

Citation for published version:

Paul Coates, 'Perception naturalised: relocation and the sensible qualities', *Synthese*, September 2017.

DOI:

<https://doi.org/10.1007/s11229-017-1556-z>

Document Version:

This is the Accepted Manuscript version.

The version in the University of Hertfordshire Research Archive may differ from the final published version.

Copyright and Reuse:

© 2017 Springer Science+Business Media B.V.

This manuscript version is made available under the terms of the Creative Commons Attribution licence

(<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Enquiries

If you believe this document infringes copyright, please contact Research & Scholarly Communications at rsc@herts.ac.uk

Perception Naturalised: Relocation and the Sensible Qualities

ABSTRACT

This paper offers a partial defence of a Sellarsian-inspired form of scientific realism. It defends the relocation strategy that Sellars adopts in his project of reconciling the manifest and scientific images. It concentrates on defending the causal analysis of perception that is essential to his treatment of sensible qualities. One fundamental metaphysical issue in perception theory concerns the nature of the perceptual relation; it is argued that a philosophical exploration of this issue is continuous with the scientific investigation of perceptual processes. Perception, it is argued, can, and should be naturalised.

A challenge for any account of perception arises from the fact that a subject's experiences are connected with particular objects. We need to supply principled grounds for identifying *which* external physical object the subject stands in a perceptual relation to when they have an experience. According to the *particularity objection* presented in the paper, naive realism (or disjunctivism) does not constitute an independently viable theory since, taken on its own, it is unable to answer the objection. In appealing to a 'direct experiential relation', it posits a relation that cannot be identified independently of the underlying causal facts. A proper understanding of one central function of perception, as guiding extended patterns of actions, supports a causal analysis of perception. It allows us to draw up a set of necessary and sufficient conditions for perceiving that avoids well-known counterexamples. An analysis of this kind is congruent with the scientific account, according to which experiences are interpreted as inner states: sensible qualities, such as colours, are in the mind (but not as objects of perception). A Sellarsian version of the relocation story is thus vindicated.

Key words: Causal theory of perception, manifest image, naive realism, navigational account, perceptual content, relocation, scientific realism, sensible qualities, Wilfrid Sellars.

Introduction:

Science, according to a longstanding realist tradition, is continuous with philosophy. Philosophical analysis can help to clarify the basic categories which we need to employ in any conceptual scheme, such as substance and property; while science, and in particular physics, can reveal the detailed nature of the fundamental substances that ground the truths about the actual world. Scientific realism claims that the scientific and metaphysical pictures of the world can be unified along these lines. In this paper I shall defend this tradition indirectly, by focusing on one

particular problem area in philosophy that has attracted much recent attention, the nature of the perception.

The question, 'what is it for a person to see a given object X?' can be interpreted in two different ways (I concentrate on seeing as the paradigmatic mode of distal perception). It can be understood, first, as a question about the scientifically discoverable details of perceptual processes; and second, it can be taken as a request for a philosophical elucidation of the nature of seeing: as a metaphysical question about the real nature of the visual relation that connects the conscious mind with the physical world.

This paper argues that these two projects are much closer than commonly assumed; an examination of the metaphysics of seeing needs to make essential reference to the role of the causal mechanisms referred to in the scientific account, while adding nothing of a substantive nature to that account. I argue that the acceptance of a broadly Sellarsian critical realist view - one that I have defended in detail in other work - provides plausible solutions to key problems in the philosophy of perception (epistemic issues aside).¹ A scientific account of the process, one that construes perceptual experiences as complex inner states related to their perceptual objects by a causal chain of an appropriate kind, answers the metaphysical question about what the perceptual relation essentially involves. It also shows how the sensible qualities that we are aware of in experience are connected to the scientifically discoverable properties of physical objects. The science and metaphysics of perception are intimately connected; they operate at different levels of detail, but both are concerned to elucidate the necessary and sufficient conditions (if such there are) that govern the concept of seeing. The argument of this paper is that perception can, and should, be naturalised.

One of my main aims here is to show how the analysis of perception bears on Sellars's version of the *relocation* story. This is a central strand in his attempt to reconcile the two images we have of ourselves as inhabitants of the world. At the same time I shall be arguing that, in turn, the metaphysics of perception has to be properly grounded in a scientific understanding of the process. A satisfactory account of perception needs to be sensitive to both philosophical and scientific considerations about experiences and their proper place in perception. I suggest that some of the opposition to the relocation account rests on a failure to appreciate the complexity of experiences, and how they can be interpreted as *inner* states without mediating between the subject and the perceived object. With the subject matter of perception, as elsewhere, we need to appreciate at the reflective level how things,

¹ I defend a Sellarsian account of perception in my (2007) and (2009a).

in the broadest sense, "hang together" so that apparently different pictures of the world can be fused.

I *The Relocation Story*

In the modern period, a range of issues connected with our conception of the world, and our relation to it through perception, came to the fore in the work of Galileo and Descartes, Locke and his scientific associates, and other inquirers of the time. The developing corpuscular picture of the world generated a tension between the scientific image, and our common-sense set of beliefs about the nature of objects, beliefs Sellars categorizes as belonging to the "manifest image". A central problem arises with the acceptance of a causal view of perception, an account that appears to necessitate a revision in our views about the nature of colour and the other sensible qualities belonging to objects. According to one interpretation of the emerging scientific view, the colours that we are aware of through perception are not, as we unreflectively assume, objective properties of independent objects, but should instead be relocated on the subjective side of experience.

This relocation story has been adopted in one form or other by a number of philosophers. It was defended by Russell throughout most of his career.² It was advocated by some members of the early twentieth century American school of critical realists that included Roy Wood Sellars, and subsequently by many others, including Wilfrid Sellars, Feigl, and Maxwell, and more recently by Lowe and Heil.³ One unifying thread in much of their writings is that the deep truths discoverable through science should guide us in our claims about the fundamental entities that make up the world.⁴

According to the ideas outlined by Wilfrid Sellars in his (1962), our thinking about the world originates with what he terms the 'original' image of man-in-the-world, where the basic substances are taken to be persons, or objects such as trees, rocks, and rivers, conceived of as truncated persons.⁵ This ur-picture is then refined as a result of empirical discoveries arising from observed correlations, together with the

² See especially Russell (1927).

³ See Sellars (1962) and other works; Feigl (1967), Maxwell (1970), Lowe (1996) and Heil (2012).

⁴ There are indeed other strains in Sellars's philosophy; however, I draw here on the strong "right-wing" interpretation that emphasizes Sellars's commitment to scientific realism.

⁵ Sellars developed these ideas in his (1962) paper; bare page references will refer to it as it appears in his (1963) collection.

exercise of inductive practices (of a straightforward kind), and also through the processes of categorial revision. What Sellars calls the 'manifest image' is an idealization of that side of our thought which does not involve the postulation of *imperceptible* entities. In the manifest image, we think of the fundamental objects as persons, or as inanimate objects that are the bearers of the sensible qualities we observe in perception. The manifest image is the world of common sense, in which items such as apples really are coloured as we unreflectively take them to be.

Now it is important to note here that, for Sellars, the sophisticated refinements of our common sense *thinking* only go so far: colours *as they belong to objects* are understood in the manifest image in a categorical way, as occurrent properties of things that are identical with the kinds of colours we see them to be. Colour in the manifest image is an *objective* feature of objects that they have independently of our experience of them. The pink ice cube is not to be identified with a mere complex of colourless imperceptible particles, bearing only primary qualities, as it would be on the scientific account.

The scientific image of man is seen also by Sellars as an idealized construct. Through the construction of theories relating to the behaviour of hypothesized, imperceptible, particles and forces, and the resulting dialectical interplay of correlational and postulational procedures, we arrive at a physicalist conception of a human being as a complex physical object on a par with other physical things, a law-governed 'swirl of physical particles, forces and fields' (p. 20). The tension between this conception of the world and that of the rival manifest image figures most strikingly in respect of bodily sensations, and our experiences of the perceptible qualities of objects, such as colour. The manifest image also purports to offer an alternative to the scientific image in two other ways, in so far as we conceive of ourselves as (i) persons having the ability to choose and act freely, and (ii) being answerable to socially governed norms of value and rationality.

Sellars holds that these latter two essential features of the manifest image can be joined with the scientific image in what he describes - somewhat metaphorically - as a stereoscopic or synoptic view, in which the two images are unified. However, the treatment of perceptible qualities requires a different reconciliation strategy, and involves two phases.⁶ The scientific image proceeds methodologically from developments within the manifest image, and purports to absorb the latter image and present a *complete* picture of the way things are. Indeed, with respect to fundamental ontology - understood as portrayed in the still-to-be completed

⁶ Compare O'Shea (2016), section 2, where Sellars's different strategies for dealing with the points of tension between the images are noted.

scientific conception of the world - Sellars asserts the primacy of the scientific image (p.32). Persons are reconceived as complex physical systems, interacting causally with other physical complexes, often through the transmission of imperceptible particles, waves and the like. As we revise our ideas about the real physical nature of the world, spatial and mathematical conceptions of physical properties occupy a dominant position, and there is no longer a place for sensible qualities, in the form that they appear to us, in the causal account of our interactions with the world. In this first phase the idea develops of an *inner* experience, a type of inner state of persons common to the cases of veridical, illusory and hallucinatory experience, in which it seems to a subject as if they were perceiving an object.

The first phase of the relocation story is intertwined with the considerations about the way we arrive at an understanding of our own perceptual states, which Sellars examines in the concluding parts of *Empiricism and the Philosophy of Mind* (1956). The essential point for our purposes here is that the pinkness that we initially take to be in the external world is re-interpreted as a subjective feature of our own perceptual experiences. Hence one aspect of the reconciliation strategy involves, in broad terms, the *relocation* of pinkness from the external world into the mind. The pinkness is properly conceived of as a *nonconceptual* component of a complex inner state of the perceiver. As Sellars rightly notes, it is present in the mind 'other than as merely thought of'.⁷ (Sellars's two-component analysis of experiences is a key part of his overall views about the mind, and one to which I shall return later.) Although experiences of pink are conceptually ("logically") connected with the normal external cause of pinkness, they are optically independent of the particular external objects that happen in each case to contribute to their occurrence.

Once the perceptible qualities of manifest objects are given their real locus in sensation (p.36), at least in as far as we perceive them, a question then arises about the status of the colours as they characterise objects in the external world *independently* of our experiences. How, in other words, are manifest objects, with their apparent properties, related to the physical things that the atomist views 'as the systems of imperceptible particles lacking the perceptible qualities of manifest nature' (p.26)?

Operating within the manifest image, when I look at a pink ice cube, I take that external physical object to be pink. Yet the pinkness that I am nonconceptually

⁷ As Sellars emphasizes in his (1982) section 92, and also in (1975) Lecture I, sections 44-55.

conscious of is, in reality, an aspect of my inner state. The pink ice cube, the external physical object I see, is, in the normal case, the direct object of my perceptual experience; however, there is no *nonconceptual* direct experiential relation to the ice cube.⁸ So when we revise the manifest image, and relocate the pinkness that is present in experience, we do not need to postulate any exact likeness between the nonconceptual component of inner experience and its distal cause, the physical volume of pink I see. We can appreciate, at least in principle, how it is that the primary qualities of objects, involving the capacity to emit light waves or similar, can produce events in our sense-organs that lead through a chain of causes to the neurological events that ultimately give rise to the subjective consciousness of pinkness. The final stages of this transmission remain a mystery to us at the present time. Yet the relocation account renders superfluous the attribution of an exactly matching pink property to the perceived external object. We do not need to interpret the objective character of pinkness in terms of a primitive emergent property of pinkness somehow instantiated by the complex system of particles which is the physical object that I see; nor, as I shall argue later on, is it necessary to postulate pinkness as a primitive property somehow *supervening* upon the whole objective physical structure (or just upon its surface).⁹ There are strong arguments available to support the view that spectral reflectance profiles and the appeal to suitable kinds of isomorphism will satisfy the requirements of a scientific explanation of the objective nature of physical colour.¹⁰

One line of criticism of Sellars's account has recently been advanced by David Rosenthal.¹¹ He criticizes Sellars's version of the relocation story on the grounds that it is founded upon a mistaken treatment of the nature of physical objects as they exist independently of being perceived. He argues that physical properties like colour can be accounted for in the emerging corpuscular conception of the physical world, claiming, 'It's only as we consciously perceived colours and other proper sensibles that the need to relocate arises. Insofar as such properties occur independent of our consciously perceiving them, there is nothing that resists thoroughgoing mathematical treatment . . . ' (p.153). For Rosenthal, when we reflect on our common-sense view of the world, the problem of experienced colour is simply a problem about consciousness; it is not a problem about the physical nature of colour.

⁸ That is, there is no direct experiential relation to the ice cube or its physical properties that constitutes a nonconceptual aspect of the subject's experience.

⁹ For additional argument along these lines see Heil (2012) chapters 4 and 13.

¹⁰ Or perhaps better, spectral *productance* profiles; see the account defended in Byrne and Hilbert (2003).

¹¹ In Rosenthal (2016).

But this criticism ignores the point noted above, that for Sellars, in the manifest image, it is physical objects *as they exist independently of our experiences* that are coloured, as he notes, 'in the occurrent, aesthetically interesting sense, as contrasted with Lockean powers . . .'.¹² Sellars's reason for this claim does not rest on a view about our *consciousness* of colours in perception, but on our common-sense view about the nature of physical colours, as they are in themselves. Rosenthal defends his position by quoting a claim made by Sellars in the Carus Lectures:

'The *esse* of cubes of pink is *sentiri*'.¹³

However, this is a misleading extract. The full Sellars quotation from which Rosenthal selects these words actually runs as follows:

'On the Cartesian recategorization, then, the *esse* of cubes of pink is *percipi* or, to use a less ambiguous term, *sentiri*.'

In other words, it is only *after* we have *relocated* the colours of objects (as we begin to develop the scientific image) that we take them to be essentially connected with our *sensory* consciousness. *Before* we reflect on what the colours of objects really are, and about how we are conscious of them, our conception of physical colour is of an objective property that exists out there in the world in the way it appears to us, independently of our experiences. It is this common-sense (or manifest image) conception of objects that clashes with the scientific conception of things, and generates problems for our theories about fundamental ontology.¹⁴

It is not always appreciated that, to a large extent, what drives Sellars's argument is the *in principle* subjective indistinguishability between cases of veridical, illusory and hallucinatory experiences. This is something he notes, without extensive comment, in sections 21 - 24, and later on, in sections 60 and onwards of his lectures, *Empiricism and the Philosophy of Mind*; it also appears in his other

¹² Sellars, (1982) footnote 2.

¹³ See Rosenthal (2016), p.153; the full Sellars quotation is from Sellars (1981), Lecture I, sec. 66.

¹⁴ Compare the excellent account of Sellars's views on the "conceptual place" of colour in the manifest image given in Rosenberg (1982). According to Rosenberg's exegesis of Sellars, 'Our mature concept [in the manifest image] of a physical object's (really) being red, then, is ontic through and through. It has no *experiential* component at all, but instead is the concept of an individuated quantum of red . . .'. *Ontic* here has the sense of an entity or stuff that is in the world, as opposed to in the mind.

discussions of perception cited here.¹⁵ Sellars assumes that the common subjective similarity points to a common ontology: the three kinds of subjectively matching experiences really do have the same intrinsic nature. Since in the hallucinatory cases of seeming to see something red, the experience occurs without there being any relevant external object instantiating the redness that the subject is immediately aware of, experiences of colour in all three cases must supervene on brain states alone, independently of their distal causes in all cases.

For Sellars, this belief that there is a common element in experiences of different kinds can only be arrived at after (or together with) an acceptance of the view that inner states should be accepted for quasi-theoretical reasons. The similarity of the three sorts of experiences can only be grasped when we have formed the concepts appropriate for thinking about our own mental states. The idea of some kind of direct, pre-conceptual inspection of our own experiences would fall foul of Sellars's criticisms of "the given". Sellars initially canvasses the idea that inner sensory states might be posited for theoretical reasons early on in *Empiricism and the Philosophy of Mind* at section 22, when noting the similarity of the three kinds of experience. However, until that stage is reached, we naturally take the colours that we are aware of in experience to be objective properties of the external objects we see. Once we have arrived at the scientific image of man, we find that there are good scientific reasons for treating experiences as having the same ontological nature, in order 'to explain uniformities in sense-perception', as Sellars notes in the concluding sections of his (1956).¹⁶

Sellars's argument is thus a precursor to the causal-scientific argument advanced, independently, by Valberg and Robinson.¹⁷ It is important to realise in respect of this argument, as deVries observes, that Sellars does not think of philosophy as a purely analytic endeavour.¹⁸ The kinds of arguments that Sellars brings forward in support of the inner state view of sensible qualities are not of a formal deductive kind, nor are they based solely upon conceptual analysis. While they may involve conceptual considerations, they have much in common with scientific arguments, where use is made of the strategy of making inferences to the best explanation, and

¹⁵ Sellars (1956). Compare for example, section 54 of Lecture I, in his (1975).

¹⁶ This is not to deny that there are tensions between the claims made in Sellars (1956), that our reasoning about mental states can be likened to a theory of the mind, and his ideas about of the nature of the manifest and scientific images in (1962). See the discussions in deVries (2005) and also O'Shea (2007)

¹⁷ See Valberg (1992) and Robinson (1994).

¹⁸ deVries (2005), chapter 1.

of seeking the best fit with other elements in an overall theory of the way things stand.

The argument implicit in Sellars's work has the following schematic form:

- 1 It is possible that, when a subject has an experience as of seeing something red, they are either veridically seeing something red, or seeing a non-red item that looks to be red, or merely hallucinating something red.

- 2 The possible subjective similarity of veridical, illusory, and hallucinatory experiences is good evidence that such similar experiences form a 'common kind' and really do have the same intrinsic nature, despite originating in different ways.

- 3 Hallucinatory cases indicate that an inner experience as of something red can occur in the absence of any distal red cause. As far as we can tell, the only thing that is causally required for a *particular* inner experience as of red to occur is the subject's brain state.

- 4 Therefore, given (2) and (3), all experiences are inner states, in the sense that their essential nature is independent of any particular object in the external world outside of the subject. A subject's brain state on its own is sufficient for an experience as of red to occur.

Before I scrutinize the consequences of Sellars's argument, I will briefly consider the second phase of Sellars's argument, which concerns the ontology of our inner experiences, or, as Sellars's refers to them when speaking of the scientific image, our sensation states. Adopting a Kantian inspired two-component account of experience, Sellars observes that our perceptual experiences of colours involve both an intentional, low-level classificatory component, a "perceptual taking", and also a sensory component, a sensation.¹⁹ In the taking, the subject has an intentional representational state focused on what is believed, or taken, to exist in the world surrounding the subject. But, in opposition to purely intentional theories of experience, it is argued that the subject's consciousness also contains something actual, a non-intentional awareness, a sensation of pink.

Sensations of pink, for Sellars, have an 'ultimate homogeneity', which means that they resist easy identification with systems of physical particles in the neurophysiological image, the theoretical system that is (in an ontological sense)

¹⁹ I set out the different aspects of Sellars's theory of experience more fully in my (2009a).

part of the fuller scientific image. They are inner states of a person, intimately connected with their brain states. However, their real nature may only be fully explicable when we probe further into questions about the ultimate nature of physical objects, when the scientific image is revised to take us beyond our present understanding of the physical world. A point that has not always been fully appreciated is that for Sellars sensory states are *conscious* states. But they are not to be confused with items such as sense-data; they are not the *objects* of our perceptual experiences, although they do have a causal role in *guiding* our takings about the external world. Nor do sensory states belong in a separate ontological category, distinct from that of physical entities; Sellars is firmly opposed to any dualist ontology of substance.²⁰

On Sellars's view, at the fundamental level there is just one basic category: physical objects and mental events give way to a deeper level of absolute processes, which account for both sentient and insentient things.²¹ An alternative approach, one that also aims to defend a unified, broadly physicalist, ontology as on Sellars's account, involves the idea of revising our conception of the kinds of properties that can belong to physical items at the fundamental level; we should accept that the metaphysical ultimates are intrinsically experience-involving. At the fundamental level particles can have properties that are experiential, in addition to those currently postulated in physics.²²

Consciousness presents problems for any metaphysical theory that aims to provide a complete account of the fundamental items that make up the world. Not only perceptual experiences, but hallucinations, other sorts of sensations, and also other kinds of conscious mental states have to be accommodated. So relocating colours (and other sensible qualities) in the mind does not generate additional ontological problems. It does, however, eliminate any problems that could arise as a result of situating colours in the external world. Precisely how we should deal with the ultimate analysis of colours is one of the issues arising from Sellars's relocation story that, for reasons of space, I am unable to examine in any detail. Here I concentrate on issues connected with theories of perception. I focus on the implications of the relocation story, and of the clash between Sellars's two images of man, for our understanding of the perceptual relation. For the most part I shall concentrate on visual perception.

²⁰ Sellars defends these various claims in his (1981), Lecture III: 'Is Consciousness Physical?'

²¹ Sellars's ideas about absolute processes are defended in detail in Seibt (1990).

²² See the arguments developed by Strawson in his (2006); for some sympathetic discussion of Sellars's ideas on this issue see also Coleman (2015).

II *The Analysis of Perception*

Why should we accept the Sellarsian two-component view of experiences, and his relocation account of sensible qualities? A great deal of recent work in the philosophy of perception has focused on questions about the contents of experience. There is considerable debate between naive realists (and their associates who uphold versions of what is variously termed 'the relational view' or 'direct realism', and is also upheld by many disjunctivists) who all favour "the object view", and the intentionalists (or representationalists) who advocate "the content view".²³

I have set out reasons for adopting a two-component analysis more extensively in other work, and here I shall be brief.²⁴ It is arguable that neither the intentional account, nor naive realism, is convincing on its own as a complete account of experience; both fail to do justice to the rich and complex character of perceptual consciousness.

One problem for the intentional view of experience lies in providing an adequate analysis of the phenomenal, or "what-it-is-like" aspect of perceptual consciousness. There are certainly parallels between perceptual states and pure intentional states such as thought, since it seems plausible to claim that both kinds of state can share similar contents. However, the intentionalist needs to explain what it is that distinguishes, for example, the perceptual state of *seeing that p* from a state of pure thought where a subject is *thinking that p*. The former state seems to involve the presence of something actual, and the intentionalist must therefore add something to the account in order to capture this additional factor. Whether they are successful in doing so is open to question.²⁵

A serious difficulty also arises for the rival view. According to austere versions of naive realism, a perceptual experience involves a primitive non-representational

²³ See, from among the many contributors to the debate, Snowdon (1981), Martin (2002), Travis (2004), Brewer (2011), and Logue (2011); and compare Byrne (2001), Chalmers (2004), Siegel (2010), and Pautz (2010), and see also the collection Brogaard (ed.) (2014).

²⁴ In chapter 2 of my (2007) and also my (2009b).

²⁵ In addition to the works cited above, for arguments in favour of the intentionalist view see the attempts by Tye (2000) and (2009), and by Schellenberg (2010), and for criticism, see Block (2003), Johnston (2004), and in particular a more recent paper by Papineau (2014).

relation to external objects, such that there is the immediate presentation of an object's sensible qualities to the subject; no representational state enters into conscious experience, whatever the nature of the sub-personal mechanisms that might be involved.²⁶ However, without imputing to the subject the exercise of some kind of categorisation connected with conscious awareness, it is hard to make sense of descriptions of perceptual experiences of the form, 'S is visually aware of *F* rather than of some incompatible property *G*'. To try to analyse experiences as lacking an intentional representational component leaves unexplained how the subject has any form of awareness or "appreciation", of the *kind* of thing that is made present in a sensory, or nonconceptual, manner. Perceptual consciousness always involves some sort of classification of what we perceive, even if the exercise of low-level classificatory representational states sometimes operates at only a rudimentary level in consciousness, as when I simply observe that there is *something* in front of me, *something* dark, or similar.²⁷ However, the exercise of classificatory states of a low-level kind does not imply higher-level abilities such as self-awareness.²⁸

More recent philosophical approaches to the dispute suggest the beginnings of some kind of rapprochement between the two sides. We need to acknowledge both the distinctive sensory aspect of experience, and also its intentional nature. It is arguable that the only way that we can do justice to the insights of both camps is to adopt the two-component account of experience, and this is what I shall do here. I shall assume that there are good reasons for analysing (visual) experience as containing two distinct dimensions. The first is sensory in kind, involving the *presentation* of qualities, and the second is a cognitive component involving the exercise of some kind of intentional state.²⁹

This in turn leads to questions about the metaphysics of perception. The causal theory of perception, which I shall elaborate more fully in the argument that

²⁶ See in particular Travis (2004)

²⁷ The use of 'concept' here is not intended to imply self-awareness or other higher level abilities; it connotes only a low-level classificatory ability.

²⁸ Here again, philosophical inquiry merges with scientific investigation. See Milner and Goodale (1995) on the thesis that conscious visual experience is a process dependent on the ventral system, and essentially linked to recognition of kinds; and the discussion of "seeing-as" in Block (2014).

²⁹ For a defence of the two-component view see the introductory paper by Reiland and Lyons (2015) to a special issue on the disunity of perception, and in particular the position defended in Berger (2015); compare also the introductory paper by Locatelli and Wilson (2017).

follows, plays an essential role in the relocation story. I shall show that we cannot begin to assess claims concerning the correct analysis of experience and contents without first getting a clear view about the function of perceptual processes, especially of those involving distal perception, such as vision.

All parties to these disputes about perceptual experience need to provide an answer to the more basic question that arises on *any* view about experience: what is it that determines that a subject's perceptual experience E at a given time T be an experience *of* the specific object X that is perceived? What is the perceptual relation that connects E and object X? It is arguable that the more fundamental debate concerns the nature of this perceptual relation. It is this issue that divides causal theorists from naive realists who favour the relational view, and also from some of those in the intentionalist camp, who favour phenomenal externalism and like views that embrace aspects of naive realism.³⁰ The *particularity objection*, as I call it, shows that neither naive realism, nor the intentional view, constitutes a viable theory on its own.

Those who favour the view that experiences have representational contents need to acknowledge some form of *particular* content to experiences. The particular object that is perceived is not always experienced *as* a particular - that is a phenomenological matter. Nevertheless, the central defining feature of perception, the feature that distinguishes veridical and illusory types of experiences from hallucinatory experiences, is that the former type involve a perceptual *relation* - whatever form this takes - between the subject's experience and some *particular* perceptual object (or group of objects).³¹ If an experience does represent aspects of the subject's environment, it must include among its constituents the particular object perceived.³² So whichever version of the content view is espoused, there remains a deeper problem: What, in principle, grounds the claim that the subject's experience E is related to some specific object X, rather than some other - perhaps very similar - object Y? Appeals to externalism presuppose that we already have an independent means of answering the metaphysical question about the nature of the perceptual relation that connects an experience to its material object.

³⁰ One example is Tye (2009): see the remarks at the start of Chapter 4, and in the concluding chapter, where he makes explicit his sympathies for Naive Realism.

³¹ It should be noted, therefore, that the particularity point is independent of debates about whether experiences have singular contents, as opposed to existential contents, and like issues.

³² For a good discussion of these points see Schellenberg (2016).

Naive realists face a parallel problem. They hold that the subject is connected with the perceived object by a 'direct experiential relation', a relation whereby the subject's experience 'reaches out to and by its nature includes the perceived object'.³³ The notion of a direct experiential relation has been criticized on the grounds that it is very hard to make clear sense of the relation. We are hard put to explain in non-metaphorical terms what sort of process the "reaching out" might be, or how an external physical thing outside the brain can literally be a constituent of a mental state.³⁴ It is not clear whether the view is coherent. There is also a deeper objection concerning the kinds of evidence we could have for the existence of such a relation. We still need to know what it is about a situation that allows us to determine *which particular object* in the subject's environment is the one that the subject stands in the unique experiential relation to.

Naive realism cannot provide an answer to the particularity objection *independently* of an appeal to science. The alleged existence of a direct experiential relation does not help in determining which particular object is seen by the subject, in the extensional sense. It plays no role either in the common-sense story about perception, or in the scientific accounts. If I have a visual experience as of seeing my friend Dotty, it is possible that I am seeing her, but for all I know I am actually seeing her twin sister Kitty. If I have two successive matching experiences of a face, they may relate to the same person, or to two different but exactly similar persons. Hence, from my first-person perspective alone I am unable to tell which particular object I am experientially related to. From the third-person perspective we are able to find out about broad facts that apply to the mode of vision - that normally the object seen lies directly in front of the subject - and can consider the subject's reports of what they seem to see, but in the absence of full knowledge of causal factors we cannot be certain which object the subject sees, or indeed whether they are seeing anything at all, rather than hallucinating. It is therefore difficult to see what kinds of evidence there could be to show that a direct experiential relation holds between a perceiving subject and any particular external object. In determining which particular object is seen, we do not try to find a direct experiential relation, but look instead to what the science of perception reveals.

Thus on either approach to the content question, it transpires that there is a *more fundamental* issue at stake: answering questions about contents and the objects of perception lead on inexorably to questions about the basic metaphysics of the perceptual relation: in virtue of which facts is some particular object connected to the subject's experience by the perceptual relation? The only adequate answer is

³³ These quotations are from Hobson (2011) and Snowdon (2005).

³⁴ I have explored this objection more fully in my (2007).

one that appeals to the appropriate causal processes whereby the subject's experience is generated by the object (or objects) in the environment.

These considerations imply that we have at the very least to supplement the accounts offered by those who favour either the naive realist or the intentional view. This is a point that has to be accepted by all parties to the dispute. But it is not always realized how deep the particularity objection cuts.

I need to make a point here about the structure of the argument which now follows. I have already indicated that I am assuming that experiences combine two distinct components, an intentional aspect of some kind, and a non-intentional, or sensory, state. It is the sensory component of experience - the aspect that accounts for the pinkness we experience in seeing the pink ice-cube - that concerns us from now on. Those who object to the inner state view of sensible qualities understand the pinkness to be located out in the external world, in some manner belonging to the perceptual object. Such a view is maintained on the austere conception of naive realism, but it is also available to a theorist who favours the two-component view of perceptual consciousness, and in that form would be a variant of the naive realist position.

In the rest of this paper we can set the pure intentional view to one side, for what matters is the status of the sensory component. I shall argue that the only viable philosophical account of perception is the one that is equivalent to the schematic scientific account of what is involved in the process, and which relies essentially on a causal analysis of the perceptual relation, in which experiences are understood as inner states. In other words, an adequate philosophical account of the perceptual relation collapses into the scientific account: perception should be naturalised.

The problem for naive realism is that the theory cannot answer the particularity problem, as we have seen. The naive realist might try to resist this conclusion by adopting a "combined view": normal perception essentially involves an experiential relation, but there is, in addition, a causal relation involved. The idea would be to analyse a subject's perception of a particular object as involving two necessary conditions. For visual perception the analysis would run as follows:

If S sees a particular object X, then it is necessary both that:

- (1) S has a visual experience E that is connected to X by a direct experiential relation;

and in addition:

- (2) S's experience E is causally related to X.

Let us call this analysis the 'Combined View'. It is one that is often encountered in discussions of the particularity objection. However, as it stands, it is fatally flawed, since it runs into the same objection that is often raised against causal theories of perception, theories which interpret experiences as inner states. To appreciate the problem, let us begin with an observation by David Lewis:

It is not far wrong to say simply that someone sees if and only if the scene before his eyes causes matching visual experience.³⁵

However, as Lewis points out, although we might take such a view for granted 'in our ordinary life', it will not suffice to avoid the problems raised by cases of deviant causal chains. Here is one illustration: suppose I drink from a glass of water containing a pink ice cube that has a trace of a drug; I am caused to hallucinate, and by co-incidence, have a visual experience as of a pink ice cube. The conditions set out in the suggestion noted by Lewis are met, yet I am not having a genuine visual perception of the ice cube in my drink. So as to avoid such counter-examples, we need to specify, in a non-circular manner, what type of causal connection is *appropriate* for seeing. If naive realists wish to appeal to a causal condition, they too must resolve this problem.

Grice sought to do this indirectly, suggesting that we can specify the appropriate causal connection by reference to a paradigm example of seeing. However, this approach meets difficulties, as Jackson points out.³⁶ Firstly, there is a suspicion of circularity in the account, in order that the demonstrated paradigm example is secured as a genuine case of seeing. Secondly, the account threatens to be too restrictive. If the identification of a causal mechanism for seeing includes merely contingent features of the underlying process, the danger is that the analysis would rule out cases where someone sees something by an unusual means, such as the use of prosthetic vision.³⁷

There is, however, a way of resolving these problems, which I have elaborated in some detail in other work. The proposal is that we modify Grice's suggestion, and identify the underlying causal mechanism, the causal route which is appropriate for

³⁵ Lewis (1980) p.239.

³⁶ See Grice (1961), and Jackson (1997), chapter 7.

³⁷ See, e.g. Noë (2003)

seeing, by reference to the general function of vision. Here I briefly summarise the central idea of what I term the 'Navigational Picture' of perception, which I have defended elsewhere.³⁸

It has often been observed that the role of perception is to arrive at knowledge of objects in one's surroundings. Distal modes of perception like seeing yield up-to-date knowledge about how things are, currently, around one. Seeing is not a static activity, but one that is integrated dynamically into our daily life. Thus the test of whether someone can see is whether they can pick out a book they want from a library shelf, return a serve at tennis, select food from a table of refreshments, cross a road safely, or conduct countless other activities which depend in a like manner on a perceptual grasp of what is in the surroundings. In the common sense picture, we understand perception to be essentially connected with certain extended patterns of bodily movements, those we would undertake in moving through an environment, guided by our senses, when we classify and interact with things in our surroundings. By using visual perception, we are able to classify things at a distance, and then navigate through our environment so as to select, examine and make use of objects for our benefit (and to avoid harm). Someone who lacks any ability to act appropriately cannot be said to see things.

A subject's verbal reports about their visual experiences are not decisive in determining what, if anything they see. Where there is some doubt as to whether someone is genuinely seeing an object or hallucinating, or about which particular object amongst a group of similar objects they are visually attending to, the way in which we can *in principle* decide the issue is by getting them to carry out some extended action involving the perceptual object.

Perception is therefore implicitly understood as an important category that helps in the classification of patterns of behaviour, and contributes to making sense of a person's actions. The investigation of visual perception starts from an implicit understanding of the navigational function of vision; we grasp, *ab initio*, that seeing has the essential function of enabling humans and other animals to navigate through their surroundings so as to make beneficial use of the objects they see, in order to satisfy their needs and avoid harm. It is by selecting examples of successful navigational behaviour that we can identify the paradigm cases where the subject is caused to have visual experiences that match the objects in the environment. In theory, through investigating of these cases, we can determine which underlying causal mechanisms are essential for seeing.

³⁸ I defend the Navigational Picture in some detail in my (2007) and (2015).

It is arguable that scientific work on perception implicitly trades on this key insight. Appealing to this conception of the function of vision, experimenters can, in principle, make identifying reference to the types of underlying physical and physiological mechanisms that are essentially involved in the dynamic processes involved when we see and act upon distal objects.³⁹ Our *a priori* grasp of the nature of visual perception, as a process having an essential navigational function, leads to an account that can be filled out *a posteriori*, by investigating the underlying mechanisms that support successful actions directed at the objects we see. To take one example, in the course of investigating the mechanisms involved when bats perceptually interact with the world, experimenters noted how they were able to successfully navigate through their surroundings under different conditions, and discovered which sense organs were operating. Work on animal vision involves an understanding of the constraints imposed upon the process, for example, by the fact that the underlying mechanisms must operate rapidly so that predators are able quickly to categorize and pursue their prey.

I need to emphasize here that by pointing out the conceptual link between visual perception and action sequences, I am not thereby endorsing the claim advanced by advocates of the sensori-motor account of perception. In contrast with that account, the navigational picture defended here construes experiences as *inner* states, states that represent the surroundings in both informational and intentional senses.⁴⁰ What matters is that in the normal case the inner experiences of a seeing subject provide the basis for successful action.

Although in the selected paradigm cases the relevant experiences lead to successful navigational behaviour, quite obviously there will be countless other situations where a subject has visual experiences of objects, yet fails to produce any actions as a consequence. Subjects may be free from any pressing desires that would motivate them to act. Hence the connection with extended action sequences is potential, rather than actual. In the paradigm cases, visual experiences, in conjunction with desires, produce successful navigational behaviour. In such cases, the perceptual process will supervene in part upon causal processes that we can investigate, so as to determine which underlying causal mechanisms are essential. But the same underlying processes will also be involved in very many other cases where there is no resulting action on the part of the seeing subject. The kind of knowledge that is relevant to the exercise of perceptual processes is the kind of

³⁹ As noted in the seminal work by Milner and Goodale (1995).

⁴⁰ I discuss some of the problems that arise for Noë's account of perception in my (2007)

knowledge that the subjects can put to some use, *if* they chose to, and *if* they are able to do so.⁴¹

This approach enables us to specify the causal chain that is appropriate for visual perception in a given creature (human or otherwise) *modulo* a given environment and time period. If the navigational account of seeing is on the right lines, then we have provided an account of what the perceptual relation is. The causal relation between visual experience and object that is appropriate for seeing is the one that links a particular object in the surroundings to the subject's inner experience in a navigationally supporting way.⁴²

If we accept this picture of visual perception, it also makes plausible the way in which the various sciences dealing with vision contribute to resolving the metaphysical issues about its essential nature. Here again, the metaphysics and science of perception prove to be intimately linked. When experimenters carry out tests with subjects on their visual experiences, in most cases they implicitly assume that a given experience is identifiable as veridical or illusory. A subjective experience type is identified by reference to the subject's reports about what they think that they see, *independently* of knowledge of the surrounding objects. But strictly speaking, it is only after we have ascertained the causal role of some object in the surroundings in producing an experience, that we are in a position to classify a given experience as a veridical one, and to state which is its perceptual object. If a subject started to give reports about experiences that failed to match their surroundings, we would need to investigate more closely what was going on.

However, on the scientific account, at no point in an investigation would the subject's experience be treated as containing the external object as a constituent.

⁴¹ It is arguable that in the case of an immobile subject we need to make some assumptions, either about how they *would have* acted, had they been able to do so, or, ultimately, about their biological similarity to other human beings capable of acting. An immobile subject may be able to act by requesting an object, and correcting the responses of another who is trying to help them, and so on; in the last analysis it is by reference to similarities in their verbal behaviour and neurophysiology that we would have grounds for attributions of perceptual contents to them. Thanks to an anonymous reviewer for pressing this point.

⁴² I have defended a navigational account of perception in my (2007). There are other related functions of perception, for example in the close inspection of objects. I assume that the basic idea defended here, of identifying the appropriate causal chain necessary for perception by reference to function, can be extended to cover these other ways in which perception benefits a creature.

Throughout scientific investigation, experiences are understood as inner states, ontologically independent from the objects that cause them to occur. Veridical, illusory and hallucinatory experiences are taken to differ only in their causal ancestry.⁴³

Through a circuitous route, we have arrived at the following causal analysis of the visual perception of objects, one which is developed from within the manifest image, but which contains room for further detailed development, as it is absorbed into the scientific image following the acceptance of the relocation story (as early vision scientists such as Galileo and Descartes realized).

A subject S sees a particular object X, if and only if:

- (1) X is a physical object external to subject S;
- (2) S has an inner visual experience E comprising both sensory and intentional components;
- (3) X is a physical object located externally to the subject, which causes the visual experience E to come about in the appropriate manner: the causal mechanism involved is one which is identified as being physically sufficient to enable S to successfully navigate through the environment and make beneficial use of objects.

This analysis sets out the jointly necessary and sufficient conditions for seeing. It provides a plausible way of avoiding the deviant causal chains problems. Yet to analyse the visual experience as an inner state does not mean that we see objects indirectly. As we noted earlier, our perceptual takings, which account for the intentional aspects of experiences, are focused in the normal case on the external objects we take ourselves to be seeing. In doing so, we *project* the sensory aspects of experience onto the outside world. The fact that inner states are ontologically essential to seeing is not reflected at the conceptual level when we perceive the world around us.⁴⁴

This analysis might be tweaked further in various ways; it may be that, seeing is, strictly, *modulo* an environment and a time period for the subject; we should note that navigation also has the function of avoiding harmful objects such as predators. I ignore here the fact that we speak about seeing *events* as well as objects, and also

⁴³ See for example the work of Gray (2014) and of ffytche (2013).

⁴⁴ A projectivist analysis of perception is defended in my (2015).

the point that we can in some sense become aware of "floaters" in the eye, which are located within the subject's body; such matters can be accommodated within the framework provided by the analysis. I will assume that the conditions make enough sense for present purposes, and will not pursue these points further here.

Naive realism adopts a very different view from that of the causalist. The naive realist is committed to a mysterious primitive relation that falls outside of the scientific accounts. The subject's visual experience somehow contains the very external object seen as a constituent. But as we have observed, naive realism faces a major problem in determining *which* item in the surroundings is the perceptual object, the particular object that is alleged to be the constituent of the subject's experience.

What is important here is that if naive realists opt for the combined view, they would have to include in their analysis a causal condition of much the same kind as is given in condition (3), so as to meet the sufficiency problem (while at the same time construing the experience as object-involving, and not as "inner"). The naive realist either has to accept something like the causal account set out in the Navigational Picture, in order to specify what kind of causal chain is appropriate for seeing, or else has to find some alternative way of solving the problem of deviant causal chains. I shall assume in what follows that the account of causation set out in the Navigational Picture does provide one reasonable solution to the problem, as far as the condition (3) is concerned (adjusted so as to be consistent with naive realism).

This leaves the naive realist with two options, neither of which seems plausible. The first is the independence option, which rejects the combined view: on this option, veridical perception is claimed to be strictly dependent only on the direct experiential relation, and *logically* independent of the kinds of underlying causal facts that figure in scientific accounts of the production of perceptual experiences.⁴⁵ It is possible, on this option, that the two conditions come apart. A subject might be experientially related to an object in cases where they have no causal connection appropriate for navigation, and vice versa.

But this option leads to incoherence: imagine a tennis player who is apparently functioning as if interacting perceptually with her environment, over an extended period of time. Her visual experiences are caused by light waves from objects in her surroundings, including from the tennis ball that she strikes so unerringly. However, according to the independence option, there might really have been no

⁴⁵ This option is endorsed by Hobson (2011).

direct experiential relation operating, so the tennis player might actually have been hallucinating for the entire period of play. Conversely, someone might really be seeing objects, when no aspects of their visual experiences match features of their current surroundings. The independence option cuts off the analysis of perception from our normal means of verifying that someone is perceiving, and therefore from any way of properly understanding the process.

On the alternative option, the naive realist could try claiming that the direct experiential relation is a simple, or primitive, relation that *supervenes upon* the appropriate navigational causal processes leading from external objects to internal states of the brain, as understood on the scientific accounts. This thesis about the perceptual relation would go hand-in-hand with a primitivist conception of the sensible colours immediately present in visual experiences. Colours would be understood as irreducible *emergent* properties of whole objects, even though at the level of reference we can equate the object perceived with complex arrangements of sub-atomic particles. In support of this position, it might be argued that both the phenomenology of experience, and also our ordinary ways of referring to objective colours, give reasons for adopting such a view.⁴⁶

There are, however, difficulties with this account. Even if we can make sense of colour primitivism, we are left with an acute problem. On the naive realist view, we would still need to postulate the existence of an experiential *relation* by means of which the subject has an awareness of the emergent colours. This is a relation that is additional to the scientific account, one for which there is no independent evidence, and in respect of which we can provide no clear positive account.⁴⁷ Once

⁴⁶ See Campbell (1994) and McGinn (1996), and also the indirect reasons given in support of emergence in Cumpa (2014). It should be noted that, while on the primitivist conception of sensible qualities, colours themselves are considered to be non-relational properties, we still need to account for our *awareness* of them, as the ensuing argument indicates.

⁴⁷ The appeal to common sense does not help here; in the manifest image that reflects our commonsense beliefs, we know that people have experiences of colour, and we assume that, for the most part, objects really do have the colours they seem to have. We also know that experiences of colour occur to people when no coloured objects are present, though usually there is a correlation of experience and objective colour. But our commonsense knowledge of the world does not go beyond an awareness or belief in such a correlation, and it leaves open the question of what the relation might be. It does not include a positive theory about some unique kind of primitive experiential relation connecting experiences and objects. As argued above, any such relation

we move to an acceptance of the scientific account of perception, the experiential relation becomes superfluous.

There are good reasons for accepting that veridical, illusory and hallucinatory experiences belong to a common ontological kind, and arise directly as a result of brain events which can in turn be caused in a variety of ways. Physical (and neurophysiological) processes suffice to produce our experiences of sensible qualities like colour. All the causal work in the production of colour experience is carried out by the micro-processes that take place at the lower level, according to the explanations provided in our best scientific theories. Brain states alone are sufficient to produce the conscious experience of colours. We therefore do not need to appeal to a further relation holding immediately between the experience and the distal object. Neither do we need to interpret colours as emergent properties of objects external to the perceiver. The simplest account of perception is that provided by the scientific story, when it is properly understood.

These considerations strongly suggest that in answering the *metaphysical* question about what the perceptual relation is, we need appeal only to scientifically ascertainable facts. There is no compelling need to add to the scientific account, by postulating a primitive experiential relation. The causal theory of perception allows a unification of the metaphysics of perception with the kinds of details that careful scientific exploration of the process can reveal.

Conclusion

The causal account of perception was first clearly articulated in the work of Descartes and Locke. Neither of them conceived of philosophy as a separate discipline to be contrasted with scientific investigation. The theory of perception that they defended, each in his different way, was a response to what we *now* term "scientific" developments of the time. For Locke in particular, the analysis of perceptual processes was part of a comprehensive account of the physical world and of our knowledge of it.

We have seen that there is a major difference between what is entailed by the naive realist view and by the causal-scientific theory. The naive realist view is committed to a primitive kind of relation - a "magic relation" - which falls outside the scientific accounts. And since that relation is not reductively analysable in terms of

would be imperceptible from an external viewpoint; and its absence is compatible with the subjective viewpoint.

distinct, causally linked, stages, the naive realist is ontologically committed to the existence of some higher level of facts that lie beyond the realms explored in the sciences. In contrast, the causal theory provides an account that allows perception to be naturalised, so that perception fits into the conception of the world which emerges in the scientific image.

Nonetheless, serious philosophical problems remain. As Sellars emphasizes, philosophy - in this case, the philosophy of perception - makes no *substantive* contribution to what we know.⁴⁸ Yet it is important to note that the analysis of the metaphysics of the perceiving relation does not exhaust the philosophical issues connected with the topic. We need, as Sellars observes, to keep an 'eye on the whole'. Sellars's conception of philosophy makes a good deal of sense here.

It needs to be shown how the different perspectives we have on the nature of perceptual experience can be fused into one consistent overall picture. Traditionally, perception has been intimately linked with a range of epistemic issues, which here I am putting to one side (it's arguable that they arise for any theory of perception). But problems also arise in showing how the above approach to metaphysical questions of perception can be reconciled with the *phenomenology* of perceptual experience. I have suggested that a projectionist account offers solutions to such challenges. The thesis defended in this paper is that we can, and should, provide a naturalised account of perception, an account which harmonises with the scientific story about the process. There remains, however, work to be done in exploring the full consequences of such an account.⁴⁹

References:

- Berger, J. (2015), 'The Sensory Content of Perceptual Experience', in *Pacific Philosophical Quarterly* 96.
- Block, N. (2003), 'Mental Paint', in M. Hahn and B. Ramberg (eds), *Reflections and Replies: Essays on the Philosophy of Tyler Burge*, Cambridge, MA: MIT Press.
- Block, N. (2014), 'Seeing-As in the Light of Vision Science', in *Philosophy and Phenomenological Research* 89.
- Brewer, B. (2011), *Perception and its Objects*, Oxford: Oxford University Press.
- Brogaard, B. (ed.) (2014), *Does Perception Have Content?*, Oxford: Oxford University Press.

⁴⁸ Sellars (1962).

⁴⁹ I would like to thank Sam Coleman for many useful discussions on the topics covered in this paper, and also two anonymous referees for helpful comments received.

- Byrne, A. (2001), 'Intentionalism Defended', in *The Philosophical Review* 110.
- Byrne, A. and Hilbert, D. (2003), 'Color Realism and Color Science', in *Behavioural and Brain Sciences* 26.
- Campbell, J. (1994), 'A Simple View of Color', in J. Haldane and C. Wright (eds), *Reality, Representation and Projection*, Oxford: Clarendon Press.
- Campbell, J. (2002), *Reference and Consciousness*, Oxford: Clarendon Press.
- Chalmers, D. J. (2004), 'The Representational Character of Experience', in B. Leiter (ed.), *The Future for Philosophy*, Oxford: Oxford University Press.
- Coates, P. (2007), *The Metaphysics of Perception: Wilfrid Sellars, Perceptual Consciousness, and Critical Realism*, London: Routledge.
- Coates, P. (2009a), 'Perception, Imagination, and Demonstrative Reference: A Sellarsian Account', in W. A. deVries (ed.), *Empiricism, Perceptual Knowledge, Normativity, and Realism*, Oxford: Oxford University Press.
- Coates, P. (2009b), 'The Multiple Contents of Experience: Representation and the Awareness of Phenomenal Qualities', in *Philosophical Topics* 37/1.
- Coates, P. (2015), 'Projection, Revelation, and the Function of Perception', in P. Coates and S. Coleman (eds), *Phenomenal Qualities: Sense, Perception, & Consciousness*, Oxford: Oxford University Press.
- Coleman, S. (2015), 'Neuro-cosmology', in P. Coates and S. Coleman (eds), *Phenomenal Qualities: Sense, Perception, & Consciousness*, Oxford: Oxford University Press.
- Cumpa, J. (2014), 'A Materialist Criterion of Fundamentality' in *American Philosophical Quarterly* 51(4).
- deVries, W. (2005), *Wilfrid Sellars*, Chesham: Acumen.
- Feigl, H. (1967), *The "Mental" and the "Physical": The Essay and a Postscript*, Minneapolis: University of Minnesota Press.
- ffytche, D. (2013), 'The Hallucinating Brain: Neurobiological Insights into the Nature of Hallucinations', in F. Macpherson, and D. Platchias (eds), *Hallucination: Philosophy and Psychology*, Cambridge, Mass.: MIT Press.
- Gray, J. (2004), *Consciousness: Creeping Up On the Hard Problem*, Oxford: Oxford University Press.
- Grice, H. P. (1961), 'The Causal Theory of Perception', in *Supplementary Proceedings of the Aristotelian Society* 35.
- Jackson, F. (1977), *Perception*, Cambridge: Cambridge University Press.
- Johnston, M. (2004), 'The Obscure Object of Hallucination', in *Philosophical Studies* 120.
- Heil, J. (2012), *The World As We Find It*, Oxford: Oxford University Press.
- Hobson, K. (2011), 'In Defence of Relational Direct Realism', in *European Journal of Philosophy* 21.
- Lewis, D. (1980), 'Veridical Hallucination and Prosthetic Vision', in *Australian Journal of Philosophy* 58.

- Locatelli, R. and Wilson, K. A. (2017, in press), 'Introduction: Perception Without Representation', in *Topoi: An International Review of Philosophy* 36(2).
- Logue, H. (2011), 'Why Naive Realism?', in *Proceedings of the Aristotelian Society*, 112/2.
- Lowe, J. (1996), *Subjects of Experience*, Cambridge: Cambridge University Press.
- McGinn, C. (1996), 'Another Look At Color', in *The Journal of Philosophy* 93.
- Martin, M. G. F. (2002), 'The Transparency of Experience', in *Mind and Language* 17/4.
- Maxwell, G. (1970), 'Theories, Perception and Structural Realism', in R. Colodny (ed.), *The Nature and Function of Scientific Theories*, Pittsburgh: University of Pittsburgh Press.
- Milner, A. D. and Goodale, M. A. (1995), *The Visual Brain in Action*, Oxford: Oxford University Press.
- Noë, A. (2003), 'Causation and Perception: the Puzzle Unraveled', in *Analysis* 63/2.
- O'Shea, J. R. (2007), *Sellars*, Cambridge: Polity.
- O'Shea, J. R. (2016), 'What to Take Away from Sellars's Kantian Naturalism', in J.R. O'Shea (ed.), *Sellars and his Legacy*, Oxford: Oxford University Press.
- Papineau, D. (2013), 'Sensory Experience and Representational Properties', in *Proceedings of the Aristotelian Society* 114/1.
- Pautz, A. (2010), 'Why Explain Visual experience in Terms of Content', in B. Nanay (ed.), *Perceiving the World*, Oxford: Oxford University Press.
- Reiland, I. and Lyons, J. (2015), 'The Disunity of Perception: An Introduction', in *Pacific Philosophical Quarterly* 96(4).
- Robinson, H. (1994), *Perception*, London: Routledge.
- Rosenberg, J. (1982), 'The Place of Color in the Scheme of Things: A Roadmap to Sellars' Carus Lectures', in *Monist* 65/3.
- Rosenthal, D. (2016), 'Quality Spaces, Relocation, and Grain', in James O'Shea (ed.), in *Sellars and His Legacy*, Oxford: Oxford University Press.
- Russell, B. (1927), *The Analysis of Matter*, London: Allen and Unwin.
- Schellenberg, S. (2010), 'The Particularity and Phenomenality of Perceptual Experience', in *Philosophical Studies* 149.
- Schellenberg, S. (2016), 'Phenomenal Particularity', in *Philosophy and Phenomenological Research* 91.
- Seibt, J. (1990), *Properties as Processes*, Atascadero, CA: Ridgeview Publishing.
- Sellars, W. (1956), 'Empiricism and the Philosophy of Mind', in H. Feigl and M. Scriven (eds), *Minnesota Studies in The Philosophy of Science, Vol. I: The Foundations of Science and the Concepts of Psychology and Psychoanalysis*, Minneapolis: University of Minnesota Press (EPM); reprinted in Sellars (1963).
- Sellars, W. (1967), *Science and Metaphysics*, London: Routledge and Kegan Paul (SM).

- Sellars, W. (1962), 'Philosophy and the Scientific Image of Man', in R. Colodny (ed.), *Frontiers of Science and Philosophy*, Pittsburgh: University of Pittsburgh Press (PSIM); reprinted in Sellars (1963).
- Sellars, W. (1963), *Science Perception and Reality*, New York: Routledge and Kegan Paul (SPR).
- Sellars, W. (1975), 'The Structure of Knowledge: (1) Perception; (2) Minds; (3) Epistemic Principles', in H. Casteñeda (ed.), *Action Knowledge and Reality*, Indianapolis: Bobbs-Merrill (SK).
- Sellars, W. (1981), 'Foundations for a Metaphysics of Pure Process' (The Carus Lectures), in *Monist* 64 (FMPP).
- Sellars, W. (1982), 'Sensa or Sensings: Reflections on the Ontology of Perception', in *Philosophical Studies* 41 (SSOP).
- Siegel, S. (2010), *The Contents of Visual Experience*, Oxford: Oxford University Press.
- Snowdon, P. (1981), 'Perception, Vision, and Causation' in *Proceedings of the Aristotelian Society* 81.
- Snowdon, P. (2005), 'The Formulation of Disjunctivism: A Response to Fish', in *Proceedings of the Aristotelian Society* 105.
- Strawson, G. (2006), 'Realistic Monism: Why Physicalism Entails Panpsychism', in A. Freeman (ed.), *Consciousness and Its Place In Nature*, Exeter: Imprint Academic.
- Strawson, G. (2015), 'Real Direct Realism: Reflections on Perception' in P. Coates and S. Coleman (eds), *Phenomenal Qualities: Sense, Perception, & Consciousness*, Oxford: Oxford University Press.
- Travis, C. (2004), 'The Silence of the Senses', in *Mind* 113.
- Tye, M. (2000), *Consciousness, Color, and Content*, Cambridge, MA: MIT Press.
- Tye, M. (2009), *Consciousness Revisited*, Cambridge, MA: MIT Press.
- Valberg, J. J. (1992), *The Puzzle of Experience*, Oxford: Oxford University Press.