The Unity and Plurality of Vague Perception

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by

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ABSTRACT

Some perceptual experiences appear vague. How should a representationalist about perception explain vague perceptual experiences? I argue that paradigmatic representationalist views of perceptual vagueness such as the perceptual confidence view and the determinable content view are phenomenologically inadequate because they fail to satisfy plausible phenomenological desiderata for any view of perceptual vagueness. I develop a phenomenologically adequate view within a modified capacitist framework. The developed view has repercussions for other problematic cases such as double vision and Anscombe's matchboxes.

INDEX WORDS: Vague perception, Representationalism, Capacitism, Perceptual confidence

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1 INTRODUCTION

Some perceptual experiences are phenomenally vague. Consider blurry vision. When myopic Billie takes off her glasses and looks at the hour hand of the clock on the wall, the edges of the hour hand appear vague to her. If Billie takes her perceptual experience at face value, she would be uncertain about the exact location of the edges. Or consider peripheral vision. When a scarlet cup appears in the periphery of Percy's visual field, the color of the cup appears vague to him. If Percy takes his perceptual experience at face value, he might be certain that the cup is red but be uncertain about the specific shade of red the cup instantiates.[1]

Assuming that perceptual experiences are representational, how should we explain the phenomenal vagueness of perceptual experiences such as Billie's and Percy's? Arguably, a view of perceptual vagueness has at least three phenomenological desiderata: first, it should respect what is known as the laws of appearance; second, it should explain the phenomenal similarity between vague experiences; third, it should accommodate the phenomenal difference between vague experiences. In this essay, I argue that paradigmatic representationalist views of perceptual vagueness fail to satisfy some of the phenomenological desiderata. In particular, the controversial perceptual confidence view satisfies none of them. Paradigmatic representationalist views are phenomenologically inadequate in explaining vague perceptual experiences.

I develop a phenomenologically adequate representationalist view of perceptual vagueness within a modified capacitist framework. My modified capacitist view explains blurry vision in terms of multiple employments of the same perceptual capacity and explains peripheral vision in

[1] Cases as such have also been labelled as cases of perceptual imprecision, perceptual uncertainty, or perceptual indeterminacy. When using different labels, philosophers emphasize different common features of these cases. Since the phenomenal character of experiences involved in these cases can be appropriately described as vague, I will label these cases as cases of perceptual vagueness.

terms of employing perceptual capacities to single out determinable properties. The developed view differs from paradigmatic representationalist views in that it is pluralist. It differs from standard capacitist views in that it is disjunctivist. It also has repercussions for the treatment of such problematic cases as double vision and Anscombe's matchboxes.

I will proceed as follows. In section 2, I briefly introduce representationalism and formulate three phenomenological desiderata for any view of perceptual vagueness. In section 3, I consider the controversial perceptual confidence view and argue that it satisfies none of the phenomenological desiderata. In section 4, I consider other proposed representationalist views and argue that each fails to satisfy some of the phenomenological desiderata. I develop and argue for my modified capacitist view in section 5. I conclude in section 6.

2 REPRESENTATIONALISM AND THE PHENOMENOLOGICAL DESIDERATA

Representationalism about perceptual experience holds that perceptual experiences are constitutively representational states.[2] In being representational, perceptual experiences have contents that have accuracy conditions.[3] To say perceptual contents have accuracy conditions is to say that perceptual contents can be accurate or inaccurate. Accuracy conditions specify the way the environment would have to be for the contents to be accurate. If my perceptual experience represents that there is a broken cup in front of me when in fact there is no cup in my environment, then the content of my experience is inaccurate. Since the content of my experience is inaccurate, my experience is also inaccurate.

Because perceptual experiences are representational, they have representational properties. Representational properties can be pure or impure. A pure representational property is a property of having a certain representational content. When I see a broken cup, my visual experience might have the property of representing that the cup is broken. An impure representational property is a property of having a certain representational content in a certain manner. A manner of representation is a way a content is represented. When I see a cup broken, I might also hear it. Thus, my perceptual experience might have the property of representing both visually and auditorily that the cup is broken.

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[2] For a systematic discussion of representationalism, see Chalmers (2010), ch.11. The distinctions and terminologies below are borrowed mainly from Chalmers.

[3] In being representational, perceptual experiences might also have contents that are at least partly repeatable. To say perceptual contents are at least partly repeatable is to say that perceptual contents have elements that are common in different contexts. For example, my experience of a broken cup_1 and my experience of a qualitatively identical cup_2 might both represent that there is a broken cup in front of me. Also, my experience of cup_1 at t_1 and my experience of cup_1 at t_2 might both represent that there is a broken cup in front of me. The general content constitutes the common element in these experiences.

Besides representational properties, perceptual experiences have phenomenal properties. Phenomenal properties characterize what it is like to have a perceptual experience.[4] What it is like to have a perceptual experience constitutes the phenomenal character of the experience. If two experiences have the same phenomenal character, then they have the same phenomenal property. Phenomenal character constitutes the phenomenology of a perceptual experience.[5]

There is disagreement over the relationship between representational properties and phenomenal properties. Standard representationalist views explain phenomenal properties in terms of representational properties. Among standard representationalist views, while strong representationalist views hold that phenomenal properties are identical to representational properties, weak representationalist views hold that phenomenal properties merely supervene on representational properties.[6] Weak representationalist views allow two perceptual experiences of the same phenomenal property to instantiate different representational properties. For the sake of argument, I will assume weak representationalism.[7]

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[4] The phenomenal character of an experience has both *qualitative* components and *structural* components. To a first approximation, consider my experience of two differently colored cups. One is red and in the left of my visual field. The other is green and in the right of my visual field. The phenomenal red and the phenomenal green constitute the qualitative components of my experience. The spatial relation between the phenomenal red and the phenomenal green in my visual field constitutes the structural component of my experience. For a thorough discussion of the structural phenomenal facts about experiences, see Lee (2024).

[5] A clarification is in order. The fact that perceptual experiences have phenomenal properties does not imply that the phenomenal character of perceptual experiences is (non-circularly) explained in terms of (awareness relations to) phenomenal properties. To say that perceptual experiences have phenomenal properties is just to say that perceptual experiences are phenomenal states, that perceptual experiences have phenomenal character, and that there is something it is like to have a perceptual experience.

[6] A strict definition of strong representationalism is that for every phenomenal property, there is some representational property such that, necessarily, an experience instantiates the phenomenal property *if and only if* it instantiates the representational property. A strict definition of weak representationalism is that for every phenomenal property, there is some representational property such that, necessarily, an experience instantiates the phenomenal property *if* it instantiates the representational property.

[7] Besides the consideration of content externalism and the consideration of category mistake, the main reason to assume weak representationalism in our context is that strong representationalism has been convincingly proven to be incompatible with precise supervaluationism—what Ryan Perkins and Tim Bayne (2013) take to be our best theory of vagueness.

We can formulate at least three phenomenological desiderata for any view of perceptual vagueness:

The Laws of Appearance Desideratum A view of perceptual vagueness should respect plausible laws of appearance.

This desideratum captures the idea that a view of perceptual vagueness should not imply perceptual experiences that fail to meet the general constraints on perceptual experiences as *experiences*. The general constraints for our purpose are from what Adam Pautz (2017, 2020, 2021) calls the laws of appearance. These laws govern the possible ways things can appear to us. Since we assume that phenomenal properties are grounded in representational properties, these laws can be cast in representational terms. I will proceed with the following three specific laws of appearance:

The No Inconsistency Law It's impossible to experientially represent *some* inconsistent content. [8] For example, it's impossible to experientially represent a single surface as *both* pure blue *and* pure green simultaneously.[9]

[8] Put in this way, the no inconsistency law allows a perceptual experience to represent some kind of inconsistent content. Ned Block (2023) points out that it's possible to see both a sphere and a cube in the same "integration field" in peripheral vision. The resulting percept combines both sphericalness and cubicness in a confused way. The No Inconsistency law is compatible with experiences as such.

[9] Note that double vision and perception of figures of such physically impossible objects as the Penrose triangle are not counterexamples to the no inconsistency law. In double vision (Fig. 2.1, a), a subject seems to experience an object as being at two distinct locations simultaneously. But there are interpretations of double vision that are compatible with the no inconsistency law. See, for example, Huemer (2001). When we experience the Penrose triangle (Fig. 2.1, b), our experience of it is multistable. We cannot experience the three cross-sections of the triangle simultaneously. As Tim Bayne (2010) states, "the inconsistency present in these phenomena is not contained within a single experiential state but occurs only as one attempts to integrate a series of distinct visual experiences that are not phenomenally unified with each other" (p. 70). Thus, the perception of figures of impossible objects is compatible with the no inconsistency law. Fig. 2.1, a is by Jonathan Trobe from https://commons.wikimedia.org/wiki/File:Diplopia.jpg. No changes are made to the figure. Fig. 2.1, b is from https://commons.wikimedia.org/wiki/File:Penrose-dreieck.svg.

The No Disjunction Law It's impossible to experientially represent a disjunctive content. For example, it's impossible to experientially represent that a single surface is *either* pure blue *or* pure green.

The No Negation Law It's impossible to experientially represent a negative content. For example, it's impossible to experientially represent that a single surface is *not* blue.[10]

These laws are prima facie plausible. After all, it seems hard to imagine an experience that violates any of these laws. As Pautz (2020) repeatedly asks, if any experience violated any of these laws, "what phenomenology would [its] representational content determine?" (p. 258). Besides, these laws have also been explicitly argued for in the literature.[11] So, I will assume that these laws of appearance are true. A view of perceptual vagueness should not entail a violation of any of these laws of appearance.

a b

Figure 2.1 Double vision and the Penrose triangle

[10] To be fair, my formulation of the laws of appearance is different from Pautz's original formulation. The no inconsistency law is weaker than his exclusion law which roughly says that it's impossible to experientially any inconsistent content simultaneously. The no disjunction law can be seen as a modification of his no logical structure law which says that it is impossible to experientially represent merely such widely disjunctive content as *there is either a red square on the left or a green sphere on the right*. The no negation law is in the spirit of the no logical structure law. For allowing logic operators of disjunction and negation in perceptual content would be cognitively too demanding for perception.

[11] See Block (2023, pp. 180-188, pp. 198-200) and Hill (2022, pp. 200-205).

The Phenomenal Similarity Desideratum A view of perceptual vagueness should explain the phenomenal similarity between phenomenally vague perceptual experiences.

The Phenomenal Difference Desideratum A view of perceptual vagueness should accommodate the phenomenal difference between phenomenally vague perceptual experiences.

These two desiderata capture the idea that a view of perceptual vagueness should not imply phenomenally vague perceptual experiences that fail to meet the specific constraints on phenomenally vague experiences as *phenomenally vague* experiences. On the one hand, some vague experiences are phenomenally similar (subjectively indistinguishable, or phenomenally the same). For example, my blurry perceptual experience of a clear picture (e.g. an in-focus photo) of an object and my clear perceptual experience of a blurry picture (e.g. an out-of-focus photo) of the same object might be phenomenally similar.[12] When we are attending to the objects in the pictures in the absence of some visual cues, we might easily confuse a clear experience of a blurrily depicted object and a blurry experience of a clearly depicted object.[13] A view of perceptual vagueness should explain the phenomenal similarity between these two kinds of perceptual experiences. On the other hand, there is a phenomenological distinction between blurry vision and

[12] There also seems to be a phenomenal similarity between a blurry experience of a real object and a clear experience of a blurry picture of that object. Consider vague *trompe l'oeil* pictures. When we are seeing a blurry trompe l'oeil picture, we are easily deceived into believing that we are seeing the object depicted by the picture face to face without realizing that we are seeing a picture in fact. For convenience, I will focus on the phenomenal similarity between a clear experience of a blurry picture and a blurry experience of a clear picture. The argument below, mutatis mutandis, applies to the case of blurry trompe l'oeil pictures.

[13] There are various visual cues that can help us distinguish clear vision from blurry vision. For example, when we see a picture clearly, the frame of the picture appears clear regardless of whether the depicted object is blurry or not, which in turn provides conscious information about the clarity of vision. Moreover, the contraction and relaxation of ciliary muscles which function to adjust the shape of lens can provide unconscious information about the distance of object and the clarity of vision (Yantis & Abrams, 2016). That said, if we rely solely on our conscious experiences of the objects depicted by pictures, we might easily confuse a clear experience of a vaguely depicted object and a vague experience of a clearly depicted object.

peripheral vision. As Alyscia Smith (2008) notes, objects in blurry vision appear to have halos around their edges, which constitutes a distinctive phenomenology of blurry experiences.[14] All clear experiences are alike; each kind of vague experience is vague in its own way. A view of perceptual vagueness should be sensitive to the phenomenal difference between different types of vague experiences.

In the next two sections, I will first argue that the perceptual confidence view fails to satisfy any of the phenomenological desiderata. Then, I examine other proposed representationalist views and argue that each fails to satisfy some of the phenomenological desiderata.

[14] Another difference between blurry vision and peripheral vision is that in peripheral vision "the ability to discriminate color and shape decreases dramatically… but the ability to perceive motion does not", whereas in blurry vision "the available information about an object's [color] is not significantly reduced… [but] information about the location of the object's spatial boundaries and surface texture is affected, along with information about depth and motion" (Allen, 2013, p. 267).

3 THE PERCEPTUAL CONFIDENCE VIEW AND ITS PROBLEMS

The perceptual confidence view is a representationalist view of perceptual vagueness which explains vague phenomenology in terms of a distinctive impure representational property.[15] The basic idea of the perceptual confidence view is that perceptual experiences assign probabilities to propositions. In the main way to unpack this idea, the perceptual confidence view holds that to have a perceptual experience is to have perceptual confidences in propositions about the environment, where the degree of perceptual confidence is measured probabilistically. The propositions constitute the representational contents. The perceptual confidences constitute the manners of representation. The perceptual confidences and the propositions together constitute the distinctive impure representational property of a vague perceptual experience in terms of which the phenomenal vagueness is explained.[16]

Perceptual confidences are like doxastic confidences. Both are probabilistically measured and are confidences in propositions. This similarity is rooted in the motivations of the perceptual confidence view. The perceptual confidence view is mainly motivated by the cognitive and the epistemic roles of phenomenally vague perceptual experiences.[17] For one thing, when Billie takes

[15] For arguments for the perceptual confidence view, see Morrison (2016, 2017, 2024) and Munton (2016). For critiques of the perceptual confidence view, see Byrne (2022), Beck (2020), Cheng (2022), Colombo and Fresco (2025), Denison (2017), Pautz (2020), Raleigh and Vindrola (2021), Siegel (2022), and Tye (2025).

[16] To be fair, another version of the perceptual confidence view maintains that phenomenal vagueness is explained in terms of probabilistic representational content. This version of the perceptual confidence view explains vague phenomenology in terms of a distinctive pure representational property. In order to avoid confusion, I will call this version of the perceptual confidence view "the probabilistic content view" and reserve the name "the perceptual confidence view" for the view which explains phenomenal vagueness in terms of probabilistic perceptual confidences in propositions.

The probabilistic content view has difficulty pinning down the kind of probability figuring in perceptual content. If the kind of probability is subjective, then the view overintellectualizes perceptual content by allowing self-referential content. If the kind of probability is objective, then the view is phenomenologically problematic. It is implausible that we could consciously perceive objective probability. For more detailed objections to the probabilistic content view, see Byrne (2022).

[17] The perceptual confidence view is also motivated by the informational role of perceptual experiences. John Morrison (2024) recently reviews evidence for pre-perceptual probabilistic representations and post-perceptual probabilistic representations. Given assumptions that in an information flow information cannot be recovered once it's lost and that perceptual experiences play an intermediate role between pre-perceptual representations and post-

her blurry experiences at face value, she forms multiple doxastic confidences, e.g. a 0.6 doxastic confidence that the edges of the hour hand are located at L_1, a 0.3 doxastic confidence that the edges are located at L_2, and a 0.1 doxastic confidence that the edges are located at L_3. Proponents of the perceptual confidence view argue that their view can best explain this datum, for Billie's blurry experience is just composed of a 0.6 perceptual confidence in the edges being at L_1, a 0.3 perceptual confidence in L_2, and a 0.1 perceptual confidence in L_3. For another, phenomenally vague perceptual experiences provide degreed immediate justification for perceptual beliefs. On the perceptual confidence view, Billie's 0.6 doxastic confidence in L_1 is *prima facie* justified exactly by her 0.6 perceptual confidence in L_1. The perceptual confidence thereby provides a neat explanation for what is going on in the situation of vague perception.

Despite its initial appeal, the perceptual confidence view has difficulty satisfying the phenomenological desiderata. First, consider the laws of appearance desideratum. For perceptual confidence to be measured probabilistically, there should be an algebra defined over possible perceptual content. But the existence of an algebra entails a possible violation of the laws of appearance. Therefore, the perceptual confidence view risks violating the laws of appearance and hence cannot satisfy the laws of appearance desideratum.[18]

To illustrate, consider Frank Jackson's Mary, the scientist in the black and white room. Suppose that in the room, Mary can see only black and white when she sees clearly.[19] The content

perceptual representations, Morrison argues that perceptual experiences are probabilistic representations that carry probabilistic information.

[18] For other objections to the claim that perceptual confidences are probabilistically measured, see Byrne (2022), Colombo and Fresco (2025), and Siegel (2022). Although both Colombo and Fresco and I argue that perceptual experiences don't have an algebraic structure, our arguments are different in that my argument below is cast in the form of a dilemma and is more sensitive to the essential features of an algebra. Given this, I take my argument to be stronger than Colombo and Fresco's.

[19] Three clarifications. First, I am not denying that Mary can perceive other properties like shape and size. I am assuming that when it comes to color properties, Mary can only perceive black and white. Second, I am not denying that Mary has the narrow perceptual capacity to perceive other colors like red and green. If Mary were perceptually related to instances of red and green, she would discriminate and pick out them. But due to environmental limitations,

of her clear perceptual experience of the color of a single surface can only be black or white. Let's denote the universal set of the perceptual contents corresponding to the respective colors Mary could perceive by Ω = {Black, White}. When Mary sees a surface's color blurrily, on the perceptual confidence view, Mary has a perceptual confidence in Black and a perceptual confidence in White. For perceptual confidence to be probabilistic, there should be an algebra defined over Ω. An algebra is a set A of subsets of Ω which has Ω as its member and is closed under negation and (countable) union.[20] It follows that Ω ∈ A. Hence, for perceptual confidence to be probabilistic, Mary should be able to have a perceptual confidence in Ω, that is, Ω should be among Mary's possible perceptual contents. But what is it to have Ω as a perceptual content? In other words, what is it to perceive {Black, White}? According to one interpretation, to perceive {Black, White} is to perceive both Black and White. After all, {Black, White} has both Black and White as its member. However, this interpretation risks violating the No Inconsistency Law. Black and White are inconsistent. It's impossible to perceptually represent a surface as being both black and white. According to another interpretation, to perceive {Black, White} is to perceive the disjunction of Black and White. After all, {Black, White} = {Black} ∪ {White}. However, this interpretation risks violating the No Disjunction Law. It's impossible to have a perceptual content that something is either black or white. Moreover, A is closed under negation. But what is it to be closed under negation? According to one interpretation, if A is closed under negation, and if {Black} ∈ A, then {¬ Black} ∈ A. However, this interpretation risks violating the No Negation

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Mary's narrow perceptual capacity to pick out red and green can never be employed. Thus, I am denying that Mary has the wide perceptual capacity to pick out red and green. Third, it might be disputed that black and white are colors. To delve into the nature of color would take us far afield. My argument below doesn't rest on the claim that black and white are colors. Nevertheless, for convenience, I will assume that this claim is true.

[20] If A is closed under negation, then by de Morgan's law, A is closed under (countable) union just in case it is closed under (countable) intersection.

Law. It is impossible to perceptually represent that something is not black.[21] According to another interpretation, if A is closed under negation, then if a set is in A, its complement is also in A. Thus, given that {Black, White} $\in$ A, $\emptyset \in$ A. However, it's unclear what it is to have $\emptyset$ as perceptual content. Is perceiving $\emptyset$ equivalent to not perceiving anything? Given these considerations, there doesn't seem to be an algebra which is necessary for perceptual confidence to be probabilistic. If the perceptual confidence view were true, it would commit a violation of plausible laws of appearance.[22]

A possible response from proponents of the perceptual confidence view is that the laws of appearance are merely contingent laws. That is, it's possible for a normal perceiver to violate the laws of appearance. However, this response has two problems. First, it doesn't seem that these laws are contingent. It's hardly conceivable what it would be like to experientially represent any inconsistent or disjunctive content regarding colors. Second, even if these laws were contingent, they would only fail to hold in possible worlds that are rather dissimilar from the actual world. According to Lewisian semantics of counterfactuals, for two possible worlds to be similar, it is of utmost importance that the two possible worlds have similar laws. Thus, the possible world which involves a violation of laws of appearance is very dissimilar from the actual world. It's unclear why what happens in such a dissimilar possible world should be relevant to our verdict on the perceptual confidence view in the actual world. Therefore, the response from the modal status of

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[21] Some might worry that a similar line of reasoning undermines the claim that doxastic confidences are measured by probability. In response, although it's impossible for perceptual states to have inconsistent content, disjunctive content, and negative content, it's possible for doxastic states to have inconsistent content, disjunctive content, and negative content. It is possible for Mary to have a 0 doxastic confidence in the proposition that a single surface is both black and white, a 1.0 doxastic confidence in the proposition that a single surface is either black or white, and a 0.5 doxastic confidence in the proposition that a single surface is not black.

[22] Note that this objection obtains regardless of whether the probabilities assigned to propositions are precise or imprecise, for both precise probability and imprecise probability are defined over algebras.

the laws of appearance is implausible. The laws of appearance pose a problem to the probabilist commitment of the perceptual confidence view.[23]

The perceptual confidence view also fails to satisfy the phenomenal similarity desideratum. That is, the view cannot adequately explain the possible phenomenal similarity between a clear experience of a blurry picture (Fig. 3.1, b) and a blurry experience of a clear picture (Fig. 3.1, a). When we have a blurry experience of a clear picture, according to the perceptual confidence view, our perceptual confidence regarding the picture represented by our experience is relatively low. The phenomenal vagueness consists in the manner of representation. But when we have a clear experience of a blurry picture, our perceptual confidence regarding the blurry picture represented by our experience is relatively high. The vagueness consists in the representational content. Thus, a clear experience of a blurry picture and a blurry experience of a clear picture differ greatly in both their manner of representation and their representational content. That is, these experiences differ greatly in their representational property. Although we assume that phenomenal properties supervene on representational properties, given the great difference between representational properties, it's unclear how the perceptual confidence view can explain the phenomenal similarity between a clear experience of a blurry picture and a blurry experience of a clear picture in a non-ad hoc way.[24]

Since we are dealing with complicated picture perception, let's proceed more slowly. The objection in the previous paragraph presupposes the onefoldness view of picture perception. That is, it presupposes that when we see a picture, we represent and are aware of only the picture surface. But in fact, philosophers of picture perception typically endorse a twofoldness or a threefoldness

[23] To be fair, Morrison (2016) is aware of the problem that actual perceptual experiences cannot have an algebraic structure (p. 35). The objection in this paragraph suggests that Morrison's response to the problem doesn't succeed. For a more detailed discussion of why Morrison's response fails, see Colombo and Fresco (2025).
[24] Although similar objections are mentioned by Allen (2013) and Denison (2017), their objections are underdeveloped.

view of picture perception. When we see a picture, we seem to see not only the picture surface, but also something else, say, the entity depicted by the picture. In addition to seeing the picture surface, we seem to see something *in* the picture. For instance, when I see a picture of Jerry Fodor, it seems to me that I see not only the picture surface, but also the person depicted by the picture (Fig. 3.1, a). The depiction constitutes another fold of my experience caused by the picture.[25]

a b c d

Figure 3.1 Four pictures of Jerry Fodor

For the sake of argument, let us assume the threefoldness view. The threefoldness view holds that when we see a picture, we experientially represent three distinct entities (whether simultaneously or alternately): the picture surface, the pictorial item, and the entity the picture is of. First, when we see a picture, we experientially represent the picture surface. After all, we are perceptually related to the picture surface in picture perception. Second, when seeing a picture, we also experientially represent the pictorial items encoded by the picture surface. Consider seeing a black and white picture of Jerry Fodor (Fig. 3.1, c). I seem to see a person in the picture. But the person in the picture is different from the real Fodor. The person in the picture is black and white. Thus, I seem to see a person whose color property is different from that of a real person. The color

[25] For a discussion of these views, see Nanay (2011, 2018b, 2022).

property of the pictorial person is parasitic on the surface feature of the picture, whereas the color property of the real Fodor is not. Third, when seeing a picture, we might also experientially represent what the picture is of. For convenience, let's assume that what a picture is of is an ordinary entity such as Jerry Fodor. When I see a picture of Fodor, I perceive a person in the picture. But I don't perceive Fodor himself, since I am not perceptually related to him.[26] Thus, it seems implausible that I have a perceptual representation of Fodor.[27] If I know what Fodor looks like, I will further recognize the picture as about Fodor and my phenomenology of the picture will change. Thus, it is plausible that I do have some representation of Fodor when I recognize the picture as about him. In addition to representing the pictorial person, I also represent the real person the picture is about. The twofoldness view and the threefoldness view disagree about whether we represent pictorial items in picture perception. Since the threefoldness view allows for a richer perceptual experience of pictures, if the threefoldness view cannot help the perceptual confidence view explain the phenomenal similarity between a clear experience of a blurry picture and a blurry experience of a clear picture, nor can the twofoldness view.

Can the perceptual confidence view together with the threefoldness view adequately explain the phenomenal similarity? First, proponents of the perceptual confidence view might explain the phenomenal similarity in terms of similar perceptual confidences in similar surface features. However, since the surface features of a clear picture are very different from those of a blurry picture, this strategy is not available to proponents of the perceptual confidence view.

[26] For me to be perceptually related to Fodor, a minimal condition is that I am spatially and temporally related to him, such that I can gain information about him via my sensory apparatus (Schellenberg, 2018, p. 32).

[27] Suppose that by seeing a picture of Fodor, I have a perceptual experience of Fodor. Since I am not perceptually related to Fodor himself, my perceptual experience of him would be inaccurate. But it is dubious that picture perception involves any inaccurate experience. Thus, it is implausible that I have any conscious perceptual representation of Fodor.

Second, proponents of the perceptual confidence view might explain the phenomenal similarity in terms of similar perceptual confidences in similar pictorial items represented. However, this strategy is not available to proponents of the perceptual confidence view either. On the one hand, the nature of pictorial items is unclear. Bence Nanay (2018b) suggests that pictorial items are virtual items which are "fully determined by the marks on the picture surface given the rules of optics and [have] only perceptible properties" (p. 170). But it's also unclear what the nature of virtual items is.[28] On the other hand, a clear picture and a blurry picture don't encode very similar pictorial items. Although the nature of pictorial items is unclear, it's clear that the features of pictorial items are determined by features of picture surfaces. Since the surface features of a clear picture and a blurry picture are very different, they determine very different pictorial items.

Third, proponents of the perceptual confidence view might explain the phenomenal similarity in terms of similar perceptual confidences in similar ordinary entities represented. A clear picture and a blurry picture might be of the same ordinary entity. Thus, in both a clear experience of a blurry picture and a blurry experience of a clear picture, we might have the same perceptual confidence in the same proposition about the same ordinary entity. However, this strategy seems not sufficient to explain the phenomenal similarity. As I've noted above, even if I can recognize Fodor in the picture, I will presumably not perceptually represent him. After all, I am not perceiving Fodor himself. But then what explains the phenomenological change when I recognize the picture as a picture of Fodor? Nanay (2018b) proposes that it is my mental imagery of Fodor that influences my perceptual phenomenology of his picture through cognitive

[28] For a discussion of the nature of virtual items, see Ali (2024). See also Chalmers (2022). To be fair, Nanay (2022) recently argues that pictorial items are not particulars, but the spatiotemporal regions encoded by the picture surface. Since it's standard to think that perceptual capacities function to discriminate and pick out external particulars instead of the spatiotemporal regions the particulars are in, I will assume that the sensory individuals of picture perception don't include spatiotemporal regions. For more on perceptual capacity, see Schellenberg (2018).

penetration. And when I have mental imagery of Jerry Fodor, my representation of him is at most quasi-perceptual. As I've also noted, the surface features of (and the pictorial items encoded by) a clear picture are very different from the surface features of (and the pictorial items encoded by) a blurry picture. Thus, for my clear experience of a blurry picture of Fodor and my blurry experience of a clear picture of Fodor to be phenomenally similar, my mental imagery is supposed to have a very strong influence on my perceptual phenomenology. But it's doubtful whether mental imagery can ever have such a strong influence. Mental imagery is usually not as vivid and acute as perceptual experience.[29] Therefore, the strategy of explaining the phenomenal similarity in terms of similar perceptual confidences in similar ordinary entities seems bleak.

If the phenomenal similarity between a clear experience of a blurry picture and a blurry experience of a clear picture cannot be explained in terms of similar confidences in similar picture surfaces, similar pictorial items, or similar ordinary entities, then it's unclear how the perceptual confidence view can explain the phenomenal similarity.

Proponents of the perceptual confidence view might still insist that the phenomenal similarity is grounded in similar perceptual confidences in similar representational contents. It's just that, as Morrison (2017) argues, "one is sometimes tricked into assigning the wrong [perceptual] confidences [to wrong propositions]" (p. 83). Along this line, proponents of the perceptual confidence view might argue that a blurry experience of a clear picture is an accurate experience, whereas a clear experience of a blurry picture is an erroneous experience which assigns wrong confidences to wrong propositions. However, this response is problematic. For one thing, a clear experience of a blurry picture and a blurry experience of a clear picture seem to have similar perceptual status. Neither seems to involve great perceptual errors. In both cases, the subject is

[29] An exception is patients with hyperphantasia. Patients with hyperphantasia can have extremely vivid mental imagery.

perceptually related to the picture. The subject is in a position to gain correct information about the picture via their sensory apparatus. For another, granting that one of the two experiences is accurate and the other is not, there seems no metaphysical criterion to differentiate the perceptual status of one experience from that of the other. Why should we think that the accurate experience is the blurry experience of the clear picture instead of the clear experience of the blurry picture? A clear vision of a blurry picture is a case of normal perception. If proponents of the perceptual confidence view think wrong perceptual confidences are assigned in this case, they are mistaking a case of normal perception for a case of misperception. Given these considerations, it's unclear how this response could succeed. The perceptual confidence view fails to satisfy the phenomenal similarity desideratum.

The third phenomenological desideratum is the phenomenal difference desideratum. The phenomenal difference desideratum says that a view of perceptual vagueness should accommodate the phenomenal difference between phenomenally vague perceptual experiences. The perceptual confidence view also fails to satisfy this desideratum. As I've noted in section 2, blurry vision and peripheral vision have distinct phenomenal character. When Billie sees the hour hand blurrily, there appears to be a halo around its edges. When Percy sees the cup in the periphery of his visual field, there appears no halo around the cup's edges. Thus, granting that the perceptual confidence view could satisfy the first two phenomenological desiderata, it can apply to either blurry vision or peripheral vision but not both.[30] The perceptual confidence view doesn't have a sufficiently

[30] Note how the perceptual confidence view is motivated. When Billie takes her vague experience of the hour hand in blurry vision at face value, she might form a 0.6 doxastic confidence that the edges of the hour hand are located at L_1, a 0.3 doxastic confidence that the edges are at L_2, and a 0.1 doxastic confidence that the edges are at L_3. The perceptual confidence view explains this datum in terms of a set of perceptual confidence-proposition pairs: a 0.6 perceptual confidence that the edges are at L_1, a 0.3 perceptual confidence that the edges are at L_2, and a 0.1 perceptual confidence that the edges are at L_3. Similarly, according to the perceptual confidence view, when Percy takes his vague experience of the cup in peripheral vision at face value, he might form a 0.6 doxastic confidence that the edges of the cup are located at L_1, a 0.3 doxastic confidence that the edges are at L_2, and a 0.1 doxastic confidence that the edges are at L_3. The perceptual confidence view explains this datum in terms of the same set of perceptual confidence-proposition

fine-grained structure to accommodate the phenomenological difference between cases of perceptual vagueness.[31]

Proponents of the perceptual confidence view might respond by restricting the application of their view to only one type of perceptual vagueness. But this certainly compromises their ambition. As Morrison (2016) states, he intends the perceptual confidence view to offer “a simple and uniform analysis of all these cases [of perceptual vagueness]” (p. 33).

In sum, the perceptual confidence view satisfies none of the laws of appearance desideratum, the phenomenal similarity desideratum, and the phenomenal difference desideratum. The perceptual confidence view faces serious problems in explaining the phenomenology of vague perception.

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pairs as above. Nevertheless, Billie’s vague experience and Percy’s vague experience are different in their phenomenal character. There appears to be a halo around the hour hand’s edges in Billie’s experience. Therefore, the perceptual confidence view cannot accommodate the phenomenal difference between blurry vision and peripheral vision.

[31] The perceptual confidence view cannot satisfy the phenomenal difference desideratum by appealing to distinct sets of perceptual confidence-proposition pairs, for the phenomenological difference between blurry vision and peripheral vision is a difference in kind instead of a difference in degree.

4 OTHER PROPOSED REPRESENTATIONALIST VIEWS AND THEIR PROBLEMS

First, consider the simple attitude view.[32] The simple attitude view is a representationalist view of perceptual vagueness which explains vague phenomenology in terms of a vague manner of representation. This vague manner of representation together with the relevant representational content constitutes the distinctive impure representational property of vague perceptual experiences. To have a phenomenally vague experience is just to represent a content vaguely. Billie's experience of the edges of the hour hand is phenomenally vague just because her experience represents the edges vaguely. Percy's experience of the color of the scarlet cup is phenomenally vague just because his experience represents the color of the cup vaguely.

The simple attitude view satisfies neither the second nor the third phenomenological desideratum. Although the simple attitude view doesn't have a probabilist commitment, it still maintains that vague phenomenology is explained in terms of a distinctive manner of representation. Given the different manners of representation and different representational contents between a clear experience of a blurry picture and a blurry experience of a clear picture, it's unclear how the simple attitude view could explain the possible phenomenal similarity between the two experiences. Therefore, the simple attitude view fails to satisfy the phenomenal similarity desideratum. Moreover, since the simple attitude view posits only a vague manner of representation, it lacks a sufficiently fine-grained structure to accommodate the phenomenal difference between blurry vision and peripheral vision. Proponents of the simple attitude view might respond by positing more fine-grained manners of representation. For example, they might hold that when Billie sees the edges of the hour hand blurrily, she represents the edges both vaguely and haloishly. However, lacking an account of what it is to represent vaguely and haloishly, the

[32] For a version of the simple attitude view, see Crane (2006, 2007).

simple attitude view cannot give us a deep understanding of the phenomenological difference between blurry vision and peripheral vision. Therefore, the simple attitude view fails to satisfy the phenomenal difference desideratum.[33]

Next, consider the determinable content view.[34] Perceptual experiences come in varying degrees of determinacy.[35] A perceptual experience can represent an object as being red without representing it as being any specific shade of red. A perceptual experience which merely represents an object as being red is less determinate than a perceptual experience which represents the object as being scarlet. Red is a determinable property, whereas scarlet is a determinate property. A determinate is a way a determinable is instantiated. The determinable content view explains phenomenal vagueness in terms of a distinctive type of representational content. It holds that a perceptual experience is phenomenally vague just because the experience represents a determinable property without representing any corresponding determinate property.[36] The determinable property constitutes the distinctive representational content which in turn constitutes the distinctive pure representational property of phenomenally vague experiences. Percy's experience is phenomenally vague just because his experience represents the cup as being red without representing the cup as being scarlet. Billie's experience is phenomenally vague just

[33] The counterpart of the simple attitude view is the simple content view. The simple content view is a representationalist view which explains phenomenal vagueness in terms of a distinctive pure representational property. When we have a vague perceptual experience, we attribute the property of being vague to some external object, whether the property of being vague is intrinsic or relational. Billie's experience is phenomenally vague because her experience represents the edges of the hour hand as vague. Percy's experience is phenomenally vague because his experience represents the cup as vague. For versions of the simple content view, see Pautz (2021) and Schellenberg (2008). Arguably, the simple content view also fails to satisfy the second and the third phenomenological desiderata.
[34] Proponents of the determinable content view include Nanay (2018a, 2020), Stazicker (2011), and Tye (2000, 2025).
[35] For arguments for the claim that we can perceptually represent a determinable property without representing its determinate, see Dennett (1996) and Munton (2021).
[36] A clarification. Although a subject of vague perceptual experience perceptually represents a determinable property, she doesn't represent the determinable property as determinable. The fact that determinable properties are determinable need not reveal itself in perceptual phenomenology.

because her experience represents the edges of the hour hand as being somewhere within a certain range of locations without representing the exact location.

Like the simple attitude view, the determinable content view satisfies neither the second nor the third phenomenological desideratum. According to the determinable content view, when I look at a clear picture of Fodor blurrily, my experience attributes determinable properties to the pictorial person's sharp contour. But when I look at a blurry picture of Fodor clearly, my experience attributes determinate properties to the pictorial person's fuzzy contour. Given the difference between the representational properties of the two experiences, it's unclear how the determinable content view could explain the phenomenal similarity between the two experiences. Therefore, the determinable content view fails to satisfy the phenomenal similarity desideratum.[37] Moreover, since the determinable content view explains phenomenal vagueness in terms of only one distinctive type of property represented by perceptual experience, it also lacks a sufficiently fine-grained structure to accommodate the phenomenal difference between blurry vision and peripheral vision.[38] Therefore, the determinable content view fails to satisfy the phenomenal difference desideratum.

[37] Although Nanay (2018a) adheres to the determinable content view, he rejects the phenomenal similarity desideratum. That said, the determinable content view still fails to satisfy the phenomenal difference desideratum and hence is phenomenologically wanting.

[38] See Allen (2013) for a similar objection to the determinable content view.

5 A MODIFIED CAPACITIST VIEW OF PERCEPTUAL VAGUENESS

I identified three phenomenological desiderata for any view of perceptual vagueness. The perceptual confidence view satisfies none of them. Although the simple attitude view and the determinable content view satisfy the laws of appearance desideratum, they fail to satisfy the other two desiderata. These are not knockdown objections to representationalism. At best, they show that current paradigmatic representationalist attempts to explain vague perception are phenomenologically inadequate.

Capacitism is a promising version of representationalism. In this section, I develop a modified capacitist view of perceptual vagueness. It's modified in the sense that contrary to Susanna Schellenberg's common factor view of perceptual content, it adopts a disjunctivist view. In subsection 5.1, I introduce Schellenberg's original capacitism. In subsection 5.2, I modify her capacitism to explain perceptual vagueness. In subsection 5.3, I reply to a potential objection.

5.1 Schellenberg's Capacitism

What is explanatorily fundamental in the metaphysics of perception? In *The Unity of Perception*, Susanna Schellenberg (2018) argues that the notion of capacity is explanatorily fundamental. According to her capacitism, perceptual content, perceptual consciousness, and perceptual evidence are to be grounded in and explained in terms of the employment of personal-level perceptual capacities. The slogan of capacitism is "capacities first".

The notion of perceptual capacity is at the heart of Schellenberg's theory. A perceptual capacity is individuated by its function. The function of a perceptual capacity is to discriminate, single out, and sometimes classify mind-independent particulars of a certain type. The particulars in question could be external objects, property instances, or events. For example, when I see a white cup, I am employing my capacity to perceive white and cup. My capacity to perceive white functions to single out instances of white. My capacity to perceive cup functions to single out objects of the cup shape. Because a perceptual capacity is in turn individuated by the type of particulars it functions to single out, a perceptual capacity is individuated externally. In this way, capacitism captures the naïve realist insight that perception is constitutively a matter of relating perceivers to their external environment.

Employing a perceptual capacity yields a perceptual state with a certain content schema composed of a potentially singularized mode of presentation (MOP [__]). When the environment plays along, employing a perceptual capacity will succeed in singling out a particular of the type it functions to single out; employing the capacity will yield a perceptual state with a token content composed of a singular de re mode of presentation of the particular (MOP (α), where α is the particular the capacity singles out). Because the perceptual capacity fulfills its function, its employment is successful. In contrast, when the environment doesn't play along, employing a perceptual capacity will fail to single out a particular of the type the capacity functions to single out; employing the capacity will yield a perceptual state with a token content composed of a gappy mode of presentation (MOP (__), where the gap simply marks the failure to single out a particular). Because the perceptual capacity fails to fulfill its function, its employment is said to be baseless.

An example will help. Suppose I see a white cup α. I employ my perceptual capacity that functions to single out objects of the cup shape in order to single out α. And I employ my perceptual capacity that functions to single out instances of white in order to single out α's whiteness. The employment of my perceptual capacities yields a perceptual state of the following content schema:

$$< \mathrm{MOP}_{\mathrm{cup}}\ [\_\_],\ \mathrm{MOP}_{\mathrm{white}}\ [\_\_] >$$

Because the environment plays along, the employment of my perceptual capacities is successful. My perceptual capacities successfully single out α and its whiteness. Their employment yields a perceptual state whose token content can be modelled as follows:

$$< MOP_{cup} (\alpha), MOP_{white} (\alpha\text{’s whiteness}) >$$

In this token content, MOP_{cup} (α) is a de re mode of presentation of the cup α, while MOP_{white} (α’s whiteness) is a de re mode of presentation of the property instance α’s whiteness. MOP_{cup} (α) and MOP_{white} (α’s whiteness) are combined in a single token content. We can articulate this token content as that that cup is white. Since “that cup” refers to α and α is actually white, this token content is accurate.

Suppose instead that α is not white. When I employ my perceptual capacities to single out objects of the cup shape and to single out instances of white, I will succeed in singling out α but fail to single out α’s whiteness. The employment of my perceptual capacities yields a perceptual state with the following token content:

$$< MOP_{cup} (\alpha), MOP_{white} (\_\_) >$$

In this token content, MOP_{white} (__) is a gappy mode of presentation which specifies the kind of property instances that would have to be present for the token content to be accurate without specifying any particular property instance. We can articulate the token content as that that cup is white. Since α is not white, the token content is inaccurate. But since “that cup” still refers to α, the perceptual state in question is an illusory state.[39]

[39] Following Schellenberg (2018), I am understanding illusions as cases in which “it seems to us that an object has a property that it does not in fact instantiate” (p. 44). I am understanding hallucinations as cases in which “it seems to us that there is an object where in fact there is no such object” (p. 44). We can further distinguish between optical illusions and visual (psychological) illusions. Optical illusions are due to the laws of optics. Perceiving a stick partially immersed in water as bent is an optical illusion. Perceiving a white wall illuminated by red light as red is also an

Finally, suppose there is no cup in my environment. When I employ my perceptual capacity to single out objects of the cup shape and to single out instances of white, my employment will be baseless. The yielded perceptual state will have the following token content:

$$< MOP_{cup}\ (\_\_),\ MOP_{white}\ (\_\_) >$$

In this token content, both MOP_{cup} (__) and MOP_{white} (__) are gappy modes of presentation which specify the kind of particulars that would have to be present for the token content to be accurate without specifying any particular object or property instance. Again, we can articulate the token content as that that cup is white.[40] However, since "that cup" fails to refer to anything, the token content fails to make a claim about the environment. The token content is inaccurate, and the perceptual state is actually a hallucinatory state.[41]

Capacitism is a weak representationalist view. It holds not only that perceptual experiential states are constitutively representational states but also that the phenomenal character of perceptual experiential states is grounded in their representational contents in the sense of supervenience. Two perceptual experiences with the same representational content in the same sense modality must have the same phenomenal character. Moreover, Schellenberg's capacitism holds a common

optical illusion. Visual illusions are due to the internal assumptions of our visual information processing systems. The Müller-Lyer illusion is a visual illusion.

[40] Although Schellenberg (2018) articulates perceptual content in this way, this articulation is potentially misleading. It seems to imply that perception is fundamentally a matter of attributing properties to external objects. But according to Schellenberg, perceptual discrimination is more basic than perceptual attribution. Hence, I think the perceptual content is more appropriately articulated as *that cup has that white*. My way of articulation treats discriminating objects and discriminating property instances equally. It respects the core capacitist commitment that perception is fundamentally a matter of employing perceptual discriminative capacities. It also hints at the problem of the unity of perceptual content that capacitism faces: "[h]ow can objects and property-instances be bound together into a content such that it represents them and has accuracy conditions?" (Reiland, 2024, p. 951). Since for the sake of this essay nothing serious rests on the correct articulation of perceptual content, I will proceed with Schellenberg's articulation.

[41] According to Schellenberg (2018), there are "two ways in which a content can be inaccurate. One way is for the content to make a claim about the environment that is not accurate. A second way is for it to fail to make an accurate claim about the environment" (p. 94). An illusory state makes a claim about the environment, but the claim is inaccurate. A hallucinatory state fails to make a claim about the environment and hence fails to make an accurate claim about the environment.

factor view about perceptual content. For two perceptual experiences to be phenomenally the same, they must have the same content schema. Thus, my perceptual experience of a white cup and my hallucinatory experience as of a white cup are phenomenally the same because they share the same content schema, even though they differ in their token content. Because the content schema of a perceptual state is grounded in and explained in terms of the type of the perceptual capacity employed to produce it, the phenomenal character of a perceptual experience is in turn grounded in and explained in terms of the employment of a perceptual capacity in a sensory mode such as seeing, hearing, and touching. In this way, capacitism provides a unified account of both perceptual content and perceptual consciousness.[42]

5.2 A Modified Capacitist View

To motivate my capacitist explanation of Billie's blurry experience, consider how we can draw a blurry cup with halos around its edges using a pencil. First, we draw a cup. Then we make the contour of the cup fuzzy by repeatedly drawing a contour that is right next to but fainter than a previous contour. We may start by drawing a fainter contour right next to the original one. Then we draw a much fainter contour next to the second one. We repeat this procedure until the contour of the cup looks fuzzy.[43] Every time we draw a contour at a certain location, we are employing our capacity to draw a contour at that location. Besides, every time we draw a contour, we are also drawing a cup coincidentally. Thus, we are also repeatedly employing our capacity to draw a cup.

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[42] Schellenberg argues that capacitism can unify not only perceptual content and perceptual consciousness, but also perceptual evidence. For the purpose of this essay, I omit her discussion of perceptual evidence.

[43] Admittedly, many pictures that can be appropriately described as blurry are not drawn in this way. But clear experiences of these pictures might not phenomenologically resemble any blurry visual experiences. As I've noted, objects in blurry vision appear to have halos around their edges. So, for a clear experience of a blurry picture to phenomenologically resemble any blurry experience, the pictorial items encoded by the picture must have halos around their edges. I would like to describe paintings such as Michelangelo's Christ on the Cross between the Virgin and St John as blurry.

Similar things, I suggest, happen in blurry vision. In seeing the edges of the hour hand blurrily, Billie employs her distinct perceptual capacities to single out edges at distinct locations. Because the edges of the hour hand have only one exact location, only one of her perceptual capacities to single out edges is employed successfully. Moreover, every time Billie employs her perceptual capacity to single out edges, she is also employing her perceptual capacity to single out an hour hand. Because Billie employs multiple distinct perceptual capacities to single out edges at distinct locations, her perceptual capacity to single out an hour hand is accordingly employed multiple times. Since Billie is perceptually related to the hour hand, her employment of the perceptual capacity to single out an hour hand is always successful. That is, Billie can successfully refer to the hour hand, even though she sees the edges of the hour hand blurrily.[44]

Suppose Billie employs her perceptual capacities to single out edges at L_1, L_2, …, L_n respectively, the content of her blurry experience can be modelled as follows:

$$< MOP_{\text{hour hand}}\ (\alpha),\ MOP_{\text{edges-at-L1}}\ (\alpha\text{'s edges-at-}L_1) \text{ and } MOP_{\text{hour hand}}\ (\alpha),\ MOP_{\text{edges-at-L2}}\ (\_\_) \text{ and } \ldots \text{ and } MOP_{\text{hour hand}}\ (\alpha),\ MOP_{\text{edges-at-Ln}}\ (\_\_) >$$

In this token content, $MOP_{\text{hour hand}}$ (α) is a de re mode of presentation of the hour hand α. $MOP_{\text{edges-at-L1}}$ (α's edges-at-L_1) is a de re mode of presentation of the property instance α's having edges at L_1. Both modes of presentation are produced by Billie's successful employment of her perceptual capacities to single out the relevant object and property instance. There are n tokens of MOP_{hour}

[44] What's the relationship between the capacity of edge detection and the capacity of hour-hand shape detection? According to the visual hierarchy, edge detection is lower-level and more basic than shape detection. So, in normal conditions, employing the capacity to single out a particular shape presupposes employing the capacity to single out edges. But I am inclined to think that we might in principle employ the former capacity without employing the latter capacity, as long as only high-level cortical areas are stimulated. I am with Ned Block (2023, pp. 198-200) in thinking that Adam Pautz (2020)'s Berkeley's law (that it's impossible to perceptually represent shape without representing color) and No High Level Content law (that it's impossible to perceptually represent high-level content without representing any low-level content) are false.

$_{\text{hand}}$ (α). This is because the capacity to single out an hour hand is employed n times, and each employment yields a token of $\text{MOP}_{\text{hour hand}}$ (α). $\text{MOP}_{\text{edges-at-L2}}$ (__), …, $\text{MOP}_{\text{edges-at-Ln}}$ (__) are gappy modes of presentation produced by employing perceptual capacities to single out edges at L_2, …, L_n respectively. They are gappy because the relevant perceptual capacities are employed baselessly. The token content of Billie's blurry experience can be articulated as that that hour hand (namely, α) has edges at L_1, that hour hand has edges at L_2, …, and that hour hand has edges at L_n.

It might be objected that this explanation of blurry vision doesn't satisfy the laws of appearance desideratum because it violates the no inconsistency law. The content of Billie's blurry experience entails that that hour hand has edges at L_1, L_2, …, L_n simultaneously, which involves an inconsistency. In response, the inconsistency involved in the content is not the kind of inconsistency the no inconsistency law primarily intends to rule out. As a law of appearance, the no inconsistency law intends to rule out inconsistency in phenomenology. Although laws of appearance can be cast in terms of representation, representational inconsistency doesn't automatically amount to phenomenological inconsistency. According to capacitism, the phenomenology of a perceptual experience is determined by the content schema of its token content yielded by employing perceptual capacities. The content schema of a blurry experience is phenomenologically consistent.

To illustrate, consider a hallucinatory experience as of two cups located at L_1 and L_2 separately. This experience is yielded by two baseless employments of the perceptual capacity to single out the cup shape and two baseless employments of perceptual capacities to single out distinct locations. Its token content is < MOP_{cup} (__), MOP_{L1} (__) and MOP_{cup} (__), MOP_{L2} (__) >. Its content schema is < MOP_{cup} [__], MOP_{L1} [__] and MOP_{cup} [__], MOP_{L2} [__] >. This content schema is perfectly consistent in phenomenology. The perceptual capacities are employed consistently. No token of MOP_{cup} [__] is combined with two or three potentially singularized modes of presentation about distinct locations simultaneously. Whether the environment plays along doesn't make a difference to the phenomenological consistency of the experience. If this experience doesn't violate the no inconsistency law, nor does any blurry experience. My explanation of blurry vision satisfies the laws of appearance desideratum.

Modelling the content of Billie's blurry experience in this way has many virtues. First, it captures the sense in which blurry vision is defective. Blurry vision involves a loss of information.[45] By representing the hour hand as having edges at distinct locations simultaneously, the information about the edges' exact location is lost. Therefore, Billie's blurry experience about the hour hand is defective.

Second, it captures the sense in which blurry experiences are neither hallucinatory nor entirely illusory. Although blurry vision is defective, it is not as defective as hallucination or entire illusion. In blurry vision, a subject is still perceptually related to the object such that she could gain some correct information about the object. Billie could successfully employ her perceptual capacity to single out the hour hand. She could also form singular beliefs about the hour hand based on her blurry experience. Her blurry experience is not hallucinatory. Moreover, although Billie doesn't know the exact location of the edges of the hour hand, she can know based on her experience that the edges are located within a certain range, namely, L_1-L_n. Her experience doesn't lead her to form radically false beliefs. Her blurry experience is not entirely illusory.[46]

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[45] Note that the loss of information is in *effect*, not in the perceptual content per se. In other words, the loss of information in what a blurry experience tells to the doxastic system about, say, the exact location of the edges of external objects.

[46] It might be objected that I can have a red illusion of a blue cup but still know that the cup has a color based on my experience of the cup. Thus, that I can form knowledge based on my experience doesn't show that my experience is not entirely illusory. In response, I cannot know that the cup has a color based on my illusory experience of the cup's color. This is just what Gettier taught us.

Third, my explanation of blurry vision captures one of the key motivations of the perceptual confidence view. As noted in section 3, the perceptual confidence view is partly motivated by the epistemic role of blurry experiences. Billie's blurry experience provides some degreed immediate justification for the beliefs that the hour hand has edges at L_1, that the hour hand has edges at L_2, …, and that the hour hand has edges at L_n. An explanation of this justificatory role requires the content of the experience and the contents of the beliefs to be linked in a nonarbitrary way. According to my explanation, Billie's blurry experience partially justifies her belief that the hour hand has edges at L_1 exactly because her experience represents the hour hand as having edges at L_1. In this way, my explanation of blurry vision can easily explain the epistemic role of blurry experiences.

To see how my view departs from Schellenberg's original capacitism, let's move to the phenomenal similarity desideratum. The phenomenal similarity desideratum asks a view of perceptual vagueness to explain the phenomenal similarity (subjective indistinguishability, or even phenomenal sameness) between a blurry experience of a clear picture and a clear experience of a blurry picture. The difficulty in satisfying this desideratum results from four incompatible intuitions. First, a blurry experience of a clear picture and a clear experience of a blurry picture could have largely the same phenomenal character. This is the fundamental intuition driving the phenomenal similarity desideratum. Second, it is intuitively plausible that a blurry experience of a clear picture and a clear experience of a blurry picture have the same or at least very similar perceptual status. In both situations, the subject is in a position to gain some correct information about the picture via her sensory apparatus. If the accuracy conditions of one experience are somewhat satisfied, the accuracy conditions of the other should also be somewhat satisfied. Third, it is intuitively plausible that the common factor view of perceptual content is true. The common factor view of perceptual content holds that phenomenal sameness is grounded in some common factor in perceptual content. Schellenberg's capacitism explicitly adopts the common factor view. On Schellenberg's capacitism, phenomenal sameness is grounded in the sameness of content schema, which in turn is grounded in the sameness of the type of perceptual capacity employed. Fourth, it seems obvious that a clear picture and a blurry picture have very different intrinsic features. They have different surface features. Their color patches are distributed in different ways. They also encode different pictorial items. The first three intuitions imply a denial of the fourth intuition. Some proponents of the perceptual confidence view reject the second intuition and accept the other three. Some proponents of the determinable content view reject the first intuition and hence reject the phenomenal similarity desideratum. In my view, we should reject the third intuition. That is, we should reject the common factor view of perceptual content and adopt a disjunctivist view. It is in the sense that my capacitist view is a modification of Schellenberg's original capacitism.

My modified capacitist view adopts a disjunctivist view of perceptual content. It denies that phenomenally same experiences must have a common factor in their perceptual contents. It holds that phenomenally same experiences could have different content schemas. Disjunctivism about perceptual content should be distinguished from disjunctivism about phenomenology and disjunctivism about the metaphysical nature of experience. Disjunctivism about phenomenology denies that "experiences directed at different objects could have the same phenomenology" (Chalmers, 2010, p. 385). Insofar as my modified capacitist view accepts the above first intuition about phenomenal sameness, it rejects disjunctivism about phenomenology. Disjunctivism about the metaphysical nature of experience allows phenomenal sameness but insists that an ordinary perceptual experience and a hallucinatory experience have fundamentally different metaphysical nature: for example, one has perceptual content, while the other does not. Insofar as my modified view is a capacitist view and hence a representationalist view, it rejects disjunctivism about the metaphysical nature of experience.

On my modified capacitist view, a blurry experience of a clear picture and a clear experience of a blurry picture are produced by employing different perceptual capacities. A blurry experience of a clear picture is like any ordinary blurry experience of non-pictures. In blurry vision of a non-picture, a perceptual capacity is employed multiple times to single out the object the subject is perceptually related to. Each employment of the object-related perceptual capacity is combined with the employment of a distinct perceptual capacity to single out property instances. Similarly, when I experience a clear picture of Jerry Fodor blurrily, I employ my perceptual capacity to single out a pictorial person multiple times. Each employment is combined with the employment of a perceptual capacity to single out a sharp contour at a distinct location. In contrast, when I experience a blurry picture of Fodor clearly, I employ my perceptual capacity to single out a pictorial person only once. Instead of employing multiple different perceptual capacities to single out sharp contours at distinct locations, I employ my perceptual capacity to single out a fuzzy contour within a certain range of locations. Employing a perceptual capacity to single out a fuzzy contour within a certain range of locations and employing multiple perceptual capacities to single out sharp contours at distinct locations yield quite different content schemas. But they ground the same phenomenal character. The content schema of a clear experience of a blurry picture of Fodor can be modelled as follows:

$$< MOP_{\text{pictorial person}}\ [\_\_],\ MOP_{\text{fuzzy contour}}\ [\_\_] >$$

$MOP_{\text{pictorial person}}$ [__] is a potentially singularized mode of presentation yielded by employing the perceptual capacity that functions to single out a pictorial person. $MOP_{\text{fuzzy contour}}$ [__] is a potentially singularized mode of presentation yielded by employing the perceptual capacity that functions to single out a fuzzy contour.[47]

Even though two different perceptual capacities could ground the same phenomenology, not just any two would do. For perceptual capacities to ground the same phenomenology, they must be connected in some nonarbitrary way. A perceptual capacity might be derived from other perceptual capacities through extrapolation. For example, even if I don't have the perceptual capacity to single out a specific shade of blue, given that I have perceptual capacities to single out other specific shades of blue, I might extrapolate the perceptual capacity to single out that specific shade because that specific shade lies along the same dimension as those that I have perceptual capacities to single out.[48] A perceptual capacity might also be derived from other perceptual capacities through recombination. For example, even if I have never encountered any instance of

[47] What reasons do we have for thinking that we are employing different capacities when perceiving a blurry picture clearly and when perceiving a clear picture blurrily? I suggest three reasons. First, what perceptual capacity is employed is influenced by what other perceptual capacities are employed. Consider the Ponzo illusion and the Checker Shadow illusion. In the Ponzo illusion, the perceived length of two same-length lines is influenced by the context. In the Checker Shadow illusion, the perceived brightness of two same-brightness regions is influenced by the context. The perception of one thing is modulated by the perception of other things in the context. When one sees a blurry picture clearly, the frame of the picture is usually clear. But when one sees a clear picture blurrily, the frame of the picture also appears blurry. It's natural to think that how one perceives the frame of a picture can influence how one perceives the content of the picture. In other words, the capacity one employes in perceiving the frame of a picture can influence the capacity one employs in perceiving the content of the picture. Since we are employing different capacities between seeing the frame blurrily and seeing the frame clearly, it's natural to expect that we are employing different capacities in seeing the content.

Second, as noted in fn.13, the contraction and relaxation of ciliary muscles which function to adjust the shape of lens can provide unconscious indirect information about the clarity of vision. Since our ciliary muscles are in different states between clear vision and blurry vision, it's natural to expect that we employ different capacities between seeing a blurry picture clearly and seeing a clear picture blurrily.

Third, a potential implication of my modified capacitist view is that (the employment of) perceptual capacities should be individuated more externally. Thus, even though one's perceptual system is functioning in roughly the same way, she may be employing different perceptual capacities in different situations. Consider this example. In situation 1, S successfully strikes a golf ball (L_1). In situation 2, S successfully strikes two very close golf balls (L_1 and L_2). And in both situations, S's motor system is functioning in roughly the same way. It might be argued that in situation 1, S employs her motor capacity to strike a ball at L_1, and that in situation 2, S employs her motor capacity to strike two very close balls at L_1 and L_2 respectively. Similarly, when I see a blurry picture clearly and when I see a clear picture blurrily, I might employ different perceptual capacities, although my perceptual systems are functioning in the same way. This moral also applies to Elizabeth and Elijah's case in sec. 5.3.

[48] Here I am understanding extrapolation as forming a new perceptual capacity in one dimension based on the perceptual capacities one already has in the same dimenson, though it should be noted that extrapolation is usually understood as an operation that we perform in predicting how things will go based on some past data set.

supersaturated red, I might acquire the complex perceptual capacity to single out supersaturated red by recombining my simple perceptual capacity to single out red and my simple perceptual capacity to single out saturatedness.[49] In the case of the capacity to single out a fuzzy contour, the perceptual capacity might be extrapolated from a perceptual capacity to single out a sharp contour. But it seems more natural to think that the capacity is recombined from multiple perceptual capacities to single out sharp contours at distinct locations. Just as I might acquire the motor capacity to strike two close golf balls by recombining my motor capacities to strike golf balls at distinct locations, I might acquire the perceptual capacity to single out a fuzzy contour by recombining my perceptual capacities to single out sharp contours at distinct locations. Through recombination, perceptual capacities can be connected in a way that enables phenomenal sameness.[50]

Finally, let's turn to the phenomenal difference desideratum. The phenomenal difference desideratum asks a view of perceptual vagueness to explain not only blurry vision but also peripheral vision in a way that is sensitive to their phenomenal difference. Objects in blurry vision appear to have halos around them, whereas objects in peripheral vision don't. This phenomenal difference calls for a pluralist view of perceptual vagueness. Different kinds of perceptual vagueness should be explained differently. Insofar as the perceptual confidence view, the simple attitude view, and the determinable content view fail to recognize this fact, they are doomed to failure.

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[49] For a recent empirical study on how experiences of uninstantiated novel color could be induced, see Fong et al. (2025).

[50] For an explanation of how extrapolation and recombination are possible, see Neander (2017, pp. 200-203). Note that I am not claiming that for extrapolation and recombination, one perceptual capacity must be ontogenically or phylogenetically more primitive than another. I am only claiming that the perceptual capacity to single out a fuzzy contour could be derived from perceptual capacities to single out sharp contours through extrapolation or recombination. That being said, I suspect that in early-stage visual development, we first acquire the capacity to single out fuzzy contours and then acquire the capacity to single out sharper contours. This order of capacity acquisition is presumably developmentally beneficial (Vogelsang et al., 2018).

Perceptual vagueness involves a loss of information about external objects. Keith Allen (2013) distinguishes at least two kinds of perceptual vagueness according to how information is lost in effect. One kind of perceptual vagueness arises out of over-representation. The other kind of perceptual vagueness arises out of under-representation. To illustrate, consider the following analogy. Suppose you ask your friends what state Atlanta is in. They might collectively respond that Atlanta is in a southeast state. But in fact, more than one state is in the southeast of America: Georgia, Alabama, Florida, etc. So, you don't know the exact state Atlanta is in solely relying on their collective testimony. What your friends respond collectively involves too few details about the location of Atlanta. Suppose instead that your friends respond to your question separately: one responds that Atlanta is in Georgia, another Alabama, the third Florida, etc. But in fact, Atlanta is in only one state. So, ceteris paribus, you still don't know the exact state Atlanta is in solely relying on their separate answers. What your friends respond involves many inconsistent details about the location of Atlanta. So, in the case of over-representation, information is lost because many inconsistent details are represented. In the case of under-representation, information is lost (more precisely, not acquired) because few details are represented.

Keith Allen suggests that blurry vision involves over-representation, whereas peripheral vision involves under-representation. My modified capacitist view concurs with his suggestion. This difference between blurry vision and peripheral vision can be seen in the causal mechanisms underlying blurry vision and peripheral vision. In clear vision, the retinal image of an external object is relatively small in size and strong in intensity. In blurry vision, the retinal image of the external object is relatively large in size and weak in intensity. As a result, in blurry vision, a larger area of the retina is weakly stimulated than in clear vision. More misleading spatial information is recovered from the stimulation of retinal cells, making blurry vision a case of over-representation.

In peripheral vision, there are far less retinal cells stimulated than in fovea vision, even though the retinal images in both situations could be equally small and strong. As a result, a lot of information that could have been received and recovered is lost in peripheral vision, which makes peripheral vision a case of under-representation.[51]

How can we model the perceptual content of a peripheral visual experience? It's natural to think that the determinable content view is right on peripheral vision, for representing a determinable without representing any corresponding determinate is exactly under-representing. Given this, my modified capacitist view co-opts the determinable content view on peripheral vision.[52] In peripheral vision, the subject employs her perceptual capacities that function to single out instances of determinable properties but doesn't employ any perceptual capacity that functions to single out instances of corresponding determinate properties. This is what makes a peripheral visual experience vague. When Percy sees a scarlet cup in the periphery of his visual field, he employs his perceptual capacity to single out instances of red. But he doesn't employ his perceptual capacity to single out instances of scarlet. Thus, when Percy takes his visual experience at face value, although he is certain that the cup is red, he is uncertain about the specific shade of red the cup instantiates.

To sum up, my modified capacitist view of perceptual vagueness is phenomenologically adequate because it has three features. First, it is a capacitist view. Perceptual experiences are produced by employing perceptual capacities. Perceptual contents are constituted by Fregean modes of presentation. The phenomenal character of an experience is determined by its content

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[51] See Yantis & Abrams (2016).

[52] Keith Allen and I agree on the plausibility of the determinable content view on peripheral vision. We disagree over how to explain blurry vision. Allen argues that blurry experiences have inconsistent representational contents. He identifies phenomenal content with representational content and seems happy to embrace phenomenological inconsistency. In contrast, my explanation of blurry vision satisfies the laws of appearance desideratum by adopting a Fregean particularist (i.e. capacitist) view of perceptual content.

schema composed of potentially singularized modes of presentation. Because representational inconsistency need not amount to phenomenological inconsistency, my explanation of blurry vision doesn't violate the no inconsistency law. Hence, my modified capacitist view satisfies the laws of appearance desideratum. Second, my modified capacitist view adopts a disjunctivist view about perceptual content. Experiences with different content schemas could have the same phenomenal character. In this way, my view departs from Schellenberg's original capacitism and satisfies the phenomenal similarity desideratum. Third, my modified capacitist view is a pluralist view. It is sensitive to the fact that there are different kinds of perceptual vagueness and explains them in quite different ways. The difference in phenomenology is grounded in the difference in perceptual content, which in turn is grounded in the difference in the employment of perceptual capacities. Like any other pluralist view of perceptual vagueness, my view satisfies the phenomenal difference desideratum.

5.3 Objection and Reply

Objection: My modified capacitist view is ad hoc. Were it not to explain perceptual vagueness, it would be unclear how my view could be independently motivated.

Reply: My view is not ad hoc. We can see this by considering how my view can be extended to other problematic cases: double vision, Anscombe's matchboxes, and the spotted cat.

First, consider double vision. In double vision, an object appears at two distinct locations. Our visual experience seems to represent the same object as being at two distinct locations simultaneously. What's the representational content of this experience? The representational content cannot be that the object is located at two distinct locations simultaneously, for this would violate the no inconsistency law. Nor can it be that there exists an object at L_1, and there exists an object at L_2, for although this representational content accommodates the fact that there appear to be two objects, it fails to accommodate the fact that the subject is perceptually related to only one object. I propose that my explanation of blurry vision can be extended to the case of double vision. In double vision, the same perceptual capacity to single out an object is employed twice, and each employment is combined with the employment of a distinct perceptual capacity to single out instances of a distinct location property. The perceptual capacity to single out an object is employed successfully. The perceptual capacities to single out locations are employed baselessly. Suppose I have double vision of a cup α. The content of my visual experience of α could be modelled as this: < MOP_{cup} (α), MOP_{L1} (__) and MOP_{cup} (α), MOP_{L2} (__) >. The pattern of this token content is similar to that of the content of an ordinary blurry experience.[53]

Next, consider Anscombe's matchboxes:

> A stereoscope (a device by which, through the use of mirrors, the two eyes can be independently stimulated) is constructed in such a way that two qualitatively identical, red matchboxes, M and M*, suitably positioned, appear to a subject with binocular vision to be just one matchbox. Elizabeth uses the apparatus and, so it seems to her, has an experience as of one red matchbox several feet ahead which she is viewing with both eyes. She is unaware of the setup and is disposed to attempt perceptual judgments like 'That is a matchbox', etc. (Openshaw & Weksler, 2022, p. 3331)

Compare this case with another case—Elijah's matchbox:

[53] Gabriel Siegel (2024) objects that capacitism cannot plausibly explain double vision. This paragraph suggests a response. It might also be objected that my explanation of blurry vision blurs the distinction between double vision and blurry vision. My explanation implies that when we have a blurry vision of one object, we appear to see multiple objects. But in blurry vision, we appear to see only one object. In response, I don't share the intuition that we appear to see only one object in blurry vision. When I reflect on my blurry experience, it's not very clear to me that I see only one object. That said, there are at least two plausible constraints on the content of blurry experience < $MOP_{hour\ hand}$ (α), $MOP_{edges\text{-}at\text{-}L1}$ (α's edges-at-L_1) and $MOP_{hour\ hand}$ (α), $MOP_{edges\text{-}at\text{-}L2}$ (__) and … and $MOP_{hour\ hand}$ (α), $MOP_{edges\text{-}at\text{-}Ln}$ (__) >. First, n should be a relatively large number. Second, the distance between any two adjacent locations should be very short. Only when both constraints are met can an object appear to have halos around its edges.

> Elijah is viewing a red matchbox M' several feet away in normal conditions (without any stereoscope). The stimuli reaching Elijah's eyes are qualitatively identical to the stimuli reaching Elizabeth's eyes via the stereoscope, and his visual experience is subjectively indistinguishable from Elizabeth's. (Openshaw & Weksler, 2022, p. 3332)

Elizabeth's experience and Elijah's experience have the same phenomenal character. But their experiences are about different objects. Elizabeth's experience is about M and M*, whereas Elijah's experience is about M'. It's intuitively plausible that Elizabeth sees both M and M*, whereas Elijah sees only M'.[54] How should we explain the phenomenal sameness between Elizabeth's experience and Elijah's experience? I propose that my disjunctivist view of perceptual content is applicable here. Elizabeth employs her perceptual capacity to single out matchboxes twice, and each employment is successful, singling out M and M* separately.[55] Elizabeth also employs her perceptual capacity to single out instances of a location property twice, but each employment is baseless. The content of Elizabeth's experience can be modelled as this: < $MOP_{matchbox}$ (M), MOP_{L1} (__) and $MOP_{matchbox}$ (M*), MOP_{L1} (__) >. Elijah's experience is a normal one. The content of her experience can be modelled as this: < $MOP_{matchbox}$ (M'), MOP_{L1} (M''s being at L_1) >. According to my disjunctivist view of perceptual content, Elizabeth's

[54] For an argument, see Openshaw & Weksler (2022, pp. 3331-3332, pp. 3335-3336).

[55] It's natural to ask whether we can have redundant employments of perceptual capacities? For example, can an experience have a token content such as < $MOP_{cup}(\alpha)$, $MOP_{cup}(\alpha)$, $MOP_{cup}(\alpha)$, $MOP_{cup}(\alpha)$, $MOP_{cup}(\alpha)$ >? I am inclined to answer yes. In some sense, redundancy is desirable. It makes perception more robust such that even when one employment of a perceptual capacity to single out a property is baseless, we can still successfully single out the property overall because of other successful employments of the perceptual capacity. Redundancy is also a feature of the human visual hierarchy. From V1 to V4 to the IT cortex, neurons have larger and larger receptive fields and respond selectively to more and more complex features. For example, there are multiple neurons that selectively respond to a certain orientation. The activation of each single neuron encodes the presence of that orientation. The redundancy of neurons encoding that orientation allows visual recognition to survive brain damage. That said, for the purpose of modelling perceptual content, whether the redundancy is modelled doesn't usually seem to make a significant difference.

experience and Elijah's experience could be phenomenally the same, even though they have different content schemas.[56]

Finally, consider the spotted cat. Suppose your friend adopts a cat that has thirty-two clearly visible spots. When you visit your friend's home, you catch a glimpse of the spotted cat. It seems to you that the cat has about thirty spots. But since the glimpse is transient, you are uncertain about the exact number of the spots.[57] What's the representational content of your experience of the cat? I propose that your experience represents mostly determinable properties of the cat. The case of the spotted cat is similar to the case of peripheral reason in that in both cases only a few attentional resources are allocated to the object experienced, whether voluntarily or involuntarily. In peripheral vision, because there are only a few photoreceptors in the periphery of the retina, only a few attentional resources can be allocated to retinal images in that area. In the case of the spotted cat, because the time your eyes focus on the cat is too short, only a few attentional resources are allocated to the cat. Because of attentional deficiency, in both cases, only a few details about the external object are represented. Both cases are cases of under-representation.

[56] James Openshaw and Assaf Weksler (2022) think that instead of employing twice the perceptual capacity that functions to single out a matchbox, Elizabeth employs once the perceptual capacity that functions to single out two separate matchboxes. The yielded perceptual content is constituted by a de re mode of presentation of two distinct objects—M and M*. It's unclear to me how there could be a de re mode of presentation of two distinct objects. If Openshaw and Weksler's claim were correct, this would be just another way to show that my disjunctivist view of perceptual content is applicable to Anscombe's matchboxes.

[57] For this case, see McKee (2024).

6 CONCLUSION

There are at least three phenomenological desiderata for any view of perceputual vagueness: the laws of appearance desideratum, the phenomenal similarity desideratum, and the phenomenal difference desideratum. None of the perceptual confidence view, the simple attitude/content view, and the determinable content view satisfy all of them. These views are phenomenologically inadequate.

I developed a phenomenologically adequate view within a modified capacitist framework. This view has three key features. First, it is a capacitist view about perception. Perceptual experiences are constituted by singular or gappy modes of presentation yielded by employing perceptual capacities. Second, it is a disjunctivist view about perceptual content. Employing different perceptual capacities could yield perceptual experiences with the same phenomenal character. Third, it is a pluralist view about perceptual vagueness. Two distinct kinds of perceptual vagueness are distinguished. Since perceptual vagueness is fundamentally explained in terms of employing perceptual capacities, my modified capacitist view provides a unified account of vague perception that recognizes its plural character.

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