From immediate perception to basic belief

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ABSTRACT
Suppose that there are basic beliefs, beliefs that are directly or fully justified by perceptions. In philosophy of perception, there is a well-known debate about the extent to which we immediately perceive the physical world or perceive it via some intermediary like sensations. How should we understand the relation between basic beliefs and immediate perceptions? Bermúdez (2000) argues that our account of immediate perception should explain how direct beliefs are secured, using perceptual demonstratives as a case study. He then argues that the traditional view of immediate perception, one that appeals to sensations or their kin, should be rejected, and proposes an alternative view. I agree that Bermúdez's alternative account succeeds in explaining how direct beliefs can work. However, I argue that so too can the more traditional account. Further, the traditional account is well-equipped to explain what it was built to explain: perceptual error and its relation to veridical perception. By contrast, Bermúdez's model faces an acute problem by these issues. I thus conclude that the traditional model is preferable. I then extract the underlying set of distinctions and explain why they do not depend on either the traditional account or Bermúdez's alternative account. They are instead not only appreciable on their own, they compose a framework that should be incorporated into any viable theory of perception. Furthermore, this framework is poised to be central to how we understand the virtual and augmented perceptual experiences that are becoming increasingly important to our perceptual lives.

I am delighted to have the opportunity to contribute to this volume in honour of the work of José Luis Bermúdez. Bermúdez's body of work is incredibly far-ranging, and the quality always very high. I have elected to focus on one of his older works, namely his 2000 article "Naturalized sense data."[1] The piece reads incredibly well today, despite it being over twenty years old in a field that has changed dramatically over that period. The work thus deserves more attention, and I hope my contribution here can go some way to facilitating that. I also focus on this piece because I believe that the main topic – the distinction between immediate and mediate perception and how this feeds into basic perceptual belief – is poised to regain at least some of the dominance it had in the last century. I say a bit about why I believe this in the penultimate section. For most of this work, however, I focus on Bermúdez's main argument and the challenge I wish to pose to it.

In brief, Bermúdez argues that perceptual theory needs a distinction between mediate and immediate perception of the sort reminiscent in many writings on sense-datum theory. This is in part

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[1] All references to Bermúdez are to his 2000 unless otherwise specified.

to explain how demonstrative reference to ordinary physical objects is possible (on the assumption that it is indeed possible). However, according to Bermúdez, the conception of this distinction found within traditional sense-datum theory (SDT) does not explain how demonstrative reference to ordinary physical objects is possible (Section 4). By contrast, a conception found in many writings by sense-datum theorists, but that does not require traditional SDT, does afford the desired explanation (Section 3). This conception Bermúdez inserts into a new view, what he calls naturalized sense-datum theory (NSD). He thus concludes that NSD is preferable to SDT.

I agree that NSD can explain demonstrative reference to ordinary physical objects. However, I argue that SDT can as well, despite Bermúdez's arguments to the contrary (Section 5). I also argue that NSD on its own does not solve another, arguably more central, problem that SDT was formulated to address: the problem of perceptual error (Section 6). I maintain that this problem is difficult for NSD to resolve without losing its identity. Following this, I briefly consider how other theories of perception fit into this landscape (Section 7). In the penultimate section (Section 8), I set aside SDT, NSD and other theories of perception, and extract the underlying framework that guides Bermúdez's discussion. I maintain that this framework is essential to perceptual theory, and that it is critical to understanding the novel perceptual experiences that are emerging in virtual reality, augmented reality, and other forms of sensory engineering. I begin with Bermúdez's proposed connection between perception and basic belief. For simplicity, and following Bermúdez, I focus on visual perception.

1. The Reference Constraint

The notion of "indirect" or "mediated" perception has a long, distinguished history, with numerous philosophers arguing that we "directly" or "immediately" perceive ideas or sensations and "indirectly" or "mediately" perceive the surrounding physical world. Following Bermúdez (see also e.g. Jackson 1977, Snowdon 1992), I distinguish between an epistemic and a perceptual version of this distinction. To start:

> **Perceptual distinction**: When one perceives something O by virtue of perceiving something else, one mediately perceives O. When a perception of a thing isn't mediated, it is immediate.

Epistemological distinction: Beliefs about perceptions that are fully justified by those perceptions are direct perceptual beliefs, and those that are not are indirect perceptual beliefs.[2]

The perceptual distinction applies to perceptual states on their own, and the epistemological distinction is centred on the kinds of justification that perceptual states can provide for perceptual beliefs. The former is about the structure or metaphysics of perceptual states themselves, and the latter is about how perceptual states feed into associated epistemic states.[3] The kinds of perceptual states I focus on are perceptual experiences (or instances of perceptual consciousness), as I take these to be what philosophers of perception are most often concerned with. Let me first elaborate on the epistemological distinction.

One might argue that if I have a perceptual experience as of a black cup of coffee before me, that experience is not sufficient to justify the belief that there is a black of coffee before me. This is because the experience could be veridical but could also be illusory or hallucinatory. If one accepts this line of thought, then it seems that perceptual experience alone is not sufficient to justify perceptual beliefs about ordinary physical objects. From here one might, for example, argue that the experience does justify the belief that there *seems* or *appears* to be a black of coffee before me. This latter belief would then be a direct (or basic) perceptual belief, and the former belief (that there is a black of coffee before me) would be an indirect (or non-basic) one. This general debate in perceptual epistemology is not my concern.

There is, however, a specific type of perceptual belief that is important to this discussion, namely *perceptual demonstrative beliefs*. These are beliefs involving a demonstrative that purports to refer to something that is (by hypothesis) currently perceived. To simplify, they are beliefs of the form 'That is P', where 'that' purportedly denotes some perceived object (or property or event or whatever) and 'P' is a property term of some sort. For example, the belief "That is blue" or "That is a laptop" which is held in response to a perception of something (and purports to be about that thing). When demonstratives are employed in this kind of way I will call them *perceptual demonstratives*. Perceptual demonstrative beliefs of this sort are particularly simple perceptual beliefs that rely quite heavily on what is perceived. They rely heavily on what is perceived because demonstratives are perhaps the most compelling example of a directly referential term, where the meaning or content of an employed demonstrative is

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[2] One could formulate this in terms of knowledge instead of beliefs if one preferred.
[3] Lyons (2003) identifies some other relevant notions of 'directness'. For reference my 'immediate perception' is akin of his 'perceptual directness' and my 'direct perception' to his 'epistemological directness'.

directly and arguably wholly given by the referent.[4] In this case the demonstrative is a perceptual demonstrative, and thus the intended referent is something purportedly perceived. The subject of the belief is in this way "directly given" by the perception. Although there is much more to be said on the matter, this makes simple perceptual demonstrative beliefs strong candidates for beliefs that can be directly and fully justified by perceptions. At minimum, perceptual demonstratives, when successfully employed, seem to owe their success precisely to the perception that they are parasitic on.

Most believe that we can demonstratively refer to ordinary physical objects like computers, cars, and trees. If a successfully employed perceptual demonstrative owes its success to the perception that it is parasitic on, then one might suppose that our account of perception, and in particular of immediate perception, should explain how we can perceptually demonstrate ordinary physical objects. Put another way, successful perceptual demonstratives of ordinary physical objects involve direct perception (in the epistemic sense), and this directness derives from the associated current perception. Perhaps we can and should explain this epistemic directness in terms of what one is immediately perceiving (in the perceptual sense). This is Bermúdez's Reference Constraint:

> **Reference Constraint**: If it is indeed the case that we make demonstrative reference to ordinary physical objects, then our account of the immediate object of perception must explain how this is possible. (365)

The Reference Constraint asserts that we should explain successful perceptual demonstratives in terms of immediate perception, setting the ground for explaining an important type of direct perceptual belief in terms of immediate perception. I will grant the Reference Constraint as a working assumption.[5] The Reference Constraint prompts us to analyse immediate and mediate perception (the perceptual distinction). It also sets the stage for Bermúdez's main argument. Let me turn to those now.

2. Bermúdez's main argument

Bermúdez considers two views of immediate perception: traditional sense-datum theory (SDT) and his proposed alternative, naturalized sense-datum theory (NSD). Stated most generally, the term 'sense-datum' means what is given to the senses. Studies of sense-data aim to give a theory of what it is that

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[4] The character of the demonstrative, in Kaplan's sense, is something like 'the thing being demonstrated' or 'the thing one is intending to demonstrate'.

[5] Lyons (2023) provides an overview of perceptual epistemology that contains some options that may not require the Reference Constraint. I cannot delve into this terrain in the present work, though I will conclude that the Reference Constraint is important and worth preserving.

is given to the senses, of how what is given is related to the ordinary physical world and to ourselves, of how we should conceive of perception in this context, and of how all of this feeds into perceptual beliefs, knowledge and other aspects of epistemology. In this regard SDT and NSD are two theories about the nature of sense-data.[6] Here are the core commitments of each.

According to NSD, "The immediate objects of visual perception, or what are often called sense-data, are parts of the facing surfaces of physical objects" (353). We nonetheless can and do perceive ordinary physical objects. But, according to NSD, we perceive ordinary physical objects by perceiving their front-facing surfaces. In this sense we mediately perceive those objects. The idea that we immediately perceive only the front-facing surfaces of objects is familiar from discussions of sense-data. I will unpack it below.

According to SDT, the immediate objects of perception are mind-dependent objects. Within SDT these mind-dependent objects are themselves typically called 'sense-data'. We thus have two uses of 'sense-data'. To help us keep track of this, I will use the term 'SD' for the mind-dependent objects that are central to SDT and continue to use 'sense-data' for the immediate objects of perception (whatever they may be). According to SDT, although the immediate objects of perception are these peculiar mind-dependent objects, namely SD, we can nonetheless perceive ordinary physical objects by immediately perceiving the mind-dependent ones. This is because SD *represent* ordinary physical objects, either intrinsically or in virtue of the way perceivers interpret them. In this way we mediately perceive ordinary physical objects. There are numerous arguments in favour of SDT, and at least as many criticisms. In my view the most powerful argument in favour of SDT stems from perceptual error, namely illusion and hallucination (see Section 6), and other important ones stem from causation and perception (see esp. Robinson 1994), the scientific conception of the world in contrast to the phenomenal one (see esp. Jackson 1977), and so on.

We thus see that according to both NSD and SDT we mediately perceive ordinary physical objects by immediately perceiving sense-data. However, what counts as sense-data (the immediate objects of perception) is strikingly different on the two accounts. According to NSD, sense-data are the front-facing surfaces of physical objects, and according to SDT sense-data are SD. We therefore mediately perceive physical objects for very different reasons on these views. This groundwork is

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[6] See Hatfield (2021) for an overview of sense-data.

sufficient to explain Bermúdez's overall argument, which I have distilled from Section III of his 2000 (pp. 365-372):

(1) We do make demonstrative reference to ordinary physical objects.

(2) The Reference Constraint is true.

(3) There are only two viable theories of immediate perception: NSD and SDT.

(4) SDT fails to adequately explain perceptual demonstratives about ordinary physical objects.

(5) <u>NSD successfully explains perceptual demonstratives about ordinary physical objects.</u>

(6) Therefore, we should endorse NSD (and reject SDT).

Premise (1) is put forward as a reasonable, intuitively justified hypothesis. Premise (2) is also a hypothesis, but it is justified by the kind of reasoning given in Section 1. Premise (3) is what Bermúdez takes to be the relevant views for this debate. I will remark on in Section 7 but for now wish to note that even if one rejects the 'only' in premise (3), (3) could be modified to say that two of the important via theories relevant to this debate are NSD and SDT. This would retain the validity of the overall argument, and (as I hope to show) retain the interest of the substance of Bermúdez's insights. Premises (4) and (5) are clearly substantive claims in need of justification. Assuming they are justified, the argument is on solid footing.

At this point one might ask whether we need another argument against SDT, given how out of favour the view is in our current climate? I think this worry misses Bermúdez's point and the interest of his paper. First, there is enduring interest in direct perception (epistemological notion) and perceptual demonstratives. In addition, the Reference Constraint is *prima facie* plausible and interesting. This prompts us to examine viable notions of immediate perception (and mediate perception) so that we can adequately understand how perceptual demonstratives can and by hypothesis do apply to ordinary physical objects. Second, the idea of trying to capture what discussions about sense-data were after (the immediate objects of perception, whatever they may be), put it to good use (via the Reference Constraint), and in the process show that SDT isn't a good a way of doing this, is fascinating on its own. If Bermúdez's argument works, then he effectively shows that SDT failed at its own game (giving a viable account of sense-data), but that we can nonetheless recover what the debate was after by embracing NSD. Third, the conceptions of immediate and mediate perception embodied in NSD and SDT are distinct, and (as I'll demonstrate in Section 8) stand on their own, independently of these theories. Abstracting these conceptions from NSD and SDT and showing the many ways that they apply to phenomena of contemporary interest illustrates that the notions of immediate (and mediate)

perception are worthwhile and relevant to current philosophy of perception. In the end, I believe we should all be sense-datum theorists, regardless of whether we embrace SDT, NSD, or some other view. Let me move on to justifying (5), and then critiquing (4).

3. Why NSD?

Bermúdez claims that (5) NSD successfully explains perceptual demonstratives about ordinary physical objects. I agree. Let me explain the idea. In NSD, we immediately perceive unoccluded front-facing surfaces of ordinary physical objects and mediately perceive the occluded parts of these objects and the objects as wholes. This is definitive of the view. Is this true? Consider three reactions to this idea.

One might propose an austere "parts only" theory of perception according to which all we really see are the unoccluded front-facing parts of physical objects. Judgements about whole objects like chairs and trees are constructed in post-perceptual cognition, based on inferences from perceived front-facing parts of those objects. Such a view seems coherent but perceptually implausible. When I look at the world, it seems inaccurate to say that, strictly speaking, I only see a collection of 'object parts' or thin 'object slices'. On the contrary, I seem to perceptually experience whole objects: chairs, trees, and so on arrayed in a three-dimensional space and overlapping one another in various ways.

Second, one might propose that we do experience whole objects, and that there is nothing to the idea that we 'immediately perceive' the unoccluded front-facing parts. This is an "objects only" view. On this view, we can safely set aside this whole discussion and talk simply about the objects that we perceive. This seems equally problematic, for there *is* something to the idea that we more immediately perceive the unoccluded front-facing parts of physical objects than the occluded parts, and than the objects as wholes. These unoccluded parts are perceptually and phenomenally present to us in a way that the occluded parts, and the object as wholes, are not. We need a third option.

NSD is a viable alternative. Against the "objects only" view, NSD accepts that there is an important sense in which we more immediately perceive the unoccluded front-facing parts of physical objects than their occluded parts, and than the objects as wholes. NSD also asserts that we nonetheless generally perceive whole objects, in contrast to the "parts only" view. To hold these claims simultaneously, NSD proposes that we perceive all of these things but in different senses of 'perceive'. Since our perceptions of the unoccluded front-facing parts of objects seem more immediate (or direct or present or epistemically available in perception), and our perceptions of whole objects and of their occluded parts occurs by our perceptions of the unoccluded front-facing parts of objects, the NSD

theorist proposes a natural solution: we mediately perceive whole physical objects and their occluded parts by immediately perceiving their unoccluded front-facing parts.

I take this distinction to be quite intuitive. Here are two further arguments for the approach. As Bermúdez argues (pp. 363-4), to perceive something we must discriminate it from its surrounds. We generally visually discriminate objects by means of the front-facing parts that are open to view. Front-facing parts are thus serving a privileged perceptual role that is captured in the NSD conception of immediate perception. Second, we can draw support for NSD from the phenomenon of amodal completion. In psychology it is typical to distinguish between the front-facing parts of perceived objects and the occluded parts, and posit a special mechanism – amodal completion – to explain how we manage to perceive whole, complete objects despite in some sense only "immediately" perceiving their unoccluded front-facing parts. One important part of research in this area concerns illusions that involve amodal completion, providing strong evidence for this kind of "filling in" being distinctive (against the "objects only" view), and being perceptual and not merely something arising in post-perceptual cognition (against the "parts only" view). Therefore, the NSD idea that we immediately perceive front-facing surfaces and mediately perceive ordinary physical objects is credible and a worthy foundation for a perceptual theory.[7] Let me move to the substance of (5).

Premise (5) asserts that NSD can explain how we demonstrate ordinary physical objects. The argument for (5) is as follows. According to NSD, we immediately perceive unoccluded front-facing parts of ordinary physical objects. It seems reasonable to assert that we can demonstrate what we immediately perceive: if there is anything that we can demonstrate, we can demonstrate what we can immediately perceive (in whatever sense of 'immediately perceive' one finds acceptable). One may deny this claim, for example by rejecting the very idea of immediate perception. However, I take it this wouldn't be charitable to Bermúdez, and I've given adequate motivation for the existence of immediate perception in any case. One may also deny this by offering some theory of demonstratives that doesn't rely heavily on what is perceived, but I will assume that perceptual demonstratives not only exist but are a foundational kind of demonstrative.[8] Given the important link between demonstratives and perception, the claim that we can demonstrate what we immediately perceive is an attempt to carve

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[7] Note that I haven't gone through Bermúdez's potent analysis of some critiques of the NSD idea (see esp. pp. 359-364). For a recent alternative view, see Martin (2017).

[8] For comparison, Brovold and Grush argue that "the fashionable philosophical notion of the 'perceptual demonstrative' is an aberration" (2012, 39). There is a fascinating debate to be had here, but it falls outside my current purview.

out a basic and "safe" subset of perceptions and say that surely demonstratives, if they are applicable at all, must be applicable to this subset. I agree. It follows that we can demonstrate unoccluded front-facing surfaces of ordinary physical objects.

Bermúdez's key move at this point is to appeal to *deferred demonstration*. This is where a demonstration carries beyond what is before one in the following sense. For example, if one says "That man is the greatest!" while pointing to a picture of Messi, one is referring to Messi the person with 'that man' and not the picture. 'That' can thus go beyond a picture being perceived and refer to what the picture represents.[9] To be sure, this doesn't prevent us from demonstrating the picture, for example by saying "That is a picture of the greatest footballer." Such a demonstration is *non-deferred* relative to the former demonstration.[10] Similarly, you might point to an oversized jacket on a chair and say "That's a large person" (deferred demonstration) or "That's a large jacket" (non-deferred demonstration). You may also hear a soundbite from an advert and exclaim "This is a catchy tune" (non-deferred demonstration) or "This is my favourite restaurant!" (deferred demonstration). I think that a full, adequate theory of deferred and non-deferred demonstration is difficult to develop, but the existence of the phenomenon is straightforward, and is appreciable independently of the issues we have discussed to this point.

Deferred demonstration is relevant in the following way. I have argued that we can demonstrate unoccluded front-facing surfaces of ordinary physical objects. These surfaces are parts of those objects. It seems plausible that deferred demonstration can "carry over the part-whole relation" (Bermúdez 370). This is arguably true in general and in any case is very compelling when the part at issue is being immediately perceived and the whole at issue is being mediately perceived in the NSD sense of these terms. NSD therefore provides a compelling explanation of how demonstrative reference to ordinary physical objects can occur. I think we should accept this argument and hence (5).

4. Why reject SDT?

Premise (4) asserts that SDT cannot do what I, following Bermúdez, just argued NSD can, namely explain demonstrative reference to ordinary physical objects. Recall that according to SDT, we immediately perceive the mind-dependent objects SD, and by virtue of these representing ordinary physical objects

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[9] Bermúdez (370) helpfully reminds us that this idea is found in Quine (1968, pp. 40-44).
[10] I will stick with the terminology 'deferred' and 'non-deferred' when discussing demonstratives so as not to get confused with the other terminology already in place.

(either intrinsically or by virtue of how we interpret them) we mediately perceive the latter. Bermúdez's argument for (4) is to pose a dilemma for SDT. There are two possible ways to demonstratively refer to ordinary physical objects: deferred and non-deferred demonstration. Neither model can be applied within the constraints of SDT. Thus, (4) is true – SDT cannot explain demonstrative reference to ordinary physical objects. Let me unpack this.

Let's consider deferred demonstration first. Within SDT, we immediately perceive SD. Bermúdez argues that deferred demonstration to ordinary physical objects cannot be appealed to by SDT advocates. To see why, suppose that a perceiver immediately perceives a given SD, and mentally demonstrates that SD while saying or thinking "That is a laptop" with the intention of demonstrating the laptop that by hypothesis is represented by that SD. If this demonstrative succeeds in denoting the laptop, this would involve deferred demonstration. The reason Bermúdez believes this isn't credible is because:

> linguists and philosophers of language are agreed that deferred ostension [demonstration] can only work in a communicative context when speaker and hearer share knowledge of an individuating principle linking the physically present ostended [demonstrated] object with the intended object of reference. (372)

However, Bermúdez argues, within SDT this requires shared knowledge of the speaker's private SD and the individuating principle that links those SD and ordinary physical objects. "It seems obvious, however, that no such principle is implicated in everyday demonstrative reference to material objects" (372). Thus, Bermúdez concludes, SDT cannot appeal to deferred demonstration to explain demonstrative reference to material objects.

In other words, deferred demonstration works in the case with a picture of Messi because I and my interlocutors understand the link (or individuating principle) between the picture and Messi and can implicitly appeal to this to correctly interpret what I'm trying – and by hypothesis succeeding – in saying when I utter "That is a great football player." By contrast, when I mentally point to my SD and say "That is a laptop", my interlocutors cannot have analogous knowledge of the requisite individuating principle because my SD and my demonstration of it are private. Thus, deferred demonstration is unavailable within SDT to explain demonstrative reference to ordinary physical objects.

This leaves SDT to explain demonstrative reference to ordinary physical objects via non-deferred demonstration. For Bermúdez this yields the other horn of the dilemma, for here demonstrative reference must somehow bypass SD and latch onto the ordinary physical object. The problem, however,

is that this violates "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" (372).

Bermúdez thus concludes that, whether SDT utilizes deferred or non-deferred demonstration, it cannot adequately explain how we demonstratively refer to ordinary physical objects. (4) is true.

5. In defense of SDT

I reject both horns of the dilemma Bermúdez tries to impose on SDT. The first horn concerns using deferred demonstration, where the SD are demonstrated and ordinary physical objects are referred to via deferred demonstration. Bermúdez's objection rests on the hypothesis that deferred demonstration requires shared knowledge by speaker and hearer of an individuating principle linking the demonstrated object (e.g. the picture or the SD) to the intended object (e.g. Messi or the laptop). He then claims that such shared knowledge is "obviously" not present in everyday demonstrative reference to physical objects. Both claims should be rejected.

First, why is shared knowledge of the above sort required for deferred demonstration? I don't see why I couldn't perform this or any kind of deferred demonstration on my own, whilst on a deserted island, say. A deferred demonstration can succeed even if there is no one other than me to hear my utterance. Indeed, there is nothing problematic about deferred demonstration in thought, and thoughts remain by default private entities. Thus, while public communicative acts of the sort Bermúdez considers arguably require a public understanding of the relation between the immediate and mediate objects, deferred demonstrations don't require public acts.

Second, I suspect that a public individuating principle of the sort Bermúdez has in mind can be operative in a community of SDT advocates. Suppose a group of people come to believe that SDT is true and are in fact correct! At the beginning, they may speak in a cumbersome technical way about SD and the physical world. For example, suppose A talks about "The physical thing that is causing me to have this blue, round SD." Here the demonstrative 'this' purports to refer to A's SD. A community member B can understand this, even if, for example, B doesn't rule out the skeptical possibility that what A describes as a 'blue, round SD' is not what B would describe in that way. Furthermore, A can say "That cup is causing me to experience this blue, round SD." Here 'this' demonstrates the SD and 'that' demonstrates the purported cup. B has no difficulty understanding A's claim. This would, for example,

involve deferred demonstration of the cup if A's employment of 'that' involves A mentally pointing to her SD with the intention of referring to the cup that the SD represents. If needed, A could explain to B that this is what she is trying to do, and then do it. B would thus understand that deferred demonstration was used to refer to the cup with 'that' when A utters "That cup is causing me to experience this blue, round SD." Consider, finally, a more evolved stage of communication where A simply says "That is my favourite cup" and B correctly understands A to be demonstrating her blue, round SD and intending to, with 'that', refer to the purported cup. This would also involve deferred demonstration of the sort that Bermúdez rejects, but the shared knowledge of the individuating principle would be implicit in their communicative practice, much as it is implicit in our practice when I point to the picture of Messi and say "That is a great football player."

To be sure, Bermúdez's objection is that it "seems obvious, however, that no such principle is implicated in everyday demonstrative reference to material objects" (372). As a point about how to understand our everyday linguistic practice, I agree. The way we tend to understand our everyday actions is not in accordance with the SDT community just described. But this isn't an objection to the ability of SDT to explain demonstrative reference to ordinary physical objects. And the SDT advocate can argue that, in the end, their description is *in fact* an accurate description of our everyday practice, whether we realize it or not. Regardless, I conclude that SDT can explain demonstrative reference to ordinary physical objects via deferred demonstration.

The second horn of the dilemma asserts that SDT cannot use non-deferred demonstration to explain demonstrative reference to ordinary physical objects. This is because to do this, the demonstration would have to bypass the SD, in which case the demonstration doesn't appeal to the immediate objects of perception (i.e. the SD), violating the Reference Constraint. I disagree. Return to speaker A in a community that believes SDT and in which SDT is true. Suppose A says "That cup is my favourite" and with 'that' succeeds in bypassing her blue, round SD and directly referring to the purported cup. It doesn't follow that the explanation of how this works can avoid appeal to A's SD. Assume A's demonstration consists entirely of her publicly pointing with her finger to the cup. Now suppose that A's act of demonstrating occurs in significant part because of the immediate objects of her perception, namely, she is able to perceptually connect to the cup, form her thought about the cup, and move her arm so as to point at the cup *because* of the SD that she is experiencing and the fact that the SD represents the cup. On this account, A's demonstration of the cup is non-deferred in the relevant

sense, but its success depends critically on the immediate objects of her perception, namely her SD.[11] The Reference Constraint is preserved. This strikes me as viable, and unavoidable, within SDT.[12]

In conclusion, premise (4) of Bermúdez's overall argument, namely that SDT fails to adequately explain perceptual demonstratives about ordinary physical objects, should be rejected. Since this is Bermúdez's primary motive for rejecting SDT in favour of NSD, SDT can withstand his assault. However, there is much more of interest to be said about these issues. We should consider whether NSD can explain the phenomena that originally motivated SDT (section 6). We should consider how other views in the vicinity connect to this debate (section 7). Finally, it is instructive set aside SDT, NSD and other theories of perception, and tease out the underlying framework of this debate (section 8).

6. The problem of perception

Suppose I am correct that Bermúdez hasn't given us a good reason to reject SDT. As mentioned earlier, the opponent of SDT may not be stressed, believing that there are several other reasons to reject SDT. Fair enough, and this is not the place to itemize and attempt to reply to each of them. However, I do wish to highlight another part of this dialectic. The SDT advocate needn't strictly play defense. Instead, they can go on offense and argue that NSD can't adequately explain what is often called The Problem of Perception. This is the problem of (a) explaining erroneous perceptual experiences, namely illusions and hallucinations, and of (b) explaining the phenomenal similarities that can occur between veridical perceptual experiences, illusions and hallucinations.[13] Let me briefly explain how The Problem of Perception is particularly challenging for NSD.

Here is a simple characterization of the core notions that is sufficient for our purposes. A veridical perceptual experience is fully accurate of the physical world. For example, you have an experience of a blue round thing and you are in fact looking at a blue round thing. An illusion occurs when you experience a physical object, but experience one of its features incorrectly. For example, you have an experience of a blue round thing and you are in fact looking at a purple round thing. An

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[11] Compare with the "epistemic" role played by what is immediately perceived in Brown (2009, 381-386).

[12] One alternative possibility is to suppose that A demonstrates the cup solely by appeal to unconscious perceptual states. The perceptual experience would thus overdetermine what is needed for reference and by hypothesis for basic belief. While this is possible, I do not believe this is an accurate model for understanding our perceptual lives (though I recognize that some, like Jack Lyons (personal communication), believe this model is largely correct). I also suspect that, to the extent that unconscious perception undermines SDT it also undermines NSD. These details, however, would take us too far afield.

[13] The reasoning that leads from here to SDT was first clearly articulated by Robinson (1994) and has since been codified in Crane and French (2021). See again Hatfield (2021) for an overview of various additional motives for SDT.

hallucination occurs when your experience doesn't have a corresponding physical object at all. For example, you have an experience of a blue round thing and there is nothing corresponding to this in the physical environment.

Veridical, illusory and hallucinatory experiences are "latching" onto the physical world in different ways, and in this regard these experiences are different types of perceptual states. Nonetheless, while we can at times subjectively distinguish between veridical, illusory and hallucinatory experiences, at times we cannot. In principle, these different types of experiences can be subjectively indistinguishable. For many, the most powerful justification for SDT is its ability to explain this conundrum. SDT postulates a type of mind-dependent object – SD – as a perceptual intermediary between the perceiver and the physical world. This intermediary is present regardless of whether one's experience is veridical, illusory or hallucinatory. This explains why experiences of these types can be subjectively similar and even indistinguishable. However, the difference between veridical, illusory and hallucinatory experiences does not collapse, since which type of experience one is having depends on how well one's current SD latches onto (i.e. represents) the physical world.

It is straightforward that, on its own, NSD doesn't solve The Problem of Perception. NSD is a theory according to which the immediate objects of perception are the front-facing surfaces of ordinary physical objects, and ordinary objects themselves (not merely their front-facing surfaces) are mediate objects of perceptions. This framework, on its own, provides no resources to explain the difference between veridical perception, illusion and hallucination, nor the respect in which experiences of each sort can be subjectively indistinguishable. Bermúdez concedes one part of this challenge when he notes that NSD is "is only an account of non-hallucinatory perception" (354). He thus recognizes that NSD needs to be bolstered to explain hallucination. However, he fails to make a similar concession about illusion, and about the subjective similarities that occur across experiences of all three sorts. He also fails to explicitly appreciate how acute the problem is.

Consider, briefly, illusion. Suppose you look at a purple cylindrical bottle and have an experience of that bottle as a blue cylindrical bottle. That is, the blue that you experience isn't experienced as a feature of just any cylindrical bottle, it is experienced as a feature of the very physical cylindrical bottle that sits before you (a bottle which is in fact purple). This is what makes this an illusion: you are actually experiencing the object in question, but you are experiencing it to have a feature that it doesn't have. How should NSD be applied here? In line with NSD, the front-facing surface of the bottle is present before you in a way in which the backsides and insides are not and in which the bottle as a whole is not.

However, the front-facing surface is purple, and you aren't experiencing that surface as purple, you are experiencing it as blue. In what sense, then, are you "immediately perceiving" the front-facing purple surface? If anything, it seems like the front-facing surface, although physically available, is perceptually occluded by the experienced blue. So what is immediately perceived? Perceptually, it seems like a blue cylindrical bottle is immediately perceived, but there is nothing in the NSD view that captures this. If the NSD theorist adds something new to explain the illusion, whatever is "seemingly blue" arguably has to (a) capture the sense in which one is experiencing blue, (b) do so in a way such that blue is occluding the purple of the object, while (c) preserving the core NSD thesis that the front-facing surface of the purple object is immediately perceived.

This is an acute problem for NSD because NSD is built around the idea of immediate perception and in particular the idea that front-facing surfaces are what is immediately perceived. I see no easy way for the NSD theorist to address these worries.[14] The NSD advocate can explore adding familiar tools like SD, adverbs (i.e. ways of perceiving), unsatisfied contents, appearances, and so on to explain The Problem of Perception. However, it isn't clear how to add this to NSD without undermining NSD's identity as a theory of mediate and immediate perception that preserves the Reference Constraint.

The SDT advocate is right to maintain that The Problem of Perception is central to perceptual theory, and in a debate with NSD advocates is right to argue that SDT, not NSD, has a clear advantage on this issue. When this is combined with the SDT account of demonstrative reference to ordinary physical objects, SDT advocates successfully shift the burden onto NSD.

7. Is it SDT, NSD or bust?

NSD and SDT are viable views, despite facing some challenges. As I hope to have showed, examining how they conceive of immediate and mediate perception, and how they explain demonstrative reference to ordinary physical objects, is incredibly instructive. Nonetheless, one might wonder whether we should embrace premise (3), that NSD and SDT are the only two viable theories of immediate perception. I thus briefly consider two additional views: naïve realism and representationalism.

Bermúdez considers naïve realism. According to this view, we immediately perceive not the front-facing surfaces of physical objects but physical objects themselves. That is, naïve realism is built

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[14] Compare with Hatfield's (2021) worry that NSD may have to postulate "appearances" to accommodate perceptual constancy.

around the idea that we immediately perceive ordinary objects like trees and cars. In this regard the view differs from NSD. However, Bermúdez dismisses naïve realism because it is "no longer in play" (368). While that was true in 2000, when Bermúdez's article was published, in our current climate naïve realism is very much in play.[15] Naïve realism satisfies the Reference Constraint, as the view can explain perceptual demonstratives by the immediate perception of ordinary objects. In this regard, were one to defend NSD in today's climate, one would arguably be obliged to provide reason to prefer NSD to naïve realism. To my mind, in the first instance this would revolve around the arguments NSD advocates offer in favour of treating the front-facing surfaces of physical objects, and not the whole objects themselves, as the immediate objects of perception (Section 3). There is much interesting work to do here, but this work sadly falls outside my present purview. I will emphasize that, however the debate between NSD and naïve realism is resolved, the challenge from SDT remains. SDT theorists demand an explanation of The Problem of Perception. Providing such an explanation is not only a difficulty for NSD, but also a well-known difficulty for naïve realism.[16] In this regard SDT again sits in a comfortable position.

The most influential contemporary theory of perception is some form of representationalism or intentionalism.[17] On a standard way of describing this view, perceptual experience is explained in terms of perceptual content, and content is, wherever possible, explained in terms of physical objects and their properties. Perceptual error involves states that express "mere contents", that is, contents that are not satisfied by the present physical world. For example if you look at something purple and experience it as blue, then your state expresses a "blue content" that is not satisfied by the object's purple colour. There are two difficulties with widening our discussion to incorporate representationalism.

One is that it is fair to say that representationalism was developed so as to not rely on a distinction between immediate and mediate perception. This is in part to avoid saying that something like SD are immediately perceived during erroneous perceptual experiences. More positively, representationalism is built around a semantic notion – contents – whose connection to metaphysical entities like objects is underspecified. Some representationalists think this is a virtue (e.g. Pautz 2021).

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[15] In fact the recent interest in naïve realism arguably began very soon after Bermúdez's (2000). For example two influential works came out in 2002: Campbell (2002) and Martin (2002). See Crane and French (2021) for an overview.
[16] See e.g. Brown and Macpherson (Manuscript) for an extended critique of naïve realist approaches to illusion.
[17] Classic sources are Dretske (1995) and Tye (1995). Crane and French (2021) provide an overview.

In any case, this makes it difficult to draw a simple line from the present discussion to representationalism. Second, there are too many versions of representationalism at this point to single out any variant or cluster of variants as dominant. Thus, I must leave this matter to another work. I will highlight, however, that there is enormous value in widening the present discussion to incorporate representationalism. For example, a recent and important defense of representationalism is Hill (2022). On Hill's view, we do not directly experience objective properties of physical objects (like their colour and size). Instead, a special class of abstract properties – Thouless properties – are the "most immediate objects" of perceptual experience (50).[18] Thus, Hill argues that "perceptual experience presents us with Thouless properties rather than their objective counterparts. This undercuts naïve or direct realism" (57). This arguably also undercuts NSD and SDT.

There is thus much more to be said about premise (3). Nonetheless, even restricting our discussion to NSD and SDT (as premise (3) does) yields enormous fruit that can be applied to a broader suite of options in future work. In what remains I switch from a focus on broad theories of perception (e.g. NSD, SDT) to a focus on the underlying distinctions between immediate and mediate perception on one hand, and deferred and non-deferred demonstration on the other, regardless of one's broader theoretical commitments. The purpose is to show that these underlying distinctions are beneficial on their own, and hence should be incorporated into any viable theory of perception or theory of perceptual demonstratives. Space permits only a hint of how this might go. Hopefully, a hint is enough to spark interest in the framework that we can extract from Bermúdez's paper.

8. The underlying framework, without SDT and NSD

SDT and NSD appeal to different conceptions of the distinction between immediate and mediate perception. What has not been made explicit is that these conceptions do not depend on either theory. Here is each conception on its own:

- **Front-Facing Surface Conception**: the immediate$_1$ object of perception is a (front-facing) part of the mediate$_1$ object of perception. For example, you mediately$_1$ perceive the car by immediately$_1$ perceiving the front side of it.

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[18] Thouless properties are a kind of appearance property that is postulated to explain deviations from perfect perceptual constancy found in vision. More precisely, regarding size, "The Thouless size of an object x with respect to viewpoint y is F(v, d), where v is the visual angle x subtends with respect to y and d is information pertinent to the distance from x to y. The function F is a "partial- constancy" function, in the sense that its values are more stable than ever- fluctuating retinal images but are nonetheless always characterized by under- constancy" (2022, 45).

- **Representation Conception**: the immediate$_2$ object of perception represents (and is distinct from) the mediate$_2$ object of perception. For example, you mediately$_2$ perceive a football match by immediately$_2$ perceiving a television.

Although NSD is built around the first conception and SDT around the second, each conception can stand on its own. Further, each can and should play an important explanatory role in perceptual theory. Let me briefly explain why.

Regarding the Front-Facing Surface Conception, it is hard to deny that we have more immediate perceptual access to the front-facing parts of things than we do to their backsides, insides or to the things as wholes. The difference can, for example, be sidelined in psychophysical studies of two-dimensional figures on computer monitors. But this restriction is obviously an artefact of experimental design, and ultimately three-dimensional physical objects are a, if not the, fundamental topic of perceptual psychology and of everyday perception. With three-dimensional object perception comes the Front-Facing Surface Conception of immediate and mediate perception. We thus can and should debate about how to understand the Front-Facing Surface Conception and its significance for issues like object perception and perceptual demonstratives. However, at the end of this debate some form of this conception of immediate and mediate perception will remain intact.

Assuming SDT is false, the Representation Conception arguably played a small role in our evolutionary history. Independently of this, it is playing a decidedly outsized role in our current lives, with the proliferation of televisions, smartphones, computers, and the like. It is straightforward to me that my son is not merely growing up with a blurred understanding of the reality of his immediate physical environment versus the reality represented by various screens to which he has access. He is arguably growing up without a sharp division between these realities. I won't pause to try to assess the value of this. My point is that what is mediately$_2$ perceived is arguably as real to him as what is immediately$_2$ perceived. Our theories of perception should pay much closer attention to the Representation Conception than they have. This is additionally true given the rapid development of virtual and augmented reality technology. The kinds of experiences found in these settings test the limits of our understanding of what is 'immediately' versus 'mediately' perceived, and of what we are referring to when we think and talk about what is experienced. The solution isn't to abandon the topic

of immediate and mediate perception, it is to develop it in a way that permits it to illuminate our burgeoning perceptual reality.[19]

It is also worth making explicit that both the Representation Conception and the Front-Facing Surface Conception can be applied to a single perceptual experience. For example, one can immediately$_1$ perceive a front-facing surface of an object, and mediately$_1$ perceive the object itself, and, simultaneously, if that object represents some further object, then one can mediately$_2$ perceive the further object by immediately$_2$ perceiving the former. In my view this is precisely what happens when one is watching a live football match on a smartphone.

Above I argued that both deferred and non-deferred demonstration can be applied, in various ways, to cases to which the Front-Facing Surface Conception can be applied, and to cases to which the Representation Conception can be applied. A full account of these matters should appeal to all of these resources, regardless of whether one adheres to SDT, NSD or some other view. We need both conceptions of immediate and mediate perception, we need both deferred and non-deferred perceptual demonstratives, and, although the details are complex, many instances of the latter should be explained via combinations of the former. In this regard the Reference Constraint, or something in the vicinity, remains in place. I therefore see the underlying conceptual framework found in Bermúdez's 'Naturalized Sense Data', when properly understood, to hold enduring value.

9. Conclusion

Throughout the twentieth century, philosophers of perception often discussed how immediately we perceive ordinary physical objects, and, if not immediately, then how what is immediately perceived feeds into and justifies basic perceptual beliefs about ordinary physical objects. In recent years, philosophy of perception has moved away from this suite of issues. In this regard, Bermúdez's 'Naturalized Sense Data' may seem old fashioned. To my mind, viewing it as such is a mistake. There are different and legitimate conceptions of the distinction between mediate and immediate perception, and how each feeds into purportedly basic perceptual beliefs, such as those involving perceptual

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[19] Project SENSOR, a newly funded project on "sensory engineering" has this as one of its main topics. Sensory engineering refers to ways perceptual experiences can be intentionally manipulated – engineered – via technologies of different sorts. See https://www.gla.ac.uk/research/az/cspe/news-and-events/headline_1026454_en.html for more details.

demonstratives about ordinary physical objects, is subtle and instructive. I argued that Bermúdez was wrong to contend that SDT could not adequately explain such demonstratives. His preferred view, NSD, would also benefit from an account of The Problem of Perception: perceptual errors and their relation to veridical perceptions have always been important to the distinction between mediate and immediate perception. NSD is right to apply the distinction to veridical perceptions, but wrong to not also address perceptual error, and in particular illusion, given the forceful challenge illusion poses to the view. I also argued that the underlying framework Bermúdez articulates to guide his discussion is essential to perceptual theory, regardless of which specific theory you endorse. The Front-Facing Conception of the distinction between immediate and mediate perception, the Representation Conception of that distinction, deferred demonstratives, and non-deferred demonstratives, are all widely applicable to everyday perception – even to a single everyday perception. They are also poised to be immensely valuable to our understanding of perception in the virtual and augmented scenarios that are likely to dominate our everyday perceptual lives in the coming years.[20]

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