Naïve Realism *v* Representationalism:
An Argument from Science

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Naïve realism leads to science and science, if true,
undermines naïve realism – Bertrand Russell (1940)

Naïve realism tells the following origin story. Even before sentient creatures evolved, the "sensible properties" were out there. The sky was blue. When a tree fell in a forest, it made a sound. Then sentient creatures evolved. Their sensory systems enabled them to become acquainted with such pre-existing states of the world. Normally, this constitutes the "phenomenal character" of experience.

Naïve realists often play down the role of the brain. For instance, here is John Campbell:

> Looking for the character of experience in the nature of a brain state is looking for it in the wrong place; we have to be looking rather at the properties of the objects experienced [in the external world]. (Campbell 2010: 20)

> The smells and tastes are objective features of the world. What I disagree with is the idea that our brain makes a big contribution to experience. The function [of brain processing] is just to reveal the world to us. (Campbell 2009)

The rival view of *representationalism* holds that the phenomenal character of experience is instead constituted by how we *experientially represent* the world to be. They often emphasize the role of the brain. Even in normal experience, what qualities we experientially represent is due to our own internal processing, rather than to the character of the world itself.

I will argue that representationalism is empirically superior to naïve realism. The brain does "make a big contribution". I will call this "internal dependence". Representationalism can better accommodate it than naive realism.

Typically, arguments against naïve realism concern illusion and hallucination. By contrast, my argument will concern normal experience. My argument will also differ from the scientific arguments against naïve realism addressed by French and Phillips in their contribution to this volume.

First, I will review the empirical evidence for internal dependence (§1). In the rest of the essay, I ask which view best accommodates internal dependence. I will suggest that representationalism easily accommodates

internal dependence (§2). Then I will ask whether naïve realism can do equally well. I will argue that a *basic* form of naïve realism violates internal dependence and also requires an empirically implausible theory of sensible properties (§3). Then I turn French and Phillips' modified naïve realism (§4). It accommodates internal dependence. But it may retain the empirically implausible theory of sensible properties. And it faces other empirical problems. Representationalism avoids those problems.

1. Internal Dependence: The Organismic Contribution to Experience

1.1 What is internal dependence?

Even basic naïve realism allows that your nervous system shapes your experience of the world: the external world is rich with properties, and the nervous system determines the character of experience to the extent that it selects what objective external properties you causally detect and thereby perceive. For instance, pigeons are sensitive to ultraviolet light. So maybe they experience alien external colors that we cannot imagine.

A stronger claim is that the brain contributes to your experience *over and above* determining what you causally detect and thereby perceive in the external world. This is a claim about the actual basis of experience, but we can illustrate it with hypothetical examples.

Imagine that you are viewing a tomato. Now imagine a hypothetical counterpart of yourself. Everything "external" is held fixed. Thus, your counterpart causally detects, in a biologically normal way, exactly the same external chromatic "state" of the tomato: the tomato's having a certain chromatic property. Imagine that the *only* differences are differences in postreceptoral chromatic processing. The differences may result in behavioral differences. We can call this a *coincidental variation case* because between you and your counterpart there is a perfect coincidence in what is normally causally detected but variation in neural and behavioral responses (see Figure 1).

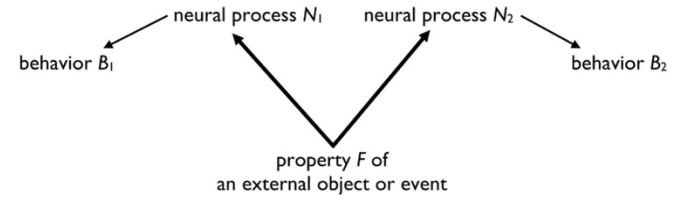

Figure 1: coincidental variation

Now *internal dependence* about color experience implies that, in such a coincidental variation case, you and your counterpart would have *different color experiences* of the same tomato, even if you causally detect exactly the same external chromatic state in a biologically normal way. Likewise for other sensory experiences.

Internal dependence cannot be established *a priori*. How, then, might it be supported?

One idea is that there are actual coincidental variation cases. But this is unobvious. Maybe in all actual cases of "normal variation" the relevant perceivers causally detect and thereby perceive *different* external states. This is clearly true in the just-mentioned case of the human and the pigeon. And maybe it applies to other cases. For instance, if a color chip looks pure blue to you and green-blue to your friend, maybe the color chip actually has multiple colors or color-aspects, and you pick up on one and your friend picks up on another (Fish 2009: 154 fn.3).

Instead, I will support internal dependence using psychophysics and neuroscience.[1] As we will now see, for many types of experiences, there is *bad external correlation* and *good internal correlation*. That is, structural relations among experiences (similarity and difference, equal intervals, proportion) are better matched by structural relations among their internal neural correlates than by structural relations among the physical properties that are causally detected.

1.2 Empirical evidence for internal dependence

Begin with pain intensity. There is a messy, non-linear and non-uniform relationship between multiple stimulus features (intensity, size, duration) and firing rates of neurons throughout the pain matrix. In turn, those firing rates linearly determine pain intensity. There is bad external correlation and good internal correlation. This supports internal dependence for pain intensity (Pautz 2014).

The situation with loudness is somewhat similar. Even in normal conditions, there is a non-linear, compressive relationship between external amplitude and total internal neural activity in the auditory system. That neural activity depends on multiple other stimulus features, such as frequency and so-called "critical bands".[2] In turn, total internal neural activity directly predicts experienced loudness. That explains the well-known fact that there is a non-linear, compressive relationship between external amplitude and loudness (e.g. a tenfold increase in amplitude only results in a doubling of loudness). And it explains why loudness also depends on frequency and specific "critical bands" (Moore 2013: 140; McDermott 2018: 93; Pautz 2014: 251).

Next, smell. Here again there is bad external correlation. As Mainland says, "There is simply no model that predicts the perceived quality of an odor [from chemical features]" (2018: 167). Here are some uncontroversial

[1] Thus, although French and Phillips (in their 2020 and in this volume) group my internal-dependence argument against basic naïve realism with arguments from actual cases due to Block and Brogaard, it is quite different and doesn't at all rely on actual cases.

[2] What are "critical bands"? For a complex tone made up of two pure tones of equal amplitude, if they are close frequency, the loudness will only be slightly greater than one of the tones presented on its own. There is summation only if the difference between frequencies exceeds a certain value; that is called the "critical band". To explain this, we must appeal to internal neural response to the tones (Moore 2013: 140; McDermott 2018: 93).

examples (Pautz 2014). Some molecules are mirror images of each other, like your two hands. Some mirror-image molecules smell similar, as you would expect. But, oddly, other mirror-image molecules smell very different. For instance, –carvone smells like spearmint while its mirror image +carvone smells like caraway. Here is another quirky fact. Typically, increasing the concentration of a molecule increases the intensity of smell. But sometimes it results in a giant shift in quality.

What explains these quirky connections between external stimuli and sensation? The explanation is that there is quirky transduction-process beginning with molecules interacting with receptors in the nose and ending with distributed neural patterns in the brain. And degree of similarity among smell experiences coincides nicely with degree of similarity among these neural patterns (Howard *et al.* 2009).

For instance, some mirror-image molecules smell similar because they result in similar neural patterns; others smell different only because they happen to result in very different neural patterns. And sometimes a gradual increase in concentration results in a categorical shift in smell because it results in a categorical shift in the neural pattern. These examples are enough to establish internal dependence for smell.

Finally, consider color vision. Again, there is bad external correlation. Similarities and differences in experienced colors do not at all coincide with similarities and differences in objects' ways of reflecting light (Pautz 2021: 157, 186, fn5). Also, as Bohon *et al.* note, "The spectrum is continuous and linear, whereas color is categorical and color space forms a circle" (2016). At the same time, there is good internal correlation. Bohon *et al.* recorded the activity of neurons in V4. They then used multidimensional scaling to analyze their color-tuning. Here is how they summarize their results:

> The arrangement of the [neural responses] clearly reflects color space: points of the same hue irrespective of luminance level are plotted next to each other, and the progression of the points forms a circle that proceeds according to the color wheel. Behavioral judgments of the similarity between colors closely match the similarities between the neural responses to these colors by the glob neural population. (2016: 18)

This has been a brief review of some empirical evidence. There are questions about the details, but a clear pattern has emerged. There is better internal correlation than external correlation. This supports internal dependence. Suppose you are feeling an intense pain in your hand, or hearing a giant tree loudly fall in a forest, or looking at bright fruit, or smelling a fragrant rose. Your brain processing makes a difference to how you experience these things *over and above* determining what you causally detect and thereby perceive in the external world. As noted above, we could make this precise using hypothetical coincidental variation cases (Figure 1).

Although I will not discuss this here, there is also reason to accept internal dependence for spatial experience. You and a hypothetical counterpart in a might normally detect *all* the same objective properties of a tree (including the same objective but "perspectival" angular sizes and the same distances) but *still* have different spatial experiences owing entirely to internal differences in your constancy mechanisms (Pautz 2011a; see also Hatfield 2011).

In what follows, I will consider which view best accommodates internal dependence. Since I favor representationalism, I will start with it.

2. Representationalism Accommodates Internal Dependence

2.1 What is representationalism?

Suppose you have an experience of a tomato on a table. Call this *the tomato-experience*. Roughly, representationalism holds that for you to have an experience with this character just is for you to "experientially represent" that there is a red and round thing before you. In another terminology, for you to have this experience is for it to "experientially seem" (or "appear") to you that there is such a thing before you. If you should hallucinate a tomato, you experientially represent this same possible "way things might be", but in fact nothing is that way. Likewise, if you should hear a sound coming from your left, you experientially represent that there is such a sound. If you are having an auditory illusion or hallucination, there is no such sound.

Our initial formulation of representationalism uses an unexplained technical term like "experientially represents" or "experientially seems". But we can eliminate it from the formulation. Representationalism boils down to this: there is a mental relationship *R* such that to have a sensory-perceptual experience with a certain character is to stand in *R* to a certain "way things might be" (Pautz 2021). So don't worry about the term "representation".[3] You could accept the core theory but then call the relevant mental relationship the "seeming relation" or the "appearing relation". And you could call the theory the "seeming theory" or the "appearing theory".

Why accept representationalism? One much-discussed advantage of representationalism over naïve realism concerns abnormal experience. What could be more natural than to say that a hallucination consists in its experientially *seeming* to you (your experientially representing) that there is an object present, even though there is not one? Once we apply representationalism to abnormal experience, we should generalize it to normal experience. The only difference is that in normal experience your

[3] In fact, representationalism as I formulate it is not even committed to the obscure claim that experiences are fundamentally akin to representational states (e. g. beliefs and statements) in "aiming at the truth". For discussion see Pautz 2017a.

experientially representing that there is such an object before you is caused by an object before you.

Here I am uncovering another, less discussed advantage of representationalism over naïve realism that concerns normal rather than abnormal experience. As we saw in §1, the brain plays a role in shaping experience in normal as well as in abnormal cases. The representational view can also accommodate this.

2.2 Representationalism accommodates internal dependence

The slogan of naïve realists is that "the character of experience is simply inherited from the character of the perceived items". By contrast, representationalists have no commitment to this idea. So they can accept *brain-based representationalism*: even in normal experience, what qualities we experientially represent is due to our own internal processing, rather than to the character of the world itself.

Brain-based representationalism tells the following origin story. First, before sentient creatures evolved, the physical world was devoid of objective sensible qualities. For instance, when a tree fell in a forest, the amplitude of the sound was not objectively associated with any particular loudness level. A cloud of molecules in the air given off by a rose was not objectively associated with any particular smell quality. And the reflectance of a fruit was not objectively associated with any particular color quality.

Then we humans evolved. Because of our neural processing, we humans came to experientially represent the tree falling in the forest as having a certain *loudness*. Because there is a non-linear, compressive relationship between amplitude and neural response, there is a non-linear, compressive relationship between amplitude and experienced loudness. Likewise, owing to our neural processing, we came to respond to the molecules given off by a rose by experientially representing that there is a certain floral smell quality out there. And we came to experientially represent certain bright colors out there when viewing fruits. On brain-based representationalism, we can still say that the falling of the tree has a certain loudness, that a cloud of molecules has a certain smell, and that a tomato has a certain color. But this is only because they came to normally cause in us experiences of those qualities. This is *subjectivism* about sensible qualities.

Of course, many other creatures evolved at the same time. In fact, let us imagine that some of them evolved to detect exactly the same physical properties of external items (as in Figure 1). Nevertheless, on brain-based representationalism, they might normally experientially represent different loudness levels, different smell qualities, and different color qualities, owing entirely to differences in their neural responses.

Brain-based representationalism comes in many different versions. There is the *appearance-property* version defended by Sydney Shoemaker, the *co-evolution version* defended by Colin McGinn, and the *Galilean*

illusionist version defended by David Chalmers and myself (Pautz 2021: chapter 4). But here the details will not matter.[4]

Representationalism, then, can accommodate internal dependence. Next I ask whether naïve realism can do equally well. Naïve realism comes in many versions, and I will not attempt a general formulation. Instead, I will start with a *basic* version (§3). It violates internal dependence. This will lead us to Craig French and Ian Phillips' *modified* version (§4).

3. Basic Naïve Realism *v* Representationalism

3.1 The initial motivation for naïve realism in general

To begin with, in view of the virtues of representationalism, why do some philosophers prefer naïve realism? To answer this question, we can start with C. D. Broad's classic essay "Some Elementary Reflexions on Sense-Perception" (1952). Imagine seeing a tomato on a table in normal lighting conditions. Broad says that, from a "phenomenological point of view", your tomato-experience is *nothing but* a "prehension" of ("acquaintance with") an object and certain of its properties, for instance its "intrinsic color and shape" (Broad 1952: 14-15; see also Broad 1923: 240, 254). So:

> [#] In this specific case, the phenomenal character of your experience is *fully* grounded by your being experientially acquainted with the actual properties of a tomato-like object.

This is an "act-object explanation" of phenomenal character.[5] In what follows, I will focus on the experience of color. The act-object explanation is especially plausible here. A shade of red pervades the surface of the tomato-like object before your mind. In these circumstances, it is just "laid bare" to you. This *fully* determines the color phenomenology of your experience. Necessarily, if someone is likewise related to this occurrence of this quality, they have the same color experience. The act-object explanation of phenomenology may not be so phenomenologically plausible in other cases, such as blurry vision. But it is plausible in this case. Many of Broad's contemporaries agreed. For instance, H. H. Price (1932: 3, 63) was another prominent example.

Additionally, Broad suggested that the following is phenomenologically plausible:

[4] There are other, more "externalist" forms of representationalism: for instance, Tye (1995) and Schellenberg (2018). But they face the kinds of empirical problems I will press here for basic naïve realism. Therefore, I will focus on "brain-based" representationalism.

[5] I use "objects" broadly to include property-instances, events, shadows, and so on. Note that, as I explain it, an "act-object" account of a particular color experience holds that its character is *fully* grounded in experiencing the actual properties of some actual object.

> [&] When you view the tomato, the relevant object is simply the public, physical tomato at a certain distance from you (rather than, say, a tomato-like image in your mind). Thus, experiential acquaintance "leaps the spatial gap between the percipient's brain and a remote region of space" (Broad 1952: 5).[6]

Bill Fish (2009: 20ff) follows Broad in holding that naïve realism is supported by reflection on experience. And John Campbell starts his defense of naïve realism with this:

> [T]he phenomenal character of your experience, as you look around the room, is constituted by the actual layout of the room itself: which particular objects are there, their intrinsic properties, such as color and shape, and how they are arranged in relation to one another and to you. (Campbell 2002: 116)

Naïve realists cannot apply the act-object model to a hallucination where no existing red and round object is present. So while representationalists apply the same account to normal and hallucinatory experience, naïve realists need different accounts here.

Those like myself who favor representationalism must deny the act-object explanation of phenomenal character even in normal cases, despite its initial phenomenological appeal. We must deny that, when you have an ordinary experience of a tomato, the character of your experience is grounded in your experiencing the *actual*, *concrete* state of the tomato being red and round. Instead, we accept a "non-actualist" theory on which this is grounded in your *experientially representing* that there is before you a red and round object owing to your neural processing. And this is not a relationship to an actual red and round object; it something you could do even if you are hallucinating and no such object actually is there. In this way, while naïve realism accommodates the intuitive act-object explanation, representationalism departs from it. That is why some philosophers prefer naïve realism to representationalism

So much for the initial motivation for naïve realism. The plan for the rest of this section is as follows. First I will describe a natural way of developing naïve realism that I call *basic* naïve realism (§3.2). Then I will show that it is empirically inadequate (§§3.3-3.4). This will lead to us French and Phillips' modified version (§4).

3.2 Basic naïve realism

Naïve realists face questions about how their view should be developed.

One question is this: what is the red quality of the tomato? It appears to be a primitive and intrinsic quality of the object's surface. So naïve

[6] To handle "perspectival variation", naïve realists can appeal to generally-recognized properties of physical objects like "red-and-in-the-shade" or "smaller-from-here".

realists who respect the appearances are naturally led to "objective primitivism" about the quality red (Brewer 2011, Allen 2016, Campbell 2020). Further, since changing the way the tomato reflects light changes its color, this primitive quality must somehow depend on its way of reflecting light – its "reflectance". So, even before we evolved, the tomato's reflectance was objectively associated with the quality red. It was just waiting there to be perceived. This contrasts with the subjective position of brain-based representationalism (§2.2).

Naïve realists face another, less-discussed question: how did you come to be experientially acquainted with the pre-existing color and shape of the tomato, allowing your mind to "leap the spatial gap" (Broad 1952: 5) between you and a remote region of the world?

Naïve realists might naturally reply that the long causal process going from the color and shape of the remote tomato to appropriate processing in your brain is what enables this (Fish 2009: 135–136; Campbell and Cassam 2014: 49).

However, certain single-celled organisms have internal states that causally detect light and dark, but they are not *consciously acquainted* with light and dark. The reason is that their internal states don't play the right "functional role" to realize conscious experiences.

So naïve realists might naturally propose the following: *If* you undergo *some internal state or other* that (i) causally detects in the biologically normal way the state of an external object being *F* (red, round) *and* that (ii) plays the right general functional role (e. g. it is in Tye's 1995 sense "poised" to be cognitively accessed), *then* you are consciously acquainted with that external state. Call this the *causal-functionalist* theory of the physical basis of acquaintance (Fish 2009: 135-136; Campbell 1993: 268).

This theory is radically externalist. Analogy: to find out what individual the name 'Kripke' enables us to talk about, you don't examine its intrinsic shape; you look at what external individual the name is used to track. In the same way, on the causal-functionalist theory, to find out what qualities an individual is acquainted with, "looking at the nature of the brain state is looking in the wrong place" (Campbell 2010: 20). Instead, you have to look at what qualities the brain state causally detects in the external world (compare Tye 1995: 162-163).

For example, the very different internal physical states of a human and a Martian might enable them to have the same experiences of the same external properties of objects. All that is required is that they be in *some internal physical states or other* that causally detect those properties. *The identities and natures of those internal physical states do not matter*. This fits with popular "functionalist" ideas about the mind. But, as we shall soon see (§3.3), it is why basic naïve realism violates internal dependence.

In summary, a natural development of naïve realism about your tomato-experience has three parts: the *act-object model, objective primitivism*, and the *basic causal-functionalist theory* of acquaintance. Call this *basic naïve realism*.

Basic naïve realism is implausible as a general theory of visual experience. As noted above, the character of a *blurry* experience of a tomato is not fully determined by the perceived properties of the tomato. In what follows, my target is only the weak claim that basic naïve realism holds for at least *some* particular experiences.

Who accepts the three tenets of basic naïve realism, at least for your ordinary color experience of the tomato? Bill Fish (2009), Bill Brewer (2011), and John Campbell (2014) accept something in the vicinity. Regardless of who accepts it, it is a reasonable place to start.

The phenomenological case for naïve realism carries over to audition, smell, and so on (Broad 1952: 4-7; 1923: 254–257; Campbell 2009; Brewer 2011: 4, n.4). So I will evaluate basic naïve realism for several experiences.

3.3 The internal dependence argument against basic naïve realism

Basic naïve realism may be natural for some experiences. But internal dependence shows that it cannot be correct for *any* of them.

To see this, consider the matter schematically. As we saw in §1, internal dependence about your own experiences of loudness, smell, and color implies that, in the kind of coincidental variation cases illustrated in Figure 1, your hypothetical counterpart would have experiences of pain, loudness, smell, and color different from your own.

But the tenets of basic naïve realism together imply the opposite verdict. First, the *basic causal-functionalist theory* of experiential acquaintance holds that to be acquainted with an external state involving an object, you just need to undergo *some neural state or other* that in the normal way causally detects it and that plays a certain general functional role. As Figure 1 illustrates, even though your counterpart undergoes different neural states than you, it is stipulated that they causally detect the same properties of external objects and they also play the right general functional role with respect to cognitive access. So the basic causal-functionalist theory of experiential acquaintance implies that, even though your counterpart's hidden subpersonal neural states differ from yours and may result in different sorting and other behaviors, they enable your counterpart to be experientially acquainted with exactly the same properties of external objects as you.[7] (Compare how this theory implies that you and a Martian might be acquainted with the same external property-instances by way of different subpersonal neural states.) Next, given the *act-object* explanation of phenomenal character, your counterpart should have experiences of loudness, color, and smell that are identical in phenomenal character to your own. This is the case even though your counterpart undergoes *significantly* different auditory processing, olfactory processing, and chromatic processing, resulting in behavioral differences. So basic naïve realism violates internal dependence.

[7] "Pluralism" about sensible properties (a single odor cloud has multiple smells, a single air disturbance has multiple loudness levels, a single surface has multiple colors, and so on) cannot help the basic naïve realist avoid this implication. See Cohen 2009: 81–8 and Pautz 2013: 34.

Because basic naïve realism violates internal dependence, I think that naïve realists should reject it and try out a modified naïve realism that *does* accommodate internal dependence, such as French and Phillips' version (§4).

To see this, start with some common ground. Presumably, even naïve realists will agree that the evidence reviewed in §1 supports internal dependence about the experience of *pain intensity*: the empirical hypothesis that neural firing rates in the somatosensory cortex plays a big role here. But the empirical evidence is the same for the experience of loudness, smell, and color. So they should accept internal dependence in these other cases too.

(I am not saying that naïve realists should accept the *same theory of phenomenal character* across these cases, only that they should accept *internal dependence* across the cases. They will not accept naïve realism for pain, because pains are "subjective". By contrast, they will accept some version of naïve realism for our experiences of loudness, smell, and color. Even so, they should accept *internal dependence* across these cases.)

For instance, once naïve realists accept internal dependence for the experience of pain intensity, they should certainly accept it for the normal experience of loudness: even in normal perception, the neural response makes a big contribution. For, as we saw in §1, the evidence is *exactly* analogous in the two cases. But the schematic argument above shows that basic naïve realism about the experience of loudness violates internal dependence here. So even naïve realists should reject basic naïve realism about the experience of loudness.

Naïve realists should also accept internal dependence for the experience of smell and taste. Here is an especially convincing illustration (Pautz 2014: 254-258). Some foodstuff is poisonous to you. It smells and tastes terrible. Now imagine another creature for whom this same foodstuff is an important food source. As a result, the creature's neural representations of the foodstuff occupy totally different locations in the neural similarity-spaces for smell and taste. But there are caused by the same properties of the foodstuff (as illustrated Figure 1). As a result of these neural differences, while you recoil from the foodstuff, your counterpart is disposed to eat it up. In §1 we saw that neural response is the *only* good predictor of how something will smell or taste to a person. So given the neural *and* behavioral differences between you and your counterpart, there is ample empirical reason to think is that the foodstuff smells and tastes different to your counterpart (e. g. foul and bitter), in line with internal dependence. But, by the reasoning above, the tenets of basic naïve realism wrongly imply that the foodstuff smells and tastes exactly the same to you and your counterpart, despite the vast neural and behavioral differences.[8]

[8] In very helpful correspondence, Peter Epstein claimed that, although the behavioral differences support "different experiences" (against basic naïve realism), the neural differences may provide no additional empirical support. But I see no reason to accept this claim and it goes against actual science (Coghill *et al.* 2003; Pautz 2013: 35).

Finally, return to our main example: your color experience of a tomato. Given the evidence presented in §1, naïve realists should accept internal dependence and reject *basic* naïve realism here.

To illustrate, imagine that you have a hypothetical counterpart with different color vision from you. Your counterpart normally causally detects the same chromatic state of the tomato (and same illumination) by way of a different distributed neural pattern in visual area V4 (Figure 1). In particular, suppose that your counterpart's neural pattern occupies the "green" region of the neural similarity-space for color (e.g. it closely resembles our actual V4 neural pattern in response to green grass). So your counterpart is disposed to sort the tomato with different objects. Internal dependence means that your counterpart's color experience of the tomato differs from yours. But, by the reasoning above, basic naïve realism delivers the opposite verdict. As Campbell says, "if you and I are tracking the same [objective] colors, our color experiences are qualitatively identical" (1993: 268).

In sum:

1. Empirical evidence supports internal dependence in our normal experiences of loudness, smell, and color ("different experiences" in coincidental variation cases).
2. Basic naïve realism about these experiences is inconsistent with internal dependence.
3. Therefore, empirical evidence undermines basic naïve realism for these experiences.

By contrast, we saw in §2 that brain-based representationalism easily accommodates internal dependence by rejecting the act-object model.

3.4 An additional empirical problem for basic naïve realism

An additional empirical problem for basic naïve realism concerns its "objective primitivism" about sensible properties. This view holds that, even before we evolved, items had "primitive" sensible properties over and above their underlying physical properties, just waiting to be perceived.

Let us begin with some preliminary points. Objective primitivism requires "laws" linking external physical properties with distinct primitive sensible properties. For instance, if a disturbance in the air has so-and-so *amplitude*, then it has such-and-such primitive *loudness*. If an odor-cloud is composed of so-and-so molecule, then it has such-and-such objective primitive smell quality. If an object reflects so-and-so light, then it has such-and-such primitive color. Call these *external laws*.

Proponents of traditional dualism (such as David Chalmers) expect systematic "psychophysical laws" relating primitive sensible properties ("qualia") to *internal brain states*. They would be *internal laws*. External laws are similar, only they operate in the external world, linking primitive sensible qualities to external physical properties.

Since naïve realists generally hold that everything depends on the physical with metaphysical necessity, they will say that the external laws are metaphysically necessary, rather than contingent. Some of these laws will be basic metaphysically necessary connections between distinct existences having no explanation. As Keith Allen says, the objective primitivist must just accept them with "natural piety" (2016: 110).

Now I can imagine empirical discoveries that would cause me to take this view seriously. In §1, we saw that there is bad external correlation. But imagine for a moment that we had discovered *good* external correlation instead. Thus, imagine that we discovered the following: Loudness is *linearly* connected with a *single* external physical quantity, namely amplitude. There is always a perfect isomorphism between molecular-similarity space and smell-similarity space. So there is a *simple* function *f* going from molecular types to smell qualities. Likewise, there is a perfect isomorphism between reflectance similarity-space and color similarity-space. So there is another simple function *g* connecting reflectances with colors. Then I might take objective primitivism very seriously. I might think the following: "Because the intuition of distinctness, or the thesis of revelation, maybe sensible properties (colors, smell qualities, audible qualities) cannot *identified with* external physical properties; but good external correlation gives us some reason to think that they reside in the mind-independent world and *depend on* external physical properties, by way simple and systematic external laws".

However, this is not what we discovered. We discovered *bad* external correlation. And we discovered good *internal* correlation. So it is totally contrary to reason to continue to maintain this view. It would now require external laws that are complicated and arbitrary.

For example, take a moment to review the empirical findings concerning loudness discussed in §1. Given bad external correlation, objective primitivists (Brewer 2011, Allen 2016, Campbell 2020) would need to posit external laws on which loudness is an objective primitive quality that depends on *multiple* stimulus features (amplitude, frequency, critical bands) in *arbitrary*, *complex,* and *nonlinear ways*. They must say that these complex and arbitrary external laws operated even before sentient creatures evolved. They are basic and add to the complexity of our total theory. For example, they must say that, even before we evolved, for a complex tone, its objective primitive loudness depended on certain facts about specific "critical bands" (see note 1), but there is no explanation of this.

Given bad external correlation and good internal correlation, we get a much *better explanation* if we accept brain-based representationalism's subjective theory of loudness. Before we evolved, the qualitative dimension *loudness* wasn't out there; only the physical dimensions *amplitude* and *frequency*. So we eliminate complex and arbitrary "external laws" for loudness. Then sentient creatures evolved. As noted in §1, owing to the transduction process, multiple stimulus features result in a single neural parameter; the transformation is non-linear and compressive. In turn, the

loudness levels you experience are determined by this single neural parameter (a simple "internal law"). Then we can say that a disturbance in the air has a certain loudness just in case it normally causes us to experience that loudness. So we elegantly explain why loudness depends in a non-linear way on amplitude, on specific "critical bands", and so on: *all these things affect the relevant single neural parameter which determines perceived loudness*.

Likewise, the uncontroversial examples of bad external correlation reviewed in §1 are enough to show that there is no simple function *f* going from molecular types to smells. Thus, objective primitivists would just need a "long list" of individual external laws linking each and every individual molecular property with a certain primitive objective smell quality. Given the evidence for better "internal correlation", we should instead accept a simple and explanatory subjective theory of smell invoking our internal neural responses.

Finally, parallel empirical findings count against objective primitivism about color. There is no simple function *g* going from reflectances to primitive color qualities such as hue, saturation, and brightness (Bradley and Tye 2000: 482; Pautz 2020b: 383). Therefore, objective primitivism about color would require extremely complex external laws. Given the evidence (§1), we can expect a simpler and more explanatory subjective theory of color invoking our internal neural responses.[9]

So basic naïve realism not only violates internal dependence; it is also committed to an empirically implausible theory of sensible properties. Brain-based representationalism avoids these empirical problems. If naïve realism is to avoid them as well, then it requires modification.

4. French and Phillips' Modified Naïve Realism *v* Representationalism

4.1 French and Phillips' naïve realism and internal dependence

In "Austerity and Illusion" (2020), Craig French and Ian Phillips develop a modified naïve realism that accommodates internal dependence.

To illustrate, return to the example in which you and a hypothetical counterpart view a tomato (§3.3). For ease of discussion, let's pretend that your counterpart is not hypothetical but actual. Internal dependence means that, while you have a *reddish* experience of the tomato, your counterpart has a *greenish* experience, owing to your different color processing, even though basic naïve realism's causal-functionalist theory of acquaintance implies that you perceive the same objective chromatic state of the tomato.

French and Phillips (2020) say the following:

[9] Campbell (2020: 409) says that we all need complex "grounding laws" going from low-level facts to *economic* facts. So why not complex grounding laws for primitive sensible properties? My reply is two-fold. First, since we should be reductionists rather than "primitivists" about economic properties, here we don't need special grounding laws at all (Sider 2016: 294ff; Pautz 2020a: sect. 4.2). Second, in *any case*, we should avoid complex grounding laws for sensible properties *if we can*. And we can avoid them by accepting a subjective theory of them.

> Elements [of the external world] can be presented, and so shape character, in many different *way*s, due to variation in perspectival factors. (8)
>
> To talk of ways is simply to insist that there is *no function* from presented elements to phenomenal characters. (13)
>
> *Neuro-computational factors* may figure amongst the perspectival factors which generate different ways of perceiving. (10, fn.17)

This suggests an account of the tomato example. The tomato has an objective color constituted by its reflectance - say, red rather than green. This fits with basic naïve realism's "objectivism" about sensible properties. You and your counterpart are experientially acquainted with this same chromatic state of the tomato. This fits with basic naïve realism's basic causal-functionalist theory of the physical basis of acquaintance (as we saw in §3.3). However, you and your counterpart perceive the same objective chromatic state of the tomato "in different ways", owing to the "neuro-computational differences" between your color vision systems. (You may find this unilluminating; more in a moment.)

French and Phillips deny basic naïve realism's core act-object explanation of the character of your color experience of the tomato, even though many philosophers (Broad, Price, Fish) have considered it to be phenomenologically plausible in this case, as we saw in §3.1.

To see this, let us first briefly consider a contrasting modified form of naïve realism that retains the act-object explanation. Keith Allen (2016: 72) holds that the tomato is objectively both *red* and *green* (it was so even before sentient creatures evolved). Somehow, owing to your neural differences, you are acquainted with its redness and your counterpart is acquainted with its greenness. This retains the act-object assumption because the difference between your color experiences is *fully* constituted by your acquaintance with different color qualities. This is plausible.[10]

By contrast, French and Phillips deny that you and your counterpart are acquainted with distinct color qualities. Instead, you and your counterpart have different color experiences because you are acquainted with the *same* color quality "in different ways". So they deny the act-object model *in all color perception*.

Although they only discuss visual experience, French and Phillips might also hold that your experiences of loudness and smell are never fully determined by what you are experientially acquainted with in the world. They are always at least partly determined by the ways you experience external items, owing to your neural responses.

[10] Allen (2016: 72) might extend pluralism to loudness levels, smells, and so on. See Price (1932: 40-53) and Pautz (2021: 222-226).

French and Phillips say that "to talk of ways is simply insist that there is *no function* from presented elements to phenomenal characters" (13). Thus, so far, their "account" of the difference between you and your counterpart's color experiences is entirely negative: it is *not* grounded in a difference in what you perceive – for what you perceive is the same.

However, French and Phillips gesture at something more positive:

> Why does the way in which the subject perceives the scene affect the phenomenal character of their experience as it does? Our answer here will advert to how the various elements of the scene *strike* the subject. (2020: 13)

For instance, an external state might strike you as *green*, *round*, and so on.[11] French and Phillips (2020) do not explain "striking". However, Phillips (2016: 375-376) says that striking is analogous to *experiential representation* in being explained by subpersonal neural processing. So, although they oppose representationalism, French and Phillips' appeal to experiential striking is somewhat analogous to representationalists' appeal to experiential representation. In their sense, "striking" is not a post-experiential, cognitive affair; it is an experiential affair.

To illustrate, return to the tomato example. "Object-dependent" representationalists might appeal to the locution: *"external object o is experientially represented by subject S as F* (red, round, etc.)*"*. To accommodate internal dependence, they might say that the tomato is experientially represented as red by you and as green by your counterpart, owing to different subpersonal color processing. This grounds the difference in phenomenal character (Byrne 2020). In a similar way, French and Phillips' theory appeals to the locution: "external item *i* strikes subject *S* as *F* (red, round, etc.)". To accommodate internal dependence, they might say that the chromatic state of the tomato strikes you as red and it strikes your counterpart as green, owing to different subpersonal color processing. This difference in "striking" grounds the difference in phenomenal character, even if the perceived item is the same.

Moreover, just as representationalists say that in illusion external items are "experientially represented" as other than they are (e. g., orange, oval), French and Phillips say that external items "strike" you as other than they are (2020: 12).[12]

What about hallucination? You might expect French and Phillips to say that for you to have such a hallucination of an object is for it to

[11] Actually, French and Phillips characterize how things strike you in comparative terms: they say that the redness of a tomato might strike you as "like" a case of green (2020: 12-13). But if an external item can strike you as *being like a case of orange*, presumably an external item can strike you as simply *orange*.

[12] French and Phillips confirmed this in personal correspondence. Regarding a case where a round thing looks oval to a person, they said that the phenomenal character is grounded in the fact "that the shape seen strikes them as being more like an oval than any other shape".

experientially "strike" you that there is an object before you, even if there is not one (Pautz 2021: 229). But, instead, they accept M. G. F Martin's quite different account of hallucination, resulting in a non-uniform approach (2020: 10, fn.17). According to Martin, "there is nothing more to the character of the hallucination than that it can't be told apart through reflection from the veridical perception" (Martin 2006: 370).

That, then, is French-Phillips naïve realism. But an interpretative question remains (Pautz 2018).

As we have seen, to accommodate internal dependence, French and Phillips hold that the character of your color experience is *at least* partly grounded by the way you perceive the tomato's color owing to your neural response. Do French and Phillips go further, holding that the character of your color experience is *fully* grounded by the way you perceive the tomato's color owing to your neural response?

If "yes", then the actual external item perceived is doing no work in grounding the character of your color experience. So they would no longer be "naïve realists". For French and Phillips themselves write:

> Naïve realism is the view that the conscious character of experience in genuine cases of perception is constituted, *at least in part*, by perceptual relations between subjects and aspects of the mind-independent world. (2020: 1; my italics)

So *if* they wish to remain "naïve realists" about color experience, they must add a proviso to their theory. They must insist that the phenomenal character of your color experience of the tomato is at least *partly* grounded by (i) the actual external chromatic state you perceive (constituted by the tomato's reflectance) *as well as* being partly grounded by (ii) the way you perceive that external chromatic state owing to your neural response. That is, the character of your color experience is somehow a joint upshot of both (i) and (ii), somewhat as a resultant force is the joint upshot of two component forces. Elsewhere I have called this a *joint-determination view* (Pautz 2006: 230-233; 2018: 30). French and Phillips might extend this to auditory experience, olfactory experience, and so on.[13]

I will argue that representationalism is preferable to French-Phillips naïve realism. First, when modified in this way, there is no longer reason to prefer naïve realism to representationalism (§4.2). Second, while French-Phillips naïve realism accommodates internal dependence, it still requires an empirically implausible theory of sensible properties and is beset by

[13] French said in correspondence that their view is "close" to the joint-determination view I have described (2018). So I'll provisionally assume they accept it. Another interpretation of French and Phillips' joint-determination view is that there are two notions or types of "phenomenal character", and one is determined by (i) while the other is determined by (ii). However, they give no indication of holding this implausible hybrid view of the ordinary concept of "phenomenal character".

other empirical problems (§§4.3-4.5). Representationalism avoids these problems.

4.2 Why accept French and Phillips' view over representationalism?
In their contribution to this volume, French and Phillips write:

> Naive realism can be motivated on the grounds that it best captures how perceptual experience seems from a first-person perspective, considering perception from a "purely phenomenological point of view" (Broad 1952).

As we saw in §4.1, French and Phillips define "naïve realism" as the view that the character of your color experience of the tomato, for instance, is at least partly determined by your experiential acquaintance with the redness of the tomato. So they would presumably offer the following argument:

1. Phenomenological reflection (Broad 1952) suggests that the character of your color experience of the tomato is at least *partly* grounded in your experiential acquaintance with the *actual* redness of the tomato.
2. French and Phillips' joint-determination naïve realism endorses this claim; but representationalism must deny it, because representationalism is a "non-actualist" theory (§3.1).
3. *Therefore,* phenomenological reflection supports French and Phillips' joint-determination naïve realism over representationalism.

But there is a problem. As we saw in our discussion of Broad (1952) in §3.1, what phenomenological reflection actually supports is a simple act-object explanation of the character of your color experience in this case: the character of your color experience of the tomato is *fully* grounded by your experiential acquaintance with a certain color instance. A shade of red pervades the surface of the tomato-like object before your mind. It is just "laid bare" to you. You are acquainted with it. This *fully* determines the color phenomenology of your experience. If someone is likewise acquainted with this very same instance of red, they have a color experience with the same phenomenal character. There is *no additional factor* involved in grounding the character of your color experience besides the color quality and your acquaintance with it. That is what Broad, Price, and many others considered to be supported by phenomenological reflection in normal cases. *Basic* naïve realism upholds this claim. But, as we have seen, French and Phillips' "joint-determination view" rejects it even in this case because it holds that an *additional* factor is involved in grounding the character of your color experience.

So, if anything, phenomenological reflection counts *against* French and Phillips' modified naïve realism. In different ways, *both* French-

Phillips naïve realism and representationalism depart from what is supported by phenomenological reflection.

At this point, French and Phillips might try another phenomenological argument. In formulating naïve realism (2020: 1-2), they include two distinct claims. As we saw, one concerns the ground of phenomenology. They also include a claim about *fundamental kinds* deriving from Martin (2006).

To illustrate, imagine that you consecutively look at two identical tomatoes: $tomato_1$ and then $tomato_2$. French and Phillips hold that your first experience belongs to the "fundamental kind" *being a case of seeing* $tomato_1$ while your second experience belongs to the "fundamental kind" *being a case of seeing* $tomato_2$. So they belong to different fundamental kinds, even if you cannot tell them apart. Call this the "different fundamental kinds claim". Typically, representationalists don't assert this kind of thing.

So French and Phillips might offer this argument:

1. Phenomenological reflection supports the different fundamental kinds claim (Martin 2006).
2. French and Phillips' joint-determination naïve realism endorses this claim while representationalism is inconsistent with it.
3. *Therefore,* phenomenological reflection supports French and Phillips' joint-determination naïve realism over representationalism.

But there are two problems. First, premise 1 is hard to evaluate because the term "fundamental kind" is never adequately explained (Pautz 2007: 528). Martin (2006) assumes that everything belongs to a unique "fundamental kind". But every item and every event (including experiences) belong to many kinds. In what sense is one of them uniquely "fundamental"? Since I don't understand "fundamental kinds", I don't think reflection supports the different fundamental kinds claim. I think naïve realists can and should avoid it.

Second, in premise 2 is false because representationalism is not inconsistent with the different fundamental kinds claim. I have discussed this point elsewhere (2007: 528), so here I will be brief. Representationalism is about the ground of phenomenal character. By contrast, the different fundamental kinds claim doesn't mention phenomenal character at all. Therefore, representationalism and the different fundamental kinds claim are logically independent. So even if phenomenological reflection *did* support the different fundamental kinds claim (in line with premise 1), this wouldn't support French and Phillips' joint-determination naïve realism over representationalism, because representationalists could happily accept it as well (contrary to premise 2). Representationalists could hold that your experiences of the two tomatoes are identical in phenomenal

character but belong to different fundamental kinds: one is a case of seeing $tomato_1$ while the other is a case of seeing $tomato_2$.[14]

In sum, there is no reason to prefer French-Phillips naïve realism to representationalism. Next (§4.3-4.5) I turn to reasons on the other side.

4.3 French-Phillips naïve realism v representationalism: sensible properties

In §3, we saw that basic naïve realism faces two empirical problems: it violates internal dependence (§3.3) and it requires an empirically incredible objective primitivist theory of sensible properties (§3.4).

French and Phillips' joint-determination naïve realism avoids the first empirical problem, as we have seen. But it may be afflicted by the second empirical problem. For objective primitivism is our "naïve" view of sensible properties (Brewer 2011, Allen 2016, Campbell 2020). Therefore, French and Phillips are under pressure to accept it. In that case, their view faces the problem developed in §3.4.

Additionally, because it combines internal dependence with objectivism about sensible properties, the French-Phillips view is now subject to a "missing explanation problem" (Pautz 2011b).

To illustrate the problem, consider French and Phillips' view as applied to smell. Assuming that they accept objective primitivism, they hold that, before sentient creatures evolved, an odor cloud had a certain objective smell quality. It presumably did not have *every* smell quality: minty, floral, pungent, and so on. It presumably only had *one* of these to the exclusion of the others. Then sentient creatures evolved. Given French and Phillips' account of internal dependence, the objective odor condition of the odorant came to "strike" different creatures as having different odors (minty, floral, pungent), depending on their unique dietary needs and neural responses. It follows from these claims that long-term olfactory illusions are at least possible. A creature could normally have "epistemically inferior" access to the actual smells of things (French and Phillips 2020: 15-16). But then the question arises: what explains why such cases are not actual? For instance, maybe we humans are *actually* subject to long-term olfactory illusions: the smells that odorants strike us as having owing to our evolved neural responses differ from the ones that they objectively possess. What makes this unlikely? This is the *missing explanation problem* (see Pautz 2011b for more). French and Phillips face the same problem for loudness, color, and so on.

Brain-based representationalism avoids the empirical problem from §3.4 and "missing explanation problem", because it upholds subjectivism about sensible properties.

Now instead of accepting objective primitivism about the sensible properties, French and Phillips might adopt a *subjective* primitivist theory

[14] Yet another claim that French and Phillips associate with naïve realism is that when you view the tomato you stand in a primitive (i.e., psychologically unanalyzable) relation of *seeing* or *acquaintance* to the tomato (this volume, note 4). I think representationalists could happily accept this too (see Pautz 2010: 284-285).

(McGinn 1996). On this alternative version of their view, before sentient creatures evolved, external items and events did not have any particular objective smell qualities, loudness levels, or color qualities. Then sentient creatures evolved. The external items came to normally "strike" them as having certain primitive smell qualities, loudness-levels, and color qualities, owing to their neural responses. They thereby *acquired* those primitive qualities (co-evolution), ensuring veridical perception in normal conditions.

This would allow French and Phillips to avoid the empirical problems. But then they would no longer count as "naïve realists". In fact, aside from the difference in terminology ("striking" rather than "representing"), their view would resemble brain-based representationalism.

Indeed, for each problem for French and Phillips' view, there is a natural solution; but those solutions move their view closer to representationalism.

4.4 French-Phillips naïve realism v representationalism: joint-determination

In §4.1, we saw that French and Phillips apparently hold that the character of your color experience of the tomato is jointly determined by two factors: (i) the external chromatic state you perceive, and (ii) the way you perceive the external chromatic state owing to your neural response.

By contrast, brain-based representationalism is a *one-factor theory*. The character of your color experience of the tomato is determined by a single factor: your experientially representing that there is a reddish thing out there.

I will now show that French and Phillips' joint-determination view makes empirically and introspectively implausible predictions. Representationalism avoids them.

So far, we have examined cases where their factor (i) remains the same (the item perceived) but their factor (ii) varies (the way of perceiving). Such cases illustrate how French and Phillips' joint-determination view accommodates internal dependence. But the view delivers empirically implausible predictions in the opposite cases: cases where factor (i) varies but factor (ii) remains the same.

For example, consider a hypothetical "Inverted Earth" (Levine 2004). On Inverted Earth, tomatoes are objectively green (have a "green" reflectance rather than the "red" reflectance). But your counterpart on Inverted Earth evolved to perceive the green color of tomatoes in exactly the same way you perceive the red color of actual tomatoes, because your counterpart's neural response to green tomatoes is identical to your neural response to red tomatoes. Thus, when you view a red tomato on Earth and your counterpart views a green tomato on Inverted Earth, your *cortical color processing is exactly the same*.

Even though your and your counterpart's internal cortical color processing is exactly the same, French and Phillips' joint-determination view predicts that your color experiences differ in phenomenal character,

merely because the external factor (i) is different (French and Phillips 2020: 13).

Likewise, French and Phillips' joint-determination view as applied to loudness and smell predicts that, in similar cases in which your and your counterparts' *internal neural processing is exactly the same* but only the external cause differs, you and your counterpart should have phenomenally different experiences of *loudness* or *smell*. This is one way in which it differs from brain-based representationalism.

But this prediction is empirically implausible. True, it follows from French and Phillips' "joint-determination" brand of naïve realism; but in §4.2 we saw that there may be no reason to prefer it to representationalism. And bad external correlation and bad external correlation provide an empirical reason to reject the prediction (Pautz 2006: 230-233; 2018: 30). What better evidence could there be?

French and Phillips' joint-determination view also makes *introspectively* implausible predictions in real-life cases. For instance, suppose you view an *orange* tomato on a table under normal light. Then you view a *red* tomato on the table. However, because (unknown to you) a beam of unusual light is directed upon the tomato's surface, it "strikes you" as the very same shade of orange as the first tomato. You judge that "your color experiences of the two tomatoes have exactly the same phenomenal character". Nevertheless, French and Phillips' joint-determination apparantly view implies that *you are wrong:* in fact, your color experiences of the tomato are, in their words, "*qualitatively distinct* in having their characters partially grounded in orangeness in one case and redness in the other" (French and Phillips 2020: 13; my italics).

This is introspectively implausible because it seems to you that your color experiences are exactly similar in phenomenal character. (Normally, when two of your color experience differ in "phenomenal character", then you notice this, and they seem to you to differ in phenomenal character.) Of course, that is only a *defeasible* reason to think that they are exactly similar. But there is no "defeater"; there is no good reason to accept French and Phillips' contrary claim that they are in fact "phenomenally distinct". True, this contrary claim may follow from their joint-determination brand of naïve realism; but in §4.2 we saw that there is no reason to accept that specific brand of naïve realism over representationalism.[15]

Brain-based representationalism, a one-factor view, avoids these empirically and introspectively implausible predictions. In "Inverted Earth" cases, it delivers the empirically plausible prediction of "phenomenally identical experiences". In the "two tomatoes" case, it implies that, even though the perceived items are different, you have phenomenally

[15] In fact, the general theory of naïve realism also doesn't provide a "defeater". For some forms of naïve realism do *not* support French and Phillips' surprising claim that your introspectively indiscriminable color experiences of the tomatoes are in fact "qualitatively different". They hold that they have exactly the same phenomenal character, only it has a different ground in the two cases (e. g. seeing the orangeness of the tomato in the first case, and being in a state indiscriminable from such seeing in the second case).

identical color experiences of them, because you "experientially represent" each tomato as precisely the same shade of orange.

Now French and Phillips could easily also avoid the implausible predictions. For instance, in the "two tomatoes" case, they already hold that the perceived items "strike you" *as exactly the same shade of orange*. They could accept a one-factor theory according to which the phenomenal character of your experience is fully grounded in *how external items strike you,* regardless of those items' actual character. Then they would give up claim that your color experiences are in fact "qualitatively distinct" even though you judge them to be qualitatively identical. Aside from the difference in terminology ("striking" rather than "representing"), they would now agree with one-factor representationalists.

4.5 French-Phillips naïve realism v representationalism: hallucination

If you have "Charles Bonnet syndrome", then you might vividly hallucinate a tomato (Pautz 2021). As mentioned in §4.1, French and Phillips accept Martin's (2006: 370) "negative epistemic" theory here. This view faces well-known problems that I will not rehearse here. The representational view avoids these problems (Pautz 2021: 212-215).

Here I want to add a point unique to French and Phillips' view: they could easily avoid Martin's "negative" theory and explain hallucination in terms of striking. In their account of non-hallucinatory experience, they appeal to the notion "external item *i* strikes subject *S* as *F* (red, round, etc.)". Perhaps their actual view is that "striking" is not detachable from external objects, just as dancing is not detachable from dancers. But what is their objection to an alternative view on which "striking" *is* detachable from objects? Then for you to have a hallucination of a tomato is simply for it to experientially "strike" you that there is a red and round object before you, even if there is not one (Pautz 2021: 229)? Aside from the terminological difference, the resulting view would resemble representationalism.

5. Conclusion

I have argued that representationalism is empirically superior to some forms of naïve realism. *Basic naïve realism* violates internal dependence and requires an empirically implausible theory of sensible properties. French and Phillips' modified *joint-determination naïve realism* accommodates internal dependence but still faces empirical problems concerning sensible properties, joint-determination, and hallucination. Also, when modified in this way, there is no longer reason to prefer naïve realism to representationalism. On the other hand, brain-based representationalism avoids the problems. Therefore, it is to be preferred.

I have not canvassed all possible forms of naïve realism. But I conjecture that, to achieve empirical adequacy, "naïve" realism will have to very radically depart from our naïve view of experience (Pautz 2021: 230ff). And

once we are willing to depart from our naïve view of experience, the representational view emerges as our best option. [16]

References

Allen, K. 2016. *A Naïve Realist Theory of Colour*. Oxford: Oxford University Press.

Bradley, P. and M. Tye. 2001. Of Colors, Kestrels, Caterpillars, and Leaves. *Journal of Philosophy* 98: 469-487.

Broad, C. D. 1923. *Scientific Thought*. London: Routledge & Kegan Paul.

Broad, C. D. 1952. Some Elementary Reflexions on Sense-Perception. *Philosophy* 27: 3-17.

Brewer, B. 2011. *Perception and Its Objects*. Oxford: Oxford University Press.

Byrne, A. 2020. Comment on Yli-Vakkuri and Hawthorne, *Narrow Content*. *Philosophical Studies*. https://doi.org/10.1007/s11098-020-01548-2

Campbell, J. 2002. *Reference and Consciousness*. Oxford: Oxford University Press.

Campbell, J. 2009. Berkeley's Puzzle. Philosophy Bites podcast. https://philosophybites.com/2009/10/john-campbell-on-berkeleys-puzzle.html

Campbell, J. 2010. Demonstrative Reference, the Relational View of Experience, and the Proximality Principle. In R. Jeshion (ed.), New Essays on Singular Thought. Oxford: Oxford University Press, pp. 193–212.

Campbell, K. 2020. Does That Which Makes a Sensation of Blue a Mental Fact Escape Us? In D. Brown and F. MacPherson (eds.), *The Routledge Handbook of Philosophy of Colour*. New York: Routledge.

Campbell, J. and Q. Cassam. 2014. *Berkeley's Puzzle*. Oxford: Oxford University Press.

Coghill, R., J. McHaffie, and Y. Yen. 2003. Neural correlates of interindividual differences in the subjective experience of pain. *Proceedings of the National Academy of Sciences* 100: 8538–8542.

Cohen, J. 2009. *The Red and the Real*. Oxford: Oxford University Press.

Fish, B. 2009. *Perception, Hallucination, and Illusion*. Oxford: Oxford University Press.

Fish, B. 2013. Perception, Hallucination, and Illusion: Reply to my Critics. *Philosophical Studies* 163: 57-66.

French, C and I. Phillips. 2020. Austerity and Illusion. *Philosophers' Imprint*.

Hatfield, Gary (2011). Philosophy of Perception and the Phenomenology of Visual Space. *Philosophic Exchange* 42: 31-66.

Howard, J. D., J. Plailly, M. Grueschow, J. D. Haynes, and J. A. Gottfried. 2009. Odor Quality Coding and Categorization in Human Posterior Piriform Cortex. *Nature Neuroscience* 12: 932–939.

Levine, J. 2004. *The Purple Haze*. Oxford: Oxford University Press.

Mainland, J. 2018. Olfaction. In J. Wixted (ed.), *Stevens' Handbook of Experimental Psychology and Cognitive Neuroscience, Fourth Edition*. New York: John Wiley & Sons.

Martin, M. 2006. On Being Alienated. In J. Hawthorne and T. Szabo Gendler (eds.), *Perceptual Experience*. Oxford: Oxford University Press, pp. 354–410.

McDermott, J. 2018. Audition. In J. Wixted (ed.), *Stevens' Handbook of Experimental Psychology and Cognitive Neuroscience, Fourth Edition*. New York: John Wiley & Sons.

McGinn, C. 1996. Another Look at Color. *Journal of Philosophy* 93: 537–553.

Moore, B. 2016. *An Introduction to the Psychology of Hearing*. Boston: Brill.

Pautz, A. 2006. Sensory awareness is not a wide physical relation: An empirical argument against externalist intentionalism. *Noûs* 40: 205-240.

Pautz, A. 2007. Intentionalism and Perceptual Presence. *Philosophical Perspectives* 21: 495-541.

Pautz, A. 2010. Why Explain Visual Experience in Terms of Content? In B. Nanay (ed.) *Perceiving the World*. Oxford: Oxford University Press, 254-309.

Pautz, A. 2011a. Review of Hill's *Consciousness*. *Analysis Reviews* 71: 393-397.

Pautz, A. 2011b. Can Disjunctivists Explain Our Access to the Sensible World? *Philosophical Issues* 21: 384-333.

Pautz, A. 2013. Do the benefits of naïve realism outweigh the costs? *Philosophical Studies* 163: 25-36

Pautz, A. 2014. The Real Trouble for Phenomenal Externalists: New Evidence for a Brain-Based Theory of Consciousness. In R. Brown (ed.) *Consciousness: Inside and Out*. Berlin: Springer-Verlag.

Pautz, A. 2017a. The Perceptual Representation of Objects and Natural Kinds. *Philosophy and Phenomenological Research* 95: 470-477.

Pautz, A. 2017b. Experiences are Representations: An Empirical Argument. *Current Controversies in Philosophy of Perception*. Bence Nanay (ed). New York and London: Routledge.

Pautz, A. 2018. Naïve Realism and Science. Online manuscript. https://philarchive.org/rec/PAUNRA-2

[16] My thanks to Craig French and Ian Phillips for much helpful correspondence.

Pautz, A. 2020a. How to Achieve the Physicalist Dream: Identity or Grounding? https://philpapers.org/rec/PAUHTA-2.
Pautz, A. 2020b. How Does Colour Experience Represent the World? In D. Brown and F. MacPherson (eds.), *The Routledge Handbook of Philosophy of Colour*. New York: Routledge.
Pautz, A. 2021. *Perception*. London: Routledge.
Phillips, I. 2016. Naive Realism and the Science of (Some) Illusions. *Philosophical Topics* 44: 353-380.
Price, H. H. 1932. *Perception*. London: Methuen.
Russell, B. 1940. *An Inquiry into Meaning and Truth*. London: Allen and Unwin.
Sider, T. 2016. *Writing the Book of the World*. Oxford: Oxford University Press.
Tye, M. 1995. *Ten Problems of Consciousness*. Cambridge MA: MIT Press.