphere from a particular perspective and that perspective is more or less optimal relative to our ability to perceive the volumetric shape of the object. In addition to optimality relative to particular properties, an entire perceptual modality can be described as more or less optimal. When one has yellow-tinted vision due to santonin, or when one is in poor lighting conditions, the entire visual modality deviates from the optimal viewing conditions in which the facing surfaces of objects "reveal themselves as they really appear" ("*zeigt, wie sie wirklich aussieht*") (Husserl 2004: 210). Even our entire multisensory perceptual experience can be described as more or less optimal. For example, it is more optimal when one is in good health and clear perceptual conditions, and less optimal when one has the flu or is under the influence of a dissociative drug. The understanding of perception as more or less optimal is a simple and elegant way to conceive of perceptual content. It suggests a unifying characteristic of all perceptual content, which can be contrasted with the piecemeal nature of the usual approach.

Since optimality of perceptual content is always relative to the perceiver, this alternative way to conceive of perceptual content departs from the standard, purely world-directed, conception of content. The traditional view has it that perceptual content offers an unmediated report of the external world, to represent "the world as accurately as possible, without embroidery or fiction" (Akins 1996: 344). The alternative conception of perceptual content can be construed as always being relative to the background and expectations of particular perceivers. In other words, perception does not answer the question of what is out there so much as it answers the question of whether there is anything out there that is abnormal or suboptimal relative to one's background and goals.

Both of these points—perceptual content as having a general global feature and perceptual content as relative to the perceiver—dovetail nicely with some of the central themes in recent work in the predictive processing approach to cognition (Friston 2005; Clark 2013, 2015a, Hohwy 2013; Madary 2017: Chapters 5 and 6). On this approach, or family of approaches, perception and action are explained in terms of the minimization of prediction error. The brain actively predicts upcoming sensory inputs and then works to minimize the error in those predictions either by revising its internal model of the world (perceptual inference) or through self-generated motor movements (active inference). As above, this understanding of perception characterizes perceptual content in terms of one global feature: the degree to which it deviates from what is predicted. Abnormal perceptual conditions increase prediction error, and since the overarching goal of cognition is to minimize such error, abnormality is nonoptimal. The notion that perceptual content is relative to individual perceivers is also a feature of the predictive processing framework. The central role given to predictions on this framework leads to a situation in which perceptual content is determined by the particular predictions that individual perceivers happen to have. Importantly, those predictions will vary according to the sensorimotor history, the form of embodiment, and the

immediate goals of individual perceivers or organisms. Thus, perceptual content is always organism-relative (Madary 2015), which is another way of expressing the idea that the body is always the medium of perception.[3]

While Husserl's phenomenology of perception does share these two themes with the predictive processing approach, there is at least one important way in which his work may not be compatible with elements of it. Thus, Husserl's theory of perception is not susceptible to the objections commonly raised against the ambitious explanatory scope of error minimization for predictive processing. One such objection to the predictive processing approach that can be raised in the context of our consideration of all perceptual content as having the global feature of deviating from normality, known as the darkened-room problem (Friston et al. 2012; see Clark 2017 for three variations of the problem). The objection is that an organism seeking only to minimize its prediction error would do well to shut itself off in a stable environment, such as isolation in a dark room, in order to decrease the chances of any surprising perceptual input. Obviously, organisms do not typically behave in this way. On the contrary, humans commonly make great effort to seek out novel and surprising experiences. Proponents of the predictive processing approach have suggested various ways of responding to the objection (Friston et al. 2012; Clark 2017) which will not be evaluated here.

Since Husserl does not, as far as I can tell, suggest that all human activity is reducible to seeking out perceptual normality, his work should not be strongly identified with the full and most ambitious version of contemporary predictive processing. His account is not challenged by the darkened-room objection. Nonetheless, it may be instructive here to offer a few comments about Husserl's positive account of human action in order to illustrate the similarities and differences with the contemporary theory that reduces all human action and perception to error minimization. The similarity between the two approaches, Husserl's and predictive processing, is that both offer a way of looking at perceptual content in terms of high-level global properties that bring out the interdependency of action and perception. For Husserl, perception is more or less optimal relative to one's goals (Doyon 2018). Since optimality can be increased or decreased through intentional adjustments of the medium of perception, the body, action, and perception are essentially interrelated. For predictive processing, perception and action are unified through the single goal of error minimization. We can reduce error by perceptual inference, which is revising our internal model of the world or by active inference, which is performing actions that reduce both interoceptive and exteroceptive error signals (Seth 2013; Hohwy 2013).

One main difference between the two approaches has to do with the way in which each approach understands human action in relation to causality in the natural sciences. The predictive processing approach is typically thoroughly naturalistic, seeking to reduce human action fundamentally to the laws of physics, to the second law of thermodynamics in particular (Friston 2013). For Husserl, the causality that we investigate in the natural world is *essentially* different from that which is involved in deliberate human action. Husserl marks this difference by referring to intentional action in terms of "motivation" instead of mental causality. He does so because he understands causality to apply only to the natural world, not to the sphere of our mental lives considered subjectively. That is, if we follow Husserl in regarding causality to be "that functional or lawful relation of dependence which is the correlate of the constitution of persistent properties of a persistent real something of the type, nature," then the deliberate actions flowing from the unity of consciousness do not count as a form of causality (Husserl 1989: §32, 140). The sphere of our psychic lives, from which intentional actions emanate, is essentially different from the natural world in that the former lacks spatial extension (following Descartes, Husserl 1989: §12, 31), is marked by continuous

flux, and is strictly "unfragmentable" (§32). Objects in the natural world, by contrast, necessarily have spatial extension, their properties can remain unchanged over time, and they can be, in principle, fragmented into their constituent parts. Prefiguring themes that will be central for Elizabeth Anscombe (1957) later in the twentieth century, Husserl insists that "No causal research, no matter how far-reaching, can improve the understanding which is ours when we have understood the motivation of a person" (Husserl 1989: §56 ff., 241). Rather than reducing human motivation to one principle, Husserl explores a number of forms of motivation, including motivation under the norms of reason (§56a), and motivation through associations and habits (56§b).

Abnormality and intersubjectivity

In discussing how perceptual abnormality leads to the point that the body is the medium of perception above, I mentioned the case of a return to the normal color appearance of objects when the visual effects of santonin subside. There I suggested that the "color itself" of objects is determined by the optimum view that bodies such as ours can have. This point introduces intersubjectivity into the discussion. Husserl uses two thought experiments in order to illustrate the essential role that intersubjectivity plays in perceptual objectivity. The first thought experiment involves an individual making the transition from solipsistic to intersubjective experience and the second involves a generation of color-blind humans.

In the sections of *Ideas II* following the example of abnormal vision due to santonin, Husserl investigates a situation in which a solipsistic subject first begins communication with other subjects of experience.[4] He investigates how the apprehension (*Auffassung*) of perceptual objects could become objective in relation to the other subjects. The question is puzzling because we do not typically regard the flow of perceptual experiences as involving other subjects. Experience is always "for me." Here Husserl makes a crucial point:

> Each thing of my experience belongs to my "environment," and that means first of all that *my Body* (*Leib*) is part of it precisely as Body … Strictly speaking, the *solus ipse* is unaware of the *Objective Body* in the full and proper sense, even if the *solus ipse* might possess the *phenomenon* of its Body and the corresponding system of experiential manifolds and know them in just as perfect a way as the social man.
>
> *(Husserl 1989: §18 ff., 86)*

After having established the body as the medium of all perception using the example of abnormal perceptual experiences, Husserl now makes the point that solipsistic experience is curiously unlike our familiar intersubjective experience of the objective world. In contrast to solipsistic experience, our intersubjective experience is one in which our bodies are not purely media of perception. Our bodies are also objects in the perceptual environment for others to perceive. He goes on to conclude that "the *solus ipse* does not truly merit its name" (Husserl 1989: §18 ff., 86). With this conclusion to the thought experiment, Husserl means to suggest that a purely solipsistic subject is conceptually incoherent because such a subject would not experience an environment of objectivities. The solipsistic subject cannot have such an experience because that experience would require the experience of the subject's own body as an object in the environment for others to perceive. And it is precisely the subject's own body, *qua* objective body for others, that the solipsistic subject cannot experience. This thought experiment reveals one way in which perceptual objectivity requires intersubjectivity for Husserl.

As with the previous themes covered here, there is much more to investigate. In future work, it may be relevant to consider the empirical evidence that disorders of social cognition correlate with abnormalities in bodily self-awareness. This evidence suggests that there may be empirical results relevant for Husserl's connection between intersubjectivity and bodily self-awareness. For instance, children with autism spectrum disorder appear to have superior interoceptive ability and are less susceptible to the rubber-hand illusion (Cascio et al. 2012; Schauder et al. 2015).

The second thought experiment brings out the point that perceptual normality and abnormality are always *relative* to an intersubjective community of perceivers. After discussing how perceptual normality is constitutive of the world of experience in the form of "biophysical" optimalities as discussed above, Husserl suggests that the normality that is constitutive of the perceptual world is something that is relative. The effects of santonin appear in a footnote to these passages, where Husserl calls for an account of why the side effect of santonin is not constitutive of a visual perceptual world but is instead taken to be anomalous (Husserl 1973a vol. XIV: 133 n.). He explores this topic by proposing a thought experiment involving a community (*Volk*) of color-blind people who pass on this trait across generations. New generations would constitute the "color-blind" visible world as normal. Husserl then considers the scenario in which the congenitally color-blind community comes into contact with a community such as ours, which is not color-blind. He suggests that the congenitally color-blind would accept that their visual perception is not optimal relative to ours just as a color-blind individual born into our community would (Husserl 1973a vol. XIV: 133; Wehrle 2015).[5]

The reason for raising these scenarios through thought experiments is to show both that perceptual optimality is always relative to an intersubjective community of perceivers and that the diversity of perceptual abilities suggests a diversity of perceptual normalities. This diversity can be intraspecific, as in the thought experiment or in observed variation among human perceivers (Hardin 1988: 76–82), or interspecific as in the contrast between human perception and, for instance ants or birds (Husserl 1973a vol. XIV: 133).[6] With these considerations, Husserl asserts that there is no form of embodiment that is absolutely normal—that enables the embodied subject to experience the world "in the final and perfect way as simply true" (1973a vol. XIV: 134).[7] One might claim, as David Marr does, that human vision is "very much more general" than the visual systems of other species in which we find mechanisms for detecting particular objects, such as predators and prey (Marr 2010: 32). The point Husserl seems to be making is that, even if this claim of Marr is true, we must consider optimal perception relative to all conceivable forms of embodiment not just the other species that happen to inhabit the earth (also see Husserl 1974: §93b on this point). No species, according to Husserl, can claim to possess the optimal perceptual system in which all properties of things reveal themselves (1973a vol. XIV: 135).

As with the previous themes, Husserl's approach here may be pertinent for contemporary work in the philosophy of mind, particularly in the philosophy of color vision. And as with previous themes, there is insufficient space to locate Husserl's view precisely within the contemporary literature.[8] If one were to seek expression of a position similar to Husserl's in the contemporary literature, it may be what is known as color relationalism (Averill 1992; Cohen 2009). The contemporary color relationalist is strongly motivated the fact that color appearances are relative to different perceivers and different environmental viewing conditions. This sort of relativity, of course, is what Husserl illustrates in the thought experiments presented above. Averill's formulation of color relationalism uses terms that are familiar from Husserl's reflections on perceptual abnormality:

> Suppose that "yellow" is regarded as a relational term having two suppressed argument places; one argument place takes populations as values and ties any instance of being yellow to the normal perceivers of a population, the other argument place takes environments as values and ties any instance of being yellow to the optimal viewing conditions of an environment.
>
> *(1992: 555)*

More recently, Jonathan Cohen (2009) has developed a broader account of color relationalism that is motivated by the same sorts of concerns that we see in Averill and Husserl. One possible difference between Husserl's view and contemporary color relationalism is that Husserl was interested in giving a constitutional analysis of intentional objects (Sokolowski 1970), including colors. On his view, colors are *intersubjectively constituted*. It is not clear to me that contemporary color relationalists would embrace this manner of describing colors, as it reflects Husserl's transcendental philosophy, which is in opposition to the metaphysics of naturalism that many professional philosophers find attractive today. On the other hand, it may be the case that the full implications of color relationalism does bring one close to Husserl's understanding of color as intersubjectively constituted.

Conclusion

The goal of this paper has been to present three themes about the nature of perception that can all be illustrated by Husserl's example of temporarily yellow-tinted vision due to the ingestion of santonin. These themes find relevance in a number of live issues in the recent literature, including perceptual transparency, high-level and organism-relative perceptual content in predictive processing, and the relativity of color to conditions and populations.

Acknowledgments

I thank Maxime Doyon, Brian Glenney, and Filipe Pereira da Silva for helpful comments on a draft of this chapter.

Notes

1 In addition to his *Ideas II* (Husserl 1989), much of Husserl's work on normality and abnormality can be found in his middle and late works collected in the three *Husserliana* volumes on intersubjectivity (Husserl 1973a: XIII, 358–381; XIV, 120–131; XV, 131–171, 227–236), but his description of perceptual abnormality in terms of a damaged perceptual organ can be traced back to writings as early as 1898 (Husserl 2004: 209–213).

2 I will return to this theme below, see p. 263, where I explain that normal appearances for Husserl are always relative to an intersubjective community of perceivers.

3 While many well-known interpretations of predictive processing fall within the traditional internalist and representationalist paradigm in cognitive science (such as Hohwy 2013), Andy Clark (2015a) has made the case that the organism-relativity of perceptual content can be the basis for an interpretation of predictive processing that accommodates anti-representationalist themes from enactivism (Varela et al. 1991; Thompson 2007). Recently, Dan Zahavi (2017) has attacked the more traditional internalist and representationalist interpretation of predictive processing from the perspective of Husserlian transcendental philosophy. Importantly for the present discussion, Zahavi allows that interpretations of predictive processing along enactivist lines are not within the crosshairs of his critical remarks, noting that the enactivism developed by Varela and Thompson "has many affinities with Husserl's position" (2017: 12). It is not within the scope of this chapter to take on the challenge of exploring the relationship between various interpretations of predictive processing with Husserl's transcendental idealism. Also see Madary 2017: Appendix; Bruineberg et al. 2016; Gallagher and Allen 2017; Piekarski 2017.

4 While working on *Ideas II*, Husserl had already taken up the project of transcendental phenomenology which involves a constitutive analysis of intentional objects, including objects of perception. This philosophical methodology is an ambitious departure from his earlier *Logical Investigations* which he regarded as merely descriptive psychology. See the appendix of Madary 2017 for further details.

5 While Husserl discusses optimality as being relative to an intersubjective population, we might ask about whether perceptual optimality can vary down to the level of individuals within an intersubjective population. Similarly, one might imagine environmental conditions in which normal human color vision turns out to be disadvantageous for survival. Thanks to Brian Glenney for raising these issues.

6 For a fascinating review of the differences in color vision across animal species, see Thompson (1995: Chapter 4).

7 "*in der letztvollkommenen Art als schlechthin wahre*"

8 For accounts of the various theoretical options in the debate, see Byrne and Hilbert (2003); Cohen (2009: Chapter 1); and Maund (2012).

Bibliography

Akins, K. (1996) "Of Sensory Systems and the 'Aboutness' of Mental States," *Journal of Philosophy*, 93 (7): 337–372.

Anscombe, E. (1957) *Intention*, Oxford: Blackwell.

Averill, E. W. (1992) "The Relational Nature of Color," *Philosophical Review*, 101 (3): 551–588.

Block, N. (1996) "Mental Paint and Mental Latex," in E. Villanueva (ed.), *Philosophical Issues 7: Perception*, Atascadero, Calif.: Ridgeview.

Bruineberg, J., J. Kiverstein, and E. Rietveld (2016) "The Anticipating Brain Is Not a Scientist: The Free-Energy Principle from an Ecological-Enactive Perspective," *Synthese*, 195 (6): 2417–2444.

Byrne, A. (2001) "Intentionalism Defended," *Philosophical Review*, 110 (2): 199–240.

Byrne, A. and D. Hilbert (2003) "Color Realism and Color Science," *Behavioral and Brain Sciences*, 26: 3–64.

Cascio, C., J. Foss-Feig, C. Burnette, J. Heacock, and A. Cosby (2012) "The Rubber Hand Illusion in Children with Autism Spectrum Disorders: Delayed Influence of Combined Tactile and Visual Input on Proprioception," *Autism*, 16 (4): 406–419.

Clark, A. (2013) "Whatever Next? Predictive Brains, Situated Agents, and the Future of Cognitive Science," *The Behavioral and Brain Sciences*, 36 (3): 181–204.

Clark, A. (2015a) "Predicting Peace: The End of the Representation Wars," in Thomas Metzinger and Jennifer Michelle Windt (eds.), *Open Mind: Philosophy and the Mind Sciences in the 21st Century*. Available online at: https://open-mind.net/papers/predicting-peace-the-end-of-the-representation-wars (accessed December 2, 2018).

Clark, A. (2015b) *Surfing Uncertainty: Prediction, Action, and the Embodied Mind*, Oxford: Oxford University Press.

Clark, A. (2017) "A Nice Surprise? Predictive Processing and the Active Pursuit of Novelty," *Phenomenology and the Cognitive Sciences*, September. Available online at https://www.researchgate.net/publication/320072752_A_nice_surprise_Predictive_processing_and_the_active_pursuit_of_novelty (accessed December 2, 2018).

Cohen, J. (2009) *The Red and the Real: An Essay on Color Ontology*, Oxford: Oxford University Press.

Degenaar, J. (2014) "Through the Inverting Glass: First-Person Observations on Spatial Vision and Imagery," *Phenomenology and the Cognitive Sciences*, 13 (2): 373–393.

Doyon, M. (2018) "Husserl on Perceptual Optimality," *Husserl Studies*, 34 (2): 171–189.

Friston, K. (2005) "A Theory of Cortical Responses," *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 360 (1456): S. 815–836.

Friston, K. (2013) "Life as We Know It," *Journal of the Royal Society Interface*, 10 (86): 1–12.

Friston, K., C.Thornton, and A. Clark (2012) "Free-Energy Minimization and the Dark-Room Problem," *Frontiers in Psychology*, 3: 130.

Gallagher, S. and M.Allen (2017) "Active Inference, Enactivism and the Hermeneutics of Social Cognition," *Synthese*, 195 (6): 2627–2648.

Hardin, C. L. (1988) *Color for Philosophers: Unweaving the Rainbow*, Indianapolis, Ind.: Hackett.

Harman, G. (1990) "The Intrinsic Quality of Experience," *Philosophical Perspectives*, 4: 31–52.

Harris, C. S. (1965) "Perceptual Adaptation to Inverted, Reversed, and Displaced Vision," *Psychological Review*, 72 (6): 419–444.

Hohwy, J. (2013) *The Predictive Mind*, Oxford: Oxford University Press.

Hopp, W. (2008) "Husserl on Sensation, Perception, and Interpretation," *Canadian Journal of Philosophy*, 38 (2): 219–245.

Husserl, E. (1966) *Analysen zur passiven Synthesis. Aus Vorlesungs- und Forschungsmanuskripten 1918–1926*, ed. M. Fleischer, The Hague: M. Nijhoff.
Husserl, E. (1973a) *Zur Phanomenologie der intersubjektivitat: Texte Aus dem Nachlass*, ed. I. Kern, The Hague: M. Nijhoff Volumes XIII–XV.
Husserl, E. (1973b) *Ding und Raum. Vorlesungen 1907*, ed. U. Claesges, The Hague: M. Nijhoff.
Husserl, E. (1974) *Experience and Judgment*, Evanston, Ill.: Northwestern University Press.
Husserl, E. (1976) *Die Krisis der europäischen Wissenschaften und die transzendentale Phänomenologie*, ed. W. Biemel, The Hague: M. Nijhoff.
Husserl, E. (1989) *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy, Second Book*, trans. R. Rojcewicz and A. Schuwer, Dordrecht: Kluwer Academic Publishers.
Husserl, E. (1993) *Logische Untersuchungen*, 3 vols., Tübingen: Max Niemeyer. First published 1900.
Husserl, E. (2004) *Wahrnehmung und Aufmerksamkeit: Texte aus dm Nachlass (1893–1912)*, ed. T. Vongehr, and R. Giuliani, The Hague: M. Nijhoff.
Kelly, S. D. (2004) "Seeing Things in Merleau-Ponty," in T. Carman and M. Hansen (eds.), *The Cambridge Companion to Merleau-Ponty*, Cambridge: Cambridge University Press, pp. 74–110.
Kohler, I. (1964) *The Formation and Transformation of the Perceptual World*, New York: International Universities Press.
Madary, M. (2012) "Husserl on Perceptual Constancy," *European Journal of Philosophy*, 20 (1): S. 145–165.
Madary, M. (2015) "Extending the Explanandum for Predictive Processing." Available online at https://pdfs.semanticscholar.org/a930/c89084e50c81fafd2dc0ceaea81e581fc282.pdf (accessed December 2, 2018).
Madary, M. (2017) *Visual Phenomenology*, Cambridge, Mass.: MIT Press.
Marr, D. (2010) *Vision: A Computational Investigation into the Human Representation and Processing of Visual Information*, Cambridge, Mass.: MIT Press. First published 1983.
Maund, B. (2012) "Color," *The Stanford Encyclopedia of Philosophy*, ed. E. Zalta. Available online at https://plato.stanford.edu/entries/color/ (accessed December 2, 2018).
Merleau-Ponty, M. (1962) *Phenomenology of Perception*, trans. C. Smith, London and New York: Routledge.
Moore, G. E. (1993) *Selected Writings*, ed. T. Baldwin, London and New York: Routledge.
Noë, A. (2004) *Action in Perception*, Cambridge, Mass.: MIT Press.
O'Regan, J. K. and A. Noë (2001) "A Sensorimotor Account of Vision and Visual Consciousness," *The Behavioral and Brain Sciences*, 24 (5): 939–1031.
Piekarski, M. (2017) "Brain, Mind, World: Predictive Coding, Neo-Kantianism, and Transcendental Idealism," *Frontiers in Psychology*, 8: 2077.
Schauder, K., L. Mash, L. Bryant, and C. Cascio (2015) "Interoceptive Ability and Bodily Awareness in Autism Spectrum Disorder," *Journal of Experimental Child Psychology*, 131: 193–200.
Searle, J. (1983) *Intentionality: An Essay in the Philosophy of Mind*, Cambridge: Cambridge University Press.
Seth, A. (2013) "Interoceptive Inference, Emotion, and the Embodied Self," *Trends in Cognitive Sciences*, 17 (11): 565–573.
Sokolowski, R. (1970) *The Formation of Husserl's Concept of Constitution*, The Hague: Martinus Nijhoff.
Sokolowski, R. (1974) *Husserlian Meditations*, Evanston, Ill.: Northwestern University Press.
Steinbock, A. (1995a) "Phenomenological Concepts of Normality and Abnormality," *Continental Philosophy Review*, 28 (3): 241–260.
Steinbock, A. (1995b) *Home and Beyond: Generative Phenomenology after Husserl*, Evanston, Ill.: Northwestern University Press.
Stratton, G. (1896) "Some Preliminary Experiments on Vision without Inversion of the Retinal Image," *Psychological Review*, 3 (6): 611–617.
Taipale, J. (2012) "Twofold Normality: Husserl and the Normative Relevance of Primordial Constitution," *Husserl Studies*, 28 (1): 49–60.
Thompson, E. (1995) *Colour Vision*, London and New York: Routledge.
Thompson, E. (2007) *Mind in Life: Biology, Phenomenology, and the Sciences of Mind*, Cambridge, Mass.: Belknap.
Tye, M. (1995) *Ten Problems of Consciousness*, Cambridge, Mass.: MIT Press.
Tye, M. (2000) *Consciousness, Color, and Content*, Cambridge, Mass.: MIT Press.
Varela, F., E.Thompson, andE.Rosch (1991) *The Embodied Mind: Cognitive Science and Human Experience*, Cambridge, Mass.: MIT Press.
Wehrle, M. (2015) "Normality and Normativity in Experience," in M. Doyon and T. Breyer (eds.), *Normativity in Perception*, Basingstoke: Palgrave Macmillan, pp.128–139.
Zahavi, D. (2017) "Brain, Mind, World: Predictive Coding, Neo-Kantianism, and Transcendental Idealism," *Husserl Studies*, 34 (1): 47–61.