A new objection to representationalist direct realism

Abstract
Representationalism (aka intentionalism) has been the most significant weapon in the late twentieth century defence of direct realism. However, although the representationalist objection to the Phenomenal Principle might provide an effective response to the arguments from illusion and hallucination, plausible representationalist theories of perception are, when fleshed-out, incompatible with metaphysical direct realism's directness-claim. Indeed within cognitive science, direct perception is the avowedly-radical anti-representationalist heterodoxy. Drawing on both the philosophy and cognitive science, we develop a robust argument against representationalist direct realism which does not rest on illusory cases or the notion of an object of immediate awareness. None of the representations so far posited, or in prospect, can supply the content required of a representation in a direct realist theory of veridical perception.

A new argument against representationalist direct realism

Introduction

Representationalism (aka intentionalism) has been the most significant weapon in the late twentieth century defence of direct realism. However, although the representationalist objection to the Phenomenal Principle might provide an effective response to the arguments from illusion and hallucination (Fish, 2010, p. 65), plausible representationalist theories of perception are, when fleshed-out, incompatible with metaphysical direct realism's directness-claim. Indeed within cognitive science, direct perception is the avowedly-radical anti-representationalist heterodoxy. (Chemero, 2009) Drawing on both the philosophy and cognitive science[1] we develop a robust argument against representationalist direct realism which does not rest on illusory cases or the notion of an object of immediate awareness.

First, we need to clarify potentially confusing terminology. Within the literature, "representationalism" and its cognates are used in two conflicting senses: representationalist direct realism (Crane & French, 2017, p. 28) and Lockean indirect realism (Armstrong, 1961). We use the term exclusively in the first sense, taking "representationalist" and "intentionalist" to be synonymous. It is in this sense that Aydede can say that "strong representationalism is the modern day's direct realism" (2019, p. 35). We also use "representationalist" to refer to arguments defending direct realism by rejecting the Phenomenal Principle (Fish, 2010, p. 65). Thus we might say that the representionalist objection is used to defend representationalist direct realism against the argument from illusion. Direct realism can be presented as a theory about the metaphysics or epistemology of perception.[2] We are concerned with the former.[4]

The paper is structured as follows:

1. We write the "job description"[3] for a representation within A a direct realist theory of perception, and B an explanation of perceptually guided behaviour.
2. Drawing on the cognitive science, we examine the candidate representations that have been widely discussed in the literature.
3. We grant that these representations provide the basis for "surrogate reasoning" (Swoyer, 1991) about their targets and thereby meet the requirements of Role B.

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[1] Although it is useful to differentiate in terms of the approach and focus of attention, we do not draw a hard and fast distinction between the science and philosophy of perception. Indeed we would argue for "scientifically savvy philosophy", or "philosophically sophisticated science", call it what you may.

[2] Two types of issue arise in the philosophy of perception, metaphysical and epistemological, which give rise to two questions: (i) What is the direct or immediate object of awareness when we perceive? and (ii) How can perception give us knowledge of the external world? See the two Stanford Encyclopedia entries on the problem of perception: *The Problem of Perception* (Crane & French, 2017) and *Epistemological Problems of Perception* (Bonjour, 2017).

[3] We take the idea of a "job description" from Ramsey (Representation Reconsidered, 2007), but develop it in a different direction.

4. However, we argue that these representations cannot meet the requirements of Role A. They are "second-order isomorphic" (Shepard & Chipman, 1970) to their targets and, as such, cannot supply the representational content needed to satisfy direct realism's directness-claim[4].
5. We address potential objections and consolidate our argument against representationalist direct realism.

1 The role of representations in a direct realist theory of perception

Any representationalist theory of perception needs to address two issues: Issue 1 the relationship between the world and the representation thereof, and Issue 2 the relationship between the representation and the phenomenology of perception. Moreover, a direct realist theory of perception needs to address both issues in a way which is compatible with direct realism's directness-claim.

The representationalist theory of consciousness addresses Issue 2 in a manner which, its proponents maintain, provides both a defense of direct realism against the arguments from illusion and hallucination, and an accommodation of qualia within a materialist theory of mind. (Lycan, 2015) Many variants of the representationalist theory of consciousness have been discussed in the recent literature[5], but they agree on the essential point that the phenomenal character of our experiences is determined by their representational content. Tye defines "Strong" and "Weak" Representationalism in terms of identity and supervenience respectively:

> *Strong Representationalism*: phenomenal character is one and the same as representational content that meets certain further conditions.

> *Weak Representationalism*: phenomenal character supervenes on representational content that meets certain further conditions…. (2009, p. 256)

For the purpose of this paper we will grant that Strong Representationalism is true and that the "certain further conditions" are met. By being, in this respect, charitable to the representationalists we can put aside Issue 2 and all matters concerning the genesis and nature of phenomenal experience. Here we focus on Issue 1, the relationship between the world and the representation thereof, which has received relatively little attention in the discussion of representationalist direct realism.

Strong Representationalism does not, on its own, constitute a direct realist theory of perception. Representationalist direct realism requires a representationalist theory of

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[4] We will use Dretske's definition of direct realism (1995). See §1.

[5] They include: natural and conventional (Dretske, Naturalising the Mind, 1997) intermodal and intramodal, and restricted and unrestricted (Byrne, 2001); realist and anti-realist, content-based and vehicle based, and ontologically liberal and conservative (Thompson, 2008); strong and weak, and reductive and non-reductive (Tye, Representational Theories of Consciousness, 2009); and narrow and wide (Lycan, 2015).

consciousness, plus a representation able to supply the necessary representational content. Provisionally, we can outline the job description of such a representation as:

Job Description Role A (provisional): *To supply the representational content needed to meet the requirements of the representionalist version of direct realism*

However, we need to distinguish Role A from the more usual role of representations in cognitive science: that is in explaining perceptually guided behaviour. The job description for representations in this second role can be outlined as:

Job Description Role B: *To supply the representational content needed to explain perceptually guided behaviour*

The distinction between the two roles must be emphasized. The requirement for a representation in Role B is to provide the basis for an explanation of behaviour, that is behaviour that could be studied by a third party, say an experimental psychologist or roboticist. Such an explanation is concerned purely with the efficacy of the perceptual process and makes no reference to perceptual experience.

In contrast, the requirement for representations in Role A is to supply the representational content necessary to account for the phenomenal character of perceptual experience. Fish describes well just how demanding this requirement will be:

> [Since] the representationalist insists that what it is like to have an experience is explained by its representational content, an adequate theory of content must ascribe contents to experience that are as rich and detailed as that experience's phenomenology. (2010, p. 78)

Moreover, in Role A, a representation must be able to supply representational content such that the perceptual experience is not only sufficiently rich and detailed, but is also in accordance with direct realism's directness-claim. This claim can be expressed in a number of forms, but for our present purposes, that is a critique of representationalist direct realism, it is desirable to use a form of words that has the imprimatur of the representationalist camp[6]. To this end we draw on Dretske's reference to "direct realism"[7] in the *Oxford Companion to Philosophy*:

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[6] To this end we avoid definitions in terms of an "immediate object of awareness", as in Smith (2002, p. 7), which might fall foul of the representationalists' rejection of the Phenomenal Principle. (Fish, 2010, p. 6)

[7] Here Dretske takes the terms "direct realism" and "naïve realism" to be synonymous: reference to the former directs the reader to the entry on the latter. Elsewhere, confusingly, "naïve realism" is used as thoroughgoing version of "direct realism" which is associated with disjunctivism (Martin, 2004), and to distinguish between "naïve" and "scientific" realism (Dancy, 1985, p. 147).

> A theory of perception that holds that our ordinary perception of physical objects is direct, unmediated by awareness of subjective entities, and that, in normal perceptual conditions these objects have the properties they appear to have. (1995, p. 602)

The directness-claim has both a negative and positive component. Negatively, the claim is that there are no perceptual intermediaries. Positively, the claim is that in veridical perception "objects have the properties that they appear to have".[8] With regard to the negative component, we will grant that the role of the representation in the perceptual process is such that it (the representation) does not constitute a perceptual intermediary. Otherwise, representationalist direct realism does not get off the ground. We focus our critique on the positive component which places a particular requirement on representational content. On this basis we can refine our provisional job description for a representation in Role A as:

Job Description Role A: *To supply, in normal perceptual conditions, representational content which represents objects as having the properties that they (the objects) actually have.*

Implicit in both Dretske's definition of direct realism and our refined Role A job description, is the assumption that objects have certain determinate properties independently of our perception of them (the objects). This is the realism-claim which is common to direct and indirect realism.[9] However, Role A relates specifically to direct realism which places a particularly onerous requirement on how the properties of objects are represented. It requires that, in normal perceptual conditions, the representational content represents objects as having the properties that they (the objects) actually have, rather than, as would be sufficient for indirect realism (and Role B as discussed below), as having properties which in some sense correspond[10] to the properties that the objects actually have.

We recognise that, despite our efforts to be fair to their position, direct realists might still object to the way the requirements on representational content are specified in our job description for Role A. However, talk in terms of job descriptions serves to focus attention on the fact that there is a requirement which it may or may not be possible to meet; only a detailed examination of the candidate representations, as in the following sections, will tell. Moreover, we will argue in §5 that the constraints on representational content are such that

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[8] This claim about properties is, of course, not peculiar to representationalist direct realism. For example, as Cambell puts it "On a Relational View, the phenomenal character of your experience, as you look around the room, is constituted by the actual layout of the room itself: which particular objects are there, their *intrinsic properties such as colour and shape* [emphasis added] and how they are arranged in relation to one another and to you." (2002, p. 116)

[9] With the demise of phenomenalism, the realism-claim is rarely questioned in the contemporary analytic philosophy and often passes unnoticed in a debate which focuses on the directness-claim. However, the realism-claim is much discussed in the context of heterodox representation-averse cognitive science, eg in "Non-representationalist cognitive science and realism" (Zahidi, 2013).

[10] The nature of this correspondence will be a key issue in the discussion below.

there is little prospect of meeting the requirements of any job description which is consistent with the spirit of direct realism.

2 Examining the candidate representations

As Dretske, an advocate of the representationalist theory of consciousness puts it, the theory "never really gets out of the gate" unless we have a "plausible theory of original or natural representation that can put some flesh on these bones", and he recognizes the difficulty of so doing. (2003, p. 74) Nevertheless Dretske does do some fleshing-out with respect to Issue 2: that is the relationship between representational content and phenomenal experience. In particular, he addresses the question of what it is "about certain representations that makes the systems in which they occur conscious of what is being represented." (Dretske, 1997, p. 6)

However, having granted Strong Representationalism, our concern is not with Issue 2, but with Issue 1 and particularly with the constraints on the representational content that the candidate representations can supply. Thus, we need to turn from representations in the abstract to consider particular examples thereof in order to understand what representations actually are, what they represent and how they represent. Indeed, Dretske notes that "we need to know what kind of representation the sensory representation is" and suggests that perhaps it is "like what Marr (1982) and his associates call a 2½-D sketch?" He continues, "Until these questions are answered, we can expect little progress on questions about the nature of perception itself." (2004, p. 282) Similarly, Tye recognises that his own high level theory, PANIC (1997, p. 137), needs to be underpinned by an explanation of the mechanisms involved; Marr's 2½-D sketch is again suggested as a candidate for consideration. (p. 210)

Although mainstream cognitive science remains firmly wedded to the notion of representation[11], since the early 1980s the focus of attention has shifted from Marr's computational theory of vision to representations in neural networks and dynamical systems (Ramsey, 2001, p. 186). For this reason, and ease of explanation, we will examine a neural net which has been widely discussed in the context of object recognition and visual perception. The fundamental issues regarding the role of representations in a direct realist theory of perception are essentially unchanged from those arising in the earlier work and, we will argue, carry over into any plausible naturalistic extension thereof.

Churchland (2002, p. 293) poses the question "How can neuronal activity represent something?" and offers an explanation in terms of "the vector/parameter space approach to representation", which she illustrates using a three layer artificial neural network, developed by Cottrell et al, that can perform recognition tasks on photographs of human faces. For our

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[11] This is not to say that all those working with neural nets and dynamical systems espouse the notion of representations. There is a representation-averse minority who, generally, argue for theories of direct perception. For example, Dreyfus draws on a non-representational understanding of neural nets in support of Merleau-Ponty's phenomenological approach. (Dreyfus, 2005, p. 133)

purposes, the details[12] of the network and the training are unimportant; there is no suggestion that this is how the human brain is actually structured. The key issue is the manner in which faces are represented at layer 2 in terms of cell activation levels which, in some sense, correspond to facial features. We need not be concerned with how this correspondence is achieved; Edelman (1998) discusses the same type of representations in terms of the activation levels of "tuned modules" rather than neural nets.

Figure 1, adapted from Churchland (2002, p. 292), relates to a simplified version of Cottrell's network with three, rather than eighty, cells at layer two. The three cells are assumed to be activated at a level determined by mouth fullness (m), nose width (n) and eye separation (e).[13] Thus any face presented to the network will activate the three cells at levels determined by the presence of those three features, and the state of the system can be defined by a three element vector (m,n,e) in abstract face-space.

Figure 1
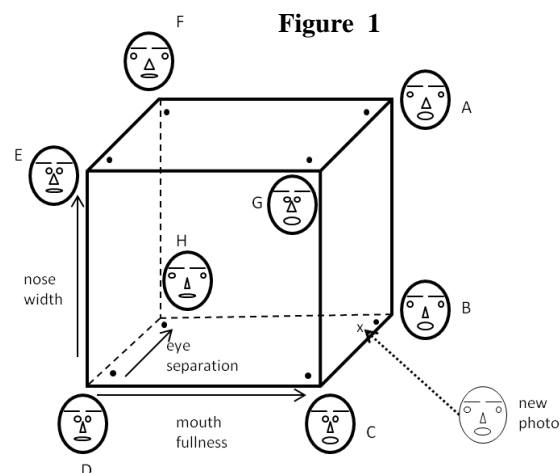
The utility of such a network for the purpose of face recognition is that similar faces are represented by nearby points in face-space, and dissimilar faces by distant points. Thus, if a previously unseen photograph is presented to the network, the face can be recognized by determining its nearest neighbor in face-space. Suppose a photograph showing a face with a full mouth and widely separated eyes but narrow nose is presented to the network. The face in this photograph would be represented by point X in face-space, and recognized as a photograph of face B by virtue of its proximity in face-space.

Proximity in face-space can be given a precise meaning in terms of the "Euclidean distance" between, say, points p and q, that is $sqrt((m_p-m_q)^2+(n_p-n_q)^2+(e_p-e_q)^2)$. This measure can be extended to any number of dimensions in an abstract space. Thus reasoning in terms of Euclidean distances in face-space can be used as the basis of inferences about the similarity of faces in physical space. Here is an example of what Swoyer calls "surrogate reasoning",

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[12] Churchland presents "the basic story" thus: "The values in the input vector [4096 components] reflect the gray-level values in the photographs, and the configuration of connection weights in the middle-layer vectors [80 components] embodies what is task-relevant in various aggregations of input values. Input vectors are pushed through the configuration of weights, transformed into abstract representations in a high dimensional "facial parameter space." These vectors are in turn pushed through the last layer of weights with the resulting output vector [8 components] representing answers to "Is it a face or not?" "Is it a male or female?" and "Who is it?" (2002, p. 299)

[13] This is a simplification; the features are not humanly intuitively recognizable. Talk of nose width etc is purely illustrative. "Notice that each cell comprehends the *entire surface* of the input layer, rather than an isolated facial feature, such as the nose." (Churchland P. S., 2002, p. 298)

that is "reasoning about a structural representation in order to draw inferences about what it represents" (1991, p. 452)

3 Assessing the candidates for Role B (in the explanation of perceptually guided behaviour)

Even these basic capabilities could provide an organism with important perceptually guided behaviours. Suppose type B faces are friends and type F faces are foes. Then on encountering a new face N, the appropriate behaviours could be initiated depending on the position of the corresponding points b, f and n in face-space. If n is closer to f than it is to b[14], then N is more like F (foe) than B (friend); thus defensive action may be appropriate. Note that this piece of surrogate reasoning requires only that "the *pattern* of relations among the constituents of the represented phenomenon [the faces] is mirrored by the pattern of relation among the constituents of the representation itself [the points in abstract face-space]." (Swoyer, 1991, p. 452)

Here we are only scratching the surface with respect to the perceptually guided behaviours that could be initiated on the basis of such representations. Indeed a plausible evolutionary explanation of the development of such networks in the natural world might be given on the basis of the selection for such efficacious behaviours, building up from the simplest organisms through to the human brain with some 10^{11} neurons. (Churchland P. M., 2012, p. 17)

We grant that such representations could meet the requirements of Role B. Thus we do not need to challenge the claims of mainstream cognitive science. Moreover, we grant that such representations could provide the detail which is, as Dretske recognises, needed "to put some flesh on the bones" of a representational theory of consciousness (2003, p. 74).

4 Assessing the candidates for Role A (in representationalist direct realism)

The question remains with respect to Role A. That is whether the candidate representations can supply the representational content needed to meet the particularly onerous requirements of the representationalist version of direct realism. To address this question, we need to focus on the information available to the user of the representation, that is information available to the cognitive system within which the representation is instantiated.

To facilitate this change of perspective, Figure 2a is redrawn from Figure 1 with two important changes. Firstly, the objects in physical space and their representations in abstract face-space are shown separately, and their separation is emphasized by the dividing line. Secondly, the axes of the three dimensions in face-space have been re-labelled, for example, "cell x activation level" rather than "mouth fullness". For our present purposes, the original

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[14] That is $((m_n-m_b)^2+(n_n-n_b)^2 +(e_n-e_b)^2) < ((m_n-m_f)^2+(n_n-n_f)^2 +(e_n-e_f)^2)$

labels would have been dangerously misleading with regard to the information available to the user of the representation.[15]
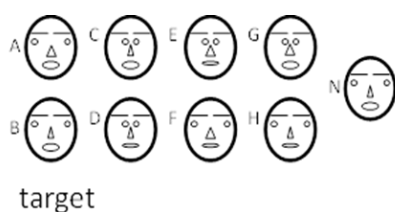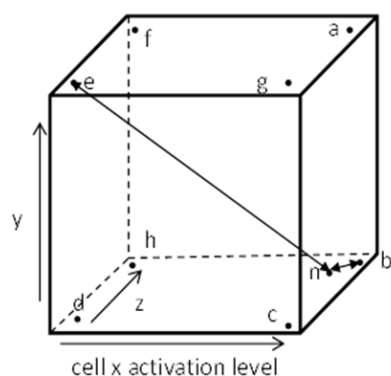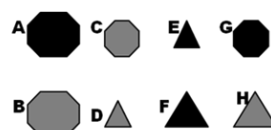

target

representation

Figure 2b

Figure 2a

The crucial issue, now evident in Figure 2a, is that there is no similarity between the points in abstract face-space and the corresponding faces in physical space; there is no similarity between point a and face A, or between point b and face B etc. Moreover, the points in face space do not provide any information about the properties of their targets, only information about the relationships between their targets.[16] The information available in face-space, that is information encoded in the cell activation levels at layer 2, is in terms of the similarities and differences between faces A , B … H, not with respect to their properties.

This fundamental lack of representational content with respect to the properties of the faces can be seen by considering the shapes shown in figure 2b. Although the faces A, B … H do not have any properties in common with the shapes **A**, **B** …**H**, they do share the same similarity and difference relationships. For example A is similar to C in terms of two properties and similar to G in terms of one property, and the same relationships hold between

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[15] Labelling the axes "mouth fullness" etc, that is associating the firing rate of cell x with a particular property of faces, would require information that is only available outside the representation. Indeed labelling the axes would require a designer's-eye view of both the target and its representation.

[16] Edelman makes the same point well by virtue of the stark simplicity of his figure showing a form of representation which "fulfills the requirement of second-order isomorphism…" (Edelman, 1998, p. fig 1)

A, **C** and **G**. (The properties mouth fullness, nose width and eye separation correspond to sidedness, shading and size respectively.) Here again, we can see why the representation cannot supply representational content which represents faces as having the properties that they (faces) actually have. The content is limited to that which is shared by the faces and the shapes, and they have no properties in common.[17]

None of the above would be controversial within mainstream cognitive science. Indeed such representations in face-space would be characterised as "second-order isomorphic[18]" in accordance with the terminology introduced by Shepard and Chipman. That is:

> [a] second-order relationship between (a) the relations among alternative external objects, and (b) the relations among their corresponding internal representations. (1970, p. 2)

O'Brien and Opie make explicit the lack of specificity with the respect to the properties of the targets of second-order isomorphic representations:

> …the two systems resemble each other with regard to their abstract relational organisation. …resemblance of this kind [second-order resemblance] is independent of first-order resemblance, in the sense that two systems can resemble each other at second-order *without sharing properties*. [emphasis added]. (2004, p. 8)

Considering such second-order isomorphic representations, we conclude that although they might be well suited to Role B, they cannot meet the requirements of Role A: they cannot supply the representational content required of a representation in a direct realist theory of perception.

At this point we maintain that representations instantiated in neural nets, which have been the focus of attention within the recent literature, cannot meet the requirements of direct realism. (We consider objections in the next section.) Nevertheless, it could be claimed that there are, or could be, other forms of representation which do meet such requirements. Indeed we have not yet considered Marr's 2½-D sketch which, as we saw in §2, has been suggested as a potential candidate. Marr's computational theory of vision addresses the perceptual process

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[17] Moreover, at the time of writing, the on-screen representation of the faces in the lower half figure 2a is also instantiated in the distribution of electric charges on RAM and the distribution of magnetic domains on hard drive. Thus the content of the representation is that which is common to these three different instantiations.

[18] The term "isomorphism" literally means equality or sameness (iso) of form (morphism). It is widely, though somewhat differently, used in a number of disciplines including mathematics and cognitive science, but also biology, geology and sociology. In maths isomorphism can be defined as: "A one-to-one correspondence between the elements of two sets such that the result of an operation on elements of one set corresponds to the result of the analogous operation on their images in the other set." (Dictionary, 2016) The term is used more loosely in cognitive science, but the essential notion of a correspondence between the relationship between targets and the relationship between their representations, carries over in the case of second-order isomorphism. In maths, isomorphisms are by definition, in this sense, "second-order" and the distinction is not drawn.

at three levels[19] and posits a sequence of three representations.[20] However, although there are significant differences, we maintain that Marr's 2 ½-D sketch is fundamentally, just as Churchland's representation in "vector/parameter space", an instance of second-order isomorphism and subject to the same constraints with respect to its representational content. As Bechtel and Shagrir (2015) point out, although Marr never discusses isomorphism explicitly, it is nonetheless an essential element of his theory.[21]

It might be objected that the required representations (candidates for role A) are to be found at the personal-level, and that there are fairly detailed philosophical theories of how personal-level states get their contents which we do not consider. However, such theories, eg PANIC (Tye, 1997) and Representational Naturalism (Dretske, 1988) (Dretske, 1997), are framed at too high a level of abstraction to address the question at issue: that is the nature of the relationship between the world and representation thereof and the consequent constraints on the type of representational content that can be provided. Moreover, as we noted in §2, both Tye and Dretske recognise the need to flesh-out their high level theory.

It is certainly fair to say that the only representations that have, so far, been fleshed out in theories of visual perception are second-order isomorphic to their targets. We could go further to argue that the representations posited within any theory of visual perception, which is consistent with the naturalistic framework of mainstream cognitive science, cannot be other than second-order isomorphic.[22] However, we do not need to press this point. Our argument against representationalist direct realism is unlikely to be questioned on the grounds that we have not examined all the candidate representations on offer within cognitive science or possible developments thereof, but, as we will see below, that the job description is too restrictive and the selection process is unfair.

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[19] That is computational theory, representation and algorithm, and hardware implementation. (Marr, 1982, p. 25)

[20] Considering the three representations: the primal sketch, 2½-D sketch and 3-D model representation. The first is constructed from the pattern of stimulation on the retina, the second is a transformation of the first and the third of the second. The last of the three representations, the 3-D model representation, is designed for the purpose of object recognition. However, the 2½-D sketch, which serves as an intermediary in the construction of the 3-D model representation, appears to be the most likely candidate for role A, that is in Marr's terminology an explanation of "pure perception" which is prior to "interpretation". (Marr, 1982, p. 268) He describes the 2½-D sketch as "an internal representation of objective physical reality that preceded the decomposition of the scene into "objects" and all the concomitant difficulties associated with object recognition." (p. 269)

[21] "The gist of our interpretation is that Marr assumes implicitly that the visual system mirrors or preserves certain structural relations in the visual field. By structural relations we mean "high order" mathematical, geometrical, or other formal relations. The visual system would preserve these relations if there were an isomorphic mapping from the visual system onto the visual field…" (Bechtel & Shagrir, 2015, p. 314)

[22] As Obrien and Opie put it in concluding a chapter on mental representations, "the structuralist theory of mental representations [is] mandatory for those philosophers of mind who think this discipline is answerable to cognitive science" (2004, p. 18). And second-order isomorphism is an essential feature of structural representations.

Although discussion is outside the scope of this paper, it is important to note that when direct perception is defended within cognitive science by Gibson[23] and his avowedly-radical intellectual successors[24] it is at the expense of rejecting representations. Within cognitive science, representations go hand in hand with theories of indirect perception.

5 Addressing the objections and consolidating the argument

It could be maintained that, whilst perception is indirect in the sense claimed by mainstream representationalist cognitive science, it is nonetheless direct in the sense of the representationalist direct realism of analytic philosophy. But peaceful coexistence would not do justice to the significance of the issues that are at stake.[25] Such a resolution is in danger of reducing "direct realism" from a robust defence of our pre-critical intuitions of direct perceptual access to the world, to an insubstantial claim which stands independently of the perceptual process and the nature of the representations involved.

Few if any philosophers with a serious interest in perception would now agree with Ryle that "what we [philosophers as opposed to "opticians, neuro-physiologists or psychologists"] are after is an account of how certain words work" (1953, p. 185). However, notwithstanding the demise of Linguistic Philosophy the vestiges of this demarcation are widespread in the literature. Armstrong, in his seminal defence of direct realism, takes issue with "some modern philosophers" who have taken "Direct Realism" to be true "but perfectly trivial". (1961, p. xii) And, as a proponent of indirect realism, Smythies (1993) refers disparagingly to those direct realists who claim that they are "dealing with the 'logic' of perception which leads a life miraculously independent from the scientific account of how perception actually works."

Rejecting any such withdrawal into separate magisteria[26], we take direct realism to be making a claim which is broadly in accordance with our pre-critical intuitions of direct perceptual access to the world and is, on this point, in conflict with mainstream cognitive science. Although there is often a reluctance to enter the fray, some do. For example, Bennett and Hacker give a robust response to Smythies' call on the findings of neuroscience to support his objections to direct realism which they castigate as a "bad piece of seventeenth century metaphysics, which is not improved by a smattering of up to date neuroscientific discoveries about perception." (2011, p. 249) And Searle defends direct realism against such objections on the grounds that they are based on "The Bad Argument" which held philosophers in thrall

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[23] James J Gibson (1950) (1968) (1979)

[24] In "radical embodied cognitive science" (Chemero, 2009) (Hutto & Myin, 2012) and "ecological psychology" (Turvey, 2003) (Oytam & Neilson, 2007)

[25] As Noë and Thompson put it in the introduction to a collection of papers on the philosophy and science of perception, "It would be difficult to overstate the degree to which the problems dealt with by the writers in this book are alive and unresolved. …. what is at stake is ultimately one's understanding of consciousness itself and one's conception of one's place in the natural world." (2002, p. 12) We find similar sentiments in Smith. Regarding the truth or falsity of direct realism, "The importance of the issue should now be clear. It involves nothing less than the choice between Realism and Idealism about the physical world." (Smith, 2002, p. 17)

[26] In the sense of Gould's non-overlapping magisteria. (1999)

from the seventeenth century until the middle of the last. (2015) (2018) Against this line of attack, we would defend the "seventeenth century metaphysics" in its opposition to direct realism and, moreover, maintain that it (the "metaphysics") is improved by recent advances in cognitive science, notably with respect to the nature of the representations examined in §2.

Indeed, the improvements are significant. They provide for an argument against direct realism which makes no reference to illusory or hallucinatory cases and, significantly for our purposes, does not draw on the disputed notion of an immediate object of awareness.[27] The force of this improved argument is best seen in the context of Searle's treatment of the "Argument from Science".

> The scientist says we are trying to explain the cause of your visual experience and what we discovered is neurobiological processes cause a conscious visual experience. But then, surely, it seems that the visual experience is the object of your capacity of perception. It is what is seen. This last sentence embodies the mistake. … in the scientific case, there is indeed a perception, but the perception is not itself an object of perception. The relation of perception to the experience is one of identity. (Searle, 2018, p. 71)

It would certainly be a mistake to objectify "your visual experience" as "the object of your capacity of perception". However, the conclusion of §4, that the representations posited by cognitive science cannot meet the requirements of direct realism, does not rest on any such objectification. The problem for the representationalist direct realist is that the "conscious visual experience", however construed, cannot be an experience which, in any way, involves the properties of the physical object. No such representational content is available to be involved. As we saw in §4, notably in figure 2, second-order isomorphic representations represent relations between objects rather than properties of objects; they are silent with respect to the latter.

We noted in §1 that, despite our efforts to be fair to their position, representationalist direct realists might question the terms of the job description. However, having examined the candidate representations, we maintain that they fall so far short of the requirements for a role within any theory of perception which remains true to the spirit of direct realism that there is little room for manoeuvre. The candidate representations, though they provide a basis for surrogate reasoning about their objects, cannot supply representational content which represents those objects as having *any* of the properties that they (those objects) actually have.

In writing Job Description A, we drew on Dretske's requirement that in normal perceptual conditions "objects have the properties they appear to have." (1995, p. 602) However, it is not clear whether this requirement should be taken as applying to *all*, or to *some*, properties.

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[27] Objections to this notion and the associated "Phenomenal Principle" (Fish, 2010, p. 65) (Robinson, 1994, p. 32) are the mainstay of the representationalist/intentionalist defence of direct realism, and the motivation for Searle's claim that "the great philosophers of the past" were led astray by "The Bad Argument". (2015) (2018)

We will grant that "direct realism" is sustainable, as a thesis of genuinely direct perception, on the latter interpretation. For example Logue requires only that perceptual experience "fundamentally consists in the subject perceiving things in her environment and *some* [emphasis added] of their properties". (2012, p. 211) However, our argument in §4 shows that, in the case of putative representationalist direct realism, the requirement cannot be met for *any* properties.[28]

"Direct realism" comes in many forms ranging from a thoroughgoing defence of our pre-critical intuitions to the purely negative thesis that perception does not involve an "objectified appearance"[29]. Indeed a once substantial and controversial claim might be in danger of dying the death of a thousand qualifications.[30] However, it would be seriously misleading to label any thesis, which did not involve perceiving things and at least *some* of their properties*,* as a theory of direct perception.[31] Such a deflationary construal of "direct realism" would not do justice to the spirit of the thesis which has been at issue since the Early Moderns, was rejected until the middle of the last century, and is now defended within analytic philosophy. It would certainly not provide a defense of, as Brewer puts it, the "mind-independent physical objects we all know and love" (2004, p. 62) and a "commonsense realist worldview" (2007, p. 87).

Defending "direct realism" on the basis of such a deflationary construal would be the equivalent of getting off a drink-driving charge on a legal technicality whilst admittedly drunk at the wheel. The verdict may be in accordance with statute, but we wouldn't want the accused driving the school bus. Nor would we want a theory of direct perception which was acquitted on such legalistic grounds driving our worldview.

6 Conclusion

Although representationalist direct realism is widely supported within contemporary analytic philosophy, representations are taken to be the hallmark of indirect perception within cognitive science. Moreover, we have demonstrated that none of the representations which have been fleshed out in any detail or plausible developments thereof, though they may be

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[28] So, it might be asked, what's new? In response to Locke's indirect realism Berkley argued that "an idea can be like nothing but an idea", or as Armstrong puts it "there can be no resemblance between sense-impressions and physical objects." (1961, p. 31) Indeed, this point is often directed against sense data theories. Such theories are taken to imply that "Of the physical object itself we would still know nothing except that it had no characteristics in common with the immediate objects of perception." (p. 33) However, now the problem for the representationalist direct realist is that, according to our argument in §4, essentially the same sceptical conclusion arises independently of any reference to "sense-impressions" or "immediate objects of perception".

[29] Le Morvan talks of "Ur-Direct Realism" as "nothing more than the thesis that we perceive physical objects without a logical prior awareness of an objectified appearance." (2018, p. 131)

[30] In the same volume as above, targeting the concessions in Le Morvan's much cited paper (Arguments Against Direct Realism and How to Counter Them, 2004), Kent asks "Is Direct Realism Falsifiable?" (2018, p. 33)

[31] Logue would characterize such a thesis as "Kantianism", that is an account of perception according to which, in all cases, "phenomenal F-ness and instances of F-ness are radically dissimilar." (2012, p. 233)

well suited to the explanation of perceptually guided behaviour, can supply the representational content required of a representation in a direct realist theory of perception.

This conclusion would not have troubled the vast majority of philosophers who, until the middle of the last century, rejected direct realism as hopelessly naïve. Nor might it trouble today's disjunctivist direct realists. Only representationalist direct realists need be concerned. However, given the importance of representationalism (aka intentionalism) in the late twentieth century rehabilitation of direct realism, our claim is highly significant.

Paul H Griffiths – July 2020

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