A metacognitive account of phenomenal force

Lu Teng, New York University Shanghai, lt77@nyu.edu

(This is a penultimate draft. Please cite the published version)

Abstract: According to phenomenal conservatism or dogmatism, perceptual experiences can give us immediate justification for beliefs about the external world in virtue of having a distinctive kind of phenomenal character—namely phenomenal force. I present three cases to show that phenomenal force is neither pervasive among nor exclusive to perceptual experiences. The plausibility of such cases calls out for explanation. I argue that contrary to a long-held assumption, phenomenal force is a separate, non-perceptual state generated by some metacognitive mechanisms that monitor one's first-order mental processes and states. This new account advances our understanding of the nature of phenomenal force.

Keywords: dogmatism, perception, phenomenal force, metacognition, epistemic feeling, source monitoring

1. INTRODUCTION

In epistemology, one approach to perceptual justification focuses on the phenomenal character of perceptual experiences. According to a theory called phenomenal conservatism or dogmatism (hereafter "dogmatism"), the following theses are both true:

The immediacy thesis: Perceptual experiences can give us immediate justification for beliefs about the external world.

The phenomenal thesis: For any experience, if it has a distinctive kind of phenomenal character—namely phenomenal force—with respect to its content that P, then it thereby gives us immediate justification for believing that P.[1]

One challenge for dogmatism is to explain what phenomenal force consists in. After all, there are various kinds of mental state—such as sensory imagining and desire, which are considered incapable of giving us justification for beliefs about the external world merely in virtue of their phenomenal character. Many dogmatists liken phenomenal force to assertive force. Perceptual experiences represent their contents in such a way that the subjects feel as if they are assured of the contents' truth (Bengson, 2015; Huemer, 2001; Pryor, 2004; Tucker, 2010). Some dogmatists further maintain that in perceptual experiences, the subjects feel as if the relevant objects are directly presented to their minds (Chudnoff, 2013; Smithies, 2019; cf., Brogaard, 2017).

Philosophical interest in phenomenal force is not limited to dogmatism and the phenomenal approach to perceptual justification. A few epistemologists think that episodic memories (Audi, 1995; Brogaard, 2017; Pollock & Cruz, 1999) and intuitions (Bengson, 2015; Chudnoff, 2013) can give us immediate justification in virtue of having phenomenal force or

[1] Some adherents of dogmatism include Bengson (2015), Berghofer (2020), Brogaard (2013), Chudnoff (2013), Huemer (2001), Kriegel (forthcoming), Lycan (2013), McGrath (2018), Pryor (2000), Silins (2014), Skene (2013), Smithies (2019), and Tucker (2010).

a similar kind of phenomenal character. In the philosophy of mind, some important matters are about whether perceptual experience, episodic memory, and sensory imagining share the same kind of phenomenal character. According to a Humean approach, the phenomenology of these experiences differs in degree of specificity and vivacity, not in kind (Nanay, 2015). If phenomenal force is constitutive of perceptual experiences as well as episodic memories, but not sensory imaginings, then the Humean approach seems wrong (Siegel & Silins, 2015).

There have been interesting debates between dogmatists and their critics, but very few concern the nature of phenomenal force.[2] Some challenge the immediacy thesis by warning that it would be too easy to gain justification against skeptical hypotheses or for the reliability of perceptual experiences (Cohen, 2002, 2005; White, 2006). Others deny the phenomenal thesis by presenting counterexamples in which the perceptual experiences have phenomenal force, but lack justificatory power due to their inappropriate etiologies (McGrath, 2013; Siegel, 2012, 2017; Silins, 2016; Teng, 2016, 2021). The objections, however, leave the putative perceptual nature of phenomenal force intact.

I think that there is an alternative approach to contesting dogmatism. We can sensibly ask two questions:

(1) Is phenomenal force really perceptual in nature?

(2) If not, what is the epistemological implication for dogmatism?

[2] For some general discussions, see Moretti (2015) and Siegel and Silins (2015).

I focus on the first question in this paper, leaving the examination of the second question to another occasion. Section 2 offers a more detailed explanation of the phenomenal character involved in phenomenal force and how it is supposed to fit into perceptual phenomenology. Section 3 examines three empirical cases to show that phenomenal force is neither pervasive among nor exclusive to perceptual experiences. Even if dogmatism might not preclude such cases, they call out for explanation. Sections 4 and 5 defend a new account that phenomenal force is a separate, non-perceptual state generated by some metacognitive mechanisms that monitor one's first-order mental processes and states. The account is not only supported by independent empirical evidence, but also explains the cases considered in Section 3.

2. PHENOMENAL FORCE AS PERCEPTUAL ATTITUDE

As mentioned in the introduction, when dogmatists claim that perceptual experiences can give us immediate justification in virtue of having phenomenal force, they need to offer an analysis of what this distinctive phenomenal character consists in. Dogmatists usually use the method of phenomenal contrast—namely contrasting perceptual experiences with other phenomenal states to pin down what is distinctive about the former. But we might undergo multiple phenomenal states at a time. Even if phenomenal force and perceptual experiences occur concurrently in most cases, this does not imply that the former is a constitutive aspect of the latter. It is possible that phenomenal force constitutes a separate, non-perceptual state. I return to this point in Section 4. In the rest of this section, I review how phenomenal force is supposed to fit into perceptual phenomenology.

The dominant analysis of phenomenal force takes it as comparable to assertive force. To illustrate what assertive force is, consider the following utterances: "There is a nameplate in front of you." "Is there a nameplate in front of you?" "Make sure that there is a nameplate in front of you." The utterances have the same sense but different forces. The first utterance is with assertive force, the second utterance is with interrogative force, and the last utterance is with imperative force.

Some representationalists similarly claim that mental states can have the same content but different attitudes, where attitudes are modes of representation. Consider believing that there is a nameplate in front of you, supposing that there is a nameplate in front of you, and desiring that there is a nameplate in front of you. All of these three thoughts are about there being a nameplate in front of you, but they differ in mode of representation. Alone this line, many dogmatists propose that perceptual experiences represent their contents in such a way that they have phenomenal force (Bengson, 2015; Chudnoff, 2013; Huemer, 2001; Pryor, 2000, 2004; Smithies, 2019; Tucker, 2010).[3]

Note that phenomenal force cannot be identified with mere sensory phenomenology. Sensory imaginings also have sensory phenomenology, but dogmatists do not think that they have phenomenal force. Neither can phenomenal force just be representing contents as true. Beliefs also represent their contents as true, but dogmatists deny that they have phenomenal force. To capture the distinctive phenomenal character involved in phenomenal force, many dogmatists maintain:

[3] Matthen (2005, 2010) and Kriegel (2015) also analyze phenomenal force in terms of the content-attitude distinction, although they do not claim to be dogmatists (cf. Kriegel, forthcoming).

> **Truth assurance:** Perceptual experiences represent their contents in such a way that, to characterize it in metaphorical terms, the subjects feel as if they are assured of the contents' truth.

To see a few examples, Pryor depicts phenomenal force like this:

> I think there is a distinctive phenomenology: the feeling of seeming to ascertain that a given proposition is true. This is present when the way a mental episode represents its content makes it feel as though, by enjoying that episode, you can thereby just tell that that content obtains. (Pryor, 2004, p. 357)

Moreover, something similar can be found in Tucker's depiction:

> Huemer (2001: 77-9) refers to this character as 'forcefulness' but I prefer the name "assertiveness." … The phenomenology of a seeming makes it feel as though the seeming is "recommending" its propositional content as true or "assuring" us of the content's truth. (Tucker, 2010, p. 530)[4]

Some dogmatists (Chudnoff, 2013; Smithies, 2019; cf. Brogaard, 2017) further maintain:

[4] Bengson (2015) regards perceptual experiences as "presentational," and characterizes the presentationality of intuition in the following way: "[T]he presentationality of intuition is arguably clearest in the case of basic logical and mathematical theorems, which…sometimes 'force themselves upon us as being true'" (p. 719).

> **Direct presentation:** Perceptual experiences represent their contents in such a way that the subjects feel as if the objects are directly presented to their minds.

For example, Chudnoff analyzes phenomenal force in terms of an association between two kinds of phenomenal character:

> What it is for an experience of yours to have presentational phenomenology with respect to *p* is for it to both make it seem to you that *p* and make it seem to you as if this experience makes you aware of a truth-maker for *p*. (Chudnoff, 2013, p. 37)

As I understand it, the first property roughly corresponds to truth assurance, whereas the second property roughly corresponds to direct presentation.

One reason for including this feeling of direct presentation comes from a comparison between two scenarios: In the first case, you directly see a red light ahead; in the second case, the red light is shaded by a tree, and you only see some reddish glow. Your visual experience in the second case might represent that there is a red light ahead, and make you feel as if you are assured of this content's truth. However, there seems to be phenomenal force only in the first case (Chudnoff, 2013). One relevant difference seems to be that in the first case, you feel as if the red light is directly presented to you. You do not feel so in the second case.

So far, I have introduced how dogmatists take phenomenal force to fit into perceptual

phenomenology: Phenomenal force is supposed to be a distinctive mode in which perceptual experiences represent their contents. When it comes to capturing the distinctive phenomenal character, there are two major accounts—truth assurance and direct presentation. The task of this paper is not to adjudicate between or reject these two accounts. I grant that they have done a decent job of depicting the phenomenal character involved in phenomenal force. The task is to challenge the point that phenomenal force is a constitutive aspect of the first-order, perceptual phenomenology.[5]

3. THREE PUZZLING CASES

In this section, I present three empirical cases, of which the first two show that some perceptual experiences could lack phenomenal force, whereas the third case shows that some sensory imaginings might also have phenomenal force.

Before diving into the details, let me say something about the purpose for introducing these cases. It is not to argue that dogmatism is necessarily incompatible with the occurrence of them. Rather, the cases are introduced to motivate the need for explanation. What makes some perceptual experiences lack phenomenal force and some imaginings have it? As we see in Sections 4 and 5, my metacognitive account of phenomenal force is not only supported by independent evidence, but also explains such cases.[6]

[5] One question I haven't discussed is whether phenomenal force comes in degrees. Some dogmatists believe so, and take the justificatory power of perceptual experiences as proportionate to the degrees of phenomenal force (Bengson, 2015; Berghofer, 2020; Huemer, 2007; Tucker, 2010; Smithies, 2019). Even those who adopt both these claims deny that phenomenal force is present in all sensory experiences. They still think that sensory imaginings characteristically lack phenomenal force, and fail to give us immediate justification.

[6] The arguments in Sections 4 and 5 do not require readers to be fully convinced by the cases discussed in this section. Even if some have reservations, they might find the arguments in the later sections effective.

3.1 THE PERKY EFFECT

The first case is a famous experiment on the interaction between imagining and perception, conducted by the psychologist Perky (1910).[7] The subjects were asked to imagine various objects, while faint pictures of these objects were secretly projected onto where their eyes fixated (the pictures were created above their overall threshold). The subjects seemed to see these pictures, but they confused their visual experiences with mere imaginings: When the picture was an upright banana, many reported imagining an upright banana; when the picture was an elm leaf, many reported imagining an elm leaf. One reasonable explanation is that the subjects' visual experiences of the pictures lacked phenomenal force, which misled them into categorizing the experiences as mere imaginings.

Before turning to the second case, I consider some replies. One might suggest that the subjects' visual experiences had phenomenal force, but they failed to notice it. Or one might argue that the subjects only perceived the pictures unconsciously. Their resulting experiences were imaginings that incorporated contents from unconscious perceptions—and that is why there was no phenomenal force.

In reply to the suggestion that the subjects failed to notice phenomenal force, I point out that Perky (1910) further mentioned that most of their subjects expressed astonishment, or even anger, at being questioned whether they had imagined all the contents (pp. 431, 433), which supports the interpretation that their experiences lacked phenomenal force. One might further stress the possibility that the subjects thought that they were merely imagining, which

[7] For similar discussions in philosophy, see Ghijsen (2014) and Siegel and Silins (2015)

kept them from discerning phenomenal force. However, in a series of replications of Perky's experiment, Segal and colleagues informed subjects that pictures might be projected, and asked subjects to indicate whether a picture was present after each imagining (Segal & Gordon, 1969; Segal & Fusella, 1970). Their subjects still confused some visual experiences for imaginings. For example, one subject was asked to imagine a beach ball, with a faint blue circle secretly projected. The subject reported imagining a blue ball, and answered "probably no projection … definitely no" (Segal & Gordon, 1969, p. 796).

What about the second suggestion, which proposes that the subjects did not perceive the pictures consciously, but incorporated contents from unconscious perceptions into their imaginings? The suggestion may draw on the replications of Perky's experiment to argue that imagining can interfere with one's detection of the external stimulus (Segal & Fusella, 1970; Craver-Lemley & Reeves, 1992).[8] My reply brings our attention to the following replication, in which the external stimulus seemed to be incorporated into the subjects' imagining:

> **Sunset:** Subjects were asked to imagine a city skyline, while a faint red tomato was secretly showed to them. Several subjects reported having an imagery of Manhattan at sunset—the tomato seemed to be incorporated into their experience as a sunset. (Segal, 1972, p. 206)

[8] While the interfering effects are robust, some other Perky-style experiments also revealed facilitatory effects of imagining to perceptual detection (Farah, 1985; Pearson et al., 2008).

I contend that although the subjects' experience incorporated the external stimulus—the tomato—as a sunset, such an experience was not purely imaginative. According to some recent discussions of the perception-cognition border, perception has the function of being causally dependent on a stimulus that cognition does not (Beck, 2018; Phillips, 2019).[9] In the current case, the sunset part of the subject's experience seemed to be caused by the external stimulus—the tomato—through proximal stimulation. It makes sense to regard the relevant part as perception. The lack of phenomenal force of the overall experience suggests that the perceptual part of the experience also lacked phenomenal force.

If our analysis of the sunset case is correct, then a similar point also applies to Perky's original experiment. The subjects' experiences were caused and sustained by those projected pictures (e.g., the upright banana, the elm leaf, etc.). It makes sense to count the experiences as perceptual ones, although they lacked phenomenal force.

3.2 DEREALIZATION

The second case that shows that perceptual experiences can lack phenomenal force is the depersonalization-derealization disorder.[10] Depersonalization is defined as experiencing a feeling of detachment from one's body or mental processes; derealization is as experiencing a feeling of unreality about one's surroundings. I focus on derealization below.

[9] Munton (2022) argues that visual experiences are dynamic, and even if an object is temporarily invisible, such as passing behind an occluder, the subject can be said to see the object during the period of occlusion in virtue of its visibility immediately before and after the occlusion. I am sympathetic with this argument, and think that attributing the function of stimulus-dependence to perception could be compatible with deploying a notion of stimulus-dependence that is broad enough to accommodate the cases discussed by Munton. See Phillips (2019) for some proposals.

[10] For similar discussions in philosophy, see Dokic and Martin (2017) and Miyazono (2021).

Admittedly, it is difficult to determine what exactly a "feeling of unreality" refers to in these contexts. In clinical observations, subjects of derealization usually appeal to metaphors to describe experiences. Sierra (2009) points out that subjects like to use language like "being in a bubble, or being separated from the world by an invisible barrier such as a pane of glass, a fog or a veil" (p. 24). The following are two descriptions that Sierra (2009) and Simeon and Abugel (2006) record:

> [O]bjects … looked as if surrounded by a cloud; people seemed to move like shadows, and words seemed to come from a far away world. (Sierra, 2009, p. 8)

> I see everything through a fog. Fluorescent lights intensify the horrible sensation and cast a deep veil over everything. (Simeon & Abugel, 2006, p. 81)

Compare these descriptions from subjects of derealization with the distinctive kind of phenomenal character that dogmatists ascribe to perceptual experiences—namely the feeling of being assured of the contents' truth and being directly presented with the relevant objects. It is likely that derealized subjects undergo some perceptual experiences without phenomenal force. Suppose that it is snowing and a derealized subject feels as if he views it through a fog. This symptom might get so severe that although his experience represents that it is snowing, he no longer feels being assured of the truth, or as if the scene is directly presented.[11]

[11] One might question whether phenomenal force could be completely absent. In particular, one might suspect that even derealized subjects with the most severe symptoms could tell their perceptions apart from imaginings.

One might wonder whether the sensory apparatus of derealized subjects is damaged, which causes their perceptions to lack phenomenal force. Both Sierra (2009) and Simeon and Abugel (2006) reject this explanation by highlighting that people with diplopia do not usually experience a feeling of unreality, and that objective examinations reveal that many derealized subjects have an intact sensory apparatus.

Moreover, derealized subjects encounter no particular difficulty in discriminating and recognizing objects. In the description mentioned by Simeon and Abugel (2006), the subject further complained about things looking foreign or unfamiliar: "They're just shapes, objects, things, with no personal connection to me" (p. 81). Sierra (2009) records a similar comment: "I seem to be walking about in a world I recognise but don't feel" (p. 32).

Guralnik and colleagues (Guralnik et al., 2000; Guralnik et al., 2007) conducted the first thorough studies of cognitive processes in derealized subjects, and confirmed that they could reliably identify faces. On the other hand, these studies revealed that visual noise affected the subjects more: They had additionally reduced perceptual sensitivity, and made more omission errors, than ordinary people. Based on this result and a subsequent finding that subjects with the disorder processed information more slowly, Guralnik and colleagues speculated that the deficiencies lay in the first stage of information processing, such as perception and attention. The exact relationship with the feeling of unreality, however, has yet to be determined. I say more about this question in Section 4.

I assume that these readers nonetheless agree that phenomenal force decreases in the perceptual experiences of some derealized subjects. As long as this weaker claim is granted, the phenomenon similarly poses a puzzle.

I have introduced two cases in which perceptual experiences seem to lack phenomenal force. The third case shows that phenomenal force is not exclusive to perceptual experiences since sensory imaginings might also have it.

3.3 CONDITIONING-INDUCED IMAGININGS

The case that I have in mind is sensory imaginings induced by classical conditioning.[12] In a first study on conditioning-induced imaginings, Ellson (1941 a) paired a weak tone with a signal light, and told subjects to detect the tone when seeing the light. After learning about the association between these stimuli, conditional upon seeing a light, many reported hearing a tone that was not presented. More recently, Powers et al. (2017) replicated this experiment by pairing a tone with a concurrent checkerboard stimulus. When the checkboard later appeared whereas the tone was secretly omitted, all groups of subjects exhibited the effect of experiencing a tone. Powers and colleagues further obtained neuroimaging evidence that the brain regions associated with tone perception were activated. This indicates that the subjects' reports were based on actual experiences rather than a mere shift in criterion.

One explanation of these experiments is that the subjects, due to repeated exposure to the association between the visual stimulus and the auditory stimulus, formed an expectation about their co-appearance. In the later trials, conditional upon seeing the visual stimulus, this expectation caused the subjects to spontaneously imagine hearing the auditory

[12] For a brief history of the empirical research, see Bentall (1990) and Rogers et al. (2021). See Teng (2018) for a previous discussion in philosophy.

stimulus—the fact that they mistook these imaginings for perceptions is evidence that such experiences had phenomenal force that accompanies ordinary perceptions.

Below I consider two alternative explanations. First, one might insist that the subjects' conditioning-induced imaginings lacked phenomenal force; however, the subjects jumped to the conclusion that the relevant experiences were perceptions. Second, one might argue that such experiences were not imaginings but non-veridical perceptions—it was no wonder that they had phenomenal force.

In reply to the first suggestion that the subjects' experiences lacked phenomenal force, I point out that Ellson (1941 a)'s subjects did not report a tone until they were certain about its appearance. Moreover, in another study, Davies et al. (1982) paired a triangle with a tone, and asked subjects to detect the triangle when hearing the tone. One subject reported having a triangle experience that was "normal, rather, boring really, nothing unusual to say about it" (p. 666). This demonstrates that the subject had consistent experiences across different trials, regardless of whether the triangle was presented. Taking this evidence together, we can infer that the conditioning-induced imaginings probably felt like perceptions and had phenomenal force.

In reply to the second suggestion that the conditioning-induced experiences were non-veridical perceptions rather than imaginings, I emphasize that perception has the function of being stimulus-dependent; however, it is not clear that the conditioning-induced experiences had this function. First, it is well recognized that if a conditioning effect is sensitive to verbal instructions, then it is likely to be mediated by some personal-level expectations (Kirsch et al., 2004; Mitchell et al., 2009). In a subsequent study, Ellson (1941b) examined how instructions about the possible omissions of the tone interacted with the conditioning effect, and showed

that reports about tone perception were reliably reduced. Personal-level expectations seemed to play a crucial role in triggering the relevant experiences.

Now, let us compare such experiences with a standard case of imagining:

> **Reunion:** Naomi is going to a reunion this weekend. Several times during the week, she imagines the joyful scene of reuniting with her friends.

There is continuity, I think, between Naomi's imagining and the conditioning-induced experiences in Ellson (1941a) and Powers et al. (2017): Both experiences are triggered not by the relevant external stimulus, but by personal-level expectations. One might suggest that the conditioning-induced experiences were spontaneously caused by expectations and this makes a difference. But there are also spontaneous imaginings. In the reunion case, even if Naomi's expectation causes the mental imagery automatically, this can be a genuine case of imagining. The comparison supports our point that the conditioning-induced experiences were likely to be imaginings.

One might further point out that in the empirical literature, the conditioning-induced experiences are often referred to as "hallucinations", and argue that hallucinations are a kind of non-veridical perception, not imagining. However, psychologists use a broad definition of hallucination, which does not help settle the nature of the relevant experiences. For example, one prominent definition can be found in Slade and Bentall (1988), which takes hallucination to consist in "any percept-like experience which (a) occurs in the absence of an appropriate stimulus, (b) has the full force or impact of the corresponding actual (real) perception and (c)

is not amenable to direct and voluntary control by the experiencer" (p. 23). Note that such a definition does not preclude spontaneous imaginings with phenomenal force from counting as hallucinations.

Finally, the relevance of the conditioning-induced experiences does not hinge on their being determinate cases of imaginings. As long as one grants that they were not clear cases of perceptions, the presence of phenomenal force poses a puzzle. My metacognitive account, as we see in Section 4, could explain how phenomenal force occurred, even if these experiences were imaginings.

4. THE SOURCE-MONITORING ACCOUNT

Having presented empirical cases to show that some perceptual experiences could lack phenomenal force, and some sensory imaginings might have phenomenal force, I now argue that phenomenal force is a separate state generated by some metacognitive mechanisms that monitor one's first-order mental processes and states. Contrary to a long-held assumption by dogmatism, phenomenal force is not a constitutive aspect of perceptual phenomenology.

I begin by explaining some terms. I use "metacognitive process/mechanism" to refer to mental processes that monitor one's first-order mental processes and states—perceptions, memories, imaginings, reasoning, and so forth, and use "metacognitive state" to refer to mental states generated by these processes. Metacognitive processes can either be reflective, conscious, or automatic, unconscious (Koriat, 2007). My focus is the latter kind of process, which is usually fast and effortless, and follows various heuristics.[13]

[13] For more on metacognition, see Beran et al. (2012), Dunlosky and Metcalfe (2009), and Proust (2013).

With respect to metacognitive states, metacognitive processes might directly generate metacognitive judgments about the first-order processes and states. However, this need not be the case. Some metacognitive processes might first lead to intuitive experiences, based on which metacognitive judgments can be formed (Koriat, 2007). Such intuitive experiences are called "noetic or epistemic feelings".[14] Below are two paradigmatic examples:

> **The feeling of knowing:** You participated in a general knowledge contest. Several times, you raised the hand before having retrieved the answer. You did this based on a gut feeling that you knew the answer, and would bring it to mind quickly.
>
> **Tip-of-the-tongue:** You have spent much time memorizing your students' names. This morning you ran into one of them. You felt that you knew his name, which you failed to retrieve. You ended up just saying "Hi".

Metacognition is a means to solve the uncertainty of one's own mind (Arango-Muñoz & Michaelian, 2014). For example, the feeling of knowing and tip-of-the-tongue help assess whether one will be able to recall certain information. One relies on them to decide whether, and if so, for how long, to search memory for answers, even if the epistemic feelings are not always reliable, or the only means that one can employ.

[14] The judgment/epistemic feeling distinction need not map neatly onto the reflective/automatic distinction.

Having explained metacognition and epistemic feelings, I now argue that phenomenal force is an epistemic feeling.[15] In particular, I propose the following account:

> **The source-monitoring account:** Phenomenal force is generated as an epistemic feeling only if source-monitoring mechanisms determine that an experience is likely to be triggered by the external stimulus that makes the experience veridical.[16]

Source monitoring is a kind of metacognition that monitors the origins and nature of one's own mental processes and states, and the monitoring can take place retrospectively or in real time (Johnson, 2006; Lindsay, 2008). In the rest of this section, I present two arguments to support the Source-Monitoring Account, of which the first shows that the generation of phenomenal force fits with the function of source monitoring.

It is no exaggeration to say that sensory experiences are important to our mental lives: Perceptual experiences inform us about the current surroundings, episodic memories remind us of past experiences, and sensory imaginings allow us to engage in alternative perspectives. Metacognition and epistemic feeling seem to be natural candidates to help us distinguish and make proper use of our experiences. Perceptual experiences can inform us about our current surroundings importantly due to their being stimulus-dependent. Accordingly, it fits with the function of source monitoring that it checks whether an ongoing experience is caused by the

[15] To my knowledge, there has been little discussion of whether phenomenal force is an epistemic feeling, except for Dokic and Martin (2017). Arango-Muñoz and Michaelian (2014) briefly mention phenomenal force as a possible example of epistemic feelings, but without an argument.

[16] This account echoes a recent trend in the empirical literature, in which researchers have become interested in psychological and neural mechanisms that distinguish between perceptions and sensory imaginings (Dijkstra et al., 2022; Gershman, 2019; Lau, 2019, 2022).

relevant external stimulus, and generates phenomenal force to inform us about its perceptual nature.

This idea is not mere speculation. Although research on source monitoring has mostly focused on it in memory, such as the monitoring of whether a recalled content was originally perceived or imagined, recent studies of schizophrenia have provided evidence that the same mechanisms are responsible for monitoring whether an ongoing mental state is a perceptual or imaginative one (Simons et al., 2017).

A common symptom of schizophrenia is experiencing auditory-verbal hallucination in the absence of a speaker. Subjects often mistake their hallucinations for genuine perceptions, and report that there involves a feeling of reality, which is evidence that phenomenal force is present in such experiences. Auditory-verbal hallucinations in schizophrenia activate the part of the auditory cortex associated with outer-speech and inner-speech production rather than speech perception (McGuire et al., 1993; Kühn & Gallinat, 2010). Hence, it has been argued that the hallucinations are more likely to be imaginings rather than non-veridical perceptions (Beck, 2018). This gives us another puzzling case, in which some psychotic imaginings might have phenomenal force.[17]

Recent studies of schizophrenia have indicated that the occurrence of auditory-verbal hallucinations is due to deficiencies in source monitoring. First, schizophrenic subjects show defects in memory source monitoring: They are biased toward attributing contents previously generated by themselves to an external source (Simons et al., 2017). Moreover, neuroimaging studies have demonstrated that such defects are closely associated with reduced activation in

[17] Auditory-verbal hallucinations in schizophrenia differ from conditioning-induced imaginings, which show that some non-psychotic imaginings might also enjoy phenomenal force.

the anterior medial prefrontal cortex—the amPFC (Garrison et al., 2017; Subramaniam et al., 2020). Finally, and importantly, it has been found that defects in memory source monitoring and reduced activation in the amPFC are closely associated with the severity of the auditory-verbal hallucinations in schizophrenia (Yanagi et al., 2020).

Together, the evidence supports two tentative conclusions, of which the first says that some common mechanisms monitor the origins and nature of various mental processes and states—perceptions, imaginings, memories, and so forth. The second conclusion is that hallucinations in schizophrenia shows what it is like when source monitoring breaks down: The deficiencies make subjects confuse self-generated imaginings for genuine perceptions, which leads to the presence of phenomenal force in the imaginings.[18] These conclusions are consistent with our overall proposal that phenomenal force is generated by source-monitoring mechanisms only if the latter determine that an experience is likely to be a perception.

Whereas our first argument for the Source-Monitoring Account analyzes the function and malfunction of source monitoring, the second argument appeals to research on memory source monitoring to suggest a more specific psychological mechanism for the generation of phenomenal force. The mechanism also explains the absence/presence of phenomenal force in the Perky effect, derealization, as well as conditioning-induced imaginings.

Research on memory source monitoring has demonstrated that the mechanisms make source attributions by tracking characteristic features of memory processes and states. When determining whether a recalled content originates from a past perception or a past imagining,

[18] Bentall and Varese (2013) argue that the source-monitoring approach to psychotic hallucinations is popular: "Although different investigators have proposed different versions of this model, they all assume that auditory-verbal hallucinations occur when inner speech is misattributed to a source that is external or alien to the self. Thus hallucinations are said to result from a failure of 'source monitoring'" (p. 70).

the mechanisms track features including how *detailed* and *vivid* the memory experience is, and whether the memory experience contains information about *cognitive operations* involved in the original event:

> **Sensory information:** Memories of past perceptions are more detailed and vivid than memories of past imaginings.
>
> **Cognitive operations:** Memories of past imaginings contain more information about cognitive operations than memories of past perceptions.

Dobson and Markham (1993) found that subjects with more detailed and vivid mental imagery were more likely to confuse memories of past imaginings for past perceptions. Finke et al. (1988) manipulated the amount of cognitive effort required for some imaginative tasks, and demonstrated that subjects were more likely to confuse memories of past imaginings for past perceptions when the imaginings had originally involved less cognitive effort. Kensinger and Schacter (2006) further acquired neuroimaging evidence that corroborates the behavioral studies: The brain regions associated with visual processing were more active when a memory was attributed to a past visual perception, whereas those associated with cognitive operations were more active when a memory was attributed to a past imagining.

In addition to the distinction between a past perception and a past imagining, research on memory source monitoring also explored features based on which an object is recognized as familiar. The research has found that *perceptual fluency* influences the occurrence of a feeling of familiarity in a particular case (perceptual fluency is a kind of *processing fluency*, and refers to

the ease with which perceptual information is processed. Processing speed/reaction time is a basic measure of perceptual fluency):

> **Processing fluency:** The perceptual processing of a familiar object is more fluent than the perceptual processing of a new object.

Whittlesea et al. (1990) presented subjects with seven words to study, and immediately afterwards, an eighth word as a recognition test. To manipulate the perceptual fluency of the eighth word, they covered it with a dynamic noise mask, consisted of a random array of dots. When the mask was light, the subjects perceived the word faster. The experiment found that the more fluently the subjects perceived a word, the more likely they experienced a feeling of familiarity, even if the word was completely new. One explanation is that source-monitoring mechanisms attributed the perceptual fluency with respect to a word to an earlier perception of it, and generated a sense of familiarity in the subjects. Westermann et al. (2002) replicated this effect, and further demonstrated that it occurred more reliably when the earlier and later perceptions were in the same sensory modality, such as vision.[19]

So far, we have seen that source-monitoring mechanisms track the standard features of various mental processes and states in memory source monitoring. In light of these results, I contend that such mechanisms follow parallel (though not exactly the same) heuristics when

[19] Enhancing signal strength is not necessary for enhancing perceptual fluency. Perceiving a weak stimulus can prime and quicken one's subsequent perception of a similar stimulus, but not through presenting more sensory information. Westermann et al. (2002) employed the technique of priming to manipulate subjects' perceptual fluency.

determining whether a process or state is a perception, and whether to generate phenomenal force to accompany the resulting experience. What are some of the heuristics? I propose that the list includes:

Sensory information*: Perceptions contain detailed and vivid sensory information.

Cognitive operations*: Perceptions involve relatively few cognitive operations.

Processing fluency*: Perceptual processing is relatively fluent.[20]

These heuristics are in line with the up-to-date research on the neural mechanisms of perception and imagining—the brain regions associated with the detailedness and vivacity of visual perception and imagining are more active during perception, whereas those associated with cognitive operations are less active during perception than during imagining (Dijkstra et al., 2022; Koenig-Robert & Pearson, 2021). In addition, an inspection of temporal dynamics during perception and imagining also indicates that it takes less time to generate a perceptual experience than to generate an imagining (Dijkstra et al., 2018).

In normal situations, following these heuristics allows source-monitoring mechanisms to efficiently decide which processes and states are perceptions. However, some processes and states might depart from the standard features, and source-monitoring confusion occurs when features of different processes and states overlap. For example, past imaginings can be

[20] This list is not intended to be exhaustive. Source-monitoring mechanisms might respond to some other cues. For example, one kind of cues that I have not discussed is one's personal-level mental states. There is empirical evidence that the feeling of familiarity is sensitive to the subjects' beliefs (Whittlesea et al., 1990; Westermann et al., 2002). I leave open whether such states also affect phenomenal force.

confused for past perceptions when the relevant memories are detailed and vivid, or contain few cognitive operations. According to my account, similar confusion can occur (though less frequently) between ongoing perceptions and imaginings. The Perky effect, derealization, and conditioning-induced imaginings might be three such empirical cases.

In the Perky effect, the pictures secretly presented were poor in sensory qualities; they were above the subjects' general visual threshold, but were rather faint. While perceiving the pictures, the subjects simultaneously engaged in deliberate imagining, which made it seem to involve more cognitive operations. As mentioned in Section 3, several replications of Perky's experiment demonstrated that imagining could interfere with perceptual detection (Segal & Fusella, 1970; Craver-Lemley & Reeves, 1992); the perceptual processing of the pictures was probably also less fluent. Together, these features misled the source-monitoring mechanisms into attributing the perceptions to some internal sources, and failing to generate phenomenal force.[21][22]

Second, Guralnik et al. (2000) and Guralnik et al. (2007) examined cognitive processes in depersonalization-derealization disorder. The abnormal features of the subjects' perceptual

[21] Dijkstra et al. (2021) and Dijkstra and Fleming (2021) instructed their subjects to detect visual stimuli that gradually appeared in dynamic white noise while imagining. The subjects confused some imaginings for genuine perceptions, even when pure white noise was showed. One way to interpret these findings is that imaginings could also have phenomenal force in Perky-style situations. Dijkstra et al. (2021) thought that this need not contradict Perky's and Segal and colleagues' findings, and tentatively explained: "[T]he direction of source confusion might be influenced by whether attention is directed inwards (imagery) or outwards (detection)" (p. 7). Moreover, contextual information might also matter. One piece of contextual information was that the visual stimuli were embedded in dynamic white noise—the perceptual experiences were supposed to be less specific and vivid, and the perceptual processing was supposed to be less fluent. Although the subjects' imaginings were deliberate, their perceptions of the visual stimuli were supposed to happen simultaneously—the source-monitoring mechanisms might treat cognitive operations as a less reliable cue. Together, such contextual information leaves room to misattribute the subjects' imaginings to some external sources.

[22] In fn. 8, I mentioned that some other replications of Perky's experiment also revealed facilitatory effects of imagining to perceptual detection. Do they involve source-monitoring confusion? I discuss Pearson et al. (2008) in a different context in Section 5, in which the effect resembled perceptual priming. In such a case, it might be unnecessary to explain the facilitation in terms of source-monitoring confusion.

processing, such as low fluency, might serve as cues based on which their source-monitoring mechanisms infer that the perceptual processes and states are internally caused, and generate no phenomenal force—or rather, a feeling of unreality. On the other hand, it is possible that derealization, in contrast to schizophrenia, involves another kind of malfunction. Derealized subjects might be biased toward internalizing externally caused processes and states.[23]

Finally, in both Ellson (1941 a) and Powers et al. (2017), which obtained conditioning-induced experiences, the exposure to the association between the visual and auditory stimuli made the conditioning-induced experiences resemble the original perceptions in detailedness and vivacity. Moreover, the exposure also enhanced the processing fluency in the generation of the experiences. As argued in Section 3, the subjects' expectations spontaneously triggered the experiences, meaning that relatively few cognitive operations were involved. In response to these features, the source-monitoring mechanisms therefore misattributed the experiences to some external sources, and generated phenomenal force to accompany them, even if they were imaginings.

So far, I have proposed two major arguments for the Source-Monitoring Account of phenomenal force. The first argument pointed out that the generation of phenomenal force fits with the function of source monitoring. The second argument proposed a more specific mechanism for the generation of phenomenal force, and demonstrated that this mechanism has great explanatory power. To complete my defense of the Source-Monitoring Account, I consider two objections in the next section.

[23] In fn. 11, I pointed out that some readers might maintain that phenomenal force is decreased, but not absent, in derealization. Our explanations could also accommodate this interpretation.

5. PHENOMENAL FORCE BEING A NON-PERCEPTUAL STATE

Both objections highlight the possibility that even if phenomenal force is generated by source-monitoring mechanisms, it could be an aspect of perceptual phenomenology. On the one hand, one might argue that source monitoring could be sub-processes under perception. On the other hand, one might also maintain that even if source monitoring is non-perceptual processes, it could nonetheless cognitively penetrate and contribute phenomenal force to the phenomenal character of perceptual experiences. Without addressing such issues, I could not claim that phenomenal force is a separate, non-perceptual state.

I consider these objections in order. First, with respect to whether source monitoring could be sub-processes of perception, I point out that the former does not seem to have the same function that perception has. Perception functions to represent the external world in a stimulus-dependent way, and hence inform us about the current surroundings. On the other hand, as expounded in Section 4, metacognition functions to monitor our first-order mental processes and states, and hence inform us about our mental capacities and performances. As a kind of metacognition, source monitoring is similarly mind-directed. This can be seen from the specific psychological mechanism for the generation of phenomenal force, which follows heuristics concerning various features of perceptual processes and states rather than those of the external world. This functional difference, therefore, makes it difficult to subsume source monitoring under perception.

Now, one might point out that according to higher-order theories of consciousness, a state becomes conscious in virtue of there being some metacognitive state that is targeted at the first-order state (Lycan, 1996; Rosenthal, 2005). Lau (2019, 2022) proposes that the kind

of metacognition needed for conscious perception is online source monitoring, which he calls "perceptual reality monitoring". One might object that if such a theory is true, then source monitoring could very well be incorporated into perception.

It is worth noticing that the Source-Monitoring Account of phenomenal force is not a higher-order theory of consciousness—the account itself is not a theory of consciousness. It is compatible with our account that sensory phenomenology is explained by some first-order process alone. In reply to the objection, I call our attention to the point that proponents and critics both regard higher-order theories of consciousness as "cognitivist" views (Block, 2019; Raccah et al., 2021; Lau, 2022).[24] This indicates that higher-order theories do not propose that perception contains source monitoring, or other kinds of metacognition. Rather, the theories hold that the relevant cognitive/non-perceptive processes and states interact with perception to make a perceptual state conscious. The theories are categorized as cognitivist views in that they emphasize the involvement of cognition in generating consciousness; they do not imply that source monitoring belongs to perception.

Let us turn to the second objection, which states that even if source monitoring is non-perceptual processes, it could nonetheless cognitively penetrate and contribute phenomenal force to the phenomenal character of perceptual experiences. (I set higher-order theories of consciousness aside for a moment for the sake of discussion. I clarify how they interact with the second objection later in the section.) The objection assumes that perceptual

[24] For example, Block (2019) characterizes higher-order theories like this: "According to higher-order theories of consciousness, what makes a perception conscious is that there is an accompanying cognitive state about the perception" (p. 1004). Moreover, in reply to an objection raised by Block (2019), Lau (2022) writes: "We cannot define consciousness as entirely independent from cognitive access from the outset. Subjective experience may turn out to constitutively involve some degree of cognition. We have to give such empirical possibilities a fair chance" (p. 51).

experiences are cognitively penetrable, which is, however, very controversial (Firestone & Scholl, 2016; Green, 2020). The objection needs to say more about how the relevant cognitive penetration occurs. Otherwise, the point remains mere speculation.

Below, I reply to this objection by considering two different proposals about cognitive penetration. The first proposal says that cognition influences perceptual experiences through object-based attention as well as feature-based attention (Mole, 2015; Stokes, 2018; Wu, 2017). The second proposal says that cognition influences perceptual experiences through triggering an imaginative process that interacts with a perceptual process (Macpherson, 2012; Teng, 2016, 2021). It is hard to see how source-monitoring mechanisms could contribute phenomenal force to perceptual experiences on either of these proposals.

First, when it comes to the effects of attention on perceptual phenomenology, Watzl (2017) highlights that attention structures our perceptual experiences into having centers and peripheries. Stokes (2018) thinks that object-based and feature-based attention makes certain objects and features pop out. However, it is not clear that source monitoring could penetrate and contribute phenomenal force to perceptual phenomenology through these effects. After all, similar attentional effects can occur to imaginings, but without giving rise to phenomenal force in the latter. In the reunion case introduced in Section 3, Naomi's imagining could have a center-periphery structure, and the faces of certain friends might pop out, due to top-down attentional effects. Naomi's imagining still lacks phenomenal force.

Alternatively, could source-monitoring mechanisms cognitively penetrate perceptual phenomenology and bring phenomenal force to the latter through triggering an imaginative process that interacts with a perceptual process?

Pearson et al. (2008) presented subjects' right and left eyes with two competing visual stimuli, and they only consciously perceived one stimulus at a time.[25] Pearson and colleagues demonstrated that imagining one of the stimuli during a blank interval biased the subsequent perception in favor of the same stimulus—the effect resembled perceptual priming. Again, it is not clear that source monitoring could contribute phenomenal force through these effects to perceptual phenomenology. Consider that perceptions can similarly prime imaginings, but without generating phenomenal force. In the reunion case, Naomi could first view photos of some friends, and then imagine reuniting with them. Naomi's perceptions could prime her to imagine the same faces, but could not make the imagining have phenomenal force.

Could source monitoring contribute phenomenal force to perceptual phenomenology more directly? One might introduce the well-discussed experiment of Hansen and colleagues (Hansen et al., 2006), in which subjects seemed to see a banana picture as more yellow, when it was entirely grey.[26] According to a psychologically plausible explanation of this experiment, the subjects' background cognition that bananas are normally yellow activated an imaginative process, which contributed a yellow component to the subjects' experience about the banana (Macpherson 2012). One might suggest that this case shows that phenomenal force could be contributed to perceptual experiences more directly.

In reply to this line of thought, I point out that the resulting experience might not be a pure perception. First consider that in the banana case, the yellow component is attributed to an imaginative process. This gives us reason to regard the subjects' resulting experience as

[25] This phenomenon is called binocular rivalry.
[26] For some replications of this effect, see Olkkonen et al. (2008) and Witzel et al. (2011). Alenti and Firestone (2019) argue that the banana picture was not experienced as more yellow, but only judged so. Deroy (2013) and Brogaard and Gatzia (2017) agree that the effect occurred at the experience level, but reject that it involved any cognitive penetration.

an amalgam state of a perception and an imagining.[27] Similarly, I emphasize that in pursuing the current objection, one needs to show that the purported phenomenal contribution of source monitoring makes the resulting experience a pure perception rather than an amalgam state of a perception and a non-perception. Otherwise, this objection would not contradict our claim that phenomenal force is a separate, non-perceptual state.

How do higher-order theories of consciousness, which we have set aside, interact with the second objection? I think that they face a similar problem. Higher-order theories seem to imply that perceptual experiences are cognitively penetrable since the relevant metacognition makes a perceptual state conscious. However, this does not tell us whether phenomenal force is a constitutive aspect of perceptual phenomenology. It is entirely possible that phenomenal force is generated as a concurrent but non-perceptual state, which becomes conscious due to being targeted by some further higher-order state. Higher-order theories of consciousness do not help the second objection either.

So far, I have appealed to empirical evidence to reject that source monitoring could be sub-processes under perception, and that it could contribute phenomenal force to perceptual phenomenology through cognitive penetration. Before ending this section, I make two more clarifications.

First, the Source-Monitoring Account does not preclude children and other animals from enjoying phenomenal force. Evidence emerges suggesting that they might share certain of human adults' metacognitive abilities (Beran et al., 2012; Proust, 2013; cf. Carruthers, 2008). The Source-Monitoring Account could be extended to these creatures. Besides, with respect

[27] Macpherson (2012) does not claim that the subject's cognitively penetrated experience was a pure perception. She is fine with the experience being an amalgam state.

to those without metacognition, our account does not imply that they are unconscious. This is another important difference from higher-order theories, which regard metacognition as a precondition for consciousness.

Second, there has recently been a heated debate about whether perceptual experiences themselves assign degrees of confidence, or whether confidence assignments are always non-perceptual.[28] The Source-Monitoring Account does not purport to settle such a debate. It is, however, worth noting that the Source-Monitoring Account is incompatible with views that argue for the existence of perceptual confidence, and yet identify it with phenomenal force.[29] Other than that, our account leaves open whether perceptual experiences themselves assign confidence in some other way. Our account also leaves open the exact relationship between phenomenal force and non-perceptual confidence. These are very interesting and important questions for future research.

6. CONCLUSION

In this paper, I rejected an assumption made by dogmatism that phenomenal force is a constitutive aspect of perceptual phenomenology. I introduced three empirical cases to show that phenomenal force could be absent in some perceptual experiences, but might be present in some imaginings. These cases pose a challenge to dogmatism, and call out for explanation. Then I proposed and defended an alternative account, according to which phenomenal force

[28] Some adherents of perceptual confidence include Morrison (2016), Moss (2018), Munton (2016), and Vance (2021). Some adherents of non-perceptual confidence include Block (2018), Cheng (2022), Denison (2017), and Siegel (2020). Byrne (2022) seems to reject both kinds of confidence.

[29] This is a possible position. As mentioned in fn. 5, some dogmatists believe that phenomenal force comes in degrees. One could think that phenomenal force is the way in which perceptual experiences assign degrees of confidence.

is a separate, non-perceptual state generated by source-monitoring mechanisms. The account greatly advances our understanding of the nature of phenomenal force, although we will wait for another occasion to examine its implication for epistemology.

ACKNOWLEDGEMENTS

Special thanks to Nico Silins, who encouraged me to work on this project in the first place, and read multiple versions of this paper. For feedback, I am indebted to several anonymous referees, as well as to Haiming Hua, David Kovacs, Kirk Michaelian, Kengo Miyazono, Bence Nanay, Qiu Wang, Brad Weslake, Feng Yu, and audiences at American University of Beirut, New York University Shanghai, Fordham University, National Yang-Ming University, Consciousness Research Network Meeting (CoRN), Renmin University, East China Normal University, Shanghai Jiao Tong University, and Cornell University.

REFERENCES

Arango-Muñoz, S., & Michaelian, K. (2014) Epistemic feelings, epistemic emotions: Review and introduction to the focus section. *Philosophy Inquiries*, *2*(1), 97–122.

Audi, R. (1995) Memorial justification. *Philosophical Topics*, *23*(1), 31–45.

Beck, J. (2018) Marking the perception-cognition boundary: The criterion of stimulus-dependence. *Australasian Journal of Philosophy*, *96*(2), 319–334.

Bengson, J. (2015) The intellectual given. *Mind*, *124*(495), 707–760.

Bentall, R. P. (1990) The illusion of reality: A review and integration of psychological research on hallucinations. *Psychological Bulletin*, *107*(1), 82–95.

Bentall, R. P., & Varese, F. (2013) Psychotic hallucinations. In Macpherson, F., & Platchias, D., (Eds.), *Hallucinations: Philosophy and psychology*. Cambridge, MA: MIT Press.

Beran, M. J., Brandl, J. L., Perner, J., & Proust, J. (2012) *Foundations of Metacognition*. New York, NY: Oxford University Press.

Berghofer, P. (2020) Towards a phenomenal conception of experiential justification. *Synthese*, *197*(1), 155–183.

Block, N. (2018) If perception is probabilistic, why does it not seem probabilistic? *Philosophical Transactions: Biological Sciences*, *373*(1775), 1–10.

Block, N. (2019) What is wrong with the no-report paradigm and how to fix it. *Trends in Cognitive Sciences*, *23*(12), 1003–1013.

Brogaard, B. (2013) Phenomenal seemings and sensible dogmatism. In Tucker, C., (Ed.), *Seemings and justification*. New York, NY: Oxford University Press.

Brogaard, B. (2017) Foundationalism, in Bernecker, S., & Michaelian, K. (Eds.), *The Routledge Handbook of Philosophy of Memory*, New York, NY: Routledge.

Brogaard, B., & Gatzia, D. E. (2017) Is color experience cognitively penetrable? *Topics in Cognitive Science*, *9*(1), 193–214.

Byrne, A. (2022) Perception and probability. *Philosophy and Phenomenological Research*, *104*(2), 343–363.

Carruthers, P. (2008) Meta-cognition in animals: A skeptical look. *Mind & Language*, *23*(1), 58–89.

Cheng, T. (2022) Post-perceptual confidence and supervaluative matching profile. *Inquiry*, *65*(3), 249–277.

Chudnoff, E. (2013) *Intuition*. New York, NY: Oxford University Press.

Cohen, S. (2002) Basic knowledge and the problem of easy knowledge. *Philosophy and Phenomenological Research*, *65*(2), 309–329.

Cohen, S. (2005) Why basic knowledge is easy knowledge. *Philosophy and Phenomenological Research*, *70*(2), 417–430.

Craver-Lemley, C., & Reeves, A. (1992) How visual imagery interferes with vision. *Psychological Review*, *99*(4), 633–649.

Davies, P., Davies, G. L., & Bennett, S. (1982) An effective paradigm for conditioning visual perception in human subjects. *Perception*, *11*(6), 663–669.

Denison, R. (2017) Precision, not confidence, describes the uncertainty of perceptual experience comment on John Morrison's "Perceptual Confidence". *Analytic Philosophy*. *58*(1), 58–70.

Deroy, O. (2013) Object-sensitivity versus cognitive penetrability of perception, *Philosophical Studies*, *162*(1), 87–107.

Dijkstra, N., & Fleming, S. (2021) Fundamental constraints on distinguishing reality from Imagination. *PsyArXiv*, July 1. https://doi.org/10.31234/osf.io/bw872

Dijkstra, N., Kok, P., & Fleming, S. (2022) Perceptual reality monitoring: Neural mechanisms dissociating imagination from reality. *Neuroscience and Biobehavioral Reviews*, *135*, 104557. https://doi.org/10.1016/j.neubiorev.2022.104557

Dijkstra, N., Mazor, M., Kok, P., & Fleming, S. (2021) Mistaking imagination for reality: Congruent mental imagery leads to more liberal perceptual detection. *Cognition*, *212*, 104719. https://doi.org/10.1016/j.cognition.2021.104719

Dijkstra, N. Mostert, P., de Lange, F. P., Bosch, S., & van Gerven, A. J. (2018) Differential temporal dynamics during visual imagery and perception. *eLife*, *7*, e33904. https://doi.org/10.7554/eLife.33904

Dobson, M., & Markham, R. (1993) Imagery ability and source monitoring: Implications for eyewitness memory. *British Journal of Psychology*, *84*(1), 111–118.

Dokic, J., & Martin, J-R. (2017) Felt reality and the opacity of perception. *Topoi*, *36*(2), 299–309.

Dunlosky, J., & Metcalfe, J. (2009) *Metacognition*. Thousand Oaks, CA: Sage Publications, Inc.

Ellson, D. G. (1941 a) Hallucinations produced by sensory conditioning. *Journal of Experimental Psychology*, *28*(1), 1–20.

Ellson, D. G. (1941 b) Experimental extinction of an hallucination produced by sensory conditioning. *Journal of Experimental Psychology*, *28*(4), 350–361.

Farah, M. J. (1985) Psychophysical evidence for a shared representational medium for mental images and percepts. *Journal of Experimental Psychology*, *114*, 91–103.

Finke, R. A., & Johnson, M. (1988) Memory confusions for real and imagined completions of symmetrical visual patterns. *Memory and Cognition*, *16*(2), 133–137.

Firestone, C., & B. J. Scholl (2016) Cognition does not affect perception: Evaluating the evidence for "top-down" effects. *Behavioral and Brain Sciences*, *39*, 1–72.

Garrison, J. R., Fernandez-Egea, E., Zaman, R., Agius, M., & Simons, J. S. (2017) Reality monitoring impairment in schizophrenia reflects specific prefrontal cortex dysfunction. *NeuroImage: Clinical*, *14*, 260–268.

Gershman, S. J. (2019) The generative adversarial brain. *Frontiers in Artificial Intelligence*, *2*, 18. https://doi.org/10.3389/frai.2019.00018

Ghijsen, H. (2014) Phenomenalist dogmatist experientialism and the distinctiveness problem. *Synthese*, *191*(7), 1549–1566.

Green, E. J. (2020) The perception-cognition border: A case for architectural division. *The Philosophical Review*. *129*(3), 323–393.

Guralnik, O., Schmeidler, J., and Simeon, D. (2000) Feeling unreal: Cognitive processes in depersonalization. *American Journal of Psychiatry*, *157*(1), 103–109.

Guralnik, O., Giesbrecht, T., Knutelska, M., Sirroff, B., & Simeon, D. (2007) Cognitive functioning in depersonalization disorder. *Journal of Nervous and Mental Disease*, *195*(12), 983–988.

Hansen, T., Olkkonen, M., Walter, S., & Gegenfurtner, K. R. (2006) Memory modulates color appearance. *Nature Neuroscience*, *9*(11), 1367–68.

Huemer, M. (2001) *Skepticism and the Veil of Perception*. New York, NY: Rowman and Littlefield Publishers, Inc.

Huemer, M. (2007) Compassionate phenomenal conservatism. *Philosophy and Phenomenological Research*, *74*(1), 30–55.

Johnson, M. (2006) Memory and reality. *American Psychologist*, *61*(8), 760–771.

Kensinger, E. A. & Schacter, D. (2006) Neural processes underlying memory attribution on a reality-monitoring task. *Cerebral Cortex*, *16*(8), 1126–1133.

Kirsch, I., Lynn, S. J., Vigorito, M., & Miller, R., R. (2004) The role of cognition in classical and operant conditioning. *Journal of Clinical Psychology*, *60*(4), 369–392.

Koenig-Robert, R., & Pearson, J. (2021) Why do imagery and perception look and feel so different? *Philosophical Transactions of the Royal Society B*, *376*(1817), 20190703. https://doi.org/10.1098/rstb.2019.0703

Koriat, A. (2007) Metacognition and consciousness. In Zelazo, P. D., Moscovitch, M., & Thompson, E., (Eds.), *The Cambridge Handbook of Consciousness*. New York, NY: Cambridge University Press.

Kriegel, U. (2015) *The Varieties of Consciousness*. New York, NY: Oxford University Press.

Kriegel, U. (forthcoming) The structure of phenomenal justification. *Australasian Journal of Philosophy*.

Kühn, S. & Gallinat, J. (2010) Quantitative meta-analysis on state and trait aspects of auditory verbal hallucinations in schizophrenia. *Schizophrenia Bulletin*, *38*(4), 779–786.

Lau, H. (2019) Consciousness, metacognition, & perceptual reality monitoring, *PsyArXiv*, June10. https://doi.org/10.31234/osf.io/ckbyf

Lau, H (2022) *In Consciousness We Trust: The Cognitive Neuroscience of Subjective Experience*. New York, NY: Oxford University Press.

Lindsay, D. S. (2008) Source monitoring. In Byrne, J., (Series Ed.), Roediger III, H. L., (Vol. Ed.), *Learning and Memory: A Comprehensive Reference Vol. 2: Cognitive Psychology of Memory*. Oxford: Elsevier.

Lycan, W. (1996) *Consciousness and Experience*. Cambridge, MA: MIT Press.

Lycan, W. (2013) Phenomenal conservatism and the principle of credulity. in Tucker, C., (Ed.), *Seemings and Justification*. New York, NY: Oxford University Press.

Macpherson, F. (2012) Cognitive penetration of color experience: rethinking the issue in light of an indirect mechanism. *Philosophy and Phenomenological Research*, *84*(1), 24–62.

Matthen, M. (2005) *Seeing, Doing, and Knowing: A Philosophical Theory of Sense Perception*. Oxford: Clarendon Press.

Matthen, M. (2010) Two visual systems and the feeling of presence. In N. Gangopadhyay, Madary, M., & Spicer, F., (Eds.), *Perception, Action, and Consciousness: Sensorimotor Dynamics and Two Visual Systems*. Cambridge, MA: the MIT Press.

McGrath, M. (2013) Phenomenal conservatism and cognitive penetration: The "bad basis" counterexample, in Tucker, C., (Ed.), *Seemings and Justification*. New York, NY: Oxford University Press.

McGrath, M. (2018) Looks and perceptual justification. *Philosophy and Phenomenological Research*, *96*(1), 110–133.

McGuire, P. K., Shah, G. M., & Murray, R. M. (1993) Increased blood flow in Broca's area during auditory hallucinations in schizophrenia. *Lancet*, *342*(8873), 703–706.

Mitchell, C., De Houwer, J., & Lovibond, P. F. (2009) The propositional nature of human associative learning. *Behavioral and Brain Sciences*, *32*(2), 183–198.

Miyazono, K. (2021) Visual experience without presentational phenomenology. *Ergo*, 8, 19. https://doi.org/10.3998/ergo.1156

Mole, C. (2015) Attention and cognitive penetration. In Raftopoulos, A., & Zeimbekis, J., (Eds.), *The Cognitive Penetrability of Perception: New Philosophical Perspective*. New York, NY: Oxford University Press.

Moretti, L. (2015) Phenomenal conservatism. *Analysis*, *75*(2), 296–309.

Morrison, J. (2016) Perceptual confidence. *Analytic Philosophy*, *57*(1), 15–48.

Moss, S. (2018) *Probabilistic Knowledge*. New York, NY: Oxford University Press.

Munton, J. (2016) Visual confidences and direct perceptual justification. *Philosophical Topics*, *44*(2), 301–326.

Munton, J. (2022) How to see invisible objects. *Noûs*, *56*(2), 343–365.

Nanay, B. (2015) Perceptual content and the content of mental imagery. *Philosophical Studies*, *172*(7), 1723–1736.

Olkkonen, M., Hansen, T., & Gegenfurtner, K. (2008) Color appearance of familiar objects: effects of object shape, texture, and illumination changes," *Journal of Vision*, *8*(5), 1–16.

Pearson, J., Clifford, C. W. G., & Tong, F. (2008) The functional impact of mental imagery on conscious perception. *Current Biology*, *18*(13), 982–986.

Perky, C. W. (1910) An experimental study of imagination. *American Journal of Psychology*, *21*(3), 422–452.

Phillips, B. (2019) The shifting border between perception and cognition. *Noûs 53*(2), 316–346.

Pollock, J., & Cruz, J. (1999) *Contemporary Theories of Knowledge*. Lanham, MD: Rowman & Littlefield Publishers.

Powers, A. R., Mathys, C., & Corlett, P. R. (2017) Pavlovian conditioning-induced hallucinations result from overweighting of perceptual priors. *Science*, *357*(6351), 596–600.

Proust, J. (2013) *The Philosophy of Metacognition: Mental Agency and Self-Awareness*. New York, NY: Oxford University Press.

Pryor, J. (2000) The skeptic and the dogmatist. *Noûs*, *34*(4), 517–549.

Pryor, J. (2004) What's wrong with Moore's argument? *Philosophical Issues*, *14*(1), 349–378.

Raccah, O., Block, N., & Fox, K. C. R. (2021) Does the prefrontal cortex play an essential role in consciousness? Insights from intracranial electrical stimulation of the human brain. *The Journal of Neuroscience*, *41*(10), 2076–2087.

Rogers, S., Keogh, R., & Pearson, J. (2021) Hallucination on demand: The utility of experimentally induced phenomena in hallucination research. *Philosophical Transactions of the*

Royal Society B, *376*(1817), 20200233. https://doi.org/10.1098/rstb.2020.0233

Rosenthal, D. (2005) *Consciousness and Mind*. New York, NY: Oxford University Press.

Segal, S. J. (1972) Assimilation of a stimulus in the construction of an image: The Perky effect revisited. In Sheehan, P. W., (Ed.), *The Function and Nature of Imagery*. New York, NY: Academic Press.

Segal, S. J., & Gordon, P. E. (1969) The Perky effect revisited: Blocking of visual signals by imagery. *Perceptual and Motor Skills*, *28*(3), 791–797.

Segal, S. J., & Fusella, V. (1970) Influence of imaged pictures and sounds on detection of visual and auditory signals. *Journal of Experimental Psychology*, *83*(3), 458–464.

Siegel, S. (2012) Cognitive penetrability and perceptual justification. *Noûs*, *46*(2), 201–222.

Siegel, S. (2017) *The Rationality of Perception*. New York, NY: Oxford University Press.

Siegel, S. (2020) How can perceptual experiences explain uncertainty? *Mind & Language*, 37(2), 134–158.

Siegel, S., & Silins, N. (2015) The epistemology of perception. In Matthen, M., (Ed.), *Oxford Handbook of Philosophy of Perception*. New York, NY: Oxford University Press.

Sierra, M. (2009) *Depersonalization: A New Look at a Neglected Syndrome*. Cambridge: Cambridge University Press.

Silins, N. (2014) The agony of fefeat. *Philosophy and Phenomenological Research*, *88*(3), 505–532.

Silins, N. (2016) Cognitive penetration and the epistemology of perception. *Philosophy Compass*, *11*(1), 24–42.

Simeon, D. & Abugel, J. (2006) *Feeling Unreal: Depersonalization Disorder and the Loss of the Self*. New York, NY: Oxford University Press.

Simons, J. S., Garrison, J. R., & Johnson M. K. (2017) Brain mechanisms of reality monitoring. *Trends in Cognitive Sciences*, *21*(6), 462–473.

Skene, M. (2013) Seemings and the possibility of epistemic justification. *Philosophical Studies*, *163*(2), 539–559.

Slade, P. D., & Bentall, R. P. (1988) *Sensory Deception: Towards a Scientific Analysis of Hallucinations*. London: Croom Helm.

Smithies, D. (2019) *The Epistemic Role of Consciousness*. New York, NY: Oxford University Press.

Subramaniam, K., Kothare, H., Hinkley, L. B., Tarapore, P., & Nagarajan, S. S. (2020) Establishing a causal role for medial prefrontal cortex in reality monitoring. *Frontiers in Human Neuroscience*, *14*, 106. https://doi.org/10.3389/fnhum.2020.00106

Stokes, D. (2018) Attention and the cognitive penetrability of perception. *Australasian Journal of Philosophy*, *96*(2), 303–318.

Teng, L. (2016) Cognitive penetration, imagining, and the downgrade thesis. *Philosophical Topics*, *44*(2), 405–426.

Teng, L. (2018) Is phenomenal force sufficient for immediate perceptual justification? *Synthese*, *195*(2), 637–656.

Teng, L. (2021) Cognitive penetration: Inference or fabrication? *Australasian Journal of* Philosophy, *99*(3), 547–563.

Tucker, C. (2010) Why open-minded people should endorse dogmatism. *Philosophical Perspectives*, *24*(1), 529–545.

Valenti, J. J., & Firestone, C. (2019) Finding the "odd one out": Memory color effects and the logic of appearance. *Cognition*, *191*, 103934. https://doi.org/10.1016/j.cognition.2019.04.003

Watzl, S. (2017) *Structuring the Mind: The Nature of Attention and How It Shapes Consciousness*. New York, NY: Oxford University Press.

Westermann, D. L., Lloyd, M. E., & Miller, J. K. (2002) The attribution of perceptual fluency in recognition memory: The role of expectation. *Journal of Memory and Language*, *47*(4), 607–617.

White, R. (2006) Problems for dogmatism. *Philosophical Studies*, *131*(3), 525–557.

Whittlesea, B. W. A., Jacoby, L. L., & Girard, K. (1990) Illusion of immediate memory: Evidence of an attributional basis for feelings of familiarity and perceptual quality. *Journal of Memory and Language*, *29*(6), 716–732.

Witzel, C., Valkova, H., Hansen, T., & Gegenfurtner, K. R. (2011) Object knowledge modulates colour appearance. *i-Perception*, *2*(1), 13–49.

Wu, W. (2017) Shaking up the mind's ground floor: The cognitive penetration of visual attention. *Journal of Philosophy*, *114*(1), 5–32.

Vance, J. (2021) "Precision and Perceptual Clarity," *Australasian Journal of Philosophy* 99 (2): 379–395.

Yanagi, M., Hosomi, F., Kawakubo, Y., Tsuchiya, A., Ozaki, S., & Shirakawa, O. (2020) A decrease in spontaneous activity in medial prefrontal cortex is associated with sustained hallucinations in chronic schizophrenia: An NIRS study. *Scientific Reports*, *10*, 9569. https://doi.org/10.1038/s41598-020-66560-2