Routledge
Taylor & Francis Group

Inquiry
An Interdisciplinary Journal of Philosophy

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/sinq20

The possible worlds theory of visual experience

Edward W. Averill & Joseph Gottlieb

To cite this article: Edward W. Averill & Joseph Gottlieb (2021): The possible worlds theory of visual experience, Inquiry, DOI: 10.1080/0020174X.2021.1968946

To link to this article: https://doi.org/10.1080/0020174X.2021.1968946

Published online: 25 Aug 2021.

INQUIRY
https://doi.org/10.1080/0020174X.2021.1968946

Routledge
Taylor & Francis Group

The possible worlds theory of visual experience

Edward W. Averill and Joseph Gottlieb

Department of Philosophy, Texas Tech University, Lubbock, TX, USA

ABSTRACT
When we watch movies, or are tricked by a trompe-l'oeil painting, we seem to be visually representing possible worlds; often non-actual possible worlds. This suggests that we really can visually represent possible worlds. The suggested claim is refined and developed here into a theory of visual experience that holds that all visual experiences, both veridical and non-veridical, represent possible worlds, many of which are non-actual.

ARTICLE HISTORY Received 24 June 2020; Accepted 4 May 2021

KEYWORDS Perception; singular content; particularity; hallucination; representation; possible worlds

1. Introduction

Any representationalist theory of visual experience will answer this question: what do visual experiences represent? This is a representationalist interpretation of a fundamental question about the visual system: the *what-question*. It asks: what is the visual system doing? On representational theories of visual experience, visual systems produce representations of items, and in virtue of these representations, the subject is visually conscious of these items.[1] So, for the representationalist the what-question is about the nature of these items, and the way in which they are represented. Let the items that a visual experience represents be the *represented-items* of the experience.

Representationalists are committed to a non-trivial relationship between the represented-items and how things seem phenomenologically to the subject – the *phenomenal character* of experience. This relationship will minimally be one of supervenience of phenomenal character on what is represented, but it is more commonly identity, or perhaps grounding. Regardless, for a representationalist-theoretic picture to be explanatorily successful, there must be a 'fitting relation' between how

CONTACT Joseph Gottlieb joseph.gottlieb@ttu.edu, joseph.gottlieb@gmail.com
[1]'Items' is a neutral term, and can refer to objects, property types and tokens, relations, and events.

things seem and what our experiences represent, and the way in which they represent them. These representational facts should render the phenomenal facts intelligible (Wu 2014, 132).

A central question to follow is what if any role objects play as represented-items. It is natural to think that, if Jane sees an apple – has a veridical visual experience of an apple – then Jane represents an apple. Since an apple is an object, it seems then that objects, at least sometimes, are amongst the set of represented-items. This is not wrong, but the pertinent question is whether objects are amongst the set of represented-items that bear a non-trivial (and not merely causal) relationship to phenomenal character. So, when we use 'represented-items' we mean those represented-items that bear on phenomenal character. And whether objects are among the represented-items in this sense is a tricky matter.

Objects can be represented in two different ways. Some visual experiences may represent an object as an-object-having-such-and-such-monadic-and-relational-properties; e.g. one might visually represent a blue ball as just a-blue-ball-on-a-table. Of course, there could be many similar blue balls resting on similar tables. Let *property-representations* refer to representations of objects by their properties. So a property-representation of an object does not distinguish the object from its twins, since a property-representation could equally well represent exactly similar objects in exactly similar situations. But other representations do distinguish between exactly similar objects in exactly similar situations; e.g. one might visually represent a blue ball as *that* ball. So some visual experiences may represent an object as a discrete, numerically distinct, specific object. Call these representations of objects *singular-content-representations*.

In this way, two veridical experiences, E1 and E2, might represent the same apple, A, even though E1 is a property-representation of A and E2 singular-content-representation of A. In this case, the represented-items are different. E1 represents A as an object that instantiates a set of properties. This set of properties – more specifically, a *property-complex* that has simpler properties as parts – are the represented-items of E1. By contrast, E2 represents A as a specific apple, but not as a set of properties. So, A *itself* is a represented-item.[2]

[2]As we have described them here, theories that identify the represented-items with property-complexes – i.e. theories that say that all visual experiences are fundamentally property-representations – are what Schellenberg (2011, 7) calls *pure property-cluster theories*. Yet other theorists might insist that objects are represented by their properties in another way – by experiences having wholly descriptive propositions as contents. This view is sometimes called *generalism* about visual experience (McGinn

Here is the central question this paper aims to settle: can the representationalist get by with just property-complexes as their represented-items? Section 2 begins by examining four claims about visual experience. Each claim is individually plausible, but when taken together a contradiction ensues. Section 3 examines one way out of the contradiction, which involves answering 'yes' to the central question. It will be argued that the resultant theories – specifically, *property-complex theories* ('PC' theories) of visual experience (Dretske 1995, 1999; Tye 2014a, 2014b, 2014c) – are untenable given the phenomenological facts. However, a new theory – the *possible worlds theory* of visual experience (the 'PW' theory) – answers 'no' to the central question, and in doing so, can render the phenomenological facts intelligible. Section 4 sets out this representational theory, which takes up the brunt of our efforts. One upshot of the PW theory is a radical rethinking of the nature of hallucination.[3]

2. Four claims about visual experience

Consider the following four claims:

(C1) Veridical visual experiences include singular-content-representations.
(C2) Total hallucinatory ('t-hallucinatory') experiences never include singular-content-representations.
(C3) For any veridical experience (VE) there is a possible t-hallucinatory experience (HE) that has the same phenomenal character as VE.
(C4) The phenomenal character of visual experience – be it veridical or non-veridical – is one and the same as the represented-items of visual experience.

Each claim is independently plausible. Our discussion will be brief.

C1 is often motivated on cognitive and epistemic grounds. If C1 is true, then veridical experiences are constituted by particulars. If that

1982; Pautz 2007; Hill 2019). All criticism of the former view will apply to the latter. Generalism is discussed further in footnote 12.

[3]Due to both space and thematic constraints, this essay only takes up the major non-cognitive and non-Fregean representational theories of visual experience. By 'cognitive theories' we have in mind Montague's (2016), according to which visual experiences are partially constituted by bare demonstrative thoughts, what Montague calls 'object-positing'. On Schellenberg's (2018) Fregean particularism, the representational content of experience is constituted by ordered sets of *de re* modes of presentation, which are gappy in hallucinatory cases. While these theories have their own merits and costs – and indeed are concerned with some of the very phenomenological facts at issue here – they will be set aside.

were not so, we would be hard-pressed to explain our ability to have singular thoughts about particulars, or perceptual knowledge of particulars.[4] C2 is a standard assumption. Singular content is often understood as *object-dependent*. But t-hallucinations are cases where it seems to the subject that she is visually conscious of objects, but no objects of the sort she seems to be conscious of exist in her ambient environment. For example, a subject might have a t-hallucination of a red apple on a kitchen counter in front of her, but there is no apple or kitchen counter in her vicinity. Thus, in t-hallucination, it is reasonable to say we are not perceptually acquainted with *anything*, let alone objects.[5] C3 is a standard assumption too, but specifically for representationalists.[6] Finally, C4 is supported by the transparency of experience (Tye 2014a: Averill and Gottlieb 2021). And it has the virtue of telling us what phenomenal character *is*.

So the representationalist may want to keep each claim. Alas, she cannot. For if she tries, a contradiction ensues:

(a) Jane's veridical experience (VE) of a red tomato is a singular-content-representation of the tomato; that is, the red tomato is a represented-item of VE. [By C1]
(b) In virtue of undergoing VE, it will seem Jane as if she is aware of a specific red tomato. [By (a) and C4]
(c) There is a possible t-hallucinatory experience (HE) that has the same phenomenal character as VE. [By (a) and C3]
(d) In virtue of undergoing HE, it will seem to Jane as if she is aware of a specific red tomato [By (b) and (c)]
(e) The represented-items of HE do not include a specific red tomato. [By C2]
(f) Thus, in virtue of undergoing HE, it will *not* seem to Jane as if she is aware of a specific red tomato. [By (e) and C4]

Call this argument *The Contradiction*, since (d) and (f) are contradictory. To avoid The Contradiction we must give up at least one of the C's.

[4]See McDowell (1994) and Schellenberg (2018).
[5]Masrour (2020) is a possible exception to the general endorsement of C2, but he might be better understood as denying that t-hallucination is possible, instead re-constructing purported cases as extreme forms of illusion. The difference between the PW theory and Masrour's will become clear as we proceed. See also Rezaei (ms).
[6]Naïve realists-disjunctivists will deny C3 (Martin 2004).

3. Dealing with the contradiction

3.1. The property-complex theory

The core assumptions of the PC theory are as follows:

(PC1) The represented-items are property-complexes. So visual experiences are property-representations – every object is represented as a complex set of properties – and never as singular-content-representations of objects.
(PC2) The phenomenal character of a visual experience is identical to the property-complexes represented by that experience.
(PC3) In a t-hallucinatory visual experience, the represented property-complex is wholly uninstantiated.[7]

Given PC1 and PC2, the PC theorist endorses C4. But PC1 assumes that C1 is false. So that's how the PC theorists avoids The Contradiction. Yet this does not come for free. Aside from the cognitive and epistemic costs related to jettisoning singular content, this move also has phenomenological costs. More specifically, the phenomenal costs arise from rejecting C1 and replacing it with the conjunction of PC1–PC3.

To see why, consider:

P-Particularity In virtue of undergoing most (if not all) visual experiences, veridical and non-veridical, it will seem to the subject that she is aware of a specific object, e.g. *this* one.[8]

P-Particularity captures the consequents of (b) and (d) above. It is well-motivated. Suppose Jane has a normal visual experience as of an apple. On P-Particularity, it will seem to Jane not merely that she is aware of some apple or another. Rather, it will seem to her as if she is aware of a *specific* apple; *this* one – the one that appears to be right before her.

[7]For PC1, see Tye (2014a, 2014b, 2014c). For PC2, see Tye (2014b): 85. For PC3, see Dretske (1995, 102) and Tye (2014a, 41, 51).

[8]The 'P' in 'P-Particularity' stands for 'phenomenal'. Because P-Particularity is a phenomenological claim – a claim about how things seem to the subject – P-Particularity should not be confused with what Schellenberg (2010) calls *relational* particularity, which is a claim about the constituents of experience (i.e. whether experience is constituted by particulars), not necessarily a claim about how things seem. Those who claim that experience is wholly general (e.g. Mehta 2014) and thus deny particularity in this relational, metaphysical sense can still attempt to endorse P-Particularity. In this way, whether P-Particularity is best explained in term of metaphysical particularity is a substantive open question. When we use 'p-particularity' (i.e. not in small caps), we are referring to the property, not the thesis that visual experiences have this property.

The best motivation for this is arguably introspective: it just seems obvious, introspectively, that we are aware of a specific particular. P-Particularity says most, if not all, visual experiences are like this; most, if not all, have *p-particularity*.

P-Particularity hinges on there being a phenomenological difference between seeming to be aware of some particular or another and seeming to be aware of *this* particular; P-Particularity concerns the latter, not the former. As French and Gomes (2019, 43) note, this difference can be motivated by considering any ordinary visual experience. Suppose our subject S sees a red apple in normal lighting. Here are two descriptions of how things would seem to S: (i) it visually appears to S as if there is a red apple there, or (ii) it visually appears to S as if *that* apple is red. The proponent of P-Particularity will insist that only (ii) is fully apt. Description (i) *misses* something.[9]

So what's the problem? This: the PC theorist needs to explain P-Particularity with just property-representations. This is unworkable.

Some set up. Suppose that Jane has a VE: she sees a red apple as red. Then she has t-hallucination HE: it seems to Jane that she sees a red apple but she sees nothing. Given C3, we can assume that Jane's VE and HE are phenomenally identical. By PW1 they will represent property-complexes, and by PW2 they will represent the *same* property-complex, e.g.:

$$R\text{: } \lambda x(x \text{ is red} \wedge x \text{ is round})$$

R – the property of being an x such that x is red and *x* is round – is constituted by the simple properties *being red* and *being round*.[10]

Now the challenge facing the PC theorist is this: how can the representation of a property-complex (a property-representation) make it seem to Jane as if she is aware of a specific object? Consider the t-hallucinatory case. Given PW3, the represented-item (*R*) is wholly uninstantiated. This might seem especially worrisome since, unlike Jane's VE, there is no particular object (an apple) that is being represented by its properties. At least in the veridical case, the property-representation that constitutes Jane's VE is instantiated and thereby there *is* a particular object (an apple) that is being represented by its properties.

[9]In other words, if P-Particularity concerned only *generic* phenomenal-particularity, wherein one seems to be aware of *a* particular (as opposed to a universal), the first description would do fine (French and Gomes 2019, 43; Gottlieb and Rezaei 2020). But we are concerned with *specific* phenomenal particularity. We are assuming that phenomenal particularity is not a post-perceptual phenomenon.

[10]PC theorists assume that properties are universals (e.g. Dretske 1999, 162–163). This falls out of PW3. We discuss the relevance of this point further in Section 4.2.2.

But Tye (2019a, 86) suggests that this difference between HE's and VE's on the PC theory makes no difference here. On Tye's view, *all* an HE's having phenomenal-particularity comes to is its being indistinguishable from that of seeing a particular thing, reasoning that since 'experiences representing the same property complexes can occur in both veridical and hallucinatory cases and with representational identity at this level comes phenomenal identity.'

This suggestion is only as good as Tye's account of why *VE's* have phenomenal-particularity. Unfortunately, he does not have one. While it is true that PW1 is compatible with Jane seeing particular objects – we can say she does so whenever the represented property-complex is instantiated, as would be the case in a VE – the conjunction of PW1 and PW2 shows that Jane doing so has no phenomenological import. If experiences are fundamentally representations of property-complexes (property-representations), and if the representation of the same property-complex ensures phenomenal identity across VE's and HE's, even if VE's (in some sense) represent particulars, their doing so will be phenomenologically otiose.

In response, PC theorist might take a cue from Johnston (2004), insisting that the represented property-complexes include spatiotemporal universals. So now Jane's experience represents:

$$R{-}ST\text{: } \lambda x(x \text{ is red} \wedge x \text{ is round} \wedge x \text{ is at locationL} \wedge x \text{ is at time } t)$$

By including spatiotemporal universals, the idea goes, the representation of non-particulars (e.g. a property-complex) will 'mimic' the representation of particulars, by mimicking spatial and temporal extent. This supposedly yields phenomenal-particularity (ibid: 142).

This fails. Let *a*, *b*, *c* and *d* pick out the simple properties and relations that constitute *R-ST*. To explain why Jane's experience has phenomenal-particularity, the following conditional must hold:

> If a subject S is aware of *R-ST*, where *R-ST* has *a*, *b*, *c* and *d* as parts, then it will seem to S as if she is aware of *this particular apple*.

Yet as Rezaei (ms) points out, it doesn't. One can be aware of something that has redness as a part, roundness as a part, and has being at L and at t as parts, yet still only be aware of *something or other* that is red and round. So all that follows from this conditional, if anything, is this: it will seem to S as if she is aware of *a* particular at L, at *t*. However, this will not cut it. For S's experience having phenomenal-particularity is not simply a matter of

it seeming to her as if she is aware of *an* apple. It seems to S as if she aware of *this* one.[11,12]

3.2. Other ways out

Rejecting C1 is thus untenable. By extension, it also seems that singular-content-representations are well-suited to capture phenomenal-particularity. Why does it seem to Jane as if she is aware of *that* apple? Precisely because she is undergoing an experience that is constituted by a singular-content-representation of *that* apple. This is highly intuitive.

Still, The Contradiction persists. Are there other ways out? In principle, one could reject C3 while remaining a representationalist. The result would be an unlovely disjunctivist form of representationalism, in which HE's and VE's are fundamentally different in kind. To preserve P-Particularity, one would have to say that whereas VE's are fundamentally singular-content-representations of the ambient physical environment, HE's are singular-content-representations of mental particulars.[13] But this seems dubious on two counts: one, because anti-disjunctivism really is part of the spirit of representationalism (even if not the letter), and two, because it is widely agreed that mental particulars in the relevant sense (sense data) are metaphysically suspect.

This leaves C2 and C4. It might seem that rejecting C2 is a non-starter. We beg to differ. In lieu of C2, we propose:

(C2*) T-hallucinatory experiences never include singular-content-representations of objects that exist *in the actual world*.

C2* captures the intuition behind C2, or so we claim. But with C2* replacing C2, The Contradiction evaporates. To get The Contradiction, step (e) – the represented-items of HE do not include a specific red tomato –

[11]Hence Tye's (2019a) alternative suggestion – that an HE can be of *an F* without there being a particular F being represented – misfires. See fn. 9. Many thanks to Ali Rezaei for discussion.

[12]Generalism (see fn. 2) faces the same problem. Here Jane's HE represents that:

$$\exists x(x \text{ is red} \wedge x \text{ is round})$$

An experience with an existentially quantified proposition as its content may represent an object, but only *whatever* object happens to satisfy the description laid down by its content. And adding to the description (e.g. Searle 1983) will not help the generalist any more than adding properties and relations to the property-complex helped the PC theorist. Nor does, as Hill (2019) suggests, making the descriptions especially fine-grained. See Gottlieb and Rezaei (2020) for discussion.

[13]P-Particularity does not say you seem to be aware of a *physical* particular apple; properties like *being physical* do not obviously manifest themselves phenomenologically, and *being mental* or *being non-physical* don't obviously either.

followed from C2. Step (e), however, does not follow from C2*. Furthermore, the PW theorist can explain P-Particularity in terms of singular representation. For C2* is compatible with claiming that t-hallucinatory experiences with p-particularity are singular-content-representations of objects that exist in *non-actual worlds*. More generally, the PW theory claims that *any* visual experience with p-particularity *just is* a singular-content-representation. All that differs is whether the object being singularly represented is actual or non-actual.

Before we press on, as intuitive as it is to explain P-Particularity in terms of singular representation, it is worth noting that there are phenomenological costs that cut in the other direction given C4. Suppose we have two numerically distinct but qualitatively identical apples, A1 and A2. Assuming viewing conditions are the same, it is reasonable to suggest that an experience E1 of A1 and an experience E2 of A2 will have the same phenomenal character. But if E1 and E2 are singular-content-representations – which they will be if they have p-particularity – then, given C4, we should expect them *not* to have same phenomenal character. In fact, this observation is often taken as motivation for *generalism* (see fn. 2 and Section 4.2.1), or perhaps any view on which visual experiences are constituted by property-representations.[14] As will become clear, it is a virtue of the PW theory that, with only a small modification to C4, we can do justice to the intuitions favoring generalism while still explaining P-Particularity in terms of in terms of singular representation.

4. The possible worlds theory

The PW theory is set out and defended in four steps. Section 4.1 identifies the theories core assumptions ('PW-core'). Section 4.2 addresses two central questions that emerge from PW-core. Section 4.3 delivers a proof of principle for a central tenet of the PW theory: we can represent a scene that only exists in a non-actual possible world. Finally, Section 4.4 then extends this result to some other classic illusions and hallucinations.

4.1. PW-core

Scenes. Let a vantage point in possible world W be a place in the space/time of W and a direction from that place in the space/time of W. Given a

[14]See, e.g. McGinn (1982, 39).

vantage point V in W the constituents of scene Sc – the constituents of *Sc-from-V-in-W* – includes all and only those objects, their monadic properties and their relations to one another, that could be seen by a subject from V in W.[15] As Bob sits at his desk in the actual world the position of his eyes in the space/time of the actual world, and their direction, identify a vantage point. The objects that he sees from this vantage point are constituents of the *Desk-Scene*. These include a computer, a telephone, a desk and a window and many of their properties. He cannot see, nobody could see, from his present vantage point, the surface of the under-side of the desk. So that part of the desk's surface is not part of the Desk-Scene even though the desk itself is part of the Desk-Scene.[16] His telephone is sitting on his desk. Bob sees the spatial relation between the desk and the telephone. So that relation is part of the Desk-Scene. His desk is more than 10 feet from the couch behind him. This relation is not part of the Desk-Scene, because he cannot see it.

Furthermore, as he sits at his desk Bob's experience represents a telephone, the one that is now sitting on his desk, as well as the other items that make up the Desk-Scene. Going forward, a subject, who is visually representing the constituents of a scene, will be said to be visually representing the scene itself. So Bob is now visually representing the Desk-Scene.

Suppose that in the actual world there are two molecules way out in mostly empty space, a million light years away, that are 3 cm apart. *Almost-Actual-World* that is almost identical to the actual world – it is made up of all the same constituents that make up the actual world – except that these two molecules are 2cm apart. The Desk-Scene exists in both the actual world and in Almost-Actual-World. As Bob sits at his desk he is visually representing the Desk-Scene, which occurs in Almost-Actual as well as in the actual world. Given this account of scenes, subjects commonly represent scenes that exist in both the actual world and in non-actual possible worlds. Furthermore, Bob sees some objects – e.g. his desk and telephone – that exist in a non-actual possible-world, because he sees these objects in the actual world.

Here is the existence condition for a scene: a group of objects, their monadic property tokens and the relational property tokens of the relations the objects have to one another, form a scene iff there is a possible world with a vantage point from which they, and only they,

[15]Subjects, unless otherwise noted, are assumed to have good vision; and scenes contain objects that can reflect or transmit light, but (for the sake of simplicity) do not generate it.
[16]From *Jane sees x* it does not follow that *Jane sees every part of x*.

can be seen. The group of particulars that make up a scene are the constituents of the scene. Here is the identity condition: the Sc of Sc-from-V-in-W is identical to the Sc* of Sc*-from-V*-in-W* (Sc = Sc*) iff they have the same constituents. So the same scene can exist in different possible worlds, e.g. Desk-Scene occurs in the actual world and in the Almost-Actual-World. If the constituents of a scene can be seen from different perspectives in the same possible world, then the same scene can have different vantage-points in the same possible world – in this case the V in Sc-from-V-in-W can vary without either Sc or W varying. If the constituents of the Desk-Scene occur in a possible world where there is no light, and so no vantage point from which they can be seen in that dark world, they still form a scene in the dark world because in the actual world there is a vantage point from which they can be seen. Although a scene Sc is commonly identified in terms of some specific Sc-from-V-in-W relation, Sc enters that relation as an item that exists independently of that specific relation, but not independently of any such relation; that is, there must be some possible world with a vantage point from which the constituents of Sc can be seen.

PW-core consist of three claims:

(PW1) All visual experiences represent scenes that exist in some possible world. Every visual experience with phenomenal-particularity singularly and accurately represents the constituents of a scene, Sc, where Sc exists in some possible worlds.

(PW2) Two visual experiences with phenomenal-particularity E1 and E2 will have the same phenomenal character iff (i) E1 and E2 both singularly represent some object (are both singular-content-representations), and (ii) E1 and E2 represent the objects they represent as having the same properties.

(PW3) If E is a t-hallucinatory experience, and E has phenomenal-particularity, then E will singularly and accurately represent the constituents of a scene, Sc, where Sc exists in a non-actual possible world.

By PW1, the PW theory answers the what-question: the represented-items are scenes and their specific constituents. By PW2, the PW theory explains how phenomenal character is related to these represented-items. By PW3, of a piece with C2*, the PW theory accounts for t-hallucinations with p-particularity.

4.2. PW-Core: generalism and modal metaphysics

4.2.1. PW-core and generalism

It was noted earlier that there is at least a prima facie tension between explaining P-Particularity in terms of singular-content-representations and the intuitions favoring generalism, as seen in any case where we have two numerically distinct but qualitatively identical objects (like the two apples). So how exactly does PW2 square with these intuitions? And relatedly, how does PW2 fit with C4?

Distinguish between being *constitutive and individuative* of phenomenal character and being *constitutive and non-individuative*; objects fit into the latter bucket, not the former. On the PW theory, when experiences differ in what they represent, they will thereby differ in phenomenal character. But making that claim does not entail that experiences will differ in phenomenal character *no matter how* they differ in what they represent. The PW theorist can therefore say that although E1 and E2 represent numerically distinct objects (apples A1 and A2), they nonetheless do not differ in phenomenal character because A1 and A2 are represented as having the same properties. Thus represented properties are both constitutive and individuative of phenomenal character.

Phenomenal character – the totality of what it is like for the subject to undergo an experience – can be factorized into two components: *phenomenal-particularity* and *qualitative character*. Clause PW2-(i) handles phenomenal-particularity; clause PW2-(ii) handles qualitative character. E1 and E2 have the same qualitative character because they both represent (different) objects as having the same properties; they have the same phenomenal character because, in addition to having the same qualitative character, they both singularly represent their objects.

Phenomenal-particularity is thus insensitive to the identity of the objects represented – hence the 'some object' in PW2-(i). What matters to making it seem as we if are aware of a *specific* particular is *how* the particular is represented, not *what* particular is represented; the sense of specificity is entirely a function of *how* singular representations latch onto their objects, not which objects they latch on to. An experience E3, which represents a pepper as yellow, and an experience E4, which represents a persimmon as orange, will differ in phenomenal character, but not because they differ in phenomenal-particularity. E3 and E4, like E1 and E2, represent distinct particulars. But only E3 and E4 differ in

phenomenal character, and they differ in phenomenal character because the objects they represent are represented as being of different types[17].

So while the PW theory does not hold C4, it does hold:

(C4*) In every visual experience with p-particularity, phenomenal character is a function of two components: (i) qualitative character, which is identical to the set of properties {F1, F2, ... F_N} attributed to an object O, and (ii) p-particularity, which is identical to the singular manner in which O is represented.

This should be good enough for the representationalist.

4.2.2. PW-core and modal metaphysics

Singular-content-representations are traditionally understood as object-dependent. By PW3, the PW theory says that t-hallucinatory experiences with p-particularity singularly represent specific objects in scenes in non-actual worlds. How can our visual system do such a thing without making substantive assumptions – potentially controversial assumptions – about the nature of possible worlds and our relationship to them?

Suppose that singular-content-representations are indeed object-dependent, in that if a mental state purports to be about a specific object, then that object exists (e.g. McDowell 1982: 204). On this view, when Jane undergoes a t-hallucination in which it seems to her that she is aware of a specific dragon – in which it seems that she is a specific-dragon-experiencer – Jane is not simply experiencing something else (e.g. property-complex) which she mistakes for a dragon, or even less plausibly, not experiencing at all. No. Jane is indeed a specific-dragon-experiencer. There is a specific dragon which Jane is experiencing. Since there is no such dragon before her, or anywhere in the actual world, Jane is representing *possibilia*. How the ontology of possibilia should be understood here is complicated, but perhaps the most obvious destination is Lewis's (1986) modal realism. There is a concrete entity, being experienced by Jane, that fails to be actual.[18]

[17]For a somewhat similar approach to this issue in a different context, see French and Gomes (2019)

[18]Lewis' concrete modal realism is a non-Meinongian version of possibilism insofar as it rejects any distinction between being and existence. For Lewis, 'actual' is indexical, and the property *actual* is relational, with no ontological gravity. The PW theorist who endorses object-dependent singularity might have options beside Lewis' possibilism. For example, she might opt for Williamson's (2013) *necessitism*. Whether this is less palatable than Lewis's concrete modal realism will not be broached here. For something approximating a Meinongian approach to t-hallucination, see Smith (2002). Lycan (1987) also appeals to non-actual 'merely intentional' objects in t-hallucination, but he does not spell out how this works. For a discussion of t-hallucination and counterpart theory, see Lewis (1999/1983).

Lest we let reactions set in and harden too quickly, recall how the PC theorist would treat Jane's t-hallucination. On the PC theory, when Jane undergoes a t-hallucination in which it seems to her that she is aware of a specific dragon, she is indeed undergoing an experience, but it is an experience of something else, viz. *properties*. Specifically, Jane is aware of, and her t-hallucination represents, a property-complex. As to the nature of the properties that constitute the complex, there are two ways the PC theorist can go: Platonic or Aristotelian.[19] The problem is that the PC theorist would have to rule out a whole host of t-hallucinations as impossible if she were to opt for the latter. Unlike Platonists, Aristotelians eschew uninstantiated properties; universals are concreta-dependent, with all properties being instantiated *somewhere*. That rules out t-hallucinations of Hume's missing shade of blue and supersaturated red. And these t-hallucinations aren't just conceivable. There is reason to think they are *actual*.[20]

This is a significant ontological cost, as it implies that there is more to reality than the concrete physical world (cf. Schellenberg 2011, 9–10). Letting reality stretch beyond the spatiotemporal and causal order via *abstracta* is a threat to metaphysical naturalism. And the PC theorist incurs this cost without being able to capture P-Particularity.

These facts cannot be set aside when considering the question at hand. For what matters is not whether one's theory requires some controversial assumption; *all* theories of perceptual experience will inevitably require something controversial.[21] Rather, what matters is how the benefits and costs of competing theories fare relative to one another. And on that way of keeping score, the tally is clear. You can give up metaphysical naturalism and not even get P-Particularity for your trouble. Or you can get P-Particularity, perhaps at the price of a controversial modal metaphysics.[22]

[19]PC theorists are forthright that, for them, properties are universals. (See fn. 10). So trope views are set aside here. Regardless, trope views have the same difficulties with t-hallucinations as Aristotelian views.

[20]For discussion, see Churchland (2005). See also Ffytche and Howard (1999) and Ffytche (2008), as cited in Schellenberg (2011, fn. 11). These 'chimerical colors' are uninstantiated at the actual world; on the PW framework, they are instantiated in scenes at non-actual worlds. This is consistent with the empirical data. Further, if one is a (figurative) color projectivist, on the PW framework *all* colors will be instantiated *only* in scenes at non-actual worlds. See Section 4.4.2.

[21]This observation is in the spirit of Schwitzgebel's (2014) 'crazyism' about the metaphysics of mind.

[22]Note too that we would not hereby be positing concrete non-actual worlds and their inhabitants simply because of visual experience and the p-particularity of t-hallucination. The friend of the PW theory could avail themselves of any *other* reasons to be a modal realist, independent of visual experience. Thus, the PW theorist is not on this score in the same boat as the sense datum theorist. There is no reason to posit sense data outside of t-hallucination.

With that said, there might be another issue here. Distinguish the what-question from the *how-question*: how is the visual system able to do what it does? Given representationalism, a full answer to the how-question would show how neurons in the head of a subject – the neurons that make up the visual system of the subject – are able to represent what they represent. Even if we granted (say) modal realism, given the plethora of non-actual objects, one wonders how a t-hallucinate can represent one non-actual object (e.g. dragon-1) over another (e.g. dragon-2).

The short answer is this: we do not know. That is not an embarrassing admission, since the how-question is difficult, and strictly speaking not within the ambit of the current project. We doubt that answering the how-question for singular t-hallucinations is impossible, of course. For instance, PC theorists often appeal to causation in answering the how-question.[23] This might seem concerning, since causation is an intra-world relation, and thus your t-hallucination cannot singularly represent (e.g.) dragon-1 because it is caused by dragon-1. (As will become clear in the next section, t-hallucinating is not *seeing* either, since seeing is also a causal relation.) However, even PC theorists agree that causation isn't required for t-hallucinations to represent. Indeed, they can't say otherwise, since on that view, what t-hallucinations represent – uninstantiated universals – are, as we have seen, abstracta.[24] The idea is not that the PW theorist should adopt a causal-tracking answer to the how-question. The idea is only that a causal-tracking answer to the how-question is no bar to the representation of non-actuals if it is no bar to the representation of abstracta.

Suppose now that singular-content-representations are *not* object-dependent. Despite the object-dependent orthodoxy, 'psychologistic' approaches to singularity have enjoyed recent popularity.[25] An immediate benefit of this option is that, with it, the PW theorist can maintain a healthy neutrality on possible worlds. When Jane thinks <Cormac McCarthy is a wonderful author>, although Cormac McCarthy is an

[23]Causal approaches to the how-question fall under the more general 'tracking' theoretic approach to the how-question. On this family of views, a token experience E's representing F is, roughly, a matter of E carrying information about, or in some way correlating with instances of F. See, e.g. Millikan (1984), Fodor (1987) and Tye (2000). The marriage of representationalism with tracking accounts of representation yields 'tracking representationalism'.

[24]This is not an abandonment of a causal-tracking approach. Suppose one t-hallucinates a red circle. On the PC theory, this t-hallucination represents uninstantiated *redness* and *roundness*, so cannot be caused by uninstantiated *redness* and *roundness*. Nonetheless, this token t-hallucination is of a type that *normally* tracks (and is caused by) redness and roundness. That's all that is needed to say that the token t-hallucinations represent uninstantiated properties, or so the story goes. See Tye (2019b).

[25]See, for instance, Crane (2013) and Hansen and Rey (2016).

actual, existent object, the *singularity* of Jane's thought is not explained by it having a singular proposition as its content, constituted by Cormac McCarthy. Likewise, the singularity of Jane's t-hallucination is not explained by having possibilia as a constituent. Possibilia may still exist, of course, but not on account of Jane's t-hallucination, and so not on account of the PW theory.

This option also tallies well with the PW theorist's take on P-Particularity. As noted, what matters for P-Particularity is not the identity of the object represented, but the unique 'form' of singular representations. Singular-content-representations may be object-independent, but the representation itself would naturally still exist regardless. And that's all that would be needed to account for P-Particularity.

Moreover, despite the object-independence of singularity, there is still virtue in answering the what-question by appeal to possible worlds – both in t-hallucinatory and veridical cases alike. Here's why. As Brentano pointed out long ago, there is a perfectly ordinary and intuitive sense in which most if not all mental states are *about* something. To think at all is to think about something. If Jane were thinking, and you asked her what she was thinking about, it would be nonsensical for her to sincerely utter 'Oh, nothing' and mean this literally. Similarly, Jane's fear is a fear *of* or *about* something (e.g. spiders). What these mental states are about – what they are directed upon – are *intentional objects* (Crane 2013: 4). So there is a perfectly ordinary and intuitive sense in which most if not all mental states have intentional objects.[26]

Visual experiences are amongst those mental states (or mental events) that are paradigmatically intentionally directed. They have intentional

[26]Intentional objects, whatever they are, are equivalent to represented-items on the assumption that (i) intentional objects are represented, and (ii) intentional objects figure into phenomenal character. Note that intentional objects are not *contents*, at least on one good sense of 'content'. Two mental states can have the same intentional object but represent that object in different ways. For example, I can think that Jane is generous, but I can also think that Jane is greedy; these beliefs have the same intentional object (Jane) but differ in content (cf. Crane 2013, 97). And if Jane is generous, my first thought is true whereas my second is false. In this way, content – again, at least in one sense – bears on a state's evaluability, where this is understood in terms of truth, accuracy, or satisfaction conditions. But content itself is not what I am thinking about; I am thinking about *Jane*, not a proposition, or whatever. Some mental states with intentional objects (like fear) might be classified as 'non-propositional attitudes' insofar they are about things (they have intentional objects) but not in virtue of relating subjects to propositions concerning those things. The present point covers both propositional and non-propositional attitudes; while both have intentional objects, they differ over whether the aboutness-relation is propositionally mediated. Propositions themselves can be intentional objects. As Grzankowski (2013) points out, liking the proposition *that p* is not a propositional attitude, but a (quite odd) non-propositional attitude with the proposition *that p* as its intentional object. The PW theory is not committed to saying that visual experience is a propositional attitude.

objects.[27] Now in principle, just about anything can be an intentional object; the 'object' in 'intentional object' need not mean *physical object* or even *object* (Crane 2013, 92). However, when we consider visual experience, and take matters at face value, intentional objects are particulars – including both objects and property instances. And these objects and property instances (including relations), relative to a vantage point, are organized in a coherent way – into what we call *scenes*. So its scenes, and their constituent objects and properties, that comprise the intentional objects of visual experience. In simple cases, scenes are comprised of just a single object – a single apple, say. This happens, but more often scenes are quite rich, comprised of multiple objects, limited perhaps by our finite attentional resources. This is all in line with the powerful phenomenological constraint to be as faithful as possible to what we ordinarily take the objects of mental states to be (Crane 2013, 6). We do not take them to be properties. Yet this is precisely what the PC theory says, not just in cases of hallucination, but in veridical cases too. The phenomenological constraint is of course defeasible, but we take it to be a virtue of the PW theory that it can meet it.

Now it is manifestly true that some of these scenes are comprised of objects that are not of this world. However we are to interpret this point in metaphysical terms, the point is itself inescapable. There are no dragons in our world. But we still need some way to talk about these scenes, and doing so in terms of possible worlds is natural. So, when it is said that a scene 'exists' in some non-actual world, this need not be read as a metaphysically substantive claim; it is just a way of describing the possible world being considered. Since relations entail the existent of their relata, taking this non-object-dependent route to singularity would also require the PW theory to deny that mental representation is constitutively relational if it is to preserve neutrality on the nature of possible worlds. But this is not obviously a great loss – relational approaches to representation, while quite common, are not without their challenges – and the move has precedent (e.g. Kriegel 2007).

[27] 'Intentionally directed' might be a more comfortable expression to describe perceptual experiences than saying they are 'about' things (as we do with, say, thoughts), but this linguistic artifact does not mark any deep difference concerning their nature (Crane 2013, 90). While there are some non-perceptual states that are fairly clear candidates for lacking intentional objects altogether (e.g. so-called 'undirected anxiety'), within the perceptual domain things are less obvious. Two potential perceptual examples: the experience one has upon opening your eyes in a completely dark room and, perhaps less so, ganzfelds (see Block (ms) for the former). Unsurprisingly, these are also potential examples of visual experiences without p-particularity.

Finally, while the how-question of course persists on an object-independent view of singularity, it takes a perhaps more tractable form than as on an object-dependent view. On an object-independent view, an answer to the question 'what makes a singular representation t-hallucination HE about (e.g.) dragon-1 versus dragon-2?' need not be grounded in facts about the possibilia themselves (i.e. dragon-1 versus dragon-2) and their relation to HE. Instead, it can just be grounded in facts about HE alone. Developing such an account is again not a task to be undertaken here. The important point is that it is viable option for the friend of the PW theory (see Crane 2013, 162–164).

Going forward, 'exists' and related terms will continue to be used liberally when speaking of non-actual worlds, if only for sake of convenience. If it turns out that singular representation is indeed object-dependent, this talk can be taken seriously, otherwise, not.[28]

4.3. Proof of principle

Jane is looking at pictures in a museum. Some of the pictures represent scenes that only occur in non-actual possible worlds, e.g. fire-belching dragons. Others pictures represent scenes that are like, and maybe are, scenes that occur in the actual world. One of these is a picture of flowers in a garden; call it *Flower-Picture*. As Jane strolls through a corridor she sees some yellow caution tape screening off part of the corridor's wall. Beyond the tape she 'sees' a hole in the wall through which she can 'see' a flower garden. The 'hole' is a trompe-l'oeil painting, painted on the wall of the corridor. It is not on canvas or in a frame. Call it *Wall-Picture*. Of course the museum has set up Wall-Picture to represent a specific flower garden; specific because the time and place of the garden are captured in the Wall-Picture representation – the time is now, the place is right outside the museum wall that Jane is looking at. Let *Damaged-Wall-World* be a possible world that is like the actual world except for a real hole in the wall of the wall of the museum corridor and the specific flower garden beyond it that Wall-Picture represents. Thus Wall-Picture is representing a portion of Damaged-Wall-World. Of course Damaged-Wall-World includes the yellow caution tape and the corridor that Jane is standing

[28]If singular-content-representations turn outs to be object-dependent, then objects will be amongst the represented-items, but – given PW2, PW3, C4* and the pressures from generality – this is because their existence will be a pre-condition on singular representation. If singular-content-representations turn out to be object-independent, then objects will be amongst the represented-items in the same way, but these objects may only be *merely* intentional objects in t-hallucination. For an account of how the latter might work using mental files, see Crane (2013).

in, although neither are part of Wall-Picture and both occur in the actual world. *Damaged-Wall-Scene* is a scene from the vantage point in Damaged-Wall-World that corresponds to the vantage point from which Jane is looking at Wall-Picture in the actual world.

Jane is *taken-in* by the painting and its set up. That is, Jane's visual experience represents Damaged-Wall-Scene, which includes the caution tape, a hole in the wall of the corridor and a flower garden beyond it. Her visual experience does not represent Wall-Picture as a picture, because she is not conscious of Wall-Picture as a picture. This makes her experience inaccurate as a visual representation of the actual world; i.e. Jane's experience misrepresents the actual world. If there had been a real hole in the wall of the corridor Jane would have been looking at a parking lot. So, when Jane looks at Wall-Picture, she is looking at painted flowers on a wall of the museum; but, unlike with Flower-Picture, she does not represent the painted flowers as painted flowers. She represents the painted flowers as real flowers growing in a real garden outside of the museum. Hence Jane is accurately representing Damaged-Wall-Scene, although Damaged-Wall-Scene is a scene that does not exist in the actual world but does exist in Damaged-Wall-World.[29]

In sum:

(1) Wall-Picture and its surrounds have been set up to singularly represent Damaged-Wall-Scene – a hole in a corridor wall and garden beyond – which only exists in non-actual possible worlds. [Assumption]
(2) When Jane looks at Wall-Picture, she has a visual experience which represents what Wall-Picture represents. [Assumption]
(3) So, Jane has a visual experience that represents a scene (i.e. Damaged-Wall-Scene) that only exists in a non-actual possible world. [1–2]
(4) If Jane's visual experience is veridical then it is caused by the objects (including their monadic properties and their relations to one another) in Damaged-Wall-Scene.
(5) Jane's visual experience is not caused by the objects (including their monadic properties and their relations to one another) in Damaged-Wall-Scene.

[29]The accuracy condition embedded in PW-core is used here to explain Jane's inaccurate representation of the museum's wall. PW-core includes the accuracy condition because an attempt to explain an inaccurate representation of a scene in the actual world in terms of an inaccurate representation of a scene a non-actual possible world would be circular. This point is embellished below.

(6) So, Jane's visual experience is non-veridical. [3–5]
(7) Therefore, some non-veridical experiences represent scenes that only exist in non-actual possible worlds.

If (7) is right, we have a proof of principle. For on the PW theory, t-hallucinations represent scenes that only exist in non-actual possible worlds. And assuming Jane's t-hallucination has p-particularity, then in accordance with PW3, it will singularly represent a scene that only exists in non-actual possible worlds.

But (2) is contestable:

> Jane is seeing things in the actual world, such as the yellow caution tape. Even though Jane is taken-in by the painting she is seeing things in the actual world, because it is light reflected from the objects in the actual world that is causing Jane's experience. Wall-Picture is among those things. Jane cannot see the corridor wall and Wall-Picture without being aware of them, or without representing them at some level. So what Jane's visual experience represents is not Damaged-Wall-Scene but rather a scene in the actual world that includes Wall-Picture and its surrounds. Jane is representing the corridor wall, and the painting on it, but she does so by misrepresenting it. In short, misrepresentation is a kind of representation.

If this description is right, (2) is false because Jane's experience represents the Wall-Picture – an object in a scene in the *actual* world – but she represents it as having features it does not have.

The response begins by considering another example. Suppose that a subject sees a yellow car as red. The subject represents the car even though she misrepresents it as being red. The subject is *aware* of the car, including its shape and size, but she is not aware of its actual color. So this is a case where a subject represents something by misrepresenting it. But Jane's case is different. It's true that Jane is looking at Wall-Picture, but only in the sense that her head is turned towards it and her gazed is fixed in its direction. Despite this, Jane is *not* aware of Wall-Picture. It is not as if Jane is aware of the Wall-Picture but not aware of some of its properties. She is not aware of the Wall-Picture *tout court*. That's the import of being *taken-in* by a trompe l'oeil painting.[30] So objects, which are being misrepresented, will in some cases be represented (e.g. the yellow car case), but in other cases they will not be represented (e.g. the trompe

[30]This point has been made in discussions of pictorial representation. For example, Newall (2009) notes how trompe l'oeil paintings typically do not involve seeing-in or twofoldness; when they work right, we simply experience the painting's subject matter. Moreover, Newall argues – in line with (6) – that one's experience in such a case is non-veridical.

l'oeil case). Yet Jane is clearly conscious of something. If it is not the Wall-Picture, what is it? On the Possible Worlds theory it is Damaged-Wall-Scene.

Still, the objector might point out Jane nonetheless sees the caution tape and the floor of the museum, both of which exist in the *actual* world. And that raises another question: how can she see these things if she is representing a scene that only occurs in a non-actual possible world, and not a scene that occurs in the actual world? Surely one cannot see into non-actual possible worlds.

An answer to this question requires an account of seeing.[31] One cannot see an object without seeing tokens of some of its properties – one cannot, so to speak, see an object naked or propertyless; and it is (nomologically) impossible to see a token of a property without seeing it as instantiated in some object – one does not see uninstantiated property tokens. These points are built into the following account of seeing. Let 'x' pick out a specific object and 'F' pick out some property that x instantiates, be it monadic or relational. Then:

SEE Subject S sees x and its F-ness iff there is an x and light reflected from x (and its background[32]) and its F-ness causes (in the right way[33]) S to visually represent x as instantiating a token of property F.

In the actual world, when S sees x, S's experience of x is veridical with respect to x's F-ness. Although x is an object in the actual world, and S is visually conscious of x, S is not visually conscious of x as being an-object-in-the-actual-world. Of course we commonly believe that we are conscious of objects in the actual world because we usually assume that we are not hallucinating. But this assumption is not a part of our visual experience. When we see an object, the fact that we are seeing the object is a fact about the actual world, but this fact is not a part of the phenomenal character of the veridical experiences. When we see

[31] Seeing is inessential to having a visual experience; in t-hallucination, one sees nothing. But veridical, illusory and partially hallucinatory visual experiences involve seeing.

[32] If 'and its background' is eliminated from SEE, S would not see black objects. Subjects see the edges of colored shapes (a kind of object), and thus their shapes, by seeing color contrasts. So to see a colored shape one needs to see the colored shape against a background.

[33] Light can be absorbed, reflected and transmitted by non-radiating objects. In SEE 'in the right way' means that the reflected light from Fx reaches S, and is the stimulus that causes S's visual system to represent x as an x instantiating F. If one takes a picture of Fx, or a video of Fx, and S sees the picture or video, this does not count as a case where S sees Fx, because it is not the light leaving Fx that stimulate S's visual system. However, S can see Fx in a mirror (the light from Fx has been reflected) or through a piece of glass (the light from Fx has gone through a transparent medium). Objects that generate light will not be discussed (see fn. 15).

an object our veridical experience does not identify the possible world in which the object occurs or even which scene is being experienced among the scenes that would produce phenomenally identical experiences if they were to be experienced.

Given SEE, S's perception of x is veridical with respect to x's F-ness. In many non-veridical cases S sees x and its F-ness, but S's experience represents x as instantiating a token of a property other than F, which x does not instantiate. Take the yellow car case again. The subject sees the car and its shape, but represents the car as being red, which is not the color of the car. If S sees x as a G, but x does not instantiate G, then S represents x as a G, but S does not see a token of G, because there is no such token to affect the light reflected from x; e.g. S does not see a token of yellowness. In many non-veridical cases where S sees an object, S's experience is partly non-veridical and partly veridical.

Back to the question: how can Jane see the caution tape and the floor of the museum, if she is representing a scene that only occurs in a non-actual possible world, and not a scene that occurs in the actual world? Seeing is a causal relation. Like other causal relations, seeing is an intra-world relation, not an inter-world relation. So subjects in the actual world cannot see objects that only exist in non-actual worlds. But, given SEE, in the museum example Jane sees the yellow caution tape, which exists in the actual world. And so she sees an object that exists in Damaged-Wall-World. But this is not because Jane is seeing across possible worlds; it is because the same object exists in both the actual world and in Damaged-Wall-World. This situation is much like the earlier case where Bob sees a telephone, which exists in both the actual world and in the non-actual Almost-Actual-World. Jane is, given SEE, representing the yellow caution tape as it exists in both the actual world and in Damaged-Wall-World. The situation is different with respect to the flower garden, which only exists in Damaged-Wall-World. Jane represents the flower garden but does not see it, because no light is reflected from the garden to Jane's eyes. And Jane does not see the Wall-Picture because the light reflected from it does not cause Jane to represent it.[34]

Putting these points together, on PW-core, it is *not* the case that if you see an object, then the *scene* your experience represents is in the actual world. On PW-core, if your experiences represents an object x as F, the scene you represent is one in which x is F. That scene may be in the

[34]Since 'scene' is defined in terms of what a person in a possible world can see in that world, PW-core tacitly assumes that the objects in scenes reflect light in much the same way that objects do in the actual world.

actual world, but it might not be. Accuracy is now *world-relative*; every experience is accurate, but not necessarily with respect to the actual world, and experiences we describe as non-veridical are *inaccurate* with respect to the actual world. Jane, for example, accurately represents a hole in the museum's wall relative to Damaged-Wall-World, but inaccurately represents a hole in the museum's wall relative to the actual world. For another example suppose Jane has been wandering through the museum with John, who is a deuteranope, i.e. red/green color blindness. John represents some features of Damaged-Wall-Scene, since he represents the red and green flowers in Damaged-Wall-Scene, although he represents them as having the same yellowish color. John is visually representing a scene, call it *Damaged-Wall-Scene**, that is like Damaged-Wall-Scene except that the red and green flowers in Damaged-Wall-Scene* are a yellowish color. John's visual representation is an accurate representation of Damaged-Wall-Scene* but a misrepresentation of a Damaged-Wall-Scene; that is, John's visual experience misrepresents a scene that only occurs in non-actual possible worlds.

4.4. Covering the cases

Although PW-core can account for Jane's museum experience, that does not show that PW-core can account for some of the more classic cases of non-veridical experiences. To cover these, the class of non-veridical experiences will be divided in two ways. Let 'NV-O' refer to visual experiences that are non-veridical because of what is going on in the environment *outside* of the subject's head; and let 'NV-I' refer to visual experiences that are non-veridical because of what is going on *inside* the subject's head. Within these divisions there are non-veridical experiences that are *partial* – NV-Op and NV-Ip experiences – because part of the experience involves veridical perceptions of things in the actual world; and non-veridical experiences that are *total*–NV-Ot and NV-It experiences.

4.4.1. A NV-Op experience

Stick-in-Water Illusion. Jane is standing beside a pond. There are rocks on one side of the pond and trees on the other side. A straight brown stick is half submerged in the water. Jane visually represents the rocks and the trees. She represents the stick as bent at the waterline. Given SEE, Jane sees the stick, since she sees the color of the stick (its brownness) and she sees its relation to the water (partial submergence). But Jane does

not see the straightness of the stick, because she does not represent the stick as straight. And Jane does not see the bentness because there is no token of bentness to see. Everyone can agree on this much.

Given the PW theory, Jane is representing a scene in a possible world; call it Stick-In-Water. Many of the things that exist in the actual world exist in Stick-in-Water. The pond, the trees, the rocks and the half submerged stick all exist in Stick-in-Water. However, the stick really is bent in Stick-in-Water. So Jane is misrepresenting the shape of the stick relative to the actual world, and correctly representing it relative to Stick-in-Water. Relative to the actual world and Stick-in-Water Jane accurately represents the stick as brown and half submerged. So Jane sees the stick, even though she is representing it in a non-actual world, because the stick occurs in both the actual world, where she sees it, and the non-actual world. Of course the fact that Jane sees the stick plays no role in Jane's representation of the stick.

In Stick-in-Water, the stick's looking bent is not due to the way water reacts to light; it is all due to its actual bentness. So Stick-in-Water is not a world in which the laws of physics holds in all cases; the direction of the light entering and leaving the water around the stick does not change. This is not strange. We easily represent non-actual possible worlds that are physically impossible; e.g. while watching Superman movies.

4.4.2. Some NV-Ip experiences

Here is a *Müller-Lyer illusion* (Figure 1): The two line segments are equal in length. Given SEE, a person looking at the image sees the segments – their shape and color – and the angles the fins of the arrow heads make with the segments. However, most people will misrepresent the relative lengths of segments by seeing the top line segment as shorter than the bottom one. Unlike NV-Op experiences, NV-Ip experiences are caused by condition internal to the subject, viz. conditions of the subject's

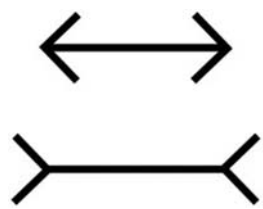

Figure 1. A Müller-Lyer illusion.

visual system. And indeed in this particular case it is stronger in some subjects than others.[35]

Given PW-core, a subject, who misrepresents the relative length of the two lines is visually representing a non-actual possible world in which the bottom line is longer than the top line; call it *Subject's-Unequal-World*. Since the segments occur in both the actual world and in the Subject's-Unequal-World, the misrepresentation is only partial. But how unequal are the lines in the Subject's-Unequal-World? That depends on how unequal the subject sees the lines as being. Jack's-Unequal-World may be different from Jill's-Unequal-World because the illusion may be stronger for one of them than it is for the other.

Drunken hallucinations. For another NV-Ip experience, consider a drunk who hallucinates pink rats running around the floor of her room. The subject sees the floor and walls of her room, but does not see pink rats, because there are no pink rats causing her experience. Given PW-core, the subject is representing a scene in a non-actual possible world in which pink rats are running around her room. This example is very similar to the Müller-Lyer case in that the subject sees many of the particulars around her because they exist in the actual world as well as the possible-world she is representing.

Let's change the example and suppose there really are pink rats running around the room in just the way the subjects seems to see rats running around her room. Now the subject is having a 'veridical hallucination'. She represents the *same* scene that she did before but the same scene occurs in *both* the actual world and in a non-actual possible world. Again the drunk sees the floor, walls and furniture in her room, but she does not see the pink rats in her room because there are no pink rats causing her experience. Rather her experience of pink rats is caused by the unusual state of her visual system. So, as in the first example, the drunk is representing a scene that occurs in a non-actual world. But unlike the first example, the scene she is representing also occurs in the actual world. Although the environment where there are no pink rats differs from the environment where there are pink rats, in the two cases the drunk represents the same scene.

[35]To learn how strong the illusion is in your case go to: https://michaelbach.de/ot/sze-muelue/index.html

Colors that are uinstantiated at the actual world. Consider how vision scientist Leo Hurvich describes the visual representation of supersaturated red:

> If the primary excitation in a small foveal field in an otherwise dark surround is produced by, say, 500 nm, it looks green while the stimulus is on. If we turn the stimulus off and look at a small, not-too-bright achromatic surface, we see a red afterimage. If the afterimage is superimposed on a small red field, we perceive a SUPERSATURATED red ('supersaturated' means more saturated than the saturation of a narrow-band spectral stimulus of the same hue). (Parenthetical in the original. 1981, 187)

Suppose that a subject has followed Hurvich's directions. In the resultant NV-Ip experience the subject seems to see an object that is floating in front of her, although there is no such object; and the object she seems to see seems to have a color that no objects in the actual world has. This is a partial NV-I experience since the subject can see other things around her that are in her nearby environment. Given PW-core, the subject is representing a non-actual world in which the supersaturated red object exists. That is, there are possible worlds where some objects are supersaturated red, although the actual world is not one of them.

Similarly there are possible worlds where some objects instantiate Hume's missing shade of blue, although the actual world is not one of them. Since this shade of blue is never actually represented, it does not follow from PW-core that there is such a world. However, possible worlds include logical possibilities, so in some world a US flag instantiates the missing shade of blue.

4.4.3. NV-It and NV-Ot experiences

T-hallucinations come in both NV-Ot and NV-It forms. According to PW-core both forms get the same treatment.

The NV-Ot experience of a video gamer. A video gamer is wearing 3D video goggles. She is playing a game in which she kills off invading monsters. Suppose that none of the objects, which the gamer is representing, exist in the ambient world of the gamer. So her experience is not being caused by any of the things her experience represents. Finally, suppose the goggles are so lightweight that she does not realize that she is wearing them.

The gamer's experience differs from veridical experiences in that the light entering the gamer's eyes is not light reflected from objects around the gamer. But this difference does not affect how the gamer's

visual system is working. Although the gamer's eyes are reacting to a proximal stimulus (produced by the goggles) and not by a distal stimulus (produce by object's in her environment), the reaction is normal, because eyes always react to the proximal stimulus entering them no matter how it is produced. Since the gamer's visual system is reacting in a normal way, it is natural to conclude that her visual system is representing *something* that is like the sort of thing our visual systems normally represent. That *something* is not the goggles themselves because the gamer is not visually conscious of the goggles. Given PW-core, that *something* in the gamer's experience is a scene from a possible world. In the normal case, the scene will occur in the actual world and in the gamer's case the scene occurs in a non-actual possible world. This difference is significant with respect to the way subjects react to visual experiences, but it amounts to no difference at all in the way human visual systems react to a proximal stimuli and hence to the sort of things represented by such experiences. Hence the gamer's example shows that PW-core can account for NV-Ot experiences – experiences that are non-veridical because of what is going on in the environment *outside* of the subject's head and no part of which involves perceptions of things that exist in the actual world.

The NV-It experience of a drunk. Earlier, it was argued that PW-core could account for the partial hallucination of a drunk, who represents some objects that exist in the actual world (the floor and walls of her room) and some objects that only exist in a non-actual possible world (pink rats). This was an NV-Ip experience. This argument did not depend on the extent of the partial hallucination. So imagine that the drunk becomes more and more inebriated and the hallucination contains more pink rats, and the bedroom gradually transforms into a prison cell. The drunk's partial hallucination has morphed into a t-hallucination. This t-hallucination is an NV-It experience. Since in the partial case the drunk is representing a scene in a non-actual possible world, it is natural to conclude, and here it is concluded, that in this t-hallucination case the drunk is also representing a scene in a possible world.

More generally: the subject of a t-hallucination HE will always be in some environment En. There are a spectrum of scenes that start with a scene in En and morph into scenes that become less and less like En but become more and more like the scene HE represents. Since PW-core can account for the representation of the scene in En and all of the representations of the scenes that might occur in a partial

hallucination, it is assumed here that PW-core will also explain any t-hallucinatory scene.

5. Conclusion

The PW theory answers the what-question. It treats singular-content-representations as essential to visual experiences or at least visual experiences with p-particularity. There is no visual experience, not even t-hallucinations, that have p-particularity, that are not singular-content-representations. What unifies all experiences, irrespective of whether they have p-particularity, is that they represent scenes which exist in a possible world. But for t-hallucinations with p-particularity, what is represented is a scene in a non-actual world, and it is represented in a singular manner. This, of course, is a rethinking of what t-hallucinations come to. This essay has been an attempt to suggest that this rethinking is necessary if one takes P-PARTICULARITY seriously as a perceptual phenomenom.[36]

Disclosure statement

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

ORCID

Joseph Gottlieb http://orcid.org/0000-0001-9014-8487

References

Averill, Edward, and Joseph Gottlieb. 2021. "Two Theories of Transparency." *Erkenntnis* 86: 553–573.

Block, Ned. ms. *The Border Between Seeing and Thinking*.

Churchland, P. M. 2005. "Chimerical Colors: Some Phenomenological Predictions from Cognitive Neuroscience." *Philosophical Psychology* 18: 527–560.

Crane, Tim. 2013. *The Objects of Thought*. Oxford: Oxford University Press.

Dretske, Fred. 1995. *Naturalizing the Mind*. Cambridge: MIT Press.

Dretske, Fred. 1999. "The Mind's Awareness of Itself." *Philosophical Studies* 75: 1–22.

Ffytche, D. H. 2008. "The Hodology of Hallucinations." *Cortex* 44: 1067–1083.

Ffytche, D. H. and R. J. Howard. 1999. "The Perceptual Consequences of Visual Loss: 'Postive' pathologies of Vision." *Brain* 122: 1247–1260.

[36]Many thanks to Ali Rezaei and an anonymous referee for *Inquiry* for helpful comments and discussion.

Fodor, Jerry A. 1987. *Psychosemantics: The Problem of Meaning in the Philosophy of Mind*. Cambridge: MIT Press.

French, Craig, and Anil Gomes. 2019. "How Naive Realism Can Explain Both the Particularity and the Generality of Experience." *Philosophical Quarterly* 69 (274): 41–63.

Gottlieb, Joseph, and Ali Rezaei. 2020. "When Nothing Looks Blue." In *Synthese*. https://doi.org/10.1007/s11229-020-02899-3.

Grzankowski, Alex. 2013. "Non-Propositional Attitudes." *Philosophy Compass* 8 (12): 1123–1137.

Hansen, Carsten, and Georges Rey. 2016. "Files and Singular Thoughts Without Objects Or Acquaintance: The Prospects of Recanati's 'Actualism'." *Review of Philosophy and Psychology* 7 (2): 421–436.

Hill, Christopher. 2019. "Perceptual Existentialism Sustained." *Erkenntnis*. https://doi.org/10.1007/s10670-019-00160-z.

Hurvich, Leo. 1981. *Color Vision*. Sunderland: Sinauer Associates.

Johnston, Mark. 2004. "The Obscure Object of Hallucination." *Philosophical Studies* 120 (1–3): 113–183.

Kriegel, Uriah. 2007. "Intentional Inexistence and Phenomenal Intentionality." *Philosophical Perspectives* 21 (1): 307–340.

Lewis, David. 1986. *On the Plurality of Worlds*. Oxford: Wiley-Blackwell.

Lewis, David. 1999/1983. "Individuation by Acquaintance and by Stipulation." In *Papers in Metaphysics and Epistemology*, Vol. 2. Cambridge: Cambridge University Press.

Lycan, William G. 1987. "Phenomenal Objects: A Backhanded Defense." *Philosophical Perspectives* 1: 513–526.

Martin, M. G. F. 2004. "The Limits of Self-Awareness." *Philosophical Studies* 120 (1–3): 37–89.

Masrour, F. 2020. "On the Possibility of Hallucinations." *Mind* 129 (515): 737–768.

McDowell, John. 1994. *Mind and World*. Cambridge, MA: Harvard University Press.

McGinn, Colin. 1982. *The Character of Mind*. Oxford: Oxford University Press.

Mehta, Neil. 2014. "The Limited Role of Particulars in Phenomenal Experience." *Journal of Philosophy*111 (6): 311–331.

Millikan, R. G. 1984. *Language, Thought and Other Biological Categories*. Cambridge: MIT Press.

Montague, Michelle. 2016. *The Given: Experience and its Content*. Oxford: Oxford University Press.

Newall, Michael. 2009. "Pictorial Experience and Seeing." *British Journal of Aesthetics* 49 (2): 129–141.

Pautz, Adam. 2007. "Intentionalism and Perceptual Presence." *Philosophical Perspectives* 21 (1): 495–541.

Rezaei, Ali. ms. The Particularity and Objectual Unity of Visual Experience.

Schellenberg, Susanna. 2010. "The Particularity and Phenomenology of Perceptual Experience." *Philosophical Studies* 149 (1): 19–48.

Schellenberg, Susanna. 2011. "Ontological Minimalism About Phenomenology." *Philosophy and Phenomenological Research* 83 (1): 1–40.

Schellenberg, Susanna. 2018. *The Unity of Perception: Content, Consciousness, Evidence*. Oxford: Oxford University Press.
Schwitzgebel, Eric. 2014. "The Crazyist Metaphysics of Mind." *Australasian Journal of Philosophy* 92 (4): 665–682.
Searle, J. 1983. *Intentionality*. Cambridge: Oxford University Press.
Smith, A. D. 2002. *The Problem of Perception*. Cambridge: Harvard University Press.
Tye, Michael. 2000. *Consciousness, Color, and Content*. Cambridge: MIT Press.
Tye, Michael. 2014a. "Transparency, Qualia Realism and Representationalism." *Philosophical Studies*170: 39–57.
Tye, Michael. 2014b. "Speaks on Strong Property Representationalism." *Philosophical Studies* 170 (1): 85–86.
Tye, Michael. 2014c. "What is the Content of a Hallucinatory Experience?" In *Does Perception have Content?*, edited by Berit Brogaard. Oxford: Oxford University Press.
Tye, Michael. 2019a. "How to Think about the Representational Content of Visual Experience." In *The Philosophy of Perception, Proceedings of the Austrian Ludwig Wittgenstein Society*, edited by Christoph Limbeck. Berlin: De Gruyter.
Tye, Michael. 2019b. "What Uninformed Mary Can Teach Us." In *The Knowledge Argument*, edited by Sam Coleman, 269–280. Cambridge: Cambridge University Press.
Williamson, Timothy. 2013. *Modal Logic as Metaphysics*. Oxford: Oxford University Press.
Wu, W. 2014. *Attention*. New Problems of Philosophy. London: Routledge.