

NATURALIZED SENSE DATA***José Luis Bermúdez****University of Stirling, UK***(Philosophy and Phenomenological Research 61 (October 2000), 353-374)*

This paper examines and defends the view that the immediate objects of visual perception, or what are often called sense data, are parts of the facing surfaces of physical objects. I will call this the naturalized sense data (NSD) theory. Occasionally defended in the literature on the philosophy of perception, most famously by G. E. Moore (1918-1919), it has not proved popular and indeed was abandoned by Moore himself. The contemporary situation in the philosophy of perception seems ripe for a reevaluation of the NSD theory, however. Much recent discussion is polarized between uncritical direct realism and various forms of representationalism. Both positions have serious drawbacks and the plausibility of each seems to rest largely upon the perceived inadequacies of the other. But the NSD theory allows us to accommodate the very real shortcomings in uncritical direct realism without postulating the existence of non-physical sense data in a way that has seemed to many incompatible with any robust form of philosophical naturalism.¹

The argument to establish the NSD theory will proceed in two stages. In §II I argue against the direct realist that we perceive three-dimensional material objects in virtue of perceiving parts of

* This paper has been much improved by detailed comments on earlier versions from Peter Sullivan and Michael Morris.

¹ I am taking robust naturalism to involve commitment to physicalism in one of its forms. Examples of the 'new representationalism' include Jackson 1977, Robinson 1982, and various of the contributors to Robinson 1993 and Wright 1993. Many of the new representationalists explicitly take themselves to be attacking physicalism, but it has been argued by some philosophers that physicalism and sense data are in fact compatible (Cornman 1975). Lowe

their surfaces. The argument for this conclusion involves clearly distinguishing (in §I) between two notions which have tended to be run together in discussions of perception – namely, immediate perception and direct perception. In §III I argue against the sense-datum theorist that those parts of the surfaces of those objects are not themselves perceived in virtue of the perception of anything else.

Two qualifications. First, the NSD theory is only an account of non-hallucinatory perception. Both veridical and non-veridical perception involve perceptual contact with a physical object, whereas in hallucinatory perception there is no perceptual contact with whatever object (if any) is visually presented. I leave open both the question of whether there is perceptual contact with any object, and the question of what, if anything, is immediately perceived in such cases. The NSD theory is consistent with, but does not entail, a disjunctive theory of perception as a whole.

Second, the arguments below are intended to apply only to visual perception. I shall use 'see' and 'perceive' interchangeably. It is prima facie plausible that the immediate object of tactile perception is part of the surface of a material object, but less so that any such account could be true of auditory perception – and still less so that the arguments which would establish any such conclusion for vision could unproblematically be carried over to either touch or hearing.

§ 1

According to one familiar method of classifying positions in the philosophy of perception, any non-phenomenalistic theory is either a form of direct realism or a form of indirect realism.² Direct realist theories are commonly described as those which hold that perception of an object does not involve perception of an intermediary, but rather direct and unmediated perceptual contact with the object itself. According to indirect theories, in contrast, all cases of perception involve the perception of an intermediary. Distinguishing direct and indirect realism in this way is intended, of

1996 defends sense data in a way that is intended to be compatible with both a rejection of physicalism and an acceptance of naturalism.

² See, for example, Dancy 1985 p. 144.

course, to carve the logical space of perception at an epistemological joint. It is often held that indirect realist theories inevitably bring with them sceptical worries which do not trouble direct realist theories.

The characterisation of direct realism, however, runs together two different notions which are actually orthogonal to each other. I shall call these direct perception and immediate perception.³ Neither entails the other, and when we appreciate their distinctness the standard distinction between direct and indirect realism starts to look too crude – or so I shall argue. The first step is to give a clear content to the two notions.

Let me start with direct perception, which tracks the epistemological dimension of discussions of direct and indirect realism. The traditional idea is that the direct perception of physical objects provides a form of perceptual contact that allows them to be known unproblematically (subject, of course, to qualifications depending upon which perceptible properties of objects are held to be real properties of those objects). A paradigm is Russell's notion of knowledge by acquaintance. The epistemological dimension of knowledge by acquaintance comes out very clearly in the connection that Russell draws between knowing an object by acquaintance and being able demonstratively to identify that object. Paul Snowdon has recently offered a definition of direct perception (or, as he terms it, d-perception) that neatly encapsulates this complex of ideas:

x d-perceives y iff x stands, in virtue of x's perceptual experience, in such a relation to y that, if x could make demonstrative judgements, then it would be possible for x to make the true demonstrative judgement 'That is y'. (Snowdon 1992 p. 56)

Characterised thus, to say that an individual directly perceives an object is to say that he is perceptually acquainted with it in a way that will allow him demonstratively to refer to that object.

There is a broad sense of 'epistemological' on which this notion of direct perception is not epistemological, and a narrow sense in which it is. The distinction emerges from two different ways of reading 'possible' in the definition. The possibility of a perceiver making the true

³ I am using these as technical terms. My claim is simply that there are two distinguishable notions usually conflated in discussions of direct and indirect realism. It is irrelevant which, if either, is given the name 'direct perception'.

demonstrative judgement 'That is y' can be viewed either descriptively or normatively. Descriptively, the statement might be understood as a form of ceteris paribus universal generalization. All subjects who stand in the direct perception relation to a particular object at a particular time, and who possess the requisite concepts and abilities, will usually be capable of making true demonstrative judgements about that object. On a normative reading, however, the definition comes out as a claim about the judgements that a subject would be warranted or entitled to make – so that only when a subject stands in the direct perception relation to an object is he justified in referring demonstratively to that object. This of course leaves open the possibility that the direct perception relation is such that no subjects are ever justified in their purported demonstrative reference to material objects (and hence that the descriptive universal generalization is empty). I take it that Snowdon is using 'possible' in a descriptive rather than normative sense, and hence that his notion of direct perception is epistemological in the narrow rather than the broad sense. I shall follow him in this.⁴

⁴ Snowdon actually maintains that his notion of direct perception is non-epistemological, but he has a rather different understanding of what 'epistemological' might mean in this context. His paradigm case of an epistemological understanding of direct perception is the idea that something is directly perceived iff it is non-inferentially known and he makes the Sellarsian point that, if 'direct' means 'uninferred' then the objects of direct perception would be propositions about ordinary material objects rather than the material objects themselves. Certainly, if an epistemological understanding of direct perception demands that only proposition-like objects can be directly perceived then Snowdon's own definition of direct perception fails to count as epistemological. But it is not obvious that there is any such demand. When I say 'I know that he was there because I saw him' I don't just mean that the proposition that I saw him lends support to the proposition that he was there. I also mean that my earlier seeing of him lends support to the proposition that he was there. Direct perceptions of ordinary material objects can feature in inferential justifications of judgements and beliefs (Millar 1991). The opposing view is presented in Sellars 1997 §§1-7.

There is, in addition, a non-epistemological strand in the characterisation of direct realism, and it is for this that I will reserve the term 'immediate perception'. Frank Jackson has provided a useful theoretical framework for treating this notion (Jackson 1977 pp. 15-20). He defines mediate perception as occurring when one perceives a thing in virtue of perceiving another thing. The definition of immediate perception follows easily. An immediate object of perception is one that is not perceived in virtue of perceiving something else, and an object x is immediately perceived by S at a given time iff x is an immediate object of perception for S at t .

At a very general level the idea is that it is true that one state of affairs holds in virtue of another when and only when the first is in some way dependent upon the second. Jackson provides a useful schema for making this more precise:

An A is F in virtue of a B being F if the application of '— is F ' to an A is definable in terms of its application to a B and a relation, R , between A s and B s, but not conversely. This gives us an account for the indefinite case. We obtain an account for the definite case as follows: This A is F in virtue of B being F if (i) an A is F is true in virtue of a B being F (as just defined), (ii) this A and this B are F , and (iii) this A and this B bear R to each other. (Jackson 1977, p. 18)

But the requirement of definability (or its cognate, analysability) seems too stringent. There are many cases where one wants to say that one state of affairs holds in virtue of another, but where there is no hope of defining the first in terms of the second. There can be no doubt, for example, that most of us are where we are today in virtue of the education we received. But there can be no suggestion that where we are today can be defined in terms of how we were educated. Making a similar point, Thomas Baldwin has suggested that we replace the concept of definition with the (equally asymmetrical) concept of explanation. Thus, 'P in virtue of Q' is true when and only when Q explains P (Baldwin 1990, pp. 240-241). This is certainly closer to the mark than Jackson's original formulation. However, there are two problems with it. First, there are non-explanatory dependence relations which seem intuitively to qualify as instances of the in-virtue-of relation – Cambridge causation and supervenience are examples. Secondly, explanation is an epistemic notion and the in-virtue-of relation is better viewed as capturing the metaphysical basis for explanations (which themselves might not in any case be forthcoming). The best way to accommodate these two points is to define the in-virtue-of relation as holding when there is an objective dependence of P on Q. Thus:

Definition An A is F in virtue of a B being F iff there is an objective dependence of the application of '— is F' to an A on its application to a B and that dependence holds because of the existence of a relation, R, between As and Bs, but not conversely. Thus: This A is F in virtue of this B being F is true iff (i) an A is F is true in virtue of a B being F (as just defined), (ii) this A and this B are F, and (iii) this A and this B bear R to each other.

The real weight in applying this definition in any given case is taken by the particular relation R which is invoked. Relation R may take a variety of forms, and will sometimes be explanatory and sometimes not.

As initially characterised, an object is immediately perceived when it is not perceived in virtue of the perception of another thing – that is, when its being perceived does not asymmetrically depend upon the perception of anything else, with dependence being understood in one of the several ways identified in the previous paragraph. Thus defined, immediate perception seems prima facie distinct from direct perception. There is certainly no direct entailment in either direction between the two notions. It is not immediately obvious why one could not perceive an object in virtue of perceiving something else, and yet still be perceptually acquainted with it in a way that would allow one to identify it demonstratively – nor why one could not immediately perceive an object and yet fail to be in a position to identify it demonstratively. In the remainder of this paper I will argue that the entailment fails in both directions.

II

The prima facie distinction between direct perception and immediate perception is reinforced by arguments that three-dimensional material objects are never the immediate objects of perception. Such arguments aim to establish their conclusion via the lemma that whenever one perceives a three-dimensional material object one does so in virtue of perceiving a part of the surface of that object. If the lemma is true then it follows trivially that there will always be something in virtue of which a three-dimensional material object is mediately perceived – viz. part of its surface. But why might one think that the lemma is true?

Jackson offers a brief argument in support of a version of the lemma which henceforth I shall call Jackson's thesis. His argument is simply that "the application of 'I see —' to an opaque, three-dimensional material object can be defined in terms of its application to a reasonably substantial part, for I am properly said to see an opaque object if I see a reasonably substantial part of it. But

the application of 'I see —' to a part of an object cannot be defined in terms of its application to the object to which the part belongs" (Jackson 1977, p. 19).⁵ Jackson does not argue for this directly but gives the following two reasons for rejecting (what I shall call) the converse thesis that the application of 'I see —' to a part of a particular three-dimensional material object objectively depends upon its application to the object of which it is a part:

(A) The part in question might not have been a part of the object in question

(B) I might have seen the object by seeing some other of its parts (and not the part in question)

Jackson holds that (A) and (B) jointly and severally entail that it is impossible for seeing part of a three-dimensional material object to depend upon seeing the object of which it is a part.⁶

Why should (A) and (B) be thought to count against the converse thesis? Jackson's thought must be that (A) and (B) contravene plausible constraints upon the in-virtue-of relation. As far as (A) is concerned, the constraint must be the following: if a part is seen in virtue of the object being seen (understanding the part to be a part of the object) then it is not possible for the part to be seen without the object being seen. Similarly, (B) depends upon the constraint: if a part is seen in virtue of the object being seen, then it is not possible for the object to be seen without seeing the part. It is clear, however, that these two constraints cannot both be used to refute the converse thesis if the overall aim is to establish Jackson's thesis. Since Jackson's thesis is the converse of the converse thesis, the (A)-constraint for the converse thesis just is the (B)-constraint for Jackson's thesis. Similarly, the (B)-constraint for the converse thesis just is the (A)-constraint for Jackson's thesis. So, (A) refutes the converse thesis (by contravening the (A)-constraint) only if it also refutes Jackson's thesis (by contravening the (B)-constraint). The same point holds for (B).

⁵ It is no objection to this, of course, that the definability-in-terms-of relation does not track the in-virtue-of relation, because the former is sufficient although not necessary for the latter.

Given the form of the argument, then, the in-virtue-of relation can't be governed both by the (A)-constraint and by the (B)-constraint. Nor is it obvious that either constraint can be independently motivated. There is little intuitive justification for the demand that, if I perceive an object in virtue of perceiving one of its parts, it must be impossible for me to perceive the object by perceiving a different part (which is the (A)-constraint for Jackson's thesis). Still less for the demand that it be impossible to perceive the part without perceiving the object (which is the (B)-constraint for Jackson's thesis). It seems clear that I would still be seeing the apple if I turned it around 180° and that I would still be perceiving the facing surface of the apple even if the part I was perceiving was too minute to qualify as a perception of the apple.

A further flaw in Jackson's argument emerges when one remembers that he is arguing by disjunctive syllogism. From the falsity of the converse thesis we are supposed to conclude the truth of the thesis that whenever one perceives a three-dimensional material object one does so in virtue of perceiving a part of the surface of that object. But Jackson's thesis and the converse thesis are contraries, not contradictories. There are no grounds at all for asserting the general schema:

$$(P \text{ in virtue of } Q) \vee (Q \text{ in virtue of } P)$$

Nor is it true in the special case under discussion. There is a perfectly consistent position which holds that neither Jackson's thesis nor the converse thesis is true. Thompson Clarke, for example, has argued with some power for the thesis that only in special cases of perception is it possible to identify such a thing as the perception of part of the surface of that object. On his view, we perceive part of the surface of an object only when we attentively single out part of the surface of that object. By such 'singling out' we effectively bring it about that we are perceiving part of the surface of the object. But, in the absence of such singling out, it does not make sense to talk about the perception of part of the object – or so Clarke believes.⁷

⁶ Jackson talks about definability. I have reformulated in terms of dependence. Here it does matter, because showing that P is not definable in terms of Q is not sufficient to show that $\sim(P \text{ in virtue of } Q)$.

⁷ It is important to distinguish the position that Clarke is attacking from the position under discussion. Clarke argues against the claim that we perceives parts of the surfaces of objects on

Clarke's account of perception is wrong, I believe. But seeing what is wrong with it will bring us closer to an understanding of the dependence of the perception of objects on the perception of parts of their surfaces than we could get by speculating on the modal constraints which might or might not govern the in-virtue-of relation.

Clarke's central objection to thinking that in normal cases of perception there is such a thing as perceiving part of the surface of a material object is that see is a unit concept. Unit concepts are taken to be those whose application depends upon the contextual identification of the units to which they are taken to apply in a given case, subject to the following two conditions:

(i) a unit concept E applies to an object O only when O is a unit and no amount of O is fixed as a unit

(ii) a unit concept E can be applied to a given amount of an object O only when that element is a unit⁸

From (i) and (ii) it follows that, if see is a unit concept, then either we see three-dimensional material objects or we see parts of the surfaces of those objects – but never both. Clarke claims, moreover, that a given part of the surface of an object O is only determined as the relevant unit when we selectively attend to that part of the surface. In normal perception, the relevant unit is the material object in its entirety:

the assumption that this is incompatible with our perceiving the objects themselves. He thinks that there are only two possible positions here, namely, saying that we perceive three-dimensional material objects and do not perceive parts of their surfaces, on the one hand, and saying that we perceive parts of the surfaces of those objects and don't see the objects themselves on the other. But Jackson's thesis is not equivalent to either of these. The claim is that we see both the material object and part of its surface, with the perception of the former depending on the perception of the latter in a way best captured through the in-virtue-of relation. It is important to bear this distinction in mind, because Clarke has a tendency to take arguments against the claim that we do not perceive material objects to be arguments against the claim that we do perceive parts of the surface of those objects.

⁸ Clarke is using 'amount' in such a way that a part of the surface of an object counts as an amount of that object.

When we assert 'All I can see of the physical object is the near portion of its surface', we succeed in meaning our words and seeing what it is for what we are asserting to be true only when we single out this portion of the surface. But when we are meaning what we are saying, we find that for what we are asserting to be true, it is necessary for our seeing to embrace, as it were, this portion of the surface and only this portion of the surface. When we cease singling out this portion, the physical object coalesces back into a unit and we are seemingly in a different perceptual position, for now our seeing seems to embrace the physical object itself; the near portion of the physical surface is now not embraced per se but is included in an object which is embraced per se. (Clarke 1965, p. 113)

The basic point is clear enough. If the object is the relevant unit for a given perception then no part of its surface can be a unit for that perception – and vice versa.

There are two reasons, however, for being sceptical about Clarke's position. First, there is a very real distinction which cannot be accommodated if 'see' is a unit concept. There are cases where it is clear that one sees an object without seeing any of its parts. The flock of plover in the distance appears to be a homogenous grey mass. Similarly for the crowds at the race-course viewed from the commentator's helicopter, and (to take an example not involving the potentially problematic relation between collections and their elements) the bush at the end of the road when one is sufficiently far away from it. It also seems to be true that there are cases where one can see the flock or the crowd or the bush and where it is not true that they appear to be homogenous grey masses – generally speaking, when one is much closer to them. How might this genuine phenomenological difference be captured on the unit concept account? The account is committed to holding that in all three cases of the second group, if I see the flock, the crowd or the bush, I cannot also be seeing any amounts of the flock, the crowd or the bush – from which it seems to follow that I cannot be seeing the individual birds, individual people or individual leaves and branches.⁹ Yet intuitively the difference is precisely that one is now close enough to see the elements as well as the whole. All the unit concept account can say, I think, is that in the second group of cases I could shift my attention in such a way as to single out the elements in a way that would not be possible in the first group of cases. This doesn't seem right, however. One cannot capture phenomenological differences in my occurrent perceptions by appeal to further perceptions which I could have.

⁹ If this doesn't follow then it is hard to see how the status of 'see' as a unit concept will stand in the way of our perceiving both the object and a part of its surface.

A second point emerges when this line is pressed a little further. The key element in Clarke's view is that it is only when we selectively attend to parts of objects that we can properly be described as perceiving them. The concept of selective perceptual attention is elusive, but it appears to have built into it a distinction between what one is selectively attending to and what one is occurrently perceiving. If the former were not in most cases a proper subset of the latter the concepts of selective attention and perception would be indistinguishable. Let me use the familiar vocabulary of focal vs peripheral awareness, with the content of perception including both what is in focal awareness and what is in peripheral awareness but the content of selective attention restricted only to what is in focal awareness. It is natural to combine this with the further suggestion that we should understand selectively attending to something as bringing it from peripheral awareness to focal awareness. Representative examples would be turning one's head to focus on something seen out of the corner of one's eye or narrowing in on one detail of the painting in front of one. On this view, though, one cannot selectively attend to something unless one is already peripherally aware of it – and consequently unless one is already perceiving it. So, if I am attending to the whole of an object and then selectively attend to a part of its surface, this demands that I was already perceiving the relevant part of its surface (if only in peripheral awareness). Similarly, if I am attending to part of the surface of an object and attend to the object then I must have been perceiving the object as a whole (again: if only in peripheral awareness).¹⁰

One might respond here by suggesting that the content of perception is being too broadly construed. We should take the content of perception to include only what is being attended to. This seems to be Clarke's view. The concepts of perception and selective attention would then collapse into each other, but the unit concept theorist may well bite the bullet here. Another consequence is

¹⁰ This proposal about the relation between peripheral and focal awareness should not be taken to imply that the contents of our peripheral awareness include everything that is perceptually available to us. It seems perfectly possible that, even at the level of peripheral awareness, we could fail perceptually to register discriminable features of objects, even though those objects are within our field of vision, adequately lit, and so forth. In fact, both anecdotal and experimental evidence suggests that this is often the case.

that there can be no explanation of why a perceiver attends to what he is attending that suggests that he was perceiving it before attending to it. Again, though, this might be welcomed by the unit concept theorist, for that view is naturally allied with the view that what is singled out in perception (the content of attention/perception) is contextually determined – this is not very far below the surface in Clarke’s paper. It might be held, for example, that when I point to a painting, for example, and say ‘That is burnt sienna’ the reference of the demonstrative pronoun (and correlatively the content of my attention) is fixed by the context. If I am in the middle of a discussion about paint pigments then it is natural to hold that what I am attending to and referring to is a part of the surface of the painting. If, on the other hand, I am in the middle of a discussion trying to pin down whether a painting was painted by a particular painter known for his propensity to use burnt sienna then it might well seem that the context fixes the painting as a whole as the object of attention and demonstrative reference.

There is, I think, a lot of truth in this context-sensitive approach to attention. But this particular development of the unit concept theory goes wrong in obliterating the distinction between the content of attention and the content of perception. This comes across particularly clearly when one thinks about the role of perception (and a fortiori of perceptual content) in the explanation of action. We frequently need to say that an organism behaves in a certain way because of what it perceives where it just does not make sense to suggest that what the organism perceives is what the organism is attending to. The fact that a rabbit is engrossed in what it is attending to doesn’t mean that it cannot perceive the predator that is creeping up on it and act accordingly. Similarly, my attention to the nicely-turned calf ahead of me does not prevent me stepping aside to avoid the oncoming lamp-post. Although the organism’s fear of predators and my dislike of walking into lamp-posts both have a role to play in the explanation of why we behave the way we do, neither the predator or the lamp-post is being attended to.

But once we accept that what is attended to does not exhaust the content of perception the earlier analysis of selective attention as the bringing to focal awareness what was formerly in peripheral awareness seems compelling – which will lead us to reject the suggestion that seeing is a unit concept. Since seeing is not a unit concept it makes perfectly good sense to hold that when we perceive a three-dimensional material object we also perceive part of its surface. The last step in

establishing the NSD theory, therefore, is to explain why, given that we do simultaneously perceive objects and their surfaces, we perceive the former in virtue of perceiving the latter. What serves here as the relation R crucial to defining the in-virtue-of relation?

Let us say that when an object is perceived that object looks to be a certain way to the perceiver. I am taking the surface of an object to be that part of the object that reflects light. It will be useful also to have a name for those parts of the object that are hidden by intervening opaque parts of the object, and that do not reflect light. Let us call these the hidden parts (amongst which, of course, will be parts of the non-facing surface of the object). These will obviously vary from occasion to occasion. What distinguishes the perception of an object from the perception of part of its facing surface is that when a facing surface is perceived the hidden parts are not included in the content of perception.

The basic reason for the dependence of the perception of an object upon upon the perception of a reasonably substantial part of its facing surface is that the parts of an object which are hidden on a given occasion make no contribution to the look of the object on that occasion.¹¹ As a first step here we need to spell out what it means to say that an object looks a certain way. As noted by Dretske (1969), the most basic sense of an object's looking a certain way to a perceiver is correlative to that perceiver's ability visually to discriminate that object from its environment. This is basic in that it does not involve being able to name or have any beliefs about the object, but it is a precondition of any such naming or perceptual beliefs. There are no general requirements on what is to count as the ability visually to discriminate the object. What counts as adequate visual discrimination will vary not just from object to object but from occasion to occasion. I can visually discriminate the moon when I can see only a thin sliver of it, but a comparable sliver would not usually suffice for the visual discrimination of a face glimpsed through a chink in a curtain – although it might if, for example, I was expecting to see it there. It seems a useful rule of thumb,

¹¹ I don't want to place too much weight on this substantial sense of 'look'. My argument does not require, for example, that there be a single look (or experience) which is common to a veridical perception of an object and a phenomenologically indistinguishable hallucination of that object.

though, that a perceiver can adequately visually discriminate an object when what he sees would place him in a position to identify that object if he had the relevant background beliefs and conceptual abilities.

Let us say that the look of an object is what allows the perceiver visually to discriminate that object from its surroundings. The reason why the perception of an object depends upon the perception of a reasonably substantial part of its facing surface is simply that the look of an object is not determined by the perception of any of its hidden parts. It is the perception of an appropriate part of the facing surface of an object that allows the perceiver to discriminate the object from its surrounds. Since we cannot perceive an object without being able to discriminate it from its environment, it follows that we cannot perceive an object without perceiving a reasonably substantial part of its facing surface. One potential source of confusion here is that the look of an object is determined by its hidden parts. The book stands out against the background of the table because it is an inch thick. But we need to distinguish between the look of an object and what makes that object look the way it does. The former, but not the latter, is a perceptual phenomenon. The hidden parts of an object have a role to play in the latter, but not the former.

I take it, therefore, that Jackson's thesis is true and that we do in fact perceive three-dimensional material objects in virtue of perceiving parts of their surfaces. It will be remembered that Jackson's thesis was originally put forward as a lemma in an argument designed to show that three-dimensional material objects are never the immediate objects of perception. The conclusion follows straightforwardly. When three-dimensional material objects are perceived, they are perceived in virtue of the perception of reasonably substantial parts of their facing surfaces – and hence mediately.

This conclusion in turn is itself a lemma in an argument designed to show that the notions of immediate perception and direct perception need to be kept apart. The argument takes the form of a reductio. If three-dimensional material objects are never the immediate objects of perception then denying the distinction between immediate perception and direct perception will have the counter-intuitive consequence that we are not in the sort of perceptual contact with three-dimensional material objects that would allow us to make direct demonstrative reference to them. This is a view

which has in fact been defended by some philosophers (see Lowe 1993 and 1996 for a recent example and Moore 1918-1919 for an earlier one), but it seems prima facie implausible and likely to have undesirable epistemological consequences. To avoid these consequences we need to deny that direct perception requires immediate perception.

III

The preceding section made the case for denying a basic principle connecting direct perception and immediate perception – the principle that all cases of direct perception must be cases of immediate perception. This principle is defeated by the fact that we mediately perceive three-dimensional material objects in virtue of perceiving parts of their surfaces while still being in a position to make direct demonstrative reference to them. This immediately raises two questions. First, what exactly is the relation between direct perception and immediate perception? Now that the distinctness of the two notions is clear it has become pressing to determine how they are related. The second question is: Do we perceive the surfaces of material objects immediately, or else in virtue of the immediate perception of a further item? In this section I shall bring out how answering these two questions leads to the NSD theory.

The two notions of immediate perception and direct perception are clearly closely linked. Direct perception is being understood in terms of the possibility of making true demonstrative identifications, and consequently it is a plausible constraint upon how we understand the notion of immediate perception that it should explain how we as perceivers make demonstrative reference to what we take ourselves to be making demonstrative reference to most of the time, namely three-dimensional material objects. So, although there is no warrant at all for the general principle that demonstrative identification can only be made of something that is immediately perceived, the following rather more restricted constraint does seem to be true:

The Reference Constraint If it is indeed the case that we make demonstrative reference to three-dimensional material objects, then our account of the immediate object of perception must explain how this is possible.

The NSD theory seems straightforwardly to satisfy the Reference Constraint. If parts of the surfaces of material objects are the immediate objects of perception, then it is unsurprising that we

are able to make demonstrative reference to the relevant material objects. In this section I argue that the NSD theory is the only theory that can satisfy the Reference Constraint. But turning this into an argument requires, first, a more precise formulation of the NSD thesis and, second, a more detailed account of how the NSD theory explains the satisfaction of the Reference Constraint.

In all cases where we perceive three-dimensional material objects the NSD theory holds that we perceive the object in virtue of perceiving a part of its surface. This breaks down into three claims. The first is that whenever we see a three-dimensional material object we see a part of its surface. We cannot see a material object without seeing part of its surface. It is true that there are derivative uses of the verb 'to see' on which it is appropriate to say, for example, that one saw a man when all one saw was his shadow or that one sees a sub-atomic particle when one sees the trail it leaves in a cloud-chamber, but I shall put these to one side as they seem parasitic on the sort of cases I am describing.¹² A more serious objection would come from the points raised by Thompson Clarke, but these have been dealt with in the previous section. Granted that whenever a material object is perceived a part of the surface of that object is also perceived, the second claim in the NSD theory is that the material object is perceived in virtue of the perception of part of its surface. The third claim is that parts of the surfaces of three-dimensional material things are not perceived in virtue of the perception of anything else. The NSD theory can thus be spelled out as follows:

NSD Whenever we perceive a three-dimensional material object O it is the case that
 (i) we perceive a part of the surface of O
 (ii) O is perceived in virtue of that perception of that part of its surface

¹² This is not to say, though, that it is easy to explain the precise nature of the relation between these cases and what one might term canonical seeings. It is worth noting, for example, that such examples do not fit easily into any of the standard pigeon-holes in the philosophy of perception. They need to be distinguished, for example, from Dretske's category of secondary epistemic seeing (e.g. cases in which one sees from the gauge that the gas tank is full). It seems that one might see a given sub-atomic particle in virtue of seeing the cloud trail it leaves, even though one has no idea of the connection between that cloud trail and the particle in question, and consequently no proposition featuring that particle such that one sees-that that proposition holds. Dretske discusses secondary epistemic seeing in his 1969 pp.153-162.

(iii) the part of its surface which features in (i) and (ii) is not perceived in virtue of the perception of anything else.

Of the three clauses in the definition (i) and (ii) have been defended in the previous section. The new and important claim is (iii). I will offer an argument for (iii) in this section.

Before undertaking this, however, a little more needs to be said about the NSD theory. As formulated it applies only to a limited class of visual perceptions – namely, those in which the (mediate) objects of perception are three-dimensional material objects. It would be reasonable to ask how (if it all) it might be extended to other instances of non-hallucinatory perception. After all, it seems true that we perceive many things that are not three-dimensional material objects. There is a sense in which we see shadows, holes, points of space, rainbows, property-instances, sources of light etc. Some philosophers have even asserted that we perceive absences (Sartre, 1958). How can the NSD theory accommodate these cases of perception? Are these ‘things’ that we perceive in virtue of perceiving their surfaces? Do they have surfaces at all?

Some of these apparently non-standard cases of perception can in fact be accommodated directly by the NSD theory. The perception of a rainbow, for example, is the perception of moisture in the atmosphere. Here we are dealing with three-dimensional material objects (of a sort) and there seems no reason why the NSD theory shouldn’t be applicable. Similarly for many cases of the perception of property-instances. To perceive a property-instance is often just to perceive a property to be instantiated in a particular three-dimensional material object. It seems clear, moreover, that there is no need to nominalize shadows. To perceive a shadow is to perceive a surface, part of which is in shadow. Sometimes this surface will itself be perceived to be part of a three-dimensional object, as when a shadow is perceived against a discriminable background. On other occasions it will not be so perceived, but neither seems to present a counter-example to the NSD theory. Holes are an intriguing case (Lewis and Lewis 1970, Casati and Varzi 1995). There is an obvious sense in which holes cannot be perceived. If, as is overwhelmingly plausible, perception involves a causal relation between perceiver and the object(s) of perception, then holes cannot count as objects of perception for the simple reason that they have no causal powers. Apparent cases of perception of holes will have to be parsed in such a way that holes no longer count as the objects of perception. One might want to parse ‘x sees a hole’ as ‘x becomes aware of

the presence of a hole in virtue of perceiving parts of the surface(s) of some material object or combination of material objects (hole-surrounds)'. No doubt considerable fine-tuning would be required here, but enough has been said to show that the cases mentioned are at least not obvious counter-examples to the NSD theory.

To return, then, to the positive argument for the NSD theory, the key argumentative step is showing how the NSD theory explains the satisfaction of the following constraint:

The Reference Constraint If it is indeed the case that we make demonstrative reference to three-dimensional material objects, then our account of the immediate object of perception should explain how this is possible.

There seem to be three possible accounts of how the Reference Constraint is satisfied. The first is the NSD theory, which holds that we are able to make demonstrative reference to three-dimensional material objects because we immediately perceive parts of the surfaces of those objects. The second is the naïve realist theory, which would maintain that demonstrative reference to material objects is made possible by the immediate perception of those objects. The third possible position here has not yet been discussed. Both the NSD theory and the naïve realist theory would be falsified if it turned out that parts of the surfaces of material objects were themselves mediately perceived in virtue of the perception of something else. It has been argued by some philosophers (most acutely in Jackson 1977) that we perceive the surfaces of material objects in virtue of perceiving mental sense data. Defenders of this view agree with the NSD theory that we perceive material objects in virtue of perceiving coloured expanses.¹³ The question is what these coloured expanses are. The natural answer, which I endorse, is that these coloured expanses are parts of the surfaces of material objects. Defenders of the sense datum theory hold, in contrast, that demonstrative reference to three-dimensional material objects is to be explained in terms of the immediate perception of non-physical sense data.

¹³ Both positions depend, therefore, upon rejection of the adverbial approach to perception, as canvassed for example in Tye 1984. A cogent set of objections to adverbialism will be found in Jackson 1977 (pp. 63-72). In my view these objections have not yet been satisfactorily answered.

Since the naïve realist account of the immediate perception of three-dimensional material objects is no longer in play, the real issue is between the NSD theory and the sense-datum theory.¹⁴ Which of these better explains how we are able to refer demonstratively to three-dimensional material objects? Both theories will offer explanations that take the following form:

A given individual is able to refer demonstratively to an object O because he immediately perceives something which stands in relation R to O .

In the case of the NSD theory, of course, the immediate object of perception is a part of the surface of O. In the case of the sense datum theory the immediate object of perception is a non-physical sense datum. Each theory will of course involve a different relation R linking the immediate object of perception with the mediately perceived material object to which demonstrative reference is being made. Note that relation R is not the familiar in-virtue-of relation, which is an explanatory relation (subject to earlier qualification) linking the different perceptions of different things, but an ontological relation holding between different things that might be perceived – three-dimensional material objects, on the one hand, and parts of their surfaces or sense data on the other.

In the case of the NSD theory relation R is a straightforward mereological relation – the relation of part to whole. The NSD account of how the Reference Constraint is satisfied is:

A given individual is able to refer demonstratively to an object O because he immediately perceives something which is a part of O.

In the case of the sense datum theory, in contrast, the relation is representational/causal, and the sense datum account will look like this:

¹⁴ I prescind here from arguments about whether the surfaces of material objects are really coloured. This is not an issue that falls clearly within the domain of the philosophy of perception. The crucial argumentative step depends upon theses in metaphysics and the philosophy of explanation. It might be the case that the NSD theory falls foul of a compelling metaphysical thesis, but in this paper I shall set this possibility to one side. My concern will be with establishing the NSD theory as the most plausible theory within the philosophy of perception, recognising that it might be defeated by metaphysical considerations.

A given individual is able to refer demonstratively to an object O because he immediately perceives something which represents O (and is caused by O).¹⁵

To compare the two accounts, therefore, we need to compare the power of the representation relation and the part-whole relation in explaining the possibility of demonstrative reference.

Let me start with the NSD theory. Suppose that I am currently perceiving a green apple and make the demonstrative judgement 'That is green', accompanied by an ostensive gesture. According to the NSD theory, I am perceiving the apple mediately, in virtue of perceiving a part of its surface. How does the demonstrative pronoun secure reference to the apple here? Why does the pronoun not merely pick out the part of the surface of the apple which I immediately perceive, so that the judgement needs to be recast as a veiled definite description: 'The apple of which that is part of the surface is green'? We might be led to this by the thought that we can only ostend what we immediately perceive. Given that we can refer demonstratively, e.g. non-descriptively, only to what we ostend, it seems to follow that we can only refer demonstratively to three-dimensional material objects (as opposed to those parts of their surfaces which we immediately perceive). There is an important distinction, though, between the uncontroversially true descriptive proposition

(1) When we ostend what we perceive we ostend what we immediately perceive.

and the very controversial modal proposition

(2) When we ostend what we perceive we can ostend only what we immediately perceive (and hence not to any three-dimensional material object)

Clearly, (1) does not entail (2). The implausibility of the second claim is shown by comparison with the phenomenon of deferred ostension (Quine 1968 pp. 40-4). It is often the case that we point to one thing and in so doing ostend something else in a way that allows it to be taken as the subject of a judgement. "He's not the brightest" I might say, pointing to a book for whose author I do not have much respect. Or "They're delicious", nodding to a poster advertising National No-Smoking Day with a photograph of a full ashtray. By extension, it seems perfectly possible that ostension carries beyond the object of immediate perception.

¹⁵ The causal condition is placed in parentheses because it would be rejected by some philosophers attracted to a sense datum theory. It is, however, endorsed by Jackson, who has provided the most developed recent defence of the sense datum theory.

Nonetheless, although (2) is not generally true, it might be entailed by particular accounts of immediate perception – which would show that such an account cannot satisfy the Reference Constraint. Everything depends upon the nature of the relation between what is immediately perceived and the three-dimensional material object mediately perceived in virtue of that immediate perception. In the case of the NSD theory this relation is the mereological part-whole relation. I perceive the object because I perceive something which is a part of it. Now, it is certainly not a general rule that whenever I point towards a part I ipso facto point towards the whole of which it is a part. If I stand on a bridge in London and point towards the water saying ‘That looks cold’ it is pretty clear that the subject of my judgement is not the river Thames. On the other hand, however, it seems equally clear that there are many cases in which demonstrative reference does carry over the part-whole relation. One such case is my demonstrative reference to the green apple in front of me. Here it is true both that I point towards a part of the surface of the apple and that I point towards the apple. Proposition (1) is true, but not proposition (2). Nor, moreover, should this be a surprise. It seems to be straightforwardly licensed by the following three interrelated facts. First, the part of the surface of the apple that I see is a reasonably large part of the apple (in a way that the stretch of water that I can see under Hammersmith Bridge obviously is not). Secondly, it is a very representative part of the apple, so that one would expect a perceiver familiar with apples and with the concept of an apple to be able to judge ‘That is an apple’ on the basis of his current perception. Thirdly (and perhaps most importantly) perceiving part of the surface of the apple allows the apple to be perceptibly distinguished from its environment (again, the disanalogy with the river example is clear).

Can a comparable account be given for the sense datum theory? Does ostension and with it demonstrative reference carry over the relations of representation and causation? If a represents b, is it generally the case that in ostending a I ostend b, in the way that holds if a is a part of b (and the three conditions just identified are satisfied)? Let us start with straightforward examples of representation and causation. We can and do refer to individuals by pointing to photographs and other such representational vehicles. But such cases seem more like elliptical definite descriptions than demonstrations. Utterances like “That is my uncle” made while pointing to a photograph of my uncle should be parsed along the lines of ‘The man in that photograph is my uncle’. A similar

point holds for causation. If I point to a footprint left by a passing elephant and say "That's a rogue male elephant", my utterance should be parsed as "The elephant which passed this way and left that footprint is a rogue male", or some such definite description. There is a clear difference between this case and one in which I say the same thing with an elephant charging towards me and clearly discriminable within my field of vision.

These examples involve deferred reference, underwritten by deferred ostension. It is because in pointing to the photograph I succeed in ostending my uncle that the utterance comes out as true. Let us look a little more closely at deferred ostension/reference. Deferred ostension works when there is some clearly identifiable relation between the immediate object of ostension and the deferred object of ostension. The relation will be partly identifiable from the sentence itself. In a simple subject-predicate sentence like "That's my uncle" it will be obvious that some sort of deferred ostension is in play, because no photograph is the brother of somebody's parent. But this is a rather special case. The pictorial nature of the representation allows a swift move from the realisation that there is some sort of deferred ostension in play to the realisation that the intended referent is the man in the photograph. Consider the utterance "That's my uncle", said while pointing to a book. Here too it is obvious that books aren't the siblings of parents, but a modest amount of theory is required to realise that the intended referent is the author of the book. More theory is needed in the case of elephant footprint – and so on. The general point is that deferred ostension works when it does because both utterer and hearer understand the relation linking the physically present ostended object and the intended referent.

There is an obvious parallel between these examples and the sense datum theory. The relations of representation and/or causation over which reference would need to be carried on the sense datum theory also hold between two distinct items – a non-physical sense datum and a three-dimensional material object. But how far does the parallel extend? In the photograph example it seems plausible that the default ostension is to the photograph, and some sort of deferred or transferred reference is required for it to refer to the person photographed. The question is whether, on the sense datum theory, the demonstrative pronoun "latches onto" the sense datum in the way that it latches onto the photograph or the footprints. There is a dilemma here for sense datum theorists. They can hold either that the demonstrative pronoun latches onto the sense datum

or that it somehow bypasses the sense datum and latches directly onto the mediately perceived material object. Either way there are problems.

Suppose the sense datum theorist takes the first horn, maintaining that the sense datum is the immediate object of ostension. The demonstrative pronoun latches onto the material object only in virtue of deferred ostension. This creates an obligation to explain how deferred ostension/reference would work in such a situation. Explaining the operation of deferred ostension is an extremely difficult task, but linguists and philosophers of language are agreed that deferred ostension can only work in a communicative context when speaker and hearer share knowledge of an individuating principle linking the physically present ostended object with the intended object of reference. There may of course be a range of such principles, and in any given situation the hearer's identification of which particular principle is involved will depend upon various factors including the relative ease with which the respective principles permit the identification of a referent. Any comprehensive account of deferred ostension will be formidably complex (Nunberg 1978). For present purposes, though, the important point is that (if the demonstrative pronoun latches onto the sense datum, rather than the material object) ostension could only be deferred across the representation/causal relation if the speaker intended and the hearer grasped a suitable principle governing the deferral of ostension from sense datum to the object which causes it and which it represents. It seems obvious, however, that no such principle is implicated in everyday demonstrative reference to material objects.

Alternatively, a sense datum theorist may hold that the ostension (and with it the reference of the demonstrative pronoun) somehow bypasses the sense datum and instead latches directly onto the object represented by the sense datum. This means, though, that they will have failed to meet the Reference Constraint because their account of the immediate object of perception has no part to play in their explanation of how demonstrative reference to three-dimensional material objects is achieved. The sense datum is otiose in the explanation of direct perception.

To conclude, according to the Reference Constraint an adequate theory of the immediate objects of perception will explain how we manage to make demonstrative reference to three-dimensional material objects. In this section I have argued that this constraint can be met by the NSD theory,

but cannot be met by the sense datum theory which is at this stage its only competitor. That completes the argument in support of the NSD thesis that, when we perceive three-dimensional material objects, the immediate objects of perception are parts of the surfaces of those objects.

IV

Let me conclude on a more programmatic note. Although this essay has been concerned almost exclusively with topics in the philosophy of perception, there are wider metaphysical issues at stake. The virtue of the NSD theory is that it accommodates the principal worry with naive realism, namely that there is an important sense in which we do not immediately perceive three-dimensional material objects, while allowing the immediate object of perception to be something that is unproblematically physical, viz. a part of the facing surface of such objects. This might be viewed as at least a preliminary move in a robust naturalistic accommodation of perception – and a highly significant one given the growing number of contemporary philosophers who see perception as a crucial stumbling block for physicalistic naturalism. Nonetheless, it is just a first move and there is much terrain left to be covered. Further progress for the modality of vision depends upon showing that the facing surfaces of objects can properly be described as coloured in a perception-independent way, so that colour perception can be analysed as sensitivity to non-relational properties of the immediate object of perception. Only thus will the case against non-physical sense data be completely closed. More generally, the NSD theory needs to be extended from the modality of vision to the other sense modalities in a way that both allows the other 'special sensibles' beside colour to be treated as non-relational properties of the immediate object of perception, and that allows there to be a single immediate object of perception in cross-modal perception. I hope I have done enough in this paper to establish that this is a programme worth pursuing.

Bibliography

Baldwin, T. 1990. G. E. Moore. London. Routledge.

Black, M. (Ed.). 1965. Philosophy in America. London. Allen and Unwin.

Casati, R and Varzi, A. C. 1994. Holes. Cambridge MA. MIT Press.

- Clarke, T. 1965. 'Seeing Surfaces' in M. Black (Ed.), 1965.
- Cornman, J. W. 1975, Perception, Common Sense and Science. New Haven. Yale University Press.
- Crane, T. (Ed.) 1992. The Contents of Experience. Oxford. Oxford University Press.
- Dancy, J. 1985, Introduction to Contemporary Epistemology. Oxford. Blackwells.
- Dretske, F. 1969. Seeing and Knowing. Chicago. University of Chicago Press.
- Jackson, F. 1977. Perception. Cambridge. Cambridge University Press.
- Lewis, D. and Lewis, L. 1970. 'Holes', Australasian Journal of Philosophy 48, 206-212.
- Lowe, E. J. 1993. 'Self, Reference and Self-reference', Philosophy 68, 15-33.
- Lowe, E. J. 1996. Subjects of Experience. Cambridge. Cambridge University Press.
- Millar, A. 1991. Reasons and Experience. Oxford. Oxford University Press.
- Moore, G. E. 1918-1919. 'Some Judgements of Perception' in Proceedings of the Aristotelian Society XIX. Page references are to the version reprinted in Swartz 1965.
- Nunberg, G., 1978. 'The Non-Uniqueness of Semantic Solutions: Polysemy', Linguistics and Philosophy 3, 143-184.
- Peacocke, C. 1992. Sense and Content. Cambridge MA. MIT Press.
- Quine, W. 1968. 'Ontological Relativity' in Ontological Relativity and Other Essays. New York. Columbia University Press.
- Robinson, H. 1982. Matter and Sense. Cambridge. Cambridge University Press.
- Robinson, H. (Ed.) 1993. Objections to Physicalism. Oxford. Clarendon Press.
- Sartre, J. P. 1958. Being and Nothingness. London. Methuen.

Sellars, W. 1997. Empiricism and the Philosophy of Mind. Cambridge MA. Harvard University Press.

Snowdon, P. 1992. 'How to Interpret 'Direct Perception'', in Crane 1992.

Swartz, R. J. (Ed.) 1965. Perceiving, Sensing, Knowing. New York. Anchor Books.

Tye, M. 1984. 'The Adverbial Approach to Visual Experience', Philosophical Review 93, 195-226.

Van Frassen, B. C. 1980. The Scientific Image. Oxford. Clarendon Press.

Wright, E. 1993. The New Representationalisms. Aldershot. Avebury.

