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Naïve Realism, the Slightest Philosophy, and the Slightest Science

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1. Naïve Realism

Looking out into the park you see a magnificent, ancient oak. In seeing it, you have a visual experience. There is something it is like for you to undergo this experience: a way things are for you, subjectively. Naïve realism is a theory of the nature of such experiences and their conscious or phenomenal characters. Naïve realists answer two questions: What is it to have an experience, in a genuine case of perception? And: In what does the conscious character of such experiences consist?

In seeking to explicate the nature of things (here: perceptual consciousness), naïve realism is a metaphysical theory. It is not a theory of the causes of experience, nor of the psychological or neurophysiological processing supporting it. Certainly, we should investigate such matters. But we can also ask: What is it that such processing causes and subserves? This is where naïve realism and other philosophical theories of perception fit into broader theorizing about perception.

What do naïve realists say about the nature of perceptual consciousness? First, naïve realists are *realists*: they contend that the existence and character of the objects of experience do not depend upon their being experienced. Second, naïve realists hold that perceptual experiences have the conscious characters they do partly by having such aspects of the mind-independent world as *constituents*. The conscious visual experience you have of the oak has that very tree as a literal part. It follows that you could not be experiencing as you are, if no such object existed. Here the naïve realist thinks of experiences not as objects with spatial parts, but as events or states with constituent elements: such as a car crashing into a wall which involves car and wall as constituents, or a marriage, where each spouse is a constituent. Just as the crash

cannot occur without the car, your experience cannot be prized apart from the world. Equivalently, naïve realists hold that perceptual experience involves a subject standing in a primitive relation of perceptual acquaintance to aspects of mind-independent reality which constitutively shape the contours of the subject's consciousness.[1]

Naïve 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: 3-4).[2] So motivated, naïve realism can be viewed as a theoretical articulation of our pre-theoretical or common-sense conception of perceptual experience. Arguably, Hume gives voice to just this thought in a famous discussion in his *Enquiry*, where he writes that following a "blind and powerful instinct of nature", we believe that the "senses … produce … immediate intercourse between the mind" and mind-independent world, and "always suppose the very images presented by the senses, to be the external objects, and never entertain any suspicion, that the one are nothing but representations of the other" (1748: §12.8-9).

Yet, despite acknowledging that naïve realism is the "universal and primary opinion of all men," Hume, like the large majority of philosophers, considers it "soon destroyed by the slightest philosophy" (§12.9). Hume's philosophy is so slight as to comprise a single sentence: "The table, which we see, seems to diminish, as we remove farther from it: but the real table, which exists independent of us, suffers no alteration: it was, therefore, nothing but its image, which was present to the mind." (§12.9). We'll discuss versions of this reasoning in the next section, but crudely for now: if the way things perceptually appear to one in perceptual

[1] See Martin 1997, 2002, 2006, Campbell 2002, Fish 2009, Brewer 2011, Logue 2012, Soteriou 2013, Beck 2019 and French & Phillips 2020.

[2] See Martin 2002 and Fish 2009. For other arguments for naïve realism, see Campbell 2002 and Logue 2012.

consciousness conflicts with the way things are in external reality, then how can external reality constitute perceptual consciousness as the naïve realist suggests?

Hume's argument involves what Snowdon calls a *negative* revision and a *positive* revision (1992: 62). Negatively, Hume rejects the naïve realist contention that perceptual experiences involve *external* objects as constituents. Positively, Hume embraces an alternative, positive theory on which we are only ever presented with mind-dependent images. This is what we would now call a sense-datum theory on which perceptual experiences have special, mental objects ("sense-data") as constituents: objects with sensible features like colour and shape, but whose existence and character do not outstrip experience.[3] On this view, conflicts between appearance and external reality are untroubling, since appearances involve the presentation of internal objects.

Not all who share Hume's conviction that naïve realism is destroyed by the "slightest philosophy" embrace Hume's positive revision. Some, instead, endorse a *representational* (or *intentional*) theory of experience. The representationalist agrees with the naïve realist that the objects of experience are mind-independent, eschewing sense-data. However, they deny that such objects are *constituents* of experience. Rather, experience consists in our perceptually *representing* such objects.[4] On this view too, conflicts between appearance and external reality are untroubling since appearances consist only in how external reality is *represented* as being.

[3] This reflects the now common use of "sense-data" (e.g., Jackson 1977). Early sense-datum theorists, e.g., Moore, in lectures from 1910-11 (Moore 1953) and Price (1932), did not assume that sense-data were mental objects. The term simply labelled the objects of perceptual acquaintance, the nature(s) of such entities being a matter of debate.

[4] The sharp contrast here is complicated by the fact that some representationalists take presented elements to be constituents of the representational contents of experience, at least in good cases. For instance, some Russellians regard contents as complexes with presented elements as parts, and some Fregeans think of contents as comprising object-dependent senses. (Though notice that it only follows from such views that presented elements are constituents of experience if we assume that constitution is transitive.) See Siegel (2016: §3) for an overview, and

The claim that naïve realism is destroyed by the "slightest philosophy" has been vigorously disputed in recent decades. In the next section, our brief review concludes that no decisive Humean refutation of naïve realism is forthcoming. Today, however, many theorists are convinced that naïve realism is untenable less because of the slightest philosophy but rather because of what they see as the slightest science. In their view, a cursory appreciation of contemporary perception science confounds naïve realism. Burge is exemplary, notoriously declaring: "It is fairly unusual … for philosophical views to be as directly at odds with scientific knowledge as disjunctivism [and, by implication, naïve realism] is. Hegel's claim that there are seven planets comes to mind." (2005: 29) Nor is it just philosophers. At least superficially—and we return to this appearance below—many scientists also embrace a positive revision to naïve realism. In particular, one extremely dominant theoretical perspective conceives of the visual system as constructing representations of external reality by (some form of unconscious, statistical) inference from impoverished proximal input together with stored information about the world (e.g., Helmholtz 1867, Gregory 1980, Rock 1983, Knill and Richards 1996). Insofar as this inference concludes in a representational state identifiable with perceptual experience, this tradition appears straightforwardly incompatible with naïve realism.[5]

Schellenberg (2018: Part II) for detailed discussion of the debate, as well as a defence of a new form of the Fregean view. However, many naïve realists understand the idea of an object being a constituent of experience in non-representational terms, taking it to be equivalent to the idea that we are *acquainted* with the object, where such acquaintance is understood as a primitive (i.e., psychologically unanalysable) relation (Brewer 2011, Kalderon 2011, Soteriou 2013). This would preclude understanding the notion of constituents of experience in any kind of representational terms.

[5] Some such views (arguably Helmholtz's, e.g.) are better understood as versions of a sense-datum view on which the inferential process yields an image which in turn represents external reality. For a rather different empirical defence of a sense-datum type view see Hoffman, Singh & Prakash 2015, and for commentary, McLaughlin & Green 2015.

In the central parts of this paper, we explore this challenge from perception science, and argue that in none of the guises we consider does it compel rejection of naïve realism. Our argument is concessive. We do not question any of the science (unsettled as it may be), but rather explain how the science sits comfortably with naïve realism. In particular, we suggest that the naïve realist can endorse approaches to perception on which the visual system is seen as computing distal causes from proximal inputs, with the sole proviso that the products of the relevant inferences are not construed as representational states *identifiable with perceptual experience*. Key here is the distinction between the question of what perceptual consciousness consists in (and to which naïve realism offers an answer), and questions about the neurological and psychological causes of such experience, and the processes underlying it. This distinction opens up the possibility that the images or representations posited by perception scientists are part of the story concerning the processing which causes and underlies perceptual experience, but no part of the answer to the question of what experience consists in. We elaborate on this possibility in §§3-7.

2. The Slightest Philosophy

There are two main types of philosophical argument against naïve realism, one from illusion, the other from hallucination.[6] These arguments share a structure (Snowdon 1992, 2005). Both start by claiming that naïve realism fails to apply to illusions/hallucinations, they then generalize to claim that naïve realism cannot apply to veridical experience.

Consider first hallucination. Recall your veridical perceptual experience of the ancient oak tree. Now imagine an experience just like this but absent any appropriate external object.

[6] Hume's brief argument is closest to an argument from illusion. But, as Martin (2000: 204; cf. Reid 1785) points out, it is not obvious why we should think of what Hume describes as a case of illusion as opposed to one of size constancy: where despite variation in the table's appearance, it still looks to have a constant, unchanging size.

Imagine, for instance, being a brain in a vat, drifting in empty space, your visual cortex being stimulated to produce an "oak tree in the park" experience. In this scenario, you are not perceiving the world, but it is to you exactly as if you were: you cannot tell, by introspection, that you are not simply seeing the oak in the park. Such hallucinatory experiences seem perfectly possible. Yet since they occur in the absence of any appropriate external objects of acquaintance, they cannot be accounted for in naïve realist terms.

Some theorists push back on this part of the argument (Raleigh 2014, Ali 2018, Masrour 2020).[7] However, a more common naïve realist strategy is to resist the generalization to veridical perception (Martin 2004, 2006, Fish 2009, Brewer 2011, Soteriou 2016). Such naïve realists question why the inapplicability of naïve realism to hallucination implies its inapplicability to veridical experience. In particular, this *disjunctivist* naïve realist denies that veridical and hallucinatory experiences are of the same common, fundamental kind.

The naïve realist allows that in *some* sense your veridical and hallucinatory experiences are the same. Both are *oak tree in the park* experiences. Neither can be told apart (from the inside) from a genuine perception of an oak tree. But it is denied that these similarities are grounded in a common nature. Instead, veridical experiences had in genuine cases of perception and hallucinatory experiences fundamentally differ in kind.

Much recent discussion focuses on whether this disjunctivist strategy is plausible. Questions include whether there are any compelling arguments for the common kind claim, and whether the disjunctivist can provide a plausible account of the nature of hallucinations. In advocating the common kind claim, some are impressed by the subjective indistinguishability of hallucinations from veridical perceptions. However, to this the disjunctivist responds that in

[7] Such accounts must explain why, even if the hallucinations characteristic of psychosis or dementia, say, do in fact have objects, it is impossible for someone to be in a genuinely objectless state which they are unable to distinguish by introspection from a veridical perception.

general indistinguishability does not suffice for sameness of fundamental kind. Recall, Austin's example of a bar of soap which looks just like a lemon (1962: 50). Why then should the indistinguishability of hallucinations from veridical perceptual experiences entail that they are of the same kind? Perhaps, such reasoning *does* get grip when it comes to the realm of experience. But notice that even if we grant the strong claim that a subject is always in a position to know about the *positive* characteristics of their experience, the naïve realist may still consistently deny that hallucinations and veridical perceptions form a common kind. This is because the naïve realist can deny that veridical experiences are indistinguishable from hallucinations. For whilst they accept that hallucinations are indistinguishable from veridical perceptual experiences, they need not accept that indistinguishability is symmetric (see further Martin 2004, 2006).

As to what account the naïve realist can provide of hallucinations, some naïve realists question why anything needs to be said beyond the claim that hallucinations are subjectively indistinguishable from veridical perceptual experiences. On this view, the character of your oak-tree-in-a-park hallucination is fully accounted for by your undergoing an experience which you cannot distinguish (from the inside) from one in which you *are* genuinely seeing an oak tree (Martin 2004, 2006).

This view is controversial (see the critical articles in Haddock and Macpherson 2008, also Schellenberg 2018). Likewise, a case may yet be made for the common kind assumption. Our point is only that these matters are not decided by the "slightest philosophy". There is much the naïve realist can say in response to the argument from hallucination.

As we have been conceiving of them, hallucinations can occur apart from any perception of the world. It is not ludicrous, then, to suppose that they might differ in nature to experiences which involve perception of the world. But what about illusions? A textbook definition of illusion is "any perceptual situation in which a physical object is actually perceived, but in

which that object perceptually appears other than it really is" (Smith 2002: 23; though see Johnston 2006, and Macpherson & Batty 2016 for complications). Consequently, some find the disjunctivist strategy far less plausible here (Foster 2000, Smith 2010, Millar 2015).

If the disjunctivist strategy is unavailable, does naïve realism then fall to the argument from illusion? This depends upon the first stage of the argument. If naïve realism *doesn't fail* for illusions, then there will be no problem in generalizing to veridical experience. Why think that naïve realism fails for illusions? One strategy here is to invoke the first part of the fuller version of the argument from illusion that developed in various discussions in the twentieth century (see Robinson 1994, Smith 2002, Crane & French 2015).

I. In an illusory experience, it seems to one that something has a quality, *F*, which the ordinary object supposedly being perceived does not actually have.
II. When it seems to one that something has a quality, *F*, then there is something which one is perceptually acquainted with which does have this quality.
III. Since the ordinary object in question is, by hypothesis, not-*F*, then it follows that in cases of illusory experience, one is not perceptually acquainted with the object after all.

However, this argument represents little progress for the arguer from illusion. Not only is it invalid (French & Walters 2018), its second premise—the so-called Phenomenal Principle (Robinson 1994: 32)—is rejected by naïve realists (and by many who are not naïve realists).

There is, however, another strategy for arguing that naïve realism fails for illusions (Foster 2000, Smith 2010, Fish 2009). To illustrate, consider the following example of an illusory experience (Fish 2009: 150):

Illusory Car Case (ICC): S sees a red car illuminated by a street lamp; it looks orange to her.

Now consider a corresponding veridical case:

Veridical Car Case (VCC): S sees the same red car in natural daylight; it looks red to her.

What is the naïve realist account of VCC? Well, the naïve realist holds that this experience is a matter of *S*'s acquaintance with the red car (or the red car and its redness), and that this accounts for the fact that things look red to her. The worry is that, if we applied naïve realism to *illusions*, we'd have to say exactly the same thing about *ICC*: namely, that *S* is acquainted with the same red car (that is, let us suppose, all there is in the vicinity for *S* to be acquainted with). But then things should look *red* to *S* in *ICC* just as they do in *VCC*. This leaves us without any account of why things look *orange* to *S* in *ICC*. For how can acquaintance with a *red* car, or the car's *redness* lead to an appearance of the car as *orange*?

Just as the former argument involves a principle which the naïve realist will reject, so too does this line of reasoning. The implicit principle here is known as *Diaphaneity*, the idea that the character of experience derives *entirely* from the objects of acquaintance (Martin 1998, citing Price 1932). Applied to *ICC* and *VCC*, Diaphaneity forces us to conclude from sameness of objects of acquaintance, to sameness of experiential character. However, as we argue in detail in French and Phillips 2020, the naïve realist should reject Diaphaneity. To hold that external objects constitute the character of experience is not to hold that they *exhaustively* constitute experiential character. Instead, the *way* in which we are acquainted with things also

makes a difference to the character of experience.[8] In *ICC*, *S* is acquainted with the car and its redness in a certain way: in conditions characterized by street lighting. In *VCC*, *S* is acquainted with the same objects but in a *different* way: in conditions characterized by natural daylight. Despite sharing objects, the experiences accordingly have different conscious characters. To demur is to insist on the principle of Diaphaneity which the naïve realist can and should reject.

In our view, there is no good argument from illusion against naïve realism.[9] However, we don't claim to have established that here. These brief remarks are again intended to justify only a weaker conclusion: that there is much for the naïve realist to say in reply to the argument from illusion. Naïve realism is not confounded by the "slightest philosophy".

This concludes our brief survey of philosophical arguments against naïve realism. We turn now to our main focus: the challenge that the slightest science contradicts naïve realism. A traditional "argument from science" against naïve realism alleges that modern physics reveals a reality very different in nature and character from anything in experience: a world of fields and forces bereft of ordinary macroscopic objects, with their colours and shapes. Such objects, this argument concludes, must be mere "creatures of perception" (Robinson 1994: 74-76). Here, the naïve realist might reasonably ask why *physics* should be the sole arbiter of existence. More concessively, they might accept that physics catalogues *fundamental* reality, but insist that the familiar external objects and qualities around us still exist, albeit at a non-fundamental level (cf. Korman 2015: 73). In doing so, the naïve realist distinguishes between different

[8] For our detailed account of ways of perceiving, see French and Phillips (2020: §5). See also fn. 18 below.

[9] At least with respect to illusions arising from perspectival factors such as illumination or perspective (see also Brewer 2011). We are sceptical that illusions form a unified category and correspondingly open to different strategies in different cases. For instance, if some illusions involve property hallucinations, an epistemic account may be appropriate (Martin 1997, 2004). For further possibilities, see also Phillips 2016.

levels: a metaphysically fundamental level where—it is conceded—physics limns reality. And a derivative, non-fundamental level, which ordinary objects and properties inhabit.[10]

The challenge we now consider is not focused on the lessons of modern *physics*, but rather on those of modern *perception science*. However, the response we offer bears a structural similarity. For we do not question any of the science itself, only its philosophical implications. And we do so by stressing the importance of acknowledging distinct levels of psychological and experiential explanation.

3. Is Naïve Realism Inconsistent with Contemporary Vision Science?

Much recent literature alleges that the contemporary science of perception is inconsistent with naïve realism. In keeping with a visuocentrism (which we will maintain), the science is almost exclusively vision science. The allegation takes both local and global forms. In its *global* form, naïve realism is alleged to be inconsistent with the overall operative framework of contemporary perceptual psychology (e.g., Burge 2005, 2010, Rescorla 2015). In its *local* form, the putative inconsistency is with some specific putative aspect of perception, for instance: (i) cognitive penetration (Cavedon-Taylor 2018), (ii) multimodal perception (Nanay 2014); (iii) the existence of distinct and dissociable dorsal and ventral visual streams (Nanay 2014); and (iv) perception without awareness (Berger & Nanay 2016, Block in Phillips & Block 2016). Both global and local challenges rest on controversial empirical foundations. We will not examine those here (though on occasion we point to relevant literature). Instead, we argue that both challenges rely on philosophical assumptions which the naïve realist can reject. Thus, however the relevant empirical issues transpire, naïve realism is unimperiled.

[10] Another option would be to deny that the metaphysically fundamental should be identified with the level of fundamental physics.

Consider first the global challenge: Why think that naïve realism is "incompatible with well-established scientific knowledge" (Burge 2011: 43)? Here we can identify two related ideas, corresponding to negative and positive revisions encountered above. The first idea, associated with a negative revision, is that perception science is committed to a common kind claim since it types veridical and non-veridical (including certain hallucinatory) states together. As it stands, this thesis is entirely consistent with naïve realism. The naïve realist accepts that veridical and non-veridical experiences belong to various common kinds: neither can be distinguished from the inside from veridical experience, for instance. A conflict does seemingly arise, however, insofar as perception science is committed to veridical and non-veridical (including certain hallucinatory) perceptual states being of the same *fundamental* kind. Burge (2005) derives this typing from the allegedly deep-rooted explanatory assumption within the relevant sciences that all perceptual states—veridical perception, illusion and hallucination alike—are determined in a lawlike manner by proximal stimulation together with the psychological and neurological dispositions of the perceiver, alongside the assumption that veridical and non-veridical cases do not differ in these factors. Burge calls this explanatory assumption "science's 'Proximality Principle'" (2011: 44), clearly taking the resultant typing to be a fundamental one. Accordingly, Burge takes science to contradict disjunctivism, and with-it naïve realism, insofar as naïve realism requires disjunctivism to accommodate hallucinations.

The second idea, associated with a positive revision, is that perception science conceives of perceptual states as being individuated by their representational contents. For Burge, this commitment connects to the explanations which perception science offers of successful perception. These proceed according to various "biasing principles" which function to produce veridical representations of the distal scene despite its under-determination by proximal stimulation (Burge 2005, Palmer 1999). More generally, the idea that perception involves

constructing or inferring a representation of external reality based on impoverished proximal input is a dominant strand in perceptual psychology tracing back at least to Helmholtz. If science does indeed require us to construe perceptual states as fundamentally representational, this would again apparently confound the naïve realist's non-representational account of perceptual experience.

In reply, we do not propose to challenge any part of the scientific picture outlined. Instead, we dispute the alleged inconsistency with naïve realism. At the outset, we distinguished between claims about the nature of perception, considered from a first-person perspective, and claims about the psychological processing which subserves perception. Our argument will be that we can accept both common kind and representational nature claims construed as claims about states at the level of psychological processing. Simultaneously, we can reject both claims (and so vouchsafe naïve realism) construed as claims about the ordinary kind, perception.

It is helpful to begin with a series of analogies due to Campbell. On the first, perception is conceived of "as like viewing the world through a pane of glass" (2002: 118). When an object is seen through glass, no-one thinks that it is seen in virtue of a representation on the pane: by way of a common factor which could be on the glass whether or not the object beyond was present. Nonetheless, Campbell acknowledges that such a "glass" model of vision does not accommodate the sophisticated computational processing postulated by vision scientists. Such processing understandably encourages a "television" model of vision on which a representation of the world does obtain between subject and scene, a depiction which might be displayed on the glass screen whether or not the world is as depicted.

To wrest us from this intuition, Campbell offers a third analogy.

> Suppose we have a medium which, like glass, can be transparent. But suppose that, unlike glass, it is highly volatile, and needs constant adjustment and recalibration if it is to remain transparent in different contexts. Suppose, in fact, that the adjustment required is always sensitive to the

> finest details of the scene being viewed. The upshot of the adjustment, in each case, is still … simply that the medium becomes transparent. You might think of visual processing as a bit like that. It is not that the brain is constructing a conscious inner representation whose intrinsic character is independent of the environment. It is, rather, that there is a kind of complex adjustment that the brain has to undergo, in each context, in order that you can be visually related to the things around you; so that you can see them (ibid: 119)

Campbell suggests that his analogy of a volatile medium, constantly needing environmentally-attuned adjustment to achieve transparency helps us free ourselves from the idea "that the brain is constructing a conscious inner representation". However, Campbell's analogy arguably shows how a naïve realist (or as Campbell calls it: relational) conception of perceptual experience is quite consistent with the existence of a representational approach to visual psychology. To see this, suppose (as Campbell posits) that the adjustment which the volatile medium requires is exquisitely sensitive to which scene is in view—a lock which needs to shape itself to fit myriad different keys. Given this, successful adjustment may precisely depend on computing the likely distal source of proximal input just as constructivist and Bayesian accounts of visual processing propose. Such processing may indeed proceed just as the Proximality Principle contends: as a lawlike function of proximal stimulation and perceiver dispositions, yielding representations which form a common kind across veridical and non-veridical cases. What the analogy shows, however, is that such representations need not be identified with conscious perceptual experience itself. Rather, they can be seen as part of what renders the medium transparent, when all goes well, and puts us in perceptual contact with the

external world (or, in the bad case, part of what yields a state which is merely indiscriminable from a case of genuine acquaintance).[11]

Here, a second point of Campbell's is germane. Campbell (2011) emphasizes two aspects of our ordinary conception of seeing which "pull it away" from the representational states of vision science. First, perception is "factive" (275f.; 2010).[12] Second, perception has a

[11] The notion of transparency here should not be identified with that at issue in debates about the transparency of experience (e.g., Martin 2002, Tye 2002, Kind 2003, Stoljar 2004).

[12] Though Campbell introduces this point by talking about the terms we use in common-sense *talk* about perception, the role of language needs some care. We understand things as follows: the ordinary understanding of perception is one on which perception is a factive state or event: perceiving involves the existence/occurrence/obtaining etc. of the object/event/fact etc. perceived. Factivity is one of the manifest features of perceiving (as it is ordinarily understood). This feature pulls perceiving as it is ordinarily understood away from the representational states of vision science, since such states lack this feature. We take it for granted that this is how we ordinarily conceive of perception, and that it is an aspect of how perceiving strikes us. And though we take this to be *reflected* in the terms we use in common-sense talk about perception (such *terms* being factive, where this means that use of the verb "to perceive"—and likewise: "to see" etc.—presupposes the existence/occurrence/obtaining etc. of the object/event/fact etc. referred to by the relevant noun phrase complement), we are not arguing *from* ordinary language observations to the idea that perception as it is ordinarily understood can be distinguished from the representational states of vision science, nor to any substantive claims about perception.

Note also that all of this is consistent with non-factive uses of perceptual verbs. We understand these as extended from or parasitic on core factive uses. On one account of this, such uses involve the perceptual verb in its regular sense, but are felicitous insofar as "by some conventional device, linguistic or otherwise… you, the speaker, acknowledge[s] [the suspension of the factivity condition]" (Dretske 1969: 48); see also Alm-Arvius's (1993: 141ff) discussion of "pragmatic restriction". For instance, in, "I've only had six whiskies and already I'm seeing pink elephants" (Alm-Arvius 1993: 145), "see" is used in its regular sense, but, "I've only had six whiskies," is a device which the speaker uses to trigger a restriction, indicating exclusion or suspension of the factivity characteristic that is part of the regular meaning of "see".

subjective nature—it is constitutively linked to conscious experience (2011: 277f.).[13] These differences, Campbell argues, "mean that we are here dealing with different phenomena" (277). We have, on the one hand, a non-subjective, non-factive and representational *psychological* kind and, on the other, a subjective, factive and relational *ordinary* kind (see also Phillips 2018 on psychological and manifest kinds).[14]

Distinguishing these two kinds connects with the earlier idea that computational processing can be analogized as a process of adjusting a volatile medium. Computational processing and its representational products are the primary objects of theorizing within vision science. Its joints mark psychological kinds. This process and its representational products do not themselves constitute acquaintance with the environment, however. They form a common kind across veridical and hallucinatory cases. The naïve realist will thus insist on distinguishing such processing from the conscious relation which we stand in when, however partially and fleetingly, such processing renders the volatile medium transparent and the world is revealed. This relation we stand in is the ordinary kind, *perception*, whose nature the naïve realist expounds.[15]

On this picture, perception science theorizes about perceptual states *qua* psychological kinds at the level of perceptual processing. The naïve realist, in contrast, theorizes perception

[13] Campbell further suggests that vision science "has a constitutive interest in the functioning of the brain that has no echo in common-sense psychology" (2011: 276).

[14] Campbell suggests that these "two variables" both relate "to vision at the level of the whole organism" (2011: 277). We might instead suppose that the psychological kind(s) of vision science is at least sometimes, and perhaps always, at the subpersonal level. We take no firm stand on this here.

[15] The representationalist will, of course, attempt to offer their own story of when representational states constitute genuine perception. However, this task is far from trivial (witness the difficulties in distinguishing veridical hallucinations from genuine perceptions). Furthermore, insofar as the story appeals only to extrinsic (e.g., causal) factors, it will not accommodate the phenomenological datum which motivates naïve realism.

qua ordinary, conscious kind. Psychological perceptual kinds form part of the explanatory story as to how ordinary perception is achieved (cf. Drayson forthcoming). Some such kinds may indeed partially constitute perceptual states. But this does not mean that psychological theorizing speaks directly to the nature of the ordinary kind perception—any more than chemical theorizing about clay speaks to the nature of the statue it constitutes. Indeed, just as the constitutionalist about statues will point to the differing modal properties of statues and clay lumps as evidence of their distinctness (e.g., the statue cannot survive the dramatic remoulding of the clay, whilst the lump can), so too the naïve realist will point to the differing modal properties of genuine perceptions and underlying representational states as evidence of their distinctness (most obviously: the perception could not occur in the absence of a relevant mind-independent object, whilst the representational state could).

There is, then, we suggest, a clear gap between psychological and ordinary kinds insofar as perceptual science does not account for the factive nature of perception, nor on the view espoused by Burge at least (2010: xiii, fn. 1; 364, fn. 97) does it speak to its subjective, conscious nature.

There is a certain irony here. The contention that perceptual psychology requires us to think of perceptual states as fundamentally representational in nature is liable to be understood as the claim that perceptual psychology supports *representationalism*, the rival theory to naïve realism on which conscious perceptual experience consists in our perceptually representing mind-independent objects. Yet Burge's contention that perceptual psychology requires us to think of perceptual states as fundamentally representational cannot be this claim. For Burge explicitly does not target subjective, conscious experience. But since naïve realism *is* a theory of conscious perceptual experience, this casts doubt on the alleged inconsistency between naïve realism and perception science. Generating an inconsistency requires the assumption that only *one* perceptual state kind is present when we consciously perceive the world. This monistic

assumption is no part of perceptual psychology but a philosophical assumption which the naïve realist can reasonably reject (cf. Soteriou 2016: 46-52).

Whenever philosophical appeal is made to vision science, these points must be borne in mind. We must ask whether relevant science speaks only to the psychological kinds involved in perception, or whether it additionally speaks to the nature of the ordinary kind, perception, which this process subserves when all goes well. Regarding the global challenge that the very operative framework of vision science requires a representational conception of perception, the import is immediate. Consider Rescorla (2015), who argues that Bayesian approaches to perceptual psychology are inconsistent with relational conceptions of experience. Rescorla repeatedly claims that relationalists "eschew all talk about perceptual representation" (703, 704). But this is incorrect. The relationalist can perfectly well accept that perception operates according to Bayesian models, producing representational estimates of the current environment. They will simply deny that these representations constitute perception in the ordinary sense. Instead, such estimates help put us in perceptual contact with our environments. Similarly, there need be no difficulty in accepting "a representational, non-relational taxonomic scheme" (703) for perceptual states which types veridical and non-veridical states together. The naïve realist will simply avoid identifying such states with perceptual states in the ordinary sense. A Bayesian perceptual psychologist can equally be a naïve realist.

Burge finds this attitude preposterous, insisting: "The psychology of perception centers on explaining perception, as ordinarily conceived." (2005: 46) But the naïve realist need not deny that psychology centers on *causally* explaining how perception (in the ordinary sense) arises. Nor on detailing the nature of the states which part *constitute* ordinary perception. All they must reject is an *identity* between the states posited in such explanations and perception in the ordinary sense. Given that the naïve realist can point to essential aspects of perception as they see it (viz., factivity and, arguably, subjectivity) which the science does not account for, it is

hard to see why Burge's attitude is mandatory. One might attempt to insist that *perception* is a natural kind concept whose nature is to be settled by scientific investigation. But, again, this assumption is far from obvious, and cannot be regarded as something settled by the science itself as opposed to further substantive philosophical argument (see Campbell 2011, and Phillips 2018: esp. §2.3-4).

By distinguishing between psychological and ordinary kinds, the naïve realist can respond to global challenges from vision science. One might think, however, that such a general reply stumbles in relation to specific, local empirical challenges. We now argue that despite their variety, many local challenges raised in the recent literature fail for closely related reasons. We consider four such challenges: cognitive penetration (§4), multimodal perception (§5), the existence of separable dorsal and ventral visual pathways (§6), and unconscious perception (§7).

4. Cognitive Penetration

Cavedon-Taylor (2018) argues that evidence of top-down effects of cognition on perception provides strong reason to favour representationalism over naïve realism. Cavedon-Taylor's conception of cognitive penetration is broad, including cases of absence perception, projected imagery and perceptual learning, as well as more standard examples. Across all, however, Cavedon-Taylor holds that whereas representationalism provides an explanatory framework to make sense of the respective effects, naïve realism struggles even to make them "intelligible". Consider Cavedon-Taylor's "clearest" (408) example: the putative synchronic influence of belief on one's perceptual experience exemplified in the following case.

> You are attending a dinner party at your boss's house. Halfway through the meal, she reveals that the meat she has served is pigeon. You believe pigeons to be diseased-ridden vermin. But

> … you resign yourself to swallowing a few mouthfuls more. Believing the meat to be pigeon, it now tastes *different* than before: more slimy, sour and disagreeable. (391)

According to Pylyshyn, early vision is cognitively penetrated if "the function early vision computes is sensitive, in a semantically coherent way, to the organism's goals and beliefs" (1999: 343).[16] Suppose one's dish *looks* as well as tastes different, and moreover that this involves a difference in *visual experience*. Suppose further that this happens because one's early visual system has processed the incoming visual signal differently due to the semantically coherent influence of one's pigeon beliefs. Cavedon-Taylor argues that this makes sense only if both belief and perception are fundamentally representational states (402). In contrast, he contends, the naïve realist struggles to provide any explanatory account of such effects.

Above, we distinguished between ordinary perception—construed as a subjective, relational kind—and the non-subjective, representational kinds of vision science. As Pylyshyn's reference to the functions computed in early vision implies, the process of cognitive penetration, in the first instance, concerns these latter kinds. It is perception *in this psychological* sense, which is penetrated, if cognitive penetration occurs. So conceived, penetration is entirely unproblematic for the naïve realist, since (as we saw) they can happily allow that the visual states which are penetrated are fundamentally representational.[17] This, of course, does not mean that cognitive penetration does not affect the phenomenal character of

[16] Whether such penetration occurs (and indeed how the notion should best be defined) remains a topic of ongoing controversy. See further Macpherson 2012, Stokes 2013, Firestone & Scholl 2016, Gross 2017, Wu 2017, Quilty-Dunn 2020, Green 2020 and Clarke forthcoming.

[17] Which is not to say that differences of representational *format* may not provide a theoretical challenge to understanding penetration. This simply takes us back to the large issue which we are bracketing, namely whether penetration under some precise definition in fact occurs.

ordinary seeing. On Campbell's volatile medium analogy, processes of penetration will form part of the adjustment process which puts us in perceptual contact with features in the world.[18] Seen in this light, Cavedon-Taylor, would appear simply to be arguing that the existence of computational processing within the visual system is unintelligible from the perspective of naïve realism. That complaint is not specific to cognitive penetration. And if Campbell's analogy is apt, it is not compelling.

Consider further a case of absence perception presented by Cavedon-Taylor on which, returning to your office, you "are visually stunned by [your] laptop's absence" (392). To explain this putative phenomenon, Cavedon-Taylor appeals to a story involving the mismatch between an "object-template" tokened in working memory and the objects perceived in the present scene (Farennikova 2013). Even granting Cavedon-Taylor the assumption that this matching must be between two representational states, the naïve realist can happily construe the matching process envisaged as occurring at the level of psychological, representational states—a construal quite consistent with a fundamentally relational account of absence perception itself.[19]

[18] As noted above, we deny that the character of experience is exhaustively determined by worldly objects (such as pigeon dishes) and features presented in experience: the *ways* in which they are perceived are also relevant (for detailed discussion, see French & Phillips 2020). Extending Campbell's analogy, the world may look different when seen through different (e.g., convex or concave) lenses without any loss of transparency.

[19] Cavedon-Taylor also discusses a case of projected imagination in which you "mentally project" items of furniture around a room you are trying to furnish (391). He suggests that the "constitutive integration" (399) of vision and visual imagery is only intelligible if both states are representational, for only then can the "visual experience acquir[e] an additional *content*" from the mental image (400). We see no reason that a hybrid state cannot combine representational and relational elements (cf. Phillips 2013: 423).

We now turn to three further local challenges to naïve realism and explain how they encounter the same difficulty as Cavedon-Taylor's appeal to cognitive penetration. Given the common problem, our discussion is correspondingly swift.

5. Multimodal Perception

Nanay argues that naïve realist approaches are "inconsistent with empirical findings about dorsal perception and about the multimodality of perception" (2014: 42). Consider first multimodal perception. Nanay conceives of this in terms of information or representations from different senses being "put together" or "matched" (46) to generate a single representation of an object or scene with multiple modality-specific properties. Nanay claims that "this can only be accounted for in representational terms" (46). For present purposes, we can simply grant this contention. For again, it is quite consistent with a naïve realist account that representations play a role in affording us perceptual acquaintance with the world.

Thus, consider a case in which auditory information affects visual processing. Suppose, in particular, that when both auditory and visual systems receive information from a single source, the visual system does a better job of achieving transparency when it exploits auditory information. For this to happen, the two systems must cooperate in determining whether their information does derive from a single source or not ("pairing"). Crucially, though, such informational exchange and integration in no way shows that such processing is not aimed at securing perceptual acquaintance with our environments.

Nanay calls a reply in this spirit, on which the representational story is accepted but only at the sub-personal level, "biting the bullet" (46). Our bite finds no bullet.[20] Why then does Nanay find the move unacceptable? Nanay's basic objection is that the naïve realist who denies

[20] To remain neutral on issues concerning the personal versus subpersonal level, we also prefer to speak of the *psychological* level.

that perception in the ordinary sense is representational must say what they mean by ordinary perception. One thing they might mean, suggests Nanay, is *conscious* perception. So understood, Nanay does not see anything wrong with the naïve realist claim, even granting it "may be true" (47) that all conscious perception is relational. However, Nanay objects that "not all perception is conscious and a theory of perception should not be a theory of conscious perception" (ibid.). The naïve realist can respond in at least three ways. First, they might simply insist that naïve realism *is* just a theory of conscious perception (recall §3). Second, they might supply some alternative understanding of perception in the ordinary sense which does not invoke consciousness. Third, they might deny the existence of unconscious perception, in the relevant sense of perception. This last reply takes us to the issue of the next two sections: Does unconscious perception pose a challenge to naïve realism?

6. Dorsal and Ventral Visual Streams

Drawing on Milner and Goodale's two visual systems hypothesis (Milner & Goodale 2006, 2008), Nanay argues that there are cases where our perceptual systems simultaneously attribute two incompatible properties to an object. He suggests that this is easily accounted for if we posit two perceptual representations, one for each property, but hard for the naïve realist to explain.

Based on a seminal study by Aglioti, DeSouza, and Goodale (1995) in which participants' size judgments appear subject to the three-dimensional Ebbinghaus illusion, but their grasping appears relatively immune (Figure 1), Nanay argues that there can occur mismatches between ventral and dorsal vision. Deliberately over-simplifying the situation, we might explain this in terms of two representations: one in ventral vision which represents the central poker chip as having size *F*, another in dorsal vision which represents it as having size *G*, where *G* is closer to the real size than *F*.

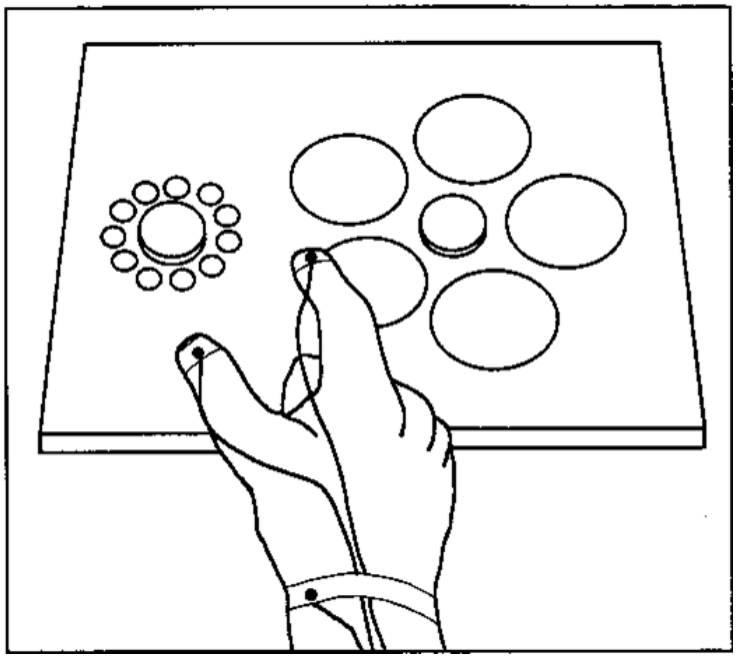

Figure 1. Three-dimensional Ebbinghaus illusion. Reprinted from Goodale and Humphrey 1998: 199, Figure 5, © 1998, with permission from Elsevier.

What can the naïve realist say? A natural response would be to posit two perceptual episodes. Yet according to Nanay: "If perception is a relation between the perceiver and the perceived token object's properties, then we have one perceptual relation here … And two different perceptual episodes cannot be constituted by the very same perceptual relation" (43).

It is far from obvious why we should accept the constraint Nanay imposes here. Why can't two different episodes involve a relation of the same kind, between the same subject and the same object? Here we can suppose that the chip is perceived in two different *ways* (recall §2), such that it looks *F* to you perceived one way, and *G* to you perceived the other. Moreover, since the dorsal stream is supposed to be unconscious, it is unsurprising that no conscious confusion arises.

Nonetheless, it might be argued (see §7 below) that unconscious acquaintance is incoherent for the naïve realist. Suppose this is right. The naïve realist can instead respond by granting

that there are two perceptual *representations*, one ventral, one dorsal, but insist that only in ventral vision does the representation subserve conscious acquaintance. In short, only the ventral stream realizes perception in the ordinary sense. Nanay objects that, to take this route, is to deny that perception can occur unconsciously, judging this "a dangerous conclusion to draw" on the basis that there are, seemingly, "a lot of examples of unconscious perception" (45). We address this shortly. But Nanay further challenges the naïve realist who takes this route to provide an account of "those *perceptually* guided actions that … are not guided by consciously experienced properties of objects" (ibid.). How should the naïve realist answer this challenge?

First, the naïve realist may entirely reasonably accept Nanay's representational account of dorsal vision. They simply need to deny that dorsal vision constitutes perception in the ordinary sense. This need not preclude unconscious perception. Milner and Goodale insist that "[t]he visual information used by the dorsal stream ... is not perceptual in nature" (2008: 776; cf. 1995/2006: 2) on the grounds that it is neither conscious, nor *potentially* conscious. This leaves room for unconscious (but potentially conscious) ventral perception. One might also deny that dorsal processing, at least in cases where it is most plausibly unconscious, is perception in the ordinary sense on the basis that dorsal information is unavailable to the subject themselves to guide actions. Instead, such information can be viewed as confined to an agential subsystem—akin to a semi-autonomous robot (Goodale and Humphrey 1998: §9) or a heat-seeking missile (Campbell 2002: 56; see further Phillips 2018: 499-501). Finally, one might deny dorsal vision is perceptual by appeal to its *content*. Consider Campbell's proposal that (ventrally-subserved) visual experience relates us to the categorical properties of objects, whereas dorsal vision

provides only access to "affordances" (Campbell 2002: 143-4). Indeed, dorsal vision may differ in all three respects: subjectivity, individual attributability and content.[21]

Less concessively, the naïve realist might resist the picture of dorsal and ventral vision which Milner and Goodale propose in the first place. This is not the place to engage with a large and complex literature. But Milner and Goodale's view is much more controversial than sometimes appreciated. In particular, serious doubts can be raised about key dissociations. For instance, the apparent differential susceptibility to the Ebbinghaus illusion mentioned above is widely challenged.[22] Thus, the status of the two visual system hypothesis is subject to a vigorous debate and it remains a serious hypothesis that perception and action are driven by unified, shared representations with distributed neural bases (Smeets & Brenner 1999; Franz, Fahle, Bülthoff & Gegenfurtner 2001). Such a view undermines Nanay's challenge at its first step.

7. Unconscious Perception

Nanay is one of several theorists who argues that naïve realism cannot acknowledge the existence of unconscious perception (see also Block in Phillips & Block 2016, Berger & Nanay 2016). These theorists find it (a) "inevitable" (Nanay 2014: 45) that the naïve realist must deny that perception can occur unconsciously, yet (b) consider there to be numerous examples of

[21] Of course, we have no objection to theorists talking of "perception" in relation to dorsal vision, despite these differences. Our point is only that such uses of "perception" will be technical or extended, and so entirely consistent with dorsal vision failing to constitute perception in the sense relevant to naïve realism. For further discussion see Phillips 2018: Part I.

[22] See Franz & Gegenfurtner 2008, Kopiske, Bruno, Hesse, Schenk & Franz 2016, and the brief review and careful assessment of illusion-resistant grasping in the Ponzo illusion in Cesanek et al. 2018. For broader discussions see Briscoe and Schwenkler 2015, Wu 2020, Phillips 2021b: §4.

unconscious perception to confound this denial. Nanay mentions: "visual agnosia and neglect patients … subliminal priming and blindsight" (45). One of us has written at length about these cases, arguing that they may in fact be cases of degraded conscious vision unreported due to conservative response biases, or instances of unconscious perceptual processing which do not constitute perception proper (Phillips 2016, 2018, 2021a, b; Peters et al. 2017; Phillips & Block 2016). We will not rehearse that case here. Instead, even accepting that, say, blindsight is legitimately construed in terms of unconscious vision, we want to highlight how the naïve realist has a ready reply to the challenge from unconscious perception.

Above, and drawing on Campbell (2011), we distinguished two kinds: a factive, conscious relational kind which we identified with perception in the ordinary sense, and a non-factive, non-subjective, representational kind found within theorising about vision in cognitive science. The naïve realist is concerned with the former kind. This, they can agree, cannot occur unconsciously since this would, absurdly, involve us being unconsciously conscious of some aspect of our environment (see Phillips 2018: 472; though cf. Anaya and Clarke 2017, Zięba 2019). Nonetheless, they can fully admit the possibility of the psychological, non-subjective, non-factive representational kind occurring without any corresponding awareness. As a result, they can remain entirely open to the possibility that empirical studies will vindicate the existence of unconscious perception in this psychological sense (see further Phillips 2018).

8. Conclusion

We have now considered both a global version, and various local versions, of the argument from science against naïve realism. Such arguments all contend that perception science demands a role for representation in theorizing about perception and that this is incompatible with naïve realism. As with one natural response to the traditional argument from science, our response to the argument from perceptual science does not question the science itself. Instead,

by rejecting the monistic assumption that there is a single level of theorizing at which the naïve realist and the perception scientist are operating, we have argued that naïve realism can happily accept a role for representations in psychological theorizing about perception. In particular, we suggest that the naïve realist should distinguish between a non-subjective, non-factive representational kind, and a subjective, factive relational kind. Vision scientists postulate the first kind, in detailing the perceptual processing underlying perception. Naïve realism seeks to elucidate the second kind, in offering its account of the nature of perception in the ordinary sense. By distinguishing these kinds and insisting that they are not in competition with each other, the naïve realist can accept that perception involves non-subjective, non-factive representational kinds. However, the naïve realist will deny that such kinds are what perceiving *consists* in. Such kinds enter, instead, at the level of the perceptual processing which *underlies* our perceptual acquaintance with the world.

There are, of course, other science-based challenges to naïve realism which we have not considered. Some focus on empirical facts about the *ordinary* kind, perception, and so cannot be answered in the way we have handled the challenges explored here.[23] One might, moreover,

[23] One such challenges is Brogaard's (2018) argument that two perceptual experiences in equally normal observers can vary phenomenally, even though they have exactly the same constituent objects and qualities. Here Brogaard draws on an empirical study by Winderickx et al. (1992) to claim that males with normal colour vision can exhibit phenomenological differences in colour experience of precisely the same stimuli, due to subtle genetically determined differences in sensitivity to red light. Brogaard argues that such cases "show that the phenomenology of experience is not exhausted by the external object and its perceptible property instances. This counts against naïve realism when understood as the view that visual experience is constituted by a perceptual relation between a subject and a mind-independent physical object" (2018: 9; see also ibid: 90, Block 1999, and Pautz forthcoming) We hope to cover this style of argument in much more depth in a companion piece, so our comment here will be brief. Our basic reply is that the argument requires the assumption of Diaphaneity highlighted in §2: the assumption that the character of experience derives entirely from the objects of acquaintance. Scientifically driven

like Burge, push back and reject the pluralistic vision we have proposed. To do so, however, would be to go beyond what perceptual *science* teaches us, and involve the imposition of a substantive philosophical claim, requiring substantive argument. Just as a philosophical refutation of naïve realism requires much more than the slightest philosophy, a scientific refutation of naïve realism requires much more than the slightest science.[24]

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results about variation in experience without variation in the objects of acquaintance may put pressure on this assumption. But this is no problem for the naïve realist who, as we have argued, should in any case reject it.

[24] Our thanks to Simon Brown, Giorgio Mazzullo and Jonathan Cohen for extremely helpful comments.

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