

ORIGINAL ARTICLE

The puzzle of the laws of appearance

Adam Pautz

Brown University

Correspondence

Adam Pautz, Brown University.

Email: adam_pautz@brown.edu

In this paper I will present a puzzle about visual appearance. There are certain necessary constraints on how things can visually appear. The puzzle is about how to explain them. I have no satisfying solution. My main thesis is simply that the puzzle *is* a puzzle.

I will develop the puzzle as it arises for representationalism about experience because it is currently the most popular theory of experience and I think it is along the right lines. However, everyone faces a form of the puzzle, including the naïve realist.

In §1 I explain representationalism about experience. In §§2–3 I develop the puzzle and criticize a response due to Ned Block and Jeff Speaks and another response based on a novel form of representationalism (“*sensa* representationalism”). In §4 I argue that defenders of “perceptual confidence” face an instance of the puzzle. In §5 I suggest that everyone faces a form of the puzzle.

1 | WHAT IS THE REPRESENTATIONAL VIEW OF VISUAL EXPERIENCE?

Sometimes people who experience vision loss in old age—for instance, due to macular degeneration—have very vivid hallucinations. This is called “Charles Bonnet Syndrome”. For example, one man with this condition—Buddy Burmester—frequently had vivid and long-lasting hallucinations of purple flowers. He could even draw detailed pictures of them (Mogk & Mogk, 2003).

Representationalists hold that experiencing is like believing in one respect: it is a matter of representing the world to be a certain way. For instance, to have an experience of a purple flower is to experientially represent that a flower-shaped, purple thing is there. The phenomenal character of the experience is fixed by its representational content. When Buddy Burmester hallucinated flowers, there did not really exist any flower-shaped items that he experienced. So representationalists endorse *existence-neutrality*: it can visually appear to you that something is *F*, even if there exists no *F* in your vicinity.

The advantage of existence-neutrality is obvious. It allows representationalists to avoid the problematic sense datum theory (e. g. Moore, 1914; Russell, 1913). When Buddy Burmester hallucinates flowers, there needn’t exist any peculiar, flower-shaped non-physical “sense data” that he experiences. It only *seems* to him that there are such items. Avoiding the sense datum theory is

a good thing because (i) sense data go against “physicalism”, (ii) they would exhibit peculiar *in re* indeterminacy (think of peripheral vision), and (iii) they would be modally weird (e. g. pain sense data would be wholly distinct from subjects yet necessarily connected to them).

2 | THE PUZZLE

Now I will explain how the puzzle of the laws of appearance arises for representationalists (a puzzle I first presented in Pautz (2017)).¹ I will begin by simply listing some ostensible laws of appearance. Then I will develop the puzzle.

First, the *Exclusion Law*. You cannot experientially represent the same surface as pure blue and pure green at the same time. This is not a possible way in which a surface can appear. For, given representationalism, it would imply having *both* a phenomenal-blue experience and a phenomenal-green experience *with respect to the same region*. And that is impossible. Similarly, you cannot experientially represent the same object as being spherical *and* cubicle.

Let me forestall a confusion. When something looks purple, it doesn’t look pure red *and* pure blue. Rather, it looks to have a color similar to red and blue. So the experience of purple is not a counterexample to the Exclusion Law. Likewise, the unusual experience of yellowish-blue colors (Billock & Tsou, 2010) is not a counterexample.

Second, *Berkeley’s Law*. You cannot experientially represent that something has a color quality without also experientially representing that it takes up space in some way. I call this *Berkeley’s Law* because Berkeley (1713, p. 17) emphasized how color and form are bound together in visual experience. Another plausible law of appearance in the vicinity is that you cannot experientially represent that something has a spatial property (e. g. being circular) without also experientially representing a qualitative difference (e. g. a *black* circle on a *white* background).

Third, *No Logical Structure*. An experience cannot have as its *only* representational content: *there is either red square in front of me or green sphere on right*. What phenomenology would this representational content determine?

Fourth, the *Perspectival Law*. An individual cannot experientially represent merely *that there is a cube somewhere in reality*, without any “perspectival information” about its location and apparent shape from “here”.

Fifth, the *No High-Level Law*. There cannot be an experience whose *only* content is a free-floating “high-level” content, like *there’s a tomato in front of me*, without having *any* contents attributing lower-level features like shape or color. What would the phenomenology be like?

I said above that representationalists hold that experiencing is like believing. But the laws of appearance mark a difference between the two. You can *believe* logically complex, non-perspectival and purely high-level contents. You can even *believe* impossible contents. For instance, Meinongians *believe* that there are round squares (though they add that they don’t exist). But you cannot *experientially* represent any such contents.

Everyone should agree that there are some such laws of appearance. But what is their modal status? There are two options (Figure 1). *Necessitism* says that *some* of the laws of appearance are metaphysically necessary. *Contingentism* says that they are all contingent special science laws that can be violated in other creatures or even in actual humans under unusual circumstances.

The puzzle is simply this: one of these options must be right, but both are very problematic. To illustrate, I will focus on the Exclusion Law.

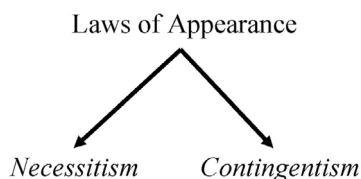


FIGURE 1 Two options regarding the laws of appearance

2.1 | Necessitism about the Laws of Appearance

Let's start with Necessitism. To support this option, we can start with another example. Everyone will agree that the following is metaphysically necessary:

[Resemblance] If anyone has an experience of blue, an experience of purple, and an experience of green, then their first color experience is more like their second than their third.

Why do we all agree that [Resemblance] is metaphysically necessary? The answer is that this is just intrinsically plausible.

Parallel remarks apply to:

[Exclusion] No one experientially represents the same surface as both pure blue and pure green, or as both round and square.

It is equally intrinsically plausible that [Exclusion] is metaphysically necessary. So consistency demands treating [Exclusion] as metaphysically necessary no less than [Resemblance].

To clarify, the reason for thinking that [Exclusion] is metaphysically necessary is *not* the following argument: we cannot imagine counterexamples to [Exclusion] from the first-person, therefore counterexamples are metaphysically impossible. That is a bad argument. We also cannot imagine the alien color experiences of pigeons or the alien echolocation experiences of bats, but this doesn't mean that they are impossible. Rather, the reason for thinking that [Exclusion] is metaphysically necessary is just that this is intrinsically plausible.

So Necessitism is plausible. However, it is also problematic. If some laws of appearance are metaphysically necessary, then we expect a general explanation. Otherwise they are all separate, brute modal facts. And that would be very dissatisfying and complicated.

The sense datum theory can explain *some* laws of appearance. On the sense datum theory, appearance is constrained by reality. If it visually appears to someone that something is *F*, then there must exist in reality a sense datum that is *F*. The sense datum is non-physical, but it is part of reality. So if nothing—not even a sense datum—can be round and square, then it can never visually appear that something is round and square. This explanation is attractive. It would be odd if “necessarily, it never visually appears that a thing is both round and square” and “necessarily, a thing is never both round and square” were totally separate and independent metaphysical necessities. The sense datum explanation shows how one can be derived from the other.

But if we reject the sense datum view and accept existence-neutrality, then we cannot accept this attractive explanation of the metaphysical necessity of the Exclusion Law. And nearly all philosophers of perception—both representationalists and naïve realists—do reject the sense datum

theory and accept existence-neutrality. If that is right, then appearance is not constrained by reality. If your brain on the brink, you can hallucinate a flower-shaped thing, even if there exists no flower-shaped thing. So why not a round and square thing? To adapt one of Nietzsche's favorite maxims: if in hallucination nothing is true, everything is permitted.

Above I said that rejecting the sense datum theory is a good thing. But it also has a cost. It means that we need an alternative explanation of the metaphysical necessity of the Exclusion Law and the other laws of appearance.

Let us look at some such alternative explanations compatible with existence-neutrality. I will argue that they fall short. We begin with explanations that appeal to the *hidden realizers* of experiential representation in the brain (discussed in Lycan (2019), Pautz (2017), Tye (2020)).

For instance, maybe experience is necessarily realized by an "iconic" ("pictorial") inner format, while cognition is typically realized by a "discursive" (language-like) inner format. Could this explain why there are metaphysically necessary constraints on experience that do not apply to belief?

I don't think so, for several reasons. First, if the "pictorial" metaphor were taken literally, it might explain the Exclusion Law. But it shouldn't be taken literally—we don't have pictures in our heads. What then does it mean? Following (Green & Quilty-Dunn, 2017), we can stipulate that the subpersonal medium of experiential representation counts as *iconic* just in case every "functional part" of the subpersonal neural vehicle represents "part of the scene represented" (the parts principle) and every "functional part" represents multiple contents (holism). But, by itself, this is just too weak to entail *any* of the laws of appearance. The "parts principle" doesn't entail any. Nor does "holism", since it doesn't place any restrictions on what the "multiple contents" are.²

This is enough to undermine an explanation of Necessitism based on iconicity alone. But there are other problems. It may not be that the subpersonal medium of experiential representation is completely iconic (Green & Quilty-Dunn, 2017). For example, contrary to holism, an activation in the "motion" area of the visual cortex (MT/V5) might represent a "single" property, such as *vertical downward motion*. And even if iconicity is true for humans, it is implausible that it applies to *all possible* experiencers. In that case, iconicity cannot explain the *metaphysical necessity* of the laws of appearance. Finally, there is an epistemic point. We know the Exclusion Law on the basis of *a priori* reflection on experience. This is hard to square with the idea that it depends on a speculative empirical claim about the subpersonal realizers of experience.

Let us briefly consider another possible explanation of Necessitism appealing to hidden realizers. When you view a moving blue thing, your subpersonal neural representations of color and movement, which might be located in separate brain areas, are "bound" together, where this is some kind of functional-computational relation. Maybe it's just a fact that when you look at a round thing and a square thing, your subpersonal representations of these two features could not likewise be erroneously "bound together". This specific "illusory conjunction" is impossible.

But if this is a fact, surely it is a contingent fact. Why couldn't there be possible experiencers whose subpersonal representations of distinct colors (or distinct shapes) could be "bound together" in this way, just as our subpersonal representations of color and motion can be bound together? To suppose that there couldn't be such a binding error would be to place an arbitrary restriction on modal space. For why should some neural representations, but not others, be able to stand in the topic-neutral binding relation? If there are possible experiencers like this, then the present idea cannot explain the *metaphysical necessity* of the exclusion law. Further, once again, the whole idea that the explanation of the law depends on a hidden, empirical fact about neural realization is hard to square with its *a priori* status. Together, these points seem rule out any "hidden realizer" explanation of Necessitism.

Another type of explanation of Necessitism is a *psychosemantic* explanation. For instance, Michael Tye (2000, pp. 139–140) has advocated *tracking representationalism*. He supplements the representationalist thesis that phenomenal character is determined by representational content with a “tracking” psychosemantics according to which representational content is determined by tracking relations to the environment. Since there cannot be round and square objects, your visual system cannot directly track such objects. So, you might think that tracking representationalism explains the metaphysical necessity of the Exclusion Law: why you cannot possibly experientially represent that there is a round and square object.

But this explanation of Necessitism faces three problems. First, tracking representationalism is false. It implies a form of phenomenal externalism that goes against decades of research in psychophysics and neuroscience (Pautz, 2014). Second, even if it is true, it doesn’t explain the metaphysical necessity of the Exclusion Law. For it only explains how “basic” subpersonal representation-vehicles in the brain represent certain properties. Then those representation-vehicles can be “bound” together to represent complex contents. And, as discussed above, there is no reason why representations of distinct shapes (or colors) could not be erroneously “bound together” in some possible subject. Third, tracking representationalism not only fails to explain the metaphysical necessity of the Exclusion Law; it positively violates the metaphysical necessity of the other laws of appearance. For example, there is a possible visual system that tracks (and thereby represents) colors (understood on this theory as reflectance-types) without tracking (representing) any spatial properties (it is *merely* a color-detector). So tracking representationalism implies that Berkeley’s Law is merely contingent (Pautz, 2017, p. 38; Morgan, ms). But it seems metaphysically necessary.³

I haven’t shown that there can be *no* explanation of Necessitism once we accept existence-neutrality. But, if the only available explanations fall short, there are grounds for doubt.

2.2 | Contingentism about the laws of appearance

Since Necessitism is hard to explain, we might reject it and turn to Contingentism: *all* the laws of appearance are merely contingent special science laws that could be violated in other possible creatures, and maybe even in humans under unusual circumstances.

In fact, in response to my brief presentation of the puzzle in earlier work (Pautz, 2017), Ned Block and Jeff Speaks have recommended Contingentism:

I think that this is an excellent puzzle. In reply, I am tempted to doubt whether Pautz’s laws of perception really are (metaphysically) necessary. (Speaks, 2017, p. 495)

My view is that Pautz’s “laws” are not really [metaphysically necessary] truths at all. (Block, ms, chap. 3)

Given Contingentism, the laws of appearance pose no real puzzle. Necessitism sets a very high bar: it means that there must be explanations of why the laws hold in *all possible creatures*. By contrast, Contingentism would mean there just need to be explanations of why they hold in actual humans. And we know in advance that there must be some such explanations—presumably, neurocomputational explanations. For instance, as noted above, maybe it is just a fact that in humans subpersonal representations in the visual system of distinct colors, or distinct shapes, cannot be bound together. This would explain why the Exclusion Law obtains in actual humans.

However, Contingentism is also problematic. There is a strong case against it and no strong case for it.⁴

I already gave the case against Contingentism when I gave the case for Necessitism. The case for Necessitism is a kind of “parity” argument. We all accept that [Resemblance] is metaphysically necessary because this is just intrinsically plausible. But it is equally intrinsically plausible that [Exclusion] is metaphysically necessary.

Speaks and Block both try to “explain away” the intuitive case for Necessitism over Contingentism. They suggest that the only reason for accepting Necessitism is that we cannot *imagine* counterexamples to [Exclusion]. This is what leads us to think that *they cannot happen* (they are metaphysically impossible), in agreement with Necessitism. But they suggest that it is in fact not a good reason to think this. I find this attempt to block the case for Necessitism to be unpersuasive, for a few reasons.

First, I don’t think that our inability to imagine counterexamples to [Exclusion] is what explains why we think counterexamples are metaphysically impossible. For this if this were the case, then whenever we cannot imagine something, we should be liable to think it is metaphysically impossible; but this is not so. As noted above, we also cannot imagine alien experiences, but we do not think that they are metaphysically impossible.

Second, as I said above, the best reason for accepting Necessitism over Contingentism is simply that we find it “intrinsically plausible” that counterexamples to [Exclusion] are metaphysically impossible (but not “intrinsically plausible” that alien experiences are metaphysically impossible). To undercut this reason, it’s not enough to criticize the move from “*p* cannot be imagined” to “*p* is impossible”, for the simple reason that it doesn’t rely on that move.

Third, what Speaks and Block say pretty quickly leads to an implausible *general* skepticism about modal claims about experiences. For instance, if they doubt the metaphysical necessity of [Exclusion] because they think it is only based on a faulty inference about imagination, then consistency demands that they doubt the metaphysical necessity of [Resemblance] for the same reason. Likewise for *any* alleged metaphysical necessity about experience. But, against such general skepticism, everyone allows that we know, or have good reason to believe, *some* metaphysical necessities about experience, including [Resemblance]. And then there is no reason to deny that [Exclusion] is also among them. For, intuitively, [Exclusion] has the same strong modal status as [Resemblance].

Maybe proponents of Contingentism like Speaks and Block will allow that we have some reason to accept Necessitism over Contingentism, but then say that there is a *stronger* reason to accept Contingentism over Necessitism (a “rebutting defeater”).

However, the only arguments for Contingentism I can think of are too weak to defeat the pretheoretical case for Necessitism. Let’s consider them.

First, the discussion in §2.1 suggests the *missing explanation argument*:

1. It’s hard to explain why the laws of appearance should be metaphysically necessary once we accept existence-neutrality.
2. If so, they are contingent.

Block suggests the missing explanation argument for Contingentism when he says “I know of no principled reason” why the Exclusion Law should be metaphysically necessary (ms, chap. 3), and then concludes it is contingent. Speaks suggests it when he writes “I am not sure *why* [violations of laws of appearance] should not be possible” (2017, 495), and concludes that they are possible.

But the missing explanation argument is a bad argument for Contingentism. Take the claim that Socrates can instantiate wisdom but wisdom cannot instantiate Socrates, or that everyone who intends to do something believes that they will do it, or that the moral supervenes on the natural. Or take some mathematical claim that strikes us as obviously true and necessary. All of these alleged metaphysical necessities may be hard to explain. But it doesn't follow that we should *reject* them all. Since they are all pretheoretically plausible, that would be rash. Rather, we should conclude that either there is an explanation we don't know about or in some cases they are brute necessities (or essentialist truths) having no explanation. Maybe we should conclude the same thing about the metaphysical necessity of the Exclusion Law and other laws of appearance.

Second, Block (ibid.) suggests an *argument from counterexamples* for Contingentism:

1. In unusual cases, there are counterexamples to *some* of the laws of appearance, even if they initially seemed metaphysically necessary.
2. In that case, we should doubt, or even reject, the metaphysical necessity of *all* the laws of appearance.

In support of premise [1], Block notes that in the past some may have thought it's metaphysically impossible that there should be colors that resemble blue and yellow in the way the purples resemble red and blue. But Billock and Tsou (2010) have apparently undermined this thought. As I mentioned at the outset, this is not a counterexample to the Exclusion Law, but it is very surprising. Likewise, although I won't go into details, cerebral achromatopsia (Kentridge, Heywood, & Cowey, 2004) may provide a counterexample to the initially compelling law of appearance that you cannot experientially represent that something has a certain spatial property (a "primary quality") without also experientially representing a qualitative difference (a "secondary quality").

But premise [2] here is evidently wrong. Take our main example: the Exclusion Law. Block doesn't give any actual counterexamples to this—for instance, a case in which someone experientially represents the same surface as round and square. And the mere fact (if it is a fact) that we were wrong about the metaphysical necessity of *other* laws of appearance doesn't justify the conclusion that we are wrong about the metaphysical necessity of this very different law of appearance. Here is an analogy. Kit Fine (2000) showed that there are counterexamples to the Lockean principle "it cannot be that two things of the same kind have the same location and matter", even if we might have initially considered it to be metaphysically necessary. But that doesn't mean we should throw out *all* of our modal beliefs about objects. Even we are fallible in a certain domain, we can have plenty of justified beliefs and knowledge in that domain.

Next consider the related *argument from nearby cases*:

1. In unusual cases, we experientially represent metaphysically impossible states of affairs; for instance, when we experience impossible figures (Figure 2 below) and when we undergo the waterfall illusion.
2. If it is possible to experientially represent *some* impossible states of affairs, then it should be possible in principle to experientially represent *any* impossible state of affairs (including a round square or an unextended red thing).

This would support Contingentism over Necessitism when it comes to the Exclusion Law and Berkeley's Law.

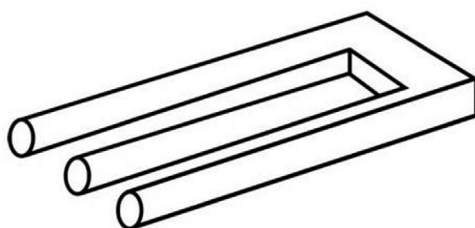


FIGURE 2 devil's pitchfork

But this argument, too, is problematic. One could question premise [2]—it seems quite a leap. But I think that real problem rests with [1]. Against [1], there are no actual cases in which we experientially represent impossible states of affairs.

Start with the waterfall illusion. You stare at a waterfall, and then you stare at a stationary rock. True, some have said that it looks as if the rock is moving up and standing still, in agreement with the impossible content view. But in fact it looks as if the rock is stationary and there is movement upwards, *but the movement doesn't seem to attach to the rock*. So the content might be: *a* is black, round and stationary and something or other *y* in the vicinity is moving upwards. Since this content doesn't attribute incompatible properties to the same object, it is *not* an impossible content. This account should be taken seriously because there are other examples of experiences of “unbound” movement, for instance, in peripheral vision and in the “Phi phenomenon” (von Fieandt, 1966, p. 263). It also fits with the fact that position and movement are processed separately in the brain.⁵

In my view, experiences of so-called “impossible figures”—such as that in Figure 2—also do not have impossible contents. I very much agree with Tim Bayne:

When I focus on the prongs I experience them as straight, and when I focus on the ‘handle’ I experience the middle prong as lying behind the upper and lower prongs, but at no point do I experience all three prongs as having incompatible properties. 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. (Bayne, 2010, p. 54)

Similar remarks apply to other experiences of impossible figures.⁶

3 | SENA REPRESENTATIONALISM AS A SOLUTION?

Let me sum up. Necessitism is plausible. But if some laws of appearance are metaphysically necessary, we expect some explanation. However, once we accept existence-neutrality, an explanation is hard to come by. This may suggest Contingentism. But Contingentism is intuitively incredible. Nor is it sufficiently well-motivated by argument. This is the puzzle of the laws of appearance.

I would like to explore a radical solution that opts for Necessitism and tries to explain it by proposing a novel theory of perception that I will call *sensa representationalism*. This theory adds the following thesis to representationalism:

[Sensa-generation] When (and only when) you experientially represent that something is *F*, this brings into existence a short-lived, mind-dependent “sensus” that *really is F*.

The view I have in mind is a marriage of representationalism and traditional (representative realist) sense datum theory. When Buddy Burmester hallucinates a flower, he experientially represents that something is there that is flower-shaped, where such experiential representation is fully grounded in his internal brain state. By [Sensa-generation], this brings into existence a “sensus” that really is flower-shaped. When he sees a real flower, he experientially represents that there is a flower-shaped thing there. By [Sensa-generation], this brings into existence a short-lived “sensus”, distinct from the real flower, that really is flower-shaped.

Even though it is a form of representationalism, sensa representationalism *rejects* existence-neutrality. If it experientially appears to you that something is *F*, then there exists a real item—a sensum—that is *F*.⁷

Sensa are ontologically dependent entities. Here is an analogy. Some philosophers hold that “holes”, such as the holes in a piece of cheese, really and truly “exist”, in the same sense in which electrons “exist” (Casati & Varzi, 1994). It’s just that, unlike electrons, they are “dependent” entities. A hole is always a hole in something—a hole host. The character of the hole is fully “grounded in” the nature of the hole host—for instance, the cavities in the piece of cheese. Likewise, on sensa representationalism, there really and truly exist short-lived “sensa”. (So they differ from “Meinognian objects”, which are supposed not to exist.) But they are fully grounded in experiential representation.

A closer analogy might be with fictional objects on “creationist” views according to which they depend on the representational activities of authors (e.g. Kripke, 1973/2013, Thomasson, 1999). But, on the view I have in mind, sensa *really have* visible properties; they are not merely “represented as having” them.

Why accept sensa representationalism? Let us begin with the question: why accept the “sensa hypothesis”? This is the general hypothesis that in visual experience we are presented with “sensa-like” items (also called “sense data”) bearing the apparent properties. Then we will turn to the more specific question: once we accept the general sensa hypothesis, why accept the metaphysics of “sensa representationalism” in particular, rather than the nonrepresentationalist sense datum view of Moore and Russell?

Traditionally, the main reason offered for the sensa hypothesis was that it is a self-evident starting point in the philosophy of perception. When Buddy hallucinates a flower, it is just evident to him that there exists a flower-shaped *something* that he can scan and explore. We should take this motivation seriously. Until the 1950s or so, the sensa hypothesis was almost universally accepted.

The sensa hypothesis also helps to draw a border between experience and cognition. There is a gigantic difference between experience and belief. It is natural to think the difference is that belief is not “presentational”—it is merely “representational”. By contrast, experience is essentially “presentational”, even in hallucination. The sensa hypothesis endorses this natural thought. For instance, on sensa representationalism, experience differs from belief in that it involves a form of representation that obeys [Sensa-generation]. Experience is both essentially representational and presentational.

The laws of appearance provide a novel, additional line of argument for the sensa hypothesis. As discussed above, this hypothesis has a hitherto unnoticed explanatory virtue: it can attractively explain the metaphysical necessity of the Exclusion Law. If we accept representationalism, the point can be put this way: you cannot experientially represent that something is round and square,

because, given [Sensa-generation], this would require the coming-into-existence of a round and square sensum, which cannot happen (nothing—not even a sensum—can be round and square).

When there are multiple independent lines of argument for a hypothesis, we must take that hypothesis seriously. Contemporary theories of perception—including both representationalist theories and naïve realist theories—are united in their denial of the traditional sensa hypothesis and their acceptance of “existence-neutrality”. But maybe contemporary philosophy of perception rests on a mistake.

Having considered arguments for holding that all experience presents us with items bearing the apparent properties, we turn to the further question of why we should accept “sensa representationalism” rather than the simpler sense datum theory of Moore and Russell.

Both of these views agree that experience essentially presents us with such items. But they differ on the metaphysics of these items. Take the traditional representative realist from of the sense datum view defended by Moore (1914, p. 366) and Russell (1913, p. 79). This view holds that the relevant items (“sense data”) are *fundamental* and *mind-independent*. They are fundamental (nonphysical) items in that their existence is not “grounded in” anything more basic. They are mind-independent in that they could exist without being experienced. True, as a matter of fact, they never do exist without being experienced, since the brain processes that cause them to exist also cause the subject to experience them. But, in principle, they *could* exist apart from everything else. By contrast, sensa representationalism posits “sensa” that are *essentially* non-fundamental and mind-independent. In particular, they are *grounded in* a more basic mental condition, namely, “experientially representing” things to be a certain way.

The lines of argument presented above are neutral between traditional sense datum theory and sensa representationalism. However, there are some additional considerations that may favor sensa representationalism over traditional sense datum theory.

First, if there are sensa-like items, they must be radically different from other items in nature in that they capable of *in re* indeterminacy or incompleteness (think of peripheral vision). A nice feature of sensa representationalism is that it *explains* this: sensa differ from other things in that they are capable of indeterminacy *in re*, because they are representation-dependent and representation is capable of indeterminacy.

Second, at least in the case of pains, the relevant kind of items seems to be essentially mind-dependent. Again, sensa representationalism (but not the traditional sense datum theory of Russell and Moore) explains this: they are essentially dependent on a certain kind of mental representation.

Third, while traditional sense datum theory, with its fundamental non-physical sense data, is inconsistent with a physicalist theory of the mind, sensa representationalism is quite compatible with physicalism. If “sensa” are grounded in experiential representation, and if experiential representation is grounded in the physical, then sensa are grounded in the physical.⁸ Analogy: there is a sense in which holes are not physical objects (they are not composed of physical matter), but they are compatible with physicalism, since they are grounded in the arrangement of matter.

For our purposes, the most relevant asset of sensa representationalism is that it may help solve the puzzle of the laws of appearance. As noted above, it may explain why the Exclusion Law, at least, is metaphysically necessary.

But, in the end, sensa representationalism fails to provide a satisfying solution to the puzzle of the laws of appearance.

First off, there are problems with sensa representationalism itself. Let me just mention one. Above I said that it is strictly speaking compatible with physicalism. However, it results in a form of physicalism that is problematic in the same ways as dualism. To see this, start with the kind of

dualism required by traditional sense datum theory (a form of representative realism). It posits a raft of psychophysical laws of the following form:

[Psychophysical laws] Necessarily, if a subject undergoes brain state *B*, then this causes the coming-into-existence of a sense datum that is *F* (e. g. flower-shaped), and causes the subject to experience it.

Sensa representationalism posits a raft of very similar “grounding laws”:

[Grounding laws] Necessarily, if a subject undergoes brain state *B*, then this grounds the subject’s experientially representing that something is *F* (e. g. flower-shaped), and the coming-into-existence of a sensum that is *F*.

Now we all agree that the psychophysical laws of sense datum theory would add to the complexity of our theory of the world, and would be like no other laws in nature. They would be bizarre necessary connections between very different states of affairs. But the grounding laws of sensa representationalism are exactly the same. The only difference is that they are supposed to be metaphysically necessary rather than contingent. However, this doesn’t make a difference to their complexity. And it doesn’t alter the fact that they would be totally different from the other (nomic and grounding) laws operating in nature.

Even if we set aside problems with sensa representationalism itself, there are problems with the idea that it might explain the metaphysical necessity of the laws of appearance—the reason why we are talking about it here. While sensa representationalism may be able to explain the metaphysical necessity of the Exclusion Law, it cannot explain the metaphysical necessity of all the other laws of appearance. For violations of these laws, together with [Sensa-generation], do not always entail the existence of metaphysically impossible “sensa” (I leave this as an exercise for the reader). In addition, it may not even explain the metaphysical necessity of the Exclusion Law. Its explanation (sketched above) assumes that a sensum (like anything else) cannot be round and square. But sensa must be weird in other ways. For instance, if you view an object in peripheral vision, there must exist a short-lived sensum that *takes up* space but *has no particular shape*, because you experientially represent that there is something there taking up space, but there is no particular shape that you experientially represent it as having. But why draw the line here? Why not also allow that sensa can also be *round* and *square* (like Meinongian objects)? In that case, sensa representationalism cannot explain the metaphysical necessity of the Exclusion Law.⁹

4 | PERCEPTUAL CONFIDENCE AND LAWS OF APPEARANCE

I have discussed the puzzle of the laws of appearance as it arises for ordinary representationalists. Now I want to argue that representationalists who also accept *perceptual confidence* face an especially acute instance of the puzzle.

I will lead up to the idea of perceptual confidence by way of what I consider to be the best argument for it. (See Pautz (2011, p. 397ff, 2016); Munton (2016) develops the same argument.) The argument starts from an apparent epistemological datum:

Degree: Our immediate experience-based reasons (“justification”) come in many varying strengths.

To illustrate, look at Figure 3:

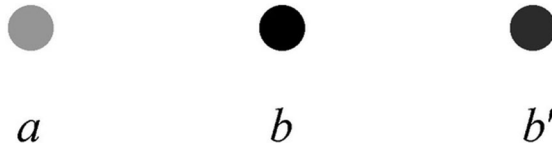


FIGURE 3 Graded perceptual justification

When you experience Figure 3, it strongly strikes you that shades *a* and *b* differ in color. So you have a strong immediate reason to believe that they do. If you like “credences”, you can say that have a reason to have a very “high credence” in that proposition, for instance, 0.9.

By contrast, it only *kind of* appears to you that shades *b* and *b'* differ. (In fact, shades *b* and *b'* barely differ.) So you have less reason to believe that the shades *b* and *b'* differ than you have to believe that shades *a* and *b* differ. You should have a low (but above 0.5) credence in this proposition.

Likewise some truths about comparative color resemblance (color *x* is more like color *y* than color *z*) are more perceptually obvious or striking than others. Or again, sometimes it is obvious that *x* and *y* are farther apart than *y* and *z*; sometimes it is hard to tell.

What explains Degree? On viewing a scene, what explains the various strengths of the experience-based reasons you have for believing different propositions about that scene? What fixes the various justified levels of “credence”?

On standard representationalism, the propositional attitude relation *experientially representing* that *p* doesn’t come in degrees. For instance, in our example, either you experientially represent that shades *b* and *b'* are distinct, or you don’t. But this makes hard to explain Degree. As I put it elsewhere, “[Experientially representing] propositions cannot fully explain the facts about perceptual justification, if [experientially representing] is “binary” whereas the facts about perceptual justification are graded” (Pautz, 2011, 397).

In previous work, I tentatively proposed *degreed representationalism* to explain Degree (Pautz, 2011, 2016). (See also Morrison (2016) and Munton (2016).) On this view, the relation of experientially representing comes in degrees. You experientially represent *that shades a and b differ* to a certain degree, say 0.9. You experientially represent *that shades b and b' differ* to a lesser degree, say 0.6. You experientially represent *that shades a and b differ* with more “phenomenal force” than you experientially represent *that shades b and b' differ*. The phenomenological character of your experience is *jointly determined by its content and the “phenomenal force” with which you represent that content*. This is a version of “perceptual confidence”. Further, degreed representationalists might say that, if you experientially represent that *p* with a certain degree of “phenomenal force”, then you have an immediate reason to believe that *p*, where the strength of the reason is proportional to the degree of phenomenal force. This is a degreed form of Pryor’s dogmatism (2000).

Having explained degreed representationalism, I can say why I now believe that it faces an especially acute instance of the puzzle of the laws of appearance. The puzzle arises from the question: *can the “phenomenal force” and the content vary independently?* One option allows for unlimited independent variation. Another posits special laws of appearance that constrain such variation. Both options are problematic.

Let us start with independent variation. Consider an analogy. You have a higher credence in a logical truth than you have in theism. But a confused person might have a higher credence in

theism than in the logical truth. If experience is structured in the same way, we would expect the possibility of independent variation here as well.

But we do not have a grip on such independent variation in the perceptual case. For instance, consider the following hypothetical case. You look at the same trio of circles shown in Figure 3. In every detail, all the contents of your experience are exactly the same as in the actual situation. You experientially represent the very same fine-grained shades. In the hypothetical situation, there is only variation in the “phenomenal force” with which you represent the relevant contents. In particular, oddly, you represent *that shades b and b’ differ* with much more “phenomenal force” than you represent *that shades a and b differ*—the exact opposite as in the actual case. This is so even though the perceived shades *b* and *b’* barely differ while *a* and *b* differ greatly. On degreed representationalism, your experience of the trio of circles would consequently be phenomenologically different from your actual experience, even though all of its contents (its total content) would be *exactly* the same as in the actual world. The trouble is that we don’t have a grip on how your experience would differ.

Or take a simpler example: suppose you look at a tomato on a table right before you. The independent variation option implies that the contents of your experience could remain exactly the same (same perceived bright red color, bulgy shape, other details), while the “phenomenal force” with which you represent those contents goes up and down in arbitrary ways. And it implies the character of your experience would consequently vary, despite the sameness in the contents (e. g. the represented color would not become more or less bright). But, again, we have no grip on this.¹⁰

This leads to a second option, namely, that there are special laws of appearance precluding such independent variation. Epistemologists once thought that there are metaphysically necessary psychological laws constraining your *credences*. For instance, necessarily, if you understand $2+2=4$, you must have a high credence in it. It is “indubitable”. And, necessarily, if you understand *there is a round square*, you have a close-to-zero credence in it. If you accept degreed representationalism, you might think that there are analogous “law of appearance” constraining what “perceptual confidences” can go with what contents. For instance, necessarily, if you experientially represent *that shades a and b differ*, you do so with high “phenomenal force”; and if you experientially represent *that shades b and b’ differ*, you do so with low “phenomenal force”. So the above “independent variation” cases are metaphysically impossible.

Of course, the trouble with this option is that it requires innumerable brute and arbitrary “laws of appearance”. One moral might be to reject degreed representationalism and return to standard non-degreed representationalism. But then representationalists need an alternative explanation of Degree.¹¹

5 | CONCLUDING REMARKS: A PUZZLE FOR EVERYONE

I have described the puzzle as it arises for representationalists. But the problem is quite general.

Even those who accept naïve realism—the main rival to representationalism—face a version of the puzzle. True, they think that in normal cases phenomenology is grounded in our “acquaintance” with reality. But, like everyone else, they think that in hallucination there need not exist anything bearing the apparent properties. Given this, why couldn’t a possible subject hallucinate a round square, contrary to the Exclusion Law?

Often naïve realists explain having a hallucination of an *F* in terms of being in a state that is “phenomenally indiscriminable” from a successful perception of an instance of *F*, where this

relation is not analyzable in more basic terms (Martin, 2006, n. 44). This account faces many problems, but even if it is correct it does not by itself rule out a hallucination of a round square. For even if successfully perceiving a round square is impossible, one could undergo a hallucination that is just like it. In general, something actual can be like something impossible. For example, if you put a fake horn on a horse, it might be just like a unicorn, even if for Kripkean reasons there could not be unicorns.

Naïve realism faces other instances of the puzzle. For instance, even if in reality everything that is red must take up space, why couldn't you be *acquainted with* the redness of an object in splendid isolation, without experiencing any spatial features, in violation of Berkeley's Law? Or again, why can we be acquainted with colors and shapes, but no possible individual could be acquainted with more abstract properties like *being a republican*? You can see a person and infer that they are a republican, but no one could be "directly" acquainted with their being a republican alone—this state is just not a possible object of acquaintance. Why not?

In sum, the puzzle of the laws of appearance is a puzzle for everyone.¹² And it has no obvious solution.¹³

NOTES

¹ Johnston (ms) briefly raises the question of how representationalists might explain a certain constraint on visual content. My puzzle is somewhat different. It concerns different "laws of appearance" and takes the form of a dilemma.

² In his discussion of my puzzle of the laws of appearance, Block (ms, chap. 3) suggests that "iconicity" (in some sense) at least explains No Logical Form, since an iconic format lacks "logical constant symbols". But this suggestion is questionable. For suppose that a neural vehicle *V* in an iconic perceptual system is normally caused by the presence of a triangular thing *or* a circular thing. One content assignment is the disjunctive proposition *the thing is triangular or the thing is circular*. If this is correct, an iconic vehicle can represent a disjunctive content. True, another content assignment here is the non-disjunctive proposition *A is tricular*, where "*tricular*" is a disjunctive predicate equivalent to *x is square or x is round*. (On a hyperintensional view of propositions, this proposition may be nondisjunctive even if it is equivalent to a disjunctive proposition.) But the iconicity hypothesis itself doesn't favor this non-disjunctive content assignment over the first disjunctive one.

³ On some naturalistic theories of representation, what turns mere representation into conscious, experiential representation is the satisfaction of a cognitive-access condition (e. g. Tye, 2000, 62-63). A particularly strong version holds that a representation in the brain with content *p* is conscious only if it is directly "poised" to cause the subject to *believe that very content, p*. So if you cannot *believe* that something is round and square, then you cannot *experientially represent* that something is round and square. But this explanation fails for two reasons. First, some people (Meinongians) *can* in some sense believe that there are round squares. Second, intuitively, what you *experientially represent* explains and constrains what you can *believe*—not the other way around.

⁴ In addition to Block and Speaks, David Chalmers and E.J. Green are also partial to Contingentism (personal communication). I note in passing that in our dispute over Contingentism Block and I may be talking passed one another. I accept representationalism about phenomenal character. So in my view the Contingentist claim that an experience could have the representational content *something is round and square* implies that the experience could simultaneously have a "round" phenomenal character and a "square" phenomenal character—this is why I instead think that this is impossible. However, Block rejects representationalism, so in his view Contingentism may not have this implication.

⁵ It might be thought auditory experience of "Shephard's tone" has an impossible content. I disagree, but I do not have the space to discuss the matter here.

⁶ Brewer (2011, 67) suggests that representationalists have a general reason to avoid the idea that some experiences have impossible contents: that it is "in serious tension with relatively widely accepted views about the relation between conceivability and possibility".

⁷ This implies that all experiential representation is necessarily accurate in a sense. One might object that all representation must be capable of error. However, I will pass over this objection.

- ⁸ Indeed, given Rosen's (2015, 199) grounding-based notion of real definition, if sensa representationalists accept the grounding claim "necessarily, subjects experience a purple and flower-shaped sensum *iff*, and because, they undergo brain state *B*", then this is enough for them to accept the physicalist *real definition* "to experience a purple and flower-shaped sensum *just is* to undergo brain state *B*". In that case, sensa representationalism is even compatible with *reductive* physicalism. (However, I note in passing that this consequence of Rosen's ground-based notion of real definition is counterintuitive. Intuitively, "to experience a purple and flower-shaped sensum *just is* to undergo brain state *B*" could not be true, because the experiential state involves a flower-shaped sensum but the brain state does not.)
- ⁹ There is another problem with sensa representationalism's explanation of the metaphysical necessity of Exclusion. On sensa representationalism, facts about sensa are supposed to be explained by (grounded in) facts about experiential representation. Yet the proffered explanation *starts with* facts about sensa (e. g. the impossibility of their being round and square) and uses them to explain facts about experiential representation (e. g. the impossibility of our experientially representing a round square). These ideas are in tension.
- ¹⁰ This problem about independent variation is (independently) pressed in Byrne (ms).
- ¹¹ One might combine standard (non-degreed) representationalism with a version of the "knowledge-first" approach on which level of justification is proportional to conditional probability given what you know (Williamson, 2005, 468). But, since knowledge is binary (either you know something or you don't), it is unclear how this accommodates Degree. One idea is that, on viewing Figure 3, you don't know that *that shades b and b' differ* (since your belief is unsafe) but you do know the weaker "appearance proposition" *that it "kind of" appears to you that shades that shades b and b' differ*, and the evidential probability of *p* given that it appears to you that *p* depends on the "strength" of the appearance. But what does "it *kind of* appears that *p*" mean (if not the already epistemic "*p is kind of likely given my experiential evidence*")? This leads back to something like graded representationalism.
- ¹² However, against my brief remarks here, Bill Brewer (in discussion) has suggested to me that the puzzle is less of a challenge for naïve realism, so that I have inadvertently stumbled upon an argument for naïve realism over representationalism (a view I criticized in my 2017). The matter deserves more discussion.
- ¹³ I presented this material at MIT, NYU, the Southern Society of Philosophy and Psychology, and the New England Conference on Experience and the Physical World. I presented the problem about independent variation for "perceptual confidence" in Susanna Siegel's Spring 2018 Perception seminar. I am indebted to audiences on all those occasions for very helpful discussion. I am especially indebted to Bill Brewer for his constructive comments on the penultimate draft.

REFERENCES

- Bayne, T. (2010). *The unity of consciousness*. Oxford: Oxford University Press.
- Berkeley, G. (1713). *Three dialogues between Hylas and Philonous*. Retrieved from <https://www.earlymoderntexts.com/assets/pdfs/berkeley1713.pdf>
- Billock, V., & Tsou, B. (2010). Seeing forbidden colors. *Scientific American*, 302, 72–77. <https://doi.org/10.1038/scientificamerican0210-72>
- Block, N. (2010). (ms). *The border between seeing and thinking*.
- Brewer, B. (2011). *Perception and its objects*. Oxford: Oxford University Press.
- Byrne, A. (ms). Perception and probability.
- Casati, R., & Varzi, A. (1994). *Holes and other superficialities*. Cambridge, MA: MIT Press.
- Fine, K. (2000). A counterexample to Locke's thesis. *The Monist*, 83, 357–361. <https://doi.org/10.5840/monist200083315>
- Green, E. J., & Quilty-Dunn, J. (2017). What is an object file? *British Journal for the Philosophy of Science*, Advanced online publication. <https://doi.org/10.1093/bjps/axx055>
- Kentridge, R., Heywood, C., & Cowey, A. (2004). Chromatic edges, surfaces and constancies in cerebral achromatopsia. *Neuropsychologia*, 42, 1555–1561. <https://doi.org/10.1016/j.neuropsychologia.2003.11.002>
- Kripke, S. (1973). (2013). *Reference and existence*. Oxford: Oxford University Press.
- Johnston, M. (ms). *The Manifest*.
- Lycan, W. (2019). Representational theories of consciousness. *Stanford Encyclopedia of Philosophy*, Retrieved from <https://plato.stanford.edu/cgi-bin/encyclopedia/archinfo.cgi?entry=consciousness-representational>

- Martin, M. (2006). On being alienated. In T. Szabo-Gendler & J. Hawthorne (Eds.), *Perceptual Experience* (pp. 354–410). Oxford: Oxford University Press.
- Mogk, L., & Mogk, M. (2003). *Macular degeneration*. New York: Ballantine Books.
- Moore, G. E. The status of sense-data. *Proceedings of the Aristotelian Society*, 14, 355–381. <https://doi.org/10.1093/aristotelian/14.1.355>
- Morgan, J. (1914). (ms). What can we learn from the laws of appearance
- Morrison, J. Perceptual confidence. *Analytic Philosophy*, 57, 15–28. <https://doi.org/10.1111/phib.12077>
- Munton, J. (2016). Visual confidences and direct perceptual justification. *Philosophical Topics*, 44(2), 301–326. <https://doi.org/10.5840/philtopics201644225>
- Pautz, A. Can disjunctivists explain our access to the sensible world? *Philosophical Issues*, 21, 384–433. <https://doi.org/10.1111/j.1533-6077.2011.00209.x>
- Pautz, A. (2011). 2014). The real trouble for phenomenal externalists. In R. Brown (Ed.), *Consciousness Inside and Out* (pp. 237–298). New York: Springer.
- Pautz, A. (2016). What is my evidence that here is a cup? *Philosophical Studies*, 173, 915–927. <https://doi.org/10.1007/s11098-015-0531-0>
- Pautz, A. (2017). Experiences are representations: An empirical argument. In B. Nanay (Ed.), *Current Debates in Philosophy of Perception* (pp. 23–42). New York: Routledge.
- Pryor, J. (2000). The skeptic and the dogmatist. *Noûs*, 34, 517–549. <https://doi.org/10.1111/0029-4624.00277>
- Rosen, G. (2015). Real definition. *Analytic Philosophy*, 56, 189–209. <https://doi.org/10.1111/phib.12067>
- Russell, B. (1913). The nature of sense-data: A reply to Dr. Dawes Hicks. *Mind*, 22, 76–81. <https://doi.org/10.1093/mind/xxii.1.76>
- Speaks, J. (2017). Reply to critics. *Philosophy and Phenomenological Research*, 95, 492–506. <https://doi.org/10.1111/phpr.12415>
- Thomasson, A. (1999). *Fiction and metaphysics*. Cambridge: Cambridge University Press.
- Tye, M. (2000). *Consciousness, color and content*. Cambridge: MIT Press.
- Tye, M. (2020). Filling in and the nature of visual experience. *Harvard Review of Philosophy*
- von Fieandt, K. (1966). *The world of perception*. Homewood, IL: The Dorsey Press.
- Williamson, T. (2005). Replies to commentators. *Philosophy and Phenomenological Research*, 70, 468–491. <https://doi.org/10.1111/j.1933-1592.2005.tb00542.x>

How to cite this article: Pautz A. The puzzle of the laws of appearance. *Philosophical Issues*. 2020;30:257–272. <https://doi.org/10.1111/phib.12184>