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Book Review

Can You See a Ganzfeld? A Critical Notice of The Unity of Perception: Content, Consciousness, Evidence

Susanna Schellenberg, Oxford, Oxford University Press, 2018, xv + 251 pp., £69.00 (hbk), ISBN: 9780191866784 (online), 9780198827702 (print)

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1. Introduction

In *The Unity of Perception* Susanna Schellenberg embarks on a comprehensive exploration of the multifaceted role perception plays in our lives, delving into its

In this article

fundamental questions that have fuelled the study of perception for centuries: How does perception underpin our beliefs and bestow us with knowledge about our environment? What is the nature of conscious mental states engendered by perception? How does the perceptual system achieve the remarkable task of transforming dynamic sensory input into stable representations of the world? Through a synthesis of empirical research and philosophical inquiry, Schellenberg crafts a unified framework that addresses the first two questions while remaining in harmony with scientific endeavours related to the third. Her book thus offers, both novice and expert readers alike, a thoroughly explained and easily accessible, empirically informed account of the intricate interconnections among perceptual phenomena, making it an indispensable work for those navigating the complex terrain of perception studies. In what follows, I concentrate on two problems for the first premise of Schellenberg's core argument that emerge from considering the ganzfeld effect.

Here is a synopsis of the dialectic to follow. The first premise of Schellenberg's particularity argument reads, "If a subject S perceives a particular α , then S discriminates and singles out α " (2018: 25). But this is false if seeing a ganzfeld is possible (i.e., a homogeneous field without any particulars to discriminate). In response, Schellenberg argues that seeing a ganzfeld is impossible by appealing to the ganzfeld effect (viz. hallucinatory experiences caused by ganzfeld exclusively as a 'sense of blindness'. I present two challenges for this line of reasoning. The first concerns the need to account for the long delay before blindness is reported (if it is reported at all) and the second concerns the need to be consistent with potential causes of ganzfeld hallucinations (in general, not exclusive to the sense of blindness). I show how Schellenberg's particularity argument can meet the first challenge but struggles to meet the second. I present evidence based on considerations related to sensory deprivation and that follow from the predictive processing theory of cognition, which describes seeing a ganzfeld as the cause of ganzfeld hallucinations. If correct, this means that you can see a homogeneous field, and thus we ought to be skeptical of the soundness of Schellenberg's particularity argument. I conclude with a possible strategy for rehabilitating the particularity

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argument that reconceptualizes perceptual experience as fundamentally multimodal, constituted by both exteroceptive and interoceptive sensation.

The ganzfeld effect (derived from German: *ganz* = 'whole' and *Feld* = 'field') can be easily produced in the comfort of your own home. First, procure a ping-pong ball and slice it in half. Now place one half over each eye, while making sure your visual field is completely obscured. Finally, position a light source to illuminate the room as uniformly as possible. Within roughly 15 minutes, you should hallucinate similar to subjects in the famous ganzfeld experiments.

Hallucinations typically develop in complexity throughout exposure, with subjects often reporting dreamlike imagery of people and places, and, less commonly (roughly 13% of the time), a sense of blindness (Metzger [1930](#), Cohen [1957](#), Wackermann et al., [2008](#)). Interestingly, subjects also report auditory, tactile, olfactory, and kinaesthetic hallucinations, but I shall restrict discussion to the visual sort, since this will suffice for making the case, contrary to Schellenberg, that you can and do see a ganzfeld.

In an article published earlier, Schellenberg ([2016](#)) draws upon the ganzfeld effect to bolster her particularity argument about how perceptual experience entails discriminating particulars, defined as spatiotemporal, causally efficacious entities. She begins by observing that if you perceive something, say, a table, it is only because you discriminate the table from its surround. Based on this observation, she argues that perceiving a ganzfeld is impossible, since there is nothing there to discriminate. She argues further that this claim is supported by testimonial evidence from ganzfeld experiments as these subjects report a sense of blindness, concluding 'we cannot in fact see a completely uniform wall that fills out our entire field of vision' (ibid: 38). That said, it takes a considerable amount of time for ganzfeld effects to be reported and, moreover, the ganzfeld effect more frequently results in subjects reporting hallucinations rather than a sense of blindness. As I demonstrate below, it is not entirely clear how to reconcile these two facts about ganzfeld exposure with Schellenberg's particularity argument.

Thus, two challenges arise for Schellenberg's particularity argument and her claim

15 minutes is required before subjects report a sense of blindness, which raises questions about what subjects see a priori to this if not the ganzfeld ([Section 2](#)). Here I argue that Schellenberg can meet this challenge by appealing to particular areas of visual attention supported by a system of object indexes (for object indexes, see Scholl and Pylyshyn, [1999](#)). Thereafter, I discuss the second challenge, the argument from hallucination ([Section 3](#)), which demands the particularity argument be consistent with a theory about the cause of ganzfeld hallucinations. Here I demonstrate that her particularity argument commits Schellenberg to two claims about the cause of ganzfeld hallucinations: one, they cannot be caused by seeing a ganzfeld, and, two, they are instead caused by failing to see particulars. I introduce one problem for each causal claim and argue such problems should be avoided by rejecting Schellenberg's proposal that it is impossible to see a ganzfeld. Specifically, against the latter causal claim, I appeal to a blend of introspective and empirical evidence related to sensory deprivation and, against the former causal claim, I appeal to a robust explanation of ganzfeld hallucinations based on the predictive processing theory of cognition (for more on this theory, see Hohwy [2013](#), Clark [2016](#)) that elucidates the cause of such hallucinations as, in principle, seeing a ganzfeld. I conclude with implications for Schellenberg's particularity argument, wherein I motivate adopting a multimodal account of perception, constituted by both exteroceptive and interoceptive modalities.

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2. Argument from Delay

Schellenberg's ([2016](#), [2018](#)) theory of perception can be summarized by the maxim 'no perception without discrimination', and, as such, it is similar to Merleau-Ponty's ([1945/2012](#)) maxim, 'no perception without a figure-background structure'. Thus, Merleau-Ponty similarly denies the possibility of seeing a ganzfeld: 'A truly homogeneous area, offering nothing to perceive, cannot be given to any perception' (ibid: 4). But in responding to challenges based on ganzfeld exposure, Merleau-Ponty has options that Schellenberg does not. Merleau-Ponty might propose that when seeing a ganzfeld, one nonetheless perceives a figure-background structure as the

modalities, such as proprioception. However, Schellenberg cannot pursue this route since her argument concerns perceptual experience constituted by a single modality (particularly vision), and so her maxim ought to be read as (the slightly less pithy) 'no *unimodal perception* without discrimination'. For this reason, when responding to challenges based on ganzfeld exposure, Schellenberg emphasizes how subjects report a sense of blindness.

For this section, I grant that the only ganzfeld effect is the sense of blindness (I discuss other effects below). But granting this nonetheless requires that Schellenberg respond to the argument from delay and account for what subjects see in the 15 minutes prior to reporting this (Wackermann et al., [2008](#)). On the one hand, Schellenberg needs to claim that subjects continue to see and discriminate, but since the *discriminata* cannot be located in the visual field (as it is occupied by the ganzfeld), she also needs to claim that the *discriminata* are somehow maintained by the visual system. Thus, one plausible response is that subjects continue to discriminate *particular areas of visual attention*, specified by spatiotemporal facts about foveal vision, directed at nebulous ganzfeld areas (which Schellenberg ([2018](#)) might describe as providing 'gappy[ish] content').

Imagine having a completely homogeneous field before you. Though no differences exist to discriminate, you can nonetheless direct and control your visual focus (e.g., by observing the top-left area, then observing the bottom-right). While [PDF öffnen](#) around, you continue to discriminate, but you do not discriminate particulars in the visual field; rather, you discriminate particular areas of visual attention, plausibly (and temporarily) supported by a system of object indexes, which, Scholl and Pylyshyn ([1999](#)) theorize, function like pointers for tracking objects in the visual field (see below). It follows that the ganzfeld effect might be explained by appealing to how this peculiar manner of seeing causes problems for the visual system, ultimately resulting in a sense of blindness (that said, I revisit causal claims in the next section).

Of course, one might take issue with the proposal that spatiotemporal facts about foveal vision secure an instance of perception. For if an appeal to such facts is sufficient for maintaining a subject perceives a particular, then counterintuitive cases

described by these facts. However, this is not a bug, but a feature of the proposal. It aids in explaining some of what goes well in certain abnormal cases like perceiving a ganzfeld, since subjects might nonetheless discriminate spatiotemporal features of the visual system itself (from the inside, as it were). Admittedly, this proposal will only sound attractive to theorists, like Schellenberg, who possess a non-disjunctivist view of perception. But for those who think perception ought to be fundamentally different from hallucinating, I will point out that facts about foveal vision cannot suffice for an explanation of what subjects perceive when perceptually related to objects or their properties – here facts about the perceiver-independent world are surely essential. Having said that, I shall continue making the case for object indexes as explaining the oddities of perception during ganzfeld exposure.

While this response begins to rehabilitate the particularity argument, it raises questions about why it takes so much time for the sense of blindness to be reported, and hence an appeal to object indexes can be advantageous. First, notice that in order to discriminate an area of visual attention, some distance between it and some other area will need to be discerned; and yet, should the visual field lack differentiation, discerning distance between areas is bound to prove difficult. As Metzger's (1930) classic study shows, the ability to judge distance becomes progressively diminished as ganzfeld exposure increases. Now, if Schellenberg is correct about perception entailing discrimination, then, for subjects in a particular manner, they will need to employ at least two distinct object indexes (otherwise, they do not have anything to discriminate). But for this to work, subjects will need to discern distance between the areas, so that each area is pointed to by its own object index, as indexes that point to the same area are not distinct. Plausibly then, perceptual discrimination fails once indexes can only point to the same area of visual attention, a process that takes time to unfold as the visual field slowly shrinks and collapses in on itself.

Thus, Schellenberg can accommodate the argument from delay by appealing to the perception of particular areas of visual attention and the slow collapse of a system of object indexes. That said, the ganzfeld effect more commonly results in subjects reporting hallucinations different in kind from the sense of blindness (such as

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dreamlike visual imagery) and Schellenberg is committed to two claims about the cause of these hallucinations. In the next section, I discuss details surrounding these two causal claims and the problems facing them. I argue that they are likely false by appealing to evidence related to sensory deprivation, as well as to a robust and competing explanation for the cause of ganzfeld hallucinations based on the theory of predictive processing. Thus, I argue these problems should be circumvented by maintaining, contrary to Schellenberg, that we *can and do see* a ganzfeld.

3. Argument from Hallucination

For nearly a century, psychologists have been interested in discovering the cause of ganzfeld hallucinations. Cohen ([1957](#)) conjectures, ‘the perceptual mechanism has evolved to cope with a differentiated field, and, in the absence of differentiation, there is a temporary breakdown of the mechanism’ (ibid: 407). Owing to Schellenberg’s non-disjunctivist account of perception, she would likely refrain from describing this, as Cohen does, as a breakdown in the perceptual mechanism. But being committed to an ‘asymmetrical’ account of perception, Schellenberg ([2018](#)) ought nonetheless to hold that seeing hallucinations reflects a significant departure from seeing perceiver-independent reality.

While Schellenberg does not explicitly account for the cause of ganzfeld hallucinations, her particularity argument commits her to the negative claim that such hallucinations cannot be caused by seeing a ganzfeld. Instead, Schellenberg would likely make the positive claim that such hallucinations are rather caused by the failure of perception to discriminate particulars, since the particularity argument maintains that perception entails discriminating them. Each of these causal claims has its own problem, and, for dialectic sake, I discuss them in reverse order.

First, if hallucinations are caused by failing to discriminate particulars, then you could experience hallucinations by simply keeping your eyes closed, which, as anyone who has ever lain awake at night knows, is just not the case. Now, contrast this with undergoing sensory deprivation, which commonly results in subjects reporting

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caused as easily as by staring into complete darkness for a mere 15 minutes (incidentally, the same timeframe for ganzfeld hallucinations). This exposes a crucial factor explaining how such hallucinations are caused. Plausibly, *seeing nothing* (seeing a void, a homogeneous field), rather than not seeing (keeping one's eyes closed), is essential for hallucinating in this manner. Thus, Schellenberg's positive causal claim appears inconsistent with this blend of introspective and empirical evidence.

Secondly, the negative claim that ganzfeld hallucinations cannot be caused by seeing a ganzfeld runs counter to a robust explanation of hallucinations, based on the theory of predictive processing (henceforth, 'PP'), elucidating both hallucinations in general (Sterzer et al., [2018](#)) and ganzfeld hallucinations (Schmidt et al., [2020](#)). According to PP, the perceptual system copes with an uncertain world through balancing two factors, so-called 'bottom-up' influences, sensory data, and 'top-down' influences, cognitive models describing the brain's predictions about the sensory environment. Perceptual experience is thus disclosed at the juncture between what is sensed and what is predicted through the process of prediction error minimization (i.e., minimizing the mismatch between data and predictions). Crucially, the influence of sensory data on perceptual experience is modulated by precision weighting, the process of assigning weight to errors generated by sensory data diverging from predictions. Now, one potential cause of hallucinations turns on prediction errors being assigned an extremely *low weight*, due to, for example, how s PDF öffnen
run counter to a cognitive bias toward sensory norms (see below). In such cases, sensory data will *fail to revise* the descriptions predicted by cognitive models and, as a result, perceptual experience will be shaped almost exclusively by the brain's own predictions of sensory data.

Apart from seeing the sky on a cloudless day, the ganzfeld is an extremely rare natural occurrence and, owing to its rarity, seeing a ganzfeld causes the perceptual system to assign an extremely low weight to errors generated by sensory data. Thus, Cohen's conjecture is partially correct, since our perceptual system has evolved to hold a cognitive bias toward processing differentiated fields. But this means too that our perceptual system has evolved a *bias against* homogeneous fields, expecting them to generate structural accounts of prediction errors (in PP terms, such biases

are called 'hyperpriors'; for more, see Friston, Lawson, and Frith [2013](#)). As such, sensory data exert hardly any influence on perceptual experience during ganzfeld exposure (perhaps doing so only initially), as the predictive mind slowly transforms into the self-devouring ouroboros, feeding off its own models rather than the world.

Thus, contrary to Schellenberg, PP maintains that ganzfeld hallucinations are caused by seeing a ganzfeld, specifically these hallucinations are a consequence of seeing a homogeneous field which runs counter to a cognitive bias toward processing diverse sensory environments – an adaptive bias, for sure, as our world is replete with differentiated environments, and we must have learned to cope with them to survive. Hence, Schellenberg accuses an innocent suspect. Hallucinations are not caused by the failure of perception to discriminate particulars. Rather, the fault lies in the world, the ganzfeld, since it fails to present a reliable sensory environment (or, if are inclined to think in internalist terms, it lies with our cognitive system for its exhibiting a bias against seeing homogeneous fields).

This causal story also explains how hallucinations are caused by staring into complete darkness *and not* from keeping your eyes closed. This is because such hallucinations are also caused by seeing an unnatural environment that violates crucial norms of perceptual experience. So, if PP is correct, both sorts of hallucinations are caused by seeing a homogeneous field (a void, a ganzfeld).

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Therefore, while Schellenberg does not explicitly provide a causal explanation of ganzfeld hallucinations, her particularity argument commits her to two causal claims that are difficult to square with, on the one hand, a blend of introspective and empirical evidence related to sensory deprivation and, on the other hand, a prominent theory of cognition with the power to explain how both sensory-deprivation and perceptual-deprivation (ganzfeld) hallucinations are caused. Indeed, these problems can be avoided by maintaining, contrary to Schellenberg, that you can and do see a ganzfeld.

4. Conclusion

Though Schellenberg can respond to the argument from delay, it is unclear whether she can accommodate the argument from hallucination because of how the particularity argument commits her to two problematic causal claims about ganzfeld hallucinations. I demonstrated how these problems can be avoided by maintaining that hallucinations are caused by seeing a ganzfeld, which, if correct, casts doubt on the first premise of Schellenberg's particularity argument, so that perceiving might not entail discriminating particulars. To secure a basis for the particularity argument, I propose Schellenberg take inspiration from Merleau-Ponty's case for the need of a foreground-background structure to perception. This approach could potentially involve embracing a multimodal account of perceptual experience, shaped by exteroceptive and interoceptive senses, wherein perceptual experience is constituted by more than a single modality. In this manner, Schellenberg could rehabilitate the particularity argument by maintaining that, during ganzfeld exposure, at the moment when even areas of visual attention cannot be discriminated, subjects perceive a homogeneous field, discriminated from, in the very least, a background of interoceptive sensations.

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No potential conflict of interest was reported by the author(s).

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