

SENSORIMOTOR RELATIONALISM AND CONSCIOUS VISION

BY DAVE WARD

I argue that the phenomenal properties of conscious visual experiences are properties of the mind-independent objects to which the subject is perceptually related, mediated by the subject's practical understanding of their sensorimotor relation to those properties. This position conjoins two existing strategies for explaining the phenomenal character of perceptual experiences: accounts appealing to perceivers' limited, non-inferential access to the details of their sensory relation to the environment, and the relationalist conception of phenomenal properties. Bringing these two positions together by emphasizing their sensorimotor common ground allows each one to respond to damaging objections using the resources of the other. The resulting 'sensorimotor relationalism' about conscious vision provides a promising schema for explaining phenomenal properties of perceptual states, replacing 'Hard' questions with tractable ones about the perceptual relation and its sensorimotor underpinnings.

Keywords: sensorimotor theory, naïve realism, consciousness, explanatory gap, embodied cognition, relationalism.

I. SENSORIMOTOR RELATIONALISM

There is 'something it's like' to be in conscious perceptual states—being in them feels a particular way. The phenomenal properties of a perceptual state are the properties that characterize what it is like for a subject to be in that state. Sensorimotor accounts of perceptual consciousness (Hurley 1998; O'Regan 2001; Noë 2004; Noë and O'Regan 2011; Ward et al. 2011) attempt to explain such phenomenal properties in terms of the sensorimotor properties of perceptual states. They hold that any conscious perceptual state involves a network of relationships obtaining between a perceiver's current sensory relation to their environment and their bodily activity. Phenomenal properties of perceptual experiences depend on this network and the perceiver's practical grasp of their place within it. The shiny penny before you looks as it does, for example, because you know how to do various things with and to it on the basis of your

current sensory contact with it: grab, flip, or roll it, or move your head, eyes, or body to bring different aspects of the penny and its surroundings into view. Your knowledge of such *sensorimotor contingencies*—relationships between sensation and movements—need not be articulate. Your grasp of your active role in the web of sensorimotor relations linking you to your environment is more like the inarticulate, embodied knowledge of how to ride a bike than the explicit, propositional knowledge of a set of rules and counterfactuals. The sensorimotor theorist's key claim, then, is that a perceiver's conscious experience of their surroundings consists in a practical grasp of their active place in the web of sensorimotor relationships obtaining between them and their environment.

Relationalist accounts of perceptual consciousness (Campbell 2002; Martin 2002; Fish 2009; Logue 2012b; Raleigh 2021) identify phenomenal properties of conscious perceptual experiences with mind-independent properties of the situations and objects that we perceive. As J. L. Austin puts it,

the way things look is, in general, just as much a fact about the world, just as open to public confirmation or challenge, as the way things are. I am not disclosing a fact about myself but about petrol when I say that petrol looks like water. (Austin and Warnock 1962: 43)

To explain the phenomenal properties of your perceptual experience of the penny, relationalists appeal to your perceptual acquaintance with objective properties of your situation. The penny's shape, size, way of catching the light, and position in egocentric space are mind-independent properties, perceptible by you from your current vantage point. The phenomenal character of your visual experience of the penny is fixed, according to the relationalist, by the visible properties of the penny to which you are currently perceptually related.

These strategies can be combined. Relationalists can explain the phenomenal properties of perception in terms of the mind-independent properties of objects and situations while providing a sensorimotor account of what the perceptual relation consists in—of how embodied perceivers are put in touch with mind-independent properties via their grasp of their place in the web of contingences linking sensation and movement. The phenomenal properties of perceptual experience are fixed by the perceiver's relation to their mind-independent environment, and this relation is characterized by the perceiver's practical grasp of the sensorimotor contingencies of their situation. The phenomenal character of your experience of the penny is still explained via appeal to the penny's perceptible properties, but your perceptual openness to those properties is explained via appeal to your grasp of the sensorimotor contingencies involved in your current relation to the penny. Likewise, sensorimotor theorists can explain phenomenal character in terms of the sensorimotor contingencies implicated in particular experiences, while appealing to mind-independent properties of perceived objects and situations in their accounts of the particular suites of sensorimotor contingencies associated with particular

experiences. The phenomenal character of your experience of the penny is still explained via appeal to your grasp of the network of relationships obtaining between your current sensory relation to your environment and your capacities for active, bodily manipulation and exploration, but the distinctive shape and structure of that network is determined partly by the distal, mind-independent properties of the penny and its spatial relation to your vantage point. I argue here that, when it comes to accounting for the phenomenal character of visual experience, sensorimotor and relationalist accounts are better off together. I do so by articulating a particular way of combining a sensorimotor conception of a perceiver's conscious relationship to their environment with a relationalist conception of the phenomenal properties of perceptual experiences, and arguing that the combination affords responses to serious objections to its constituents.

My main aim here—convincing those antecedently sympathetic to sensorimotor or relationalist approaches to join forces—is fairly modest. But it is entangled with a more ambitious one. Sensorimotor relationalism (henceforth SR) is intended as a theory of the phenomenal properties of conscious perceptual states—one that tells us which conditions must be fulfilled if some of a subject's perceptual states are to be conscious, and why. The point of the suggested combination of sensorimotor and relationalist views is to make progress towards this more ambitious goal. As noted elsewhere (Fish 2008; Raleigh 2021), sensorimotor and relationalist accounts complement each other by addressing different aspects of phenomenal character. Sensorimotor accounts are well-placed to accommodate the perceiving subject's contribution to the character of experience; relationalists are well-placed to accommodate the perceived object's contribution. The next section's sensorimotor account purports to answer the question of why perceptual experiences feel like anything at all to their subjects, but struggles with the question of why they feel the particular ways they do. Conversely, relationalists explain the particular character of perceptual experiences via appeal to the properties of perceived objects, but struggle to explain why being perceptually related to an object feels like something rather than nothing (Fish 2009). Each view claims to provide a key part of an explanation of conscious experience. But what do these parts amount to when taken in isolation? Can we make sense of a sensorimotor theorist's claim to have shown that some perceptual experiences must feel like *something* to their subjects without having shown that they feel like *something-in-particular*? And when relationalists tell us that, granted that a perceptual experience feels like *something* to its subject, they can explain why it feels the particular way that it does, have they not asked to be granted just what needs explaining? A main motivation for SR is that it explains more than the sum of its parts. Appeal to a grasp of sensorimotor contingencies in explaining why a given perceptual experience feels like *something* gets maximum explanatory purchase in the context of a relationalist account of why the experience feels the *particular* way it does. And vice versa—the explanatory force of the perceptual relation in

explaining the particular phenomenal properties of experience is best brought out in the context of a sensorimotor theory of perception.

Below I provide only a partial schema for explaining phenomenal properties. The criticism of sensorimotor and relationalist approaches just mooted is that, taken in isolation, they provide illuminating answers to questions about experience only when viewed in the context of a fuller theory. Isn't it then problematic that the schema presented below is itself gappy and partial? This depends, I think, on the nature of the gaps. David Chalmers influentially taxonomizes problems of consciousness into 'easy' and 'hard', where:

The easy problems of consciousness are those that seem directly susceptible to the standard methods of cognitive science, whereby a phenomenon is explained in terms of computational or neural mechanisms. The hard problems are those that seem to resist those methods. (Chalmers 1997: 200)

'Hard problems' are those associated with explaining the phenomenal properties of experience. Chalmers defines them in terms of their *seeming* resistance to the standard methods of cognitive science—but things are not always as they seem. We make progress towards explaining these properties by showing that this seeming resistance is only apparent. This, I suggest, is where SR succeeds while its constituents falter. The problems faced by relationalist and sensorimotor views in isolation—explaining why perceptual experiences feel like anything at all to their subjects; explaining why they feel the particular ways they do—are 'hard' in Chalmers' sense of seeming unamenable to the explanatory tools of cognitive science. The problems faced by SR—delineating the sensorimotor contingencies associated with particular perceptual experiences; specifying the practical grasp that perceiving subjects have of their sensorimotor relation to their perceptible environment—are not. The schema below leaves plenty of work to be done. But it makes progress towards understanding conscious experience insofar as this further work demands no more than the standard explanatory toolkit of the cognitive sciences.

II. SENSORIMOTOR THEORY AND PHENOMENAL CHARACTER

How can sensorimotor theories help us understand the phenomenal properties of conscious perceptual experiences? Sensorimotor theories come in many varieties. They are united by an emphasis on the links between sensory information and bodily activity—that is, on sensorimotor contingencies. They are divided by the particular links they choose to emphasize, and their stance on whether perceivers must grasp, understand, or otherwise metacognize, the links between sensory information and bodily activity that characterize particular perceptual episodes. One kind of sensorimotor contingency pertains to the way in which organic perceivers actively modulate, rather than passively

receive, sensory information. Perceivers mine information from their environments by sculpting flows of sensory information in helpful, task-sensitive ways. Another kind of sensorimotor contingency pertains to ways in which sensory contact with the environment poises perceivers to pursue particular suites of activities. Theorists who emphasize this latter kind of contingency hold that an animal's perception of its environment is always pragmatically loaded, couched in terms of its ongoing goals and activities.¹ SR as developed below emphasizes both kinds of contingency. Most importantly, it holds that *conscious* perceivers have an implicit grasp of the sensorimotor contingencies involved in their perceptual contact with the environment. Conscious perception involves practical understanding of the distinctive suite of opportunities to modulate one's experience and interact with one's environment that one's current sensory relation to the world affords.²

This practical understanding is an important feature of SR because it affords a particular kind of explanation of how a subject can come to occupy the epistemic standpoint in which we find ourselves with respect to the phenomenal properties of experience. An early precedent is Dan Dennett's (1968) suggested strategy for engineering, a system that has intuitions about its own cognitive states and processes. A system has intuitions—rather than blind guesses, or infallible knowledge—about its own cognitive achievements when its first-person reports reflect imperfect access to the details of the underlying information-processing. To engineer a system with intuitions about its psychological life, endow it with the capacity to report on its internal processes while denying it full access to their detailed structure and mechanics.

II.1 *Clark's creature*

Andy Clark (2000) gives this line of thought a sensorimotor twist, and uses it to shed light on perceptual consciousness. Imagine a creature—Nicky—with a range of abilities for sensory discrimination that can issue in judgments about the objects and properties in her environment. Nicky also has the metacognitive ability to reflect and report on her sensory discriminations. When asked how she discriminates between red and yellow, shape and colour, or seeing and feeling, the type of answer she gives will be determined by the nature of her

¹ Noë (2004) and O'Regan (2011) tend to emphasize the former kind of contingency; sensorimotor accounts inspired by Gibson (1979/2014) and his followers, such as Chemero (2009), tend to emphasize the latter. Hurley (1998) emphasizes both. Within the broader camp of embodied approaches to perception, controversy abounds over the compatibility of Gibson's ecological psychology with the biodynamic enactivism sometimes allied with sensorimotor theories (Thompson 2005). SR is compatible with, but needn't entail, the key commitments of biodynamic enactivist approaches as I understand them, so I set aside this dispute here. For conciliatory views, see Baggs & Chemero (2021) and Heras-Escribano (2021).

² SR is consequently incompatible with sensorimotor views eschewing appeals to sensorimotor understanding (e.g. Hutto and Myin 2012).

access to the activity underlying her perceptual discriminations. If Nicky *lacks* access to this activity, she might report as follows:

I have no access to the act by means of which I detect the differences. The answer just comes to me. I perceive nothing when I make my judgements – I simply find myself saying that there are two objects, one red and one yellow, and so on. (Clark 2000: 30)

Complete absence of access to the basis on which perceptual discriminations are made would thus result in Nicky judging that there is nothing it is like, from her point of view, to make such discriminations. Endowing Nicky instead with *perfect* metacognitive access to the activity underlying her perceptual discriminations and asking her to report on the ways in which individual sensory episodes differed would, it seems, simply result in an exhaustive list of physical, biochemical, computational and other structural and functional similarities and differences between those episodes. Since there is no obvious entailment between such properties and conscious experience, we have no reason to think that access to the role of those properties in her sensory processing should prompt Nicky to judge there to be something it's like characteristic of one sensory state rather than another. Neither absent nor perfect access, then, seem to entail that there should be anything it's like to be Nicky. But a mode of *limited, but non-inferential* access to the basis of her perceptual discrimination will poise Nicky to report as follows:

I have access not just to the products of my sensory activity, but also to certain aspects of that activity itself. For example, I am non-inferentially aware that I am using a visual rather than a tactile modality. I am aware that I see, rather than hear or feel, the difference. (Clark 2000)

There is thus, for Nicky, a difference between the first-person character of distinct modes of sensory awareness that is real, introspectible, but—due to her limited access to that difference—somewhat ineffable. Limited, non-inferential access to this difference poises Nicky to sincerely report that touching and seeing *feel* different for her, that there's *something it's like* to see as distinct from to touch. The phenomenal properties of conscious perceptual states, recall, are the properties that type perceptual states according to what it is like for a subject to be in them. Nicky's sensory abilities, coupled with her metacognitive access to those abilities and their exercises, put her in a position to make sincere judgments about the phenomenal properties of her perceptual states. Clark's key claim is that such limited, non-inferential reflexive access to properties of sensory discriminations marks out a '*necessarily* zombie-free zone' (ibid, 37) whose occupants will report that there's 'something it's like' to go about their perceptual lives. The insight that this kind of access to one's sensory relation to the environment puts one in a position to sincerely judge that there's 'something it like' to be in particular sensory states is the first key plank of SR's account of perceptual consciousness.

Importantly, Nicky occupies this epistemic position because of facts about her *mode of access* to her sensory relation to the world, not facts about what is accessed. Consider Chalmers' (2018: 24) objection to Clark's proposal: we have metacognitive access to our beliefs via introspection but lack the intuition that there is a 'hard problem' associated with explaining properties of those beliefs. Given this, can patterns of metacognitive access really explain intuitions about phenomenal properties? Whilst Clark emphasizes the nature of our access to the *sensory modality* within which a perceptual discrimination was made, rather than access to the properties of the introspected state itself, Chalmers worries that 'it is not really clear why access to a modality as opposed to an attitude should make such a striking difference' (ibid). Chalmers' objection misconstrues the nature of the appeal to accessibility. What puts subjects in a position to judge that there is something-it'slike to be in a particular psychological state is not *what is accessed* (a modality, an attitude), but the *nature of the access* to the modality in question. In standard cases of belief, introspection yields *perfect* access to the properties in virtue of which believing that *p* differs from believing that *q*—the differing propositional contents of the two states. Our introspective access to that difference in content is non-inferential, but also non-limited. This contrasts with our *limited, non-inferential* access to the properties in virtue of which our episodes of sensory discrimination differ.

Nothing thus far, necessarily implicates sensorimotor contingencies. What brings Clark's proposal into the sensorimotor family is his way of spelling out the relevant patterns of metacognitive access to sensory episodes via appeal to the subject's grasp of the sensorimotor contingencies associated with different perceptual states (Clark 2000: 34; cf. Myin and O'Regan 2002; Ward et al. 2011). We saw earlier that sensorimotor theorists hold that distinct perceptual episodes open up distinct portfolios of potential exploratory and pragmatic actions for their subjects. Call the package of abilities and dispositions distinctively associated with a particular sensory state or modality a 'sensorimotor profile'. Differences between sensory modalities, for example, can plausibly be accounted for in terms of differences in sensorimotor profiles. Vision usually does better than other modalities at poising us to act in ways sensitive to spatial information about the boundaries and locations of objects. To find out whether your letter will fit in the postbox, look, don't listen. Tactile capacities usually do best at poising subjects to act in ways sensitive to textural and compositional properties of objects and surfaces. To find out which sofa is the comfiest, touch, don't look. Though few would bother to articulate such facts, there is a straightforward sense in which most people know them. This knowledge consists in practical mastery of the ways of exploring and interacting with the environment associated with particular perceptual capacities – their distinctive sensorimotor profiles. As perceivers, our access to the portfolios of interactive and exploratory skills actuated by sensory contact with the environment is *non-inferential*, consisting of a practical mastery of those skills that can be exercised

automatically and unthinkingly. It is *limited* insofar as our understanding of those skills is *practical*, consisting in abilities to deploy them in appropriate contexts rather than to articulate their structure or principles. According to Clark and SR, Nicky's intuition that what-it's-like to see differs from what-it's-like to touch stems from her practical grasp of the different sensorimotor profiles involved in these modes of perception. This is why Nicky's introspection of the differences between her sensory states yields different results, from her perspective, than introspection about the differences between her beliefs. Her perfect access to the contents in virtue of which her beliefs differ contrasts with her inarticulate practical understanding of the distinct sensorimotor profiles of vision and touch—the different possibilities for engaging her environment engendered by sensory episodes in each modality.

II.2 *Two objections*

The story so far is that perceivers with limited non-inferential access to the sensorimotor profiles implicated in their current sensory state are thereby forced into a perspective that disposes them to judge that it *feels* a particular way to be in some sensory states. From the perceiver's own perspective, some perceptual states have phenomenal properties—properties pertaining to *what it is like* to be in that state, rather than some other one. This explanation appeals only to sensory access to the environment, and metacognitive access to sensory states. The problems associated with explaining such patterns of access are 'easy' ones, by Chalmers' standards.

But does this explanation hit our intended target? The real explanatory challenge posed by conscious perception, a first objection runs, is explaining why conscious experiences *really have* phenomenal properties, not explaining why some subjects are disposed to judge or report that they do. The proposal above addresses the *meta*-problem of consciousness (Chalmers 2018)—explaining only why one might *think* there's a 'hard problem' of consciousness—but leaves the *real* problem untouched. In response to this objection, Clark emphasizes that his account explains not only the propensity to make first-person judgments about similarities and differences between acts of sensory discrimination, but also why those judgments can be *true*—they can do better or worse at reflecting genuine metacognitive access to a sensorimotor profile, 'driving a wedge between honest report and truth' (Clark 2000: 32–3). The truthmakers of our phenomenal judgments are thus, for Clark, the sensorimotor profiles to which we have limited non-inferential access.

Does this response work? A natural rejoinder is that it puts the truthmakers of phenomenal judgments in the wrong place—surely those judgments are made true by phenomenal properties of experiences themselves, not by

collections of behavioural dispositions? Clark thinks this rejoinder is question-begging. His account specifies a metacognitive structure such that:

A being so organized and functioning must *report* phenomenal differences, and there is a further fact of the matter that makes such reports typically true. To say that this is insufficient because the further fact is not itself a *phenomenal* fact, but a fact about access, is to beg the question against any account which does not acknowledge brute phenomenal facts: it is to make the reductive—or access-based—explanation of phenomenal consciousness impossible *by stipulation*. I see no reason to accept such a commitment. (Clark 2000: 33, original emphasis)

However, we at least *seem* to have excellent reason to accept this commitment—as conscious perceivers we are intimately acquainted with the truthmakers of our phenomenal judgments. The objection that those truthmakers don't seem to be suites of behavioural dispositions is motivated by that acquaintance, not mere stipulation. A stalemate beckons. Clark can respond by admitting that phenomenal truthmakers don't *seem* to be sensorimotor profiles, but arguing that we need not take this seeming at face value. Chalmers can respond by insisting that our acquaintance with the phenomenal properties of our experiences rules out the possibility that they are mere collections of colourless dispositions. How can we move forward?

We return to this question shortly. Suppose for now that we could break this stalemate and grant that there is a sense in which Clark's account explains why perceptual experiences feel like *something* to their subjects. A second objection notes that Clark's account does not explain why particular experiences feel the particular ways they do, and thus does not give us a full explanation of phenomenal character. Clark concedes this while arguing that a *partial* explanation here still constitutes progress (Clark 2000: 36). But the problem runs deeper. There is something odd about holding that we can explain the occurrence of phenomenality in general without explaining its particular properties. It amounts to claiming that facts about accessibility determine that there *are* facts about the phenomenal properties of experiences, whilst leaving it underdetermined just what these latter facts are (Fish 2008: 172–3). Clark optimistically compares this situation to providing a physicalist explanation of why water from a broken dam had to flow *somewhere*, while leaving the geographical details accounting for its *particular* trajectory unspecified. But our strong intuition of a distinction between physical and phenomenal qualities spoils this analogy. Explaining why the escaped water had to be located somewhere in physical space would indeed ease our puzzlement at the particular location at which it was located. But it is unclear whether the particular location of the sensation of red in *the space of possible phenomenal qualities* is similarly demystified by explaining our propensity to think that such a space exists, and that sensory qualities are located somewhere or other within it. The disanalogy is in part because we understand the kinds of further details required to explain the water's particular location in physical space, but not those required to explain red's location in quality space. More

fundamentally, the analogy fails to soothe because our very grasp of the idea of a *general* space of possible phenomenal qualities rests on abstracting from our experiential acquaintance with *particular* phenomenal qualities—we can make sense of the idea of *something it's like* to undergo experience in general only in virtue of our acquaintance with *what it's like* to have particular experiences. And it is just this acquaintance with the particular phenomenal properties of experience which has yet to be explained. The impression that an appeal to accessibility can demystify phenomenal character appears to rest on our acquaintance with particular phenomenal properties of experience, and thus on exactly what accessibility—so far—cannot explain.

III. RELATIONALISM AND PHENOMENAL PROPERTIES

Clark aimed to explain the phenomenal properties of conscious visual experience via appeal to the perceiver's practical grasp of the sensorimotor profile of their perceptual state—their understanding of their active place in the web of sensorimotor relationships obtaining between them and their surroundings. Both objections just considered rely on the fact that we are acquainted with the phenomenal properties of our experience in ways that this strategy struggles to explain. How can we explain this acquaintance in a way consistent with the naturalistic aspirations of sensorimotor views? A *relational* conception of conscious experience (Campbell 2002; Martin 2002; Fish 2009; Logue 2012a; Raleigh 2021) suggests a way forward. The truthmakers of judgments about the phenomenal properties of perceptual experiences aren't suites of behavioral dispositions—they are properties of the mind-independent environment to which perceivers are sensorimotorically related.

III.1 *Relationalism about conscious perception*

Take a coin and attend to your visual experience of its colour. What are the phenomenal properties of this experience—*what is it like* to visually experience the coin's colour? You might hear this as a question about properties of *you*—about your current visual state. Alternatively, you might hear it as a question about properties of the *coin*—the reflectance properties, and relational properties linking it to nearby light sources and surroundings, that determine the colour it presents to you, from your particular vantage point. Relationalists argue that questions about the phenomenal properties of veridical experiences should be understood in this second way—recall Austin's insistence that the way petrol looks is a fact about petrol, not about Austin. For relationalists, the phenomenal properties with which veridical perceptual experiences acquaint us are properties of the objects to which those experiences relate us, such as their shape, size, and spatial relations to their surroundings and to the perceiver. When we 'turn our attention inwards' and contemplate the properties

of our experience we don't shift our attention to a new 'inner' object. We remain perceptually related to the outside world, but now attempt to attend to aspects of the perceptual relation itself. As Mike Martin (2002), reflecting on his visual experience of a nearby lavender bush, puts it:

When my attention is directed out at the world, the lavender bush and its features occupy centre stage. [...] [W]hen my attention is turned inwards instead to my experience, the bush is not replaced by some other entity belonging to the inner realm of the mind in contrast to the dilapidated street in which I live. I attend to what it is like for me to inspect the lavender bush through perceptually attending to the bush itself while at the same time reflecting on what I am doing. (380–1)

Suppose we accept the claim that the phenomenal properties of veridical perceptual experiences are simply a subset of the mind-independent properties of objects. No 'hard problems' are associated with understanding how suitably constituted systems can use sensory information about mind-independent properties of their environment to reliably discriminate and respond to those properties. We can engineer physical systems that do this in many domains. For relationalists, then, the challenge of explaining perceptual acquaintance with phenomenal properties appears to boil down to the 'easy' problem of explaining how a system can have sensory access to properties of the objects it perceives. This task is not trivial, but there is no good reason to think it outruns the explanatory scope of the cognitive sciences.

SR proposes an understanding of the perceptual acquaintance relation in terms of the sensorimotor profiles implicated in a perceiver's sensory contact with their environment. Subjects are perceptually related to their environment by being in states with particular sensorimotor profiles, the details of which both depend on and help determine the particular mind-independent properties with which subjects are perceptually acquainted. A sensorimotor profile's details depend on the mind-independent properties to which the perceiver is related insofar as those properties determine what the perceiver can do on the basis of their sensory contact with the environment. The penny looks flippable and rollable to you because its objective shape properties are such that it affords flipping and rolling to suitably skilled agents. It looks shiny because of the way its objective reflectance properties shape your expectations about how it will glint and gleam as you move around it, or move it relative to light sources. Simultaneously, details of the sensorimotor profiles of perceptual states help determine the particular mind-independent properties with which perceivers are acquainted—the scope and limits of your sensorimotor capacities constrain the set of objective properties you can experience. You see the penny's shape and shine, but not its subatomic composition. Your sensory contact with the penny neither poises you to act in ways specifically sensitive to its subatomic properties, nor engenders expectations about how your sensory relation to those properties will change as you move around. SR holds that, because the penny's subatomic properties are not reflected in your

experience's sensorimotor profile, you are not perceptually acquainted with them.

SR thus belongs to a family of relationalist views that appeal not only to mind-independent properties of perceived objects, but to the whole perceptual relation—properties of perceiver, perceived, and the relationship between them—to explain the phenomenal properties of veridical experiences (Campbell 2008; Fish 2009; Brewer 2011; Logue 2012a; Raleigh 2021). Your experience of the coin's shine is determined not just by its reflectance properties, but by those properties as mediated by your perceptual relation to the environment, including your position in relation to the coin and ambient light sources, and your practical grasp of how sensory information changes with your movements. The perceptual relation is determined by the sensorimotor skills implicated in your experience of the world as well as the properties of the world with which those capacities put you in touch. Austin's claim that the way petrol looks is a fact about petrol, not about perceivers, thus, needs qualification. According to SR, the phenomenal properties referred to in talk about how things look are indeed properties of mind-independent objects. But understanding how those properties determine the way things look to a perceiver requires taking the details of the perceiver's sensorimotor relation to those properties into account. The properties of a particular petrol puddle, for example, determine how it looks to a perceiver only when we take into account the context of the sources of light falling on and reflected by it, coupled with the perceiver's current vantage point and sensorimotor capacities.

This sensorimotor take on the acquaintance relation suggests responses to the previous section's objections by bringing the relationalist explanatory strategy—identify phenomenal properties with properties of mind-independent objects with which we are perceptually acquainted—into contact with Clark's access-based proposal. The second objection considered above was that Clark's strategy might explain why a subject's perceptual experience should feel *some* way to them, but cannot explain its particular phenomenal character. SR deals with this by identifying the particular phenomenal properties of a given perceptual experience with the mind-independent properties to which the perceiver is sensorimotorically related. The first objection was that the sensorimotor strategy explains only dispositions to make judgments or reports about phenomenal properties, falling short of an account of the phenomenal properties with which, perceivers are acquainted. Clark's response was to identify phenomenal properties with the sensorimotor profiles of perceptual experiences—but we noted, against this, that the phenomenal properties with which we are acquainted in experience don't seem like mere suites of actuated skills and dispositions. SR clarifies that the phenomenal properties of perceptual experiences are not sensorimotor profiles, but properties of the perceptible environment to which perceivers are sensorimotorically related. An implicit grasp of their sensorimotor relation to these properties puts

perceivers in a position to judge that there is something it is like to stand in their current perceptual relation to their environment. Such judgments are made true by the environmental properties to which they are perceptually related, not by the sensorimotor profiles that put them in such a relation.

Relationalists also benefit from the way in which SR conjoins an appeal to limited, non-inferential access to suites of sensorimotor skills with a relationalist conception of phenomenal qualities.³ As William Fish (2009) notes, while relationalism purports to explain why experiences have the particular phenomenal qualities they do, it cannot by itself ‘tell us why it has to be like *anything at all* to be a system’ that is perceptually acquainted with its environment (76). But, as we saw above, explaining the presence of some phenomenality rather than none is just what the appeal to limited, non-inferential accessibility purports to do. An implicit grasp of the sensorimotor profiles of perceptual states puts subjects in a position to judge that there is something it’s like to stand in the perceptual relation to the environment. Our practical grasp of the sensorimotor profiles of perceived objects thus explains why experiences feel like *something* to their subjects, while the mind-independent properties with which perceivers are acquainted explain why particular experiences feel the *particular* ways they do.

III.2 Illusions, hallucinations, and screening off

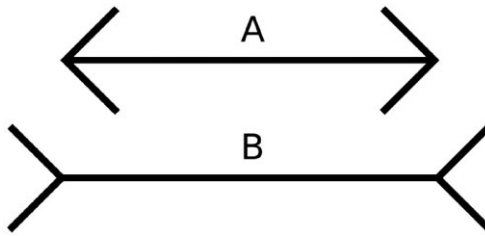
Of course, sceptics about relationalist conceptions of phenomenal character can take no comfort in all this. While my aim here is not to motivate SR from the ground up, I think that SR’s account of the perceptual relation nonetheless undermines a powerful intuitive source of resistance to relationalism. Relationalism identifies phenomenal properties of perceptual experiences with properties of the perceiver’s mind-independent environment. But some conscious experiences—hallucinations, illusions, dreams—can be subjectively similar to or indiscriminable from perceptual experiences while involving an altered or absent perceptual relation to mind-independent properties. If similar or indistinguishable phenomenal properties can obtain while the acquaintance relation varies, how can perceptual acquaintance explain phenomenal properties?

Like most relationalist views, SR endorses disjunctivism, holding that veridical perceptions, in which one is genuinely perceptually related to the visible properties one experiences, are states of a fundamentally different kind to those in which the perceptual relation does not obtain. SR owes us a story

³ Fish notes the possibility of combining relationalist and access-based accounts of perceptual consciousness in this way (2008, 2009), but does not endorse a particular access-based account or spell out how it should be integrated with a relationalist conception of perception. Raleigh (2021) also argues that relationalism would benefit from being combined with a sensorimotor approach.

about how this claim of fundamental difference can be reconciled with the phenomenal commonality between perceptions and their illusory or hallucinatory counterparts. SR's strategy is to appeal to commonalities in the sensorimotor profiles of perceptual and non-veridical experiences—overlapping ways in which subjects implicitly take themselves to be poised to act on their environment in each type of experience. In illusions and hallucinations, subjects have an erroneous practical grasp of how their sensory capacities relate them to perceptible properties. Such states can nevertheless be subjectively similar to, or indistinguishable from, veridical perceptions insofar as subjects implicitly take the same package of sensorimotor interactions to be on the cards.

Illusions, for SR, are cases in which the perceiver is perceptually related to *something*, but some quirk of the perceptual situation sets their grasp of their relationship to the environment askew. When you look at the Muller-Lyer illusion below, for example, you are perceptually related to the lines and arrowheads on the page, and there is plenty about your grasp of your sensorimotor relationship to the situation that is accurate.



You know how to manipulate your sensory access to the marks on the page by moving closer, further away, or to a more oblique vantage point. Moving closer, for example, affords a better look at the detailed printwork at the expense of your view of the scene's overall spatial layout. You are probably mostly right about the package of sensorimotor interactions, distinctive of the presence of a 2D image of parallel lines flanked by arrowheads, that is on the cards. But you are subject to an illusion insofar as you are mistaken about an aspect of the scene—line B looks longer than line A, but it is not. SR explains this deceptive look in terms of false sensorimotor expectations. It is a fact, for example, that picking up figure A and placing it on figure B would make the points of the arrowheads touch and form two 'x's. But it doesn't look that way to you—that aspect of your sensorimotor grip on the situation, among others, has gone awry. *Why* and *how* exactly has it gone awry? SR must ultimately answer these questions—but so long as they are 'easy' ones, amenable to the explanatory toolkit of perceptual psychology, we needn't answer them here. And so they seem to be. Something about the perceptible scene's layout distorts your perceptual grasp of the relative length of the lines, and this distortion has

its distinctive phenomenology because of the way its sensorimotor profile overlaps with that of a veridical perception of two lines of unequal length.⁴

Hallucinating subjects are more radically mistaken about their sensorimotor relation to the environment. In experiencing the Muller–Lyer lines as being of different lengths you are perceptually related to real aspects of the depicted scene, but mistaken about the range of sensorimotor interactions that are on the cards. If you hallucinate Muller–Lyer lines when none are around, your misperception of your sensory relation to the environment is more radical. But SR's treatment of such experiences is the same. Phenomenal commonalities between veridical perceptions and their hallucinatory counterparts are explained by the overlap in the suites of sensorimotor dispositions actuated for the subject. Here too, SR faces further questions about how and why these particular suites of dispositions come to be actuated—but here too we lack good reason to think that the answers lie beyond the explanatory reach of the perceptual psychology.

SR, then, explains phenomenological commonalities between perceptual and non-veridical experiences via appeal to their sensorimotor commonalities. Martin (2004, 2006) influentially argues, however, that any such 'positive' relationalist account of the subjective commonalities between these types of experience is self-undermining. Relationalists about phenomenal character give the relation obtaining between perceiver and environment in veridical perceptual experience a privileged role in explaining phenomenal properties. Martin worries that providing an account of the commonalities between perceptual and non-veridical experiences that appeals to some state or event common to both experience types undercuts the explanatory force of the appeal to the perceptual relation. If the phenomenological overlap between veridical perceptions and their illusory or hallucinatory counterparts is explained by some commonality between the two types of state, this commonality threatens to 'screen off' the explanatory contribution of the perceptual relation to an account of the phenomenology of perceptual experience. If the phenomenological indistinguishability of a hallucinatory experience from a corresponding veridical perception can be explained via appeal to the subject's grasp of their respective sensorimotor profiles, then why should we appeal to any more than this grasp in explaining the phenomenal character of veridical experiences?

⁴ Phillips (2016) discusses the compatibility of relationalist accounts with this structure with the perceptual psychology of some visual illusions, including the Muller–Lyer. A reviewer rightly notes that some visuomotor dispositions are not affected by visual illusions such as the Muller–Lyer, Titchener circles, and hollow mask illusion (see Toribio 2021 for a review). SR would be straightforwardly falsified if there was a visual illusion where *all* of a subject's sensorimotor skills were appropriately attuned to the visible properties of their environment, but their perceptual experience was non-veridical. However, so long as the perceiver has some non-veridical sensorimotor expectations which correspond to their non-veridical phenomenology, SR can attempt to explain the latter in terms of the former.

Absent a good answer to this question we lack good reason to endorse relationalism about phenomenal character, since we would be construing the grasp of sensorimotor profiles that explains phenomenal character as something that could obtain independently of the perceptual relation. For this reason, Martin and others (Fish 2009; Nudds 2013) endorse a ‘negative’ or ‘epistemic’ conception of hallucination, holding that the psychological nature of hallucinatory experiences consists only in their subjective indiscriminability from corresponding veridical experiences. Martin’s thought is that, while this property is shared by hallucinations and corresponding veridical perceptions (my perfect hallucination of the mug before me is indiscriminable from a corresponding veridical perception of the mug; my veridical perception of the mug is, trivially, indiscriminable from itself), this commonality does not screen off the explanatory contribution of the perceptual relation to an account of the phenomenology of perceptual experience. My acquaintance with my mug’s mind-independent perceptible properties can plausibly be invoked to explain the particular phenomenology of my visual experience; the fact that the psychological state I am in is subjectively indiscriminable from itself cannot.

Heather Logue (2013) notes that disjunctivists need not accept this negative characterization of the nature of non-veridical experiences. They can instead give a positive explanation of the subjective indiscriminability of hallucinatory and corresponding veridical experiences while holding that there is more to the fundamental nature of veridical experiences than the properties they share with matching hallucinations. So long as this extra aspect of veridical experiences does work in explaining some fundamental property of perception, the properties perceptions share with their hallucinatory counterparts will not screen off the explanatory force of the perceptual relation.

SR’s account of hallucination has this form. It explains the subjective indiscriminability of hallucinations and corresponding veridical experiences in terms of their overlapping sensorimotor profiles. In a perfect hallucination the perfect overlap between the sensorimotor profiles of the hallucinatory experience and a matching veridical perception explains their subjective indiscriminability. But there is more to the fundamental nature of a veridical perceptual experience than the sensorimotor profile it shares with its hallucinatory counterpart. It is fundamental to veridical perceptions, but not to corresponding hallucinations, that they acquaint the perceiver with a perceived object and its properties—that’s what makes them veridical perceptions. SR holds that this acquaintance consists in the way in which the distal object and its properties determine the perceiver’s grasp of their sensorimotor relationship to the perceived. When veridically perceiving the penny’s shape and shine, the perceiver’s grasp of the package of sensorimotor interactions made available by their sensory contact with their environment aligns with the interactions that are really on the cards. In a corresponding hallucination it does not.

This additional aspect of veridical experiences – the fact that the perceiver’s sensorimotor take on their environment is appropriately shaped by the actions and interventions their environment really affords—does explanatory work in SR’s account of phenomenal properties. We saw in Section II that, considered in abstraction from the ways in which they link us to perceptible properties of the environment in veridical experiences, the sensorimotor profiles of perceptual states can explain why a subject with limited, non-inferential access to those profiles will judge that there is *something* it’s like to perceive the environment in one way rather than another. But, by themselves, such explanations are silent about the *particular* phenomenal qualities associated with particular sensorimotor profiles. This is why SR conjoins its appeal to sensorimotor profiles with the relationalist identification of the particular phenomenal properties of veridical perceptions with the mind-independent properties of the objects to which perceivers are sensorimotorically related. This conjunction affords an explanation of why particular sensorimotor profiles are associated with particular phenomenal properties—they are associated with the perceptible properties of objects with which they acquaint us in veridical experiences.

Because SR links sensorimotor profiles to specific phenomenal properties in this way, its explanatory purchase on the particular phenomenal properties of hallucinatory states is inherited from its account of those of veridical experiences. SR can link the sensorimotor profile associated with seeing a round, shiny penny to the particular phenomenal properties of roundness and shininess only because we know that, in the case of veridical perception, being in a state with this sensorimotor profile acquaints us with a penny’s mind-independent shape and shine. SR’s account of the particular phenomenal properties of hallucinations relies on this understanding of the ways in which sensorimotor profiles link perceivers to perceptible properties in veridical experiences. The fact that a subject has an erroneous practical grasp of her sensorimotor relationship to the environment explains why there’s *something* it’s like for her to hallucinate; the fact that the distinctive suite of false sensorimotor expectations is exactly that which would, in the good case, acquaint her with the mind-independent properties of roundness and shininess explains why her hallucinatory experience is as of those *particular* properties. SR can explain the particular phenomenal properties of a given hallucination only with reference to the mind-independent properties with which the subject would be sensorimotorically acquainted in a corresponding veridical perception. In this way, the perceptual relation that distinguishes veridical experiences from matching hallucinations continues to play a privileged explanatory role in SR’s account of even the hallucinatory experiences where that relation is absent. This is why, the explanatory force of the perceptual relation in explaining the phenomenal character of the veridical perception is not screened off by SR’s account

of the phenomenal commonalities between perceptions and corresponding hallucinations.

IV. NEIGHBOURING APPROACHES

How is SR related to neighbouring strategies for explaining phenomenal character? SR's constituent explanatory strategies can each be pursued without essential reference to sensorimotor contingencies. Like Clark (2000), higher-order thought theorists (Carruthers 2000; Rosenthal 2005) and phenomenal concept strategists (Stoljar 2005; Díaz-León 2010) aspire to explain phenomenal consciousness via appeal to psychological relations between perceivers and their perceptual states, but without mention of sensorimotor contingencies.⁵ Many relationalists attempt to explain phenomenal properties without mention of sensorimotor contingencies (Fish 2009; Logue 2012a). Might another combination of relationalist and higher-order or phenomenal concept approaches accrue the advantages claimed above for SR?

I don't wish to rule this out here. But developing the generic access-based and relationalist strategies via appeal to sensorimotor contingencies linking perceiver and perceived appears a particularly promising route. Recall that Clark's access-based proposal is problematically silent about how an implicit grasp of one's psychological relation to the environment could entail the *particular* phenomenal properties associated with particular experiences. The solution was to combine Clark's proposal with a relationalist conception of phenomenal properties by emphasizing their sensorimotor common ground. The sensorimotor profile of a veridical perceptual state is both an aspect of a perceiver's state of which she has an automatic, non-inferential grasp *and* a function of her embodied perceptual relation to mind-independent properties. Because the sensorimotor profiles of perceptual experiences are co-determined by perceiver and world in this way, they can conjoin the access-based and relationalist strategies, connecting the implicit sensorimotor understanding that ensures there is *something* it's like for subjects to stand in a perceptual relation to the world with the visible properties that help determine the *particular* character of experience. This Janus-faced character of sensorimotor profiles also enables the relationalist approach to non-veridical experiences sketched above. The particular suite of sensorimotor interactions a subject takes to be on the cards is a psychological fact about the subject which can be invoked to explain the commonalities between veridical experiences (where subjects have things

⁵ Indeed, SR may be regarded as an instance of either kind of view. A subject's practical grasp of her sensorimotor relation to the environment is a higher-order psychological relation she bears to her first-order sensory relation to the world. SR argues that this relation explains why there is something it's like to occupy her perspective on the world.

right) and corresponding non-veridical experiences (where they have things wrong). But this commonality does not screen off the explanatory force of the perceptual relation in an account of particular phenomenal character, because our understanding of how the sensorimotor profile associated with a hallucinatory experience determines its particular phenomenal properties relies on our understanding of how that profile acquaints us with mind-independent properties in corresponding veridical perceptions.

Existing sensorimotor approaches to perceptual consciousness overlap with SR without coinciding with it. Some invoke sensorimotor contingencies only to address ‘comparative’ questions of why particular phenomenal properties are associated with particular perceptual states, leaving the ‘absolute’ question of why perceptual experience has a phenomenal aspect at all untouched (Hurley and Noë 2003; Noë 2004). We have seen how SR aims to address these questions together, with a perceiver’s practical grasp of their sensorimotor acquaintance with the environment explaining why their experience feels like *something* to them, and the particular properties with which they are acquainted determining the experience’s particular phenomenal properties. In Section II.3, we considered the problems engendered for Clark’s approach by its claim that facts about accessibility determine that there *are* facts about the phenomenal properties of experiences, without determining just what these latter facts are. Sensorimotor accounts targeting only ‘comparative’ questions about phenomenal properties must endorse a mirror image of this claim, holding that facts about sensorimotor profiles determine the *particular* phenomenal properties of experiences, yet do so *without determining that they have any phenomenal properties at all*. But if, the sensorimotor profile of a perceptual state leaves it underdetermined whether there should be *something* rather than *nothing* it’s like for a subject to be in that state, how can it nonetheless determine that state’s particular phenomenal properties? Without an understanding of how facts about a perceptual state’s sensorimotor profile determine why it feels like *something* to a subject, why should we think that those facts determine why it feels like *something-in-particular*? By addressing ‘comparative’ and ‘absolute’ questions about phenomenal character together, SR avoids these questions.

Kevin O’Regan (2011) comes closest to SR, invoking patterns of cognitive access to explain why perceptual states have *some* phenomenal character, and sensorimotor profiles to explain their *particular* phenomenal character. But he eschews relationalism about phenomenal properties, holding instead that ‘the quality of a sensory experience is a set of objective laws concerning the interaction with the world that the experience involves’ (O’Regan and Block 2012: 89). SR agrees that a perceiver’s relationship to the perceived is characterized by lawlike sensorimotor regularities, but identifies the phenomenal properties of experience with the properties of objects to which we are sensorimotorically related. Why prefer SR’s take on the metaphysics of conscious perceptual states

here? Recall Chalmers' objection that appeals to limited, non-inferential access to sensorimotor profiles address only the 'meta-hard problem', explaining only propensities to judge that one's experience has phenomenal properties. Clark's response was to hold that these judgments can do a better or worse job at reflecting the sensorimotor profiles that prompt them, 'driving a wedge between honest report and truth' (Clark 2000: 32–3). O'Regan's proposal, like Clark's, puts the truthmakers of our phenomenal judgments in the wrong place. Intuitively, such judgments are made true by the perceptible properties with which we are acquainted in experience, not by the sensorimotor profiles (Clark) or laws (O'Regan) that underwrite that acquaintance. SR's relationalist strand honours this intuition by identifying the phenomenal properties with which we are acquainted in veridical experiences with perceptible properties of mind-independent objects.⁶

It seems to me, then, that existing sensorimotor approaches to perceptual consciousness are better off throwing their lot in with SR. I have argued above that relationalists also benefit from SR's account of why perceptual consciousness should feel like something rather than nothing, and from the schema it provides for understanding illusory and hallucinatory experiences. Some relationalists might feel uneasy about the suggested alliance—for some, relationalism's appeal lies in its promise of a conception of perception that makes the epistemic credentials of perceptual knowledge and judgment unmysterious (Campbell 2002; Logue 2012a). If perceptual experience is fundamentally a relation to mind-independent objects and properties, it is easy to understand how perception can yield knowledge of the objective world. Does SR, with its emphasis on the ways in which perceivers' skills and interactive dispositions shape the perceptible properties to which they are related, threaten to undermine the direct epistemic contact that relationalists wish to safeguard? John Campbell (2008) worries in this vein about Alva Noë's sensorimotor theory, highlighting 'the danger that the content of perception will simply collapse into a set of counterfactual implications for sensorimotor activity' (667). Whilst some sensorimotor theorists may wish to embrace such a view of perceptual content, SR does not.⁷ SR holds that perceptual experiences acquaint us with mind-independent properties of perceived objects, and that these properties determine the phenomenal properties of veridical perceptual experiences. Whilst the sensorimotor profile of a perceptual state determines

⁶ In other passages (e.g. O'Regan and Block 2012: 104) O'Regan claims that the quality of a perceptual experience is the *sensorimotor interaction* with the environment itself. This proposal similarly fails to locate the truthmakers of phenomenal judgments in their intuitive home.

⁷ Chemero (2009: 200), for example, holds the closely related view that the contents of perceptual experiences are affordances, and that affordances are relations between an animal's abilities and its environment. By contrast, Noë (2008) stresses his own allegiance to relationalism in his reply to Campbell.

which objective properties the perceiver is acquainted with, the sensorimotor profile itself is not, according to SR, that with which experience acquaints us.

While SR does not straightforwardly entail the problematic view of perceptual content that worries Campbell, it nonetheless owes us a further story about the way in which sensorimotor profiles underwrite acquaintance with objective properties. The sensorimotor profiles of perceptual states pertain to the ways in which perceivers' sensory systems poise them to act in their environments, and how their movements sculpt the sensory information available to them. SR does not equate the content of perceptual experiences with their associated sensorimotor profiles, but it does hold that sensorimotor profiles mediate the contact between perceiver and environment, acting as a filter on the range of properties that are perceptually available. Relationalists might worry that, on this conception of the perceptual relation, perceivers are acquainted only with what Kathleen Akins (1996) has called *narcissistic* properties—properties pertaining to the fit between the perceptible environment and the perceiver's idiosyncratic interests and abilities. This would be an unpalatable consequence for those, like Campbell (2002), who wish to use a relationalist conception of perception to show how perception acquaints us with categorical properties of objects (like the penny's objective shape and size) rather than mere dispositional properties (like the penny's suitability for flipping, grabbing, and rolling).

A full accounting of the pros and cons of SR's various options with respect to these issues requires more space than I can give it here. One possibility for a defender of SR is to embrace the view that perception acquaints us with only dispositional properties of objects, and that these are the phenomenal properties that figure in veridical perceptions. This would rule out the account of perceptual knowledge that motivates relationalists like Campbell, and sit uneasily with sensorimotor theorists who offer their view as an account of how the objective world is made available to us in experience and thought (Noë 2004, 2012). A more labour-intensive but nonetheless—in my view—preferable possibility is to deny that SR entails that we are acquainted with only 'narcissistic' properties, indexed to our own abilities and interests. Pursuing this option requires an account of the particular blend of sensorimotor skills needed to secure perceptual acquaintance with the stable, categorical properties that underlie a perceiver's shifting sensorimotor relationship with their environment. The challenge for SR here is to provide an account of acquaintance with categorical properties that is consistent with the claim that perceptual acquaintance consists in a practical grasp of the sensorimotor profile of one's experience. Perceiving a property as categorical in Campbell's sense, for example, surely requires a grasp of its persistence independent of the perceiver's contingent sensory relationship with it, and perhaps of its incompatibility with the co-instantiation of some properties and compatibility with others. Can such requirements for categorical perception be plausibly

specified and spelt out in sensorimotor terms? I am optimistic—but pursuing this possibility will have to wait for another occasion.⁸

V. CONCLUSION

Conscious perception depends on a practical grasp of one's sensorimotor acquaintance with what is perceived. Perceptual experiences feel some way to their subjects—putting their subjects in a position to judge that there's something it's like to perceive in this sort of way, or to perceive this sort of thing—when subjects have a practical grasp of the suites of activities opened up by their sensory contact with the environment. Particular experiences feel the distinctive ways they do in virtue of the particular mind-independent properties to which the perceiver's bodily skills relate them. Each half of SR's framework helps the other out. The relationalist identification of the phenomenal properties of veridical perceptions with the mind-independent properties that our sensorimotor skills gear into puts the truthmakers of our phenomenal judgments about perception in the right place—with the perceptible qualities with which we are acquainted in conscious experiences. Relationalism explains why particular experiences are associated with particular phenomenal properties, rather than merely feeling some way or other. In turn, appeal to a practical grasp of the sensorimotor relations implicated in a subject's perceptual relationship to her environment helps relationalists explain why standing in a perceptual relation to an experienced property feels like something rather than nothing. And appealing to commonalities in the ways in which perceivers implicitly take themselves to be poised to act on their environments in perceptions, illusions, and hallucinations yields an account of the phenomenological commonalities between these experience types without screening off the privileged role of the perceptual relation in explaining the phenomenal character of veridical experiences.

We have already seen some of the difficult questions that SR faces if it is to move beyond the schematic depiction provided above. How, for example, should SR construe the mind-independent properties that determine the phenomenal character of experiences—are they dispositional or categorical properties of objects? How exactly are we to construe the kind of practical knowledge of sensorimotor contingencies that puts perceivers in the position to judge that there is 'something it's like' to have their experiences? And, if SR aspires to account for phenomenal consciousness tout court, how can it accommodate canonically puzzling types of experiences, such as colour and pain perception, and non-visual modalities? Tricky though all these questions

⁸ Resources on which I think a defender of SR about categorical perception might draw here include Haugeland (1998), Hurley (1998), Noë (2004, 2012), and Rouse (2015).

are, none of them appear *hard*, in the sense of seeming unamenable to the toolkit of contemporary naturalistic explanation. Philosophical theorizing about categorical perception and practical knowledge each have rich histories on which SR might draw, little of which appears to involve deep metaphysical gaps between mind and nature. And sensorimotor theorists and their fellow travellers have made promising inroads into the provision of detailed accounts for a variety of experience types.⁹ To return to the claim with which I closed the introduction—SR makes progress towards understanding conscious experience by suggesting how we might replace deep metaphysical puzzles with naturalistically tractable questions about the sensorimotor links that bind embodied agents to their perceptible world.¹⁰

REFERENCES

- Akins, K. (1996) 'Of Sensory Systems and the "Aboutness" of Mental States', *The Journal of Philosophy*, 93/7: 337–72.
- Austin, J. L. and Warnock, G. J. (1962) *Sense and Sensibilia*, Vol. 83. Oxford: Clarendon Press.
- Auvray, M., Myin, E. and Spence, C. (2010) 'The Sensory-Discriminative and Affective-Motivational Aspects of Pain', *Neuroscience & Biobehavioral Reviews*, 34/2: 214–23.
- Baggs, E. and Chemero, A. (2021) 'Radical Embodiment in Two Directions', *Synthese*, 198/S9: 2175–90.
- Brewer, B. (2011) *Perception and Its Objects*. OUP.
- Broackes, J. (2007) 'Black and White and the Inverted Spectrum', *Philosophical Quarterly*, 57/227: 161–75.
- Campbell, J. (2002) *Reference and Consciousness*. Oxford: OUP.
- . (2008) 'Sensorimotor Knowledge and Naïve Realism', *Philosophy and Phenomenological Research*, LXXVI/3: 666–73.
- Carruthers, P. (2000) *Phenomenal Consciousness: A Naturalistic Theory*. Cambridge: CUP.
- Chalmers, D. J. (1996) 'The Conscious Mind', in *Search of a Fundamental Theory*. Oxford: OUP.
- . (1997) 'Moving Forward on the Problem of Consciousness', *Journal of Consciousness Studies*, 4/1: 3–46.
- . (2018) 'The Meta-Problem of Consciousness', *Journal of Consciousness Studies*, 25/9–10: 6–61.
- Chemero, A. (2009) *Radical Embodied Cognitive Science*. Cambridge, MA: MIT Press.
- Clark, A. (2000) 'A Case Where Access Implies Qualia?', *Analysis*, 60/1: 30–8.
- Degenaar, J. and Myin, E. (2014) 'The Structure of Color Experience and the Existence of Surface Colors', *Philosophical Psychology*, 27/3: 384–400.
- Dennett, D. C. (1968) 'Machine Traces and Protocol Statements', *Behavioral Science*, 13/2: 155–61.
- Díaz-León, E. (2010) 'Can Phenomenal Concepts Explain the Epistemic Gap?', *Mind*, 119/476: 933–51.
- Fish, W. (2008) 'Relationalism and the Problems of Consciousness', *Teorema: Revista Internacional de Filosofía*, 27/3: 167–80.
- . (2009) *Perception, Hallucination, and Illusion*. Oxford: OUP.

⁹ See e.g. O'Regan (2011) for initial treatments of the sensorimotor contingencies of particular experience types; Broackes (2007) and Degenaar & Myin (2014) for SR-friendly accounts of colour perception; Auvray et al. (2010) for pain experiences; and Noë (2006) and Millar (2021) for non-visual modalities.

¹⁰ Thanks to Alistair Isaac, Mike Wheeler, and audiences in Antwerp, Edinburgh and Santiago for comments on ancestral versions of this material. Special thanks to two referees for this journal, whose thoughtful comments led to a much-improved paper.

- Gibson, J. J. (1979/2014) *The Ecological Approach to Visual Perception: Classic Edition*. New York, NY: Psychology Press.
- Haugeland, J. (1998) *Having Thought: Essays In The Metaphysics of Mind*. Cambridge, MA: Harvard University Press.
- Heras-Escribano, M. (2021) 'Pragmatism, Enactivism, and Ecological Psychology: Towards a Unified Approach to Post-Cognitivism', *Synthese*, 198/S1: 337–63.
- Hurley, S. L. (1998) *Consciousness in Action*. Cambridge, MA: Harvard University Press.
- Hurley, S. and Noë, A. (2003) 'Neural Plasticity and Consciousness', *Biology and Philosophy*, 18/1: 131–68
- Hutto, D. and Myin, E. (2012) *Radicalizing Enactivism*. Cambridge, MA: MIT Press.
- Logue, H. (2012a) 'IX—Why Naive Realism?' *Proceedings of the Aristotelian Society*, 112: 211–37
- . (2012b) 'What Should the Naive Realist Say About Total Hallucinations?', *Philosophical Perspectives*, 26/1: 173–99.
- . (2013) 'Good News for the Disjunctivist about (One of) the Bad Cases', *Philosophy and Phenomenological Research*, 86/1: 105–33.
- Martin, M. G. F. (2002) 'The Transparency of Experience', *Mind & Language*, 17/4: 376–425.
- . (2004) 'The Limits of Self-Awareness', *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition*, 120/1/3: 37–89.
- . (2006) 'On Being Alienated', in T. S. Gendler and J. Hawthorne (eds) *Perceptual Experience*. Oxford: OUP.
- Millar, B. (2021) 'Towards a Sensorimotor Approach to Flavour and Smell', *Mind & Language*, 36/2: 221–40.
- Myin, E. and O'Regan, J. K. (2002) 'Perceptual Consciousness, Access to Modality and Skill Theories. A Way to Naturalize Phenomenology?', *Journal of Consciousness Studies*, 9/1: 27–46.
- Noë, A. (2004) *Action in Perception*. Cambridge, MA: MIT Press.
- . (2006) 'Experience of the World in Time', *Analysis*, 66/1: 26–32.
- . (2008) 'Reply to Campbell, Martin, and Kelly', *Philosophy and Phenomenological Research*, 76/3: 691–706.
- . (2012) *Varieties of Presence*. Cambridge, MA: MIT Press.
- Nudds, M. (2013) 'Naive Realism and Hallucinations' in F. Macpherson and D. Platchias (eds) *Hallucination: Philosophy and Psychology*, 271–91. Cambridge, MA: MIT Press.
- O'Regan, J. K. (2011) *Why Red Doesn't Sound like a Bell: Understanding the Feel of Consciousness*. Oxford: OUP.
- O'Regan, J. K. and Noë, A. (2001) 'A Sensorimotor Account of Vision and Visual Consciousness', *Behavioural Brain Science*, 24/5: 939–73.
- O'Regan, J. K. and Block, N. (2012) 'Discussion of J. Kevin O'Regan's "Why Red Doesn't Sound Like a Bell: Understanding the Feel of Consciousness"', *Review of Philosophy and Psychology*, 3/1: 89–108.
- Phillips, I. (2016) 'Naive Realism and the Science of (Some) Illusions', *Philosophical Topics*, 44/2: 353–380.
- Raleigh, T. (2021) 'Visual Acquaintance, Action and the Explanatory Gap', *Synthese*, 198/S17: 4081–106.
- Rosenthal, D. (2005) *Consciousness and Mind*. Oxford: OUP.
- Rouse, J. (2015) *Articulating the World*. London: University of Chicago Press.
- Stoljar, D. (2005) 'Physicalism and Phenomenal Concepts', *Mind & language*, 20/5: 469–94.
- Thompson, E. (2005) 'Sensorimotor Subjectivity and the Enactive Approach to Experience', *Phenomenology and the Cognitive Sciences*, 4/4: 407–27.
- Toribio, J. (2021) 'Are Visuomotor Representations Cognitively Penetrable? Biasing Action-Guiding Vision', *Synthese*, 198/S17: 4163–81.
- Ward, D., Roberts, T. and Clark, A. (2011) 'Knowing What We Can Do: Actions, Intentions, and the Construction of Phenomenal Experience', *Synthese*, 181/3: 375–94.

University of Edinburgh, UK. E-mail: dave.ward@ed.ac.uk