HANDOUT: “Technical issues in ‘naive’ sense datum theory.” John M. Nicholas, Department of Philosophy, and Rotman Institute of Philosophy, University of Western Ontario, London, Canada <jnichola@uwo.ca> *Phenomenal Qualities Project*, University of Hertfordshire, 31 March 2012, revised 10 May 2012 (originally “Exercises in ‘naive sense datum theory”.)

---

[1] Almost without exception, philosophers take sense datum theory (SDT) to be a ‘dead horse’ and scarcely worth the beating.

There are three strategic objections to it.

- First, it is committed to dualism, which is scientifically (naturalistically?) unacceptable.
- Second, it implies scepticism while pretending to know what is beyond the ‘veil of the appearances’, which is contrary to epistemic intuition.
- Third, arguments from illusion and hallucination in favour of SDT are unsound, which is contrary to logic and/or fact.

I reject all three criticisms either as false or irrelevant. The first and second are false. The third is true but irrelevant.

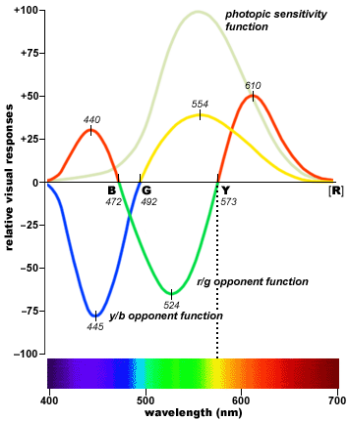
[2] On the other hand, large numbers of vision scientists, neurologists, physicists, colour theorists, and the *Commission internationale de l’éclairage* have adopted the view that the bearers of colours are sensations, not external objects. [I will not address the standing of attributes in other sense modalities here. Colours will serve as the thin end of the wedge for the present.]

What grounds compel us to take sensations or sense data, rather than external objects or ‘distal stimuli,’ to be the bearers of colours? The answer is not The Argument from Illusion!

i: Attributing colours to distal stimuli would be an ‘idle wheel’ in the explanation of colour vision. We have well-established ideas about what the contributions of distal stimuli are to the process of colour and other vision, and they do not include the generation of colours (i.e. those attributes that at the very least conform to the structure of colour similarity spaces etc) at those distal stimuli. Stimuli which characteristically cause us to see, say, red, may as well be plaid for all that it would contribute to the visual process.

ii: Colours have particular properties and relations (similarities, unique/binary character, variability of uniqueness by subject, ...). Distal stimuli have no physical grounding for those attributes.

ii: In addition to substantially comprehending why the roles of light sources, transmissive media, and reflecting surfaces in causing colours and their vision are exhausted by their generating luminance spectra, we also partially comprehend how colours are produced - in the brain. Consider an idealized Opponency model. If representation is the issue, then we have representation *by* colours not representation *of* colours.



This data-driven model represents the formation of unique hues and the weighting of components of R, G, B, Y in binary hues – in or at the brain. Other things being equal each frequency in the spectrum will, for a given individual, yield a characteristic *binary* hue with relative weightings for R/Y, Y/G, G/B, and B/R as dictated by the given curves (disclosed by hue cancellation, assuming two parallel, RG and BY, opponent channels). In those special cases where each of one pair of opponents takes zero values, a *unique* hue appears. The likely conformity of the true explanation of the production of colour to something like the opponency model makes the view that distal stimuli are the bearers of experienced colours not credible. We must 'relocate' them.

[3] Intentionalist-Representationalists might note that the construction is putatively of the hues themselves or their proximal neural underpinnings, not of neural symbols with the intentional content as of those hues. Given the above considerations, Naive Realism (traditional or Disjunctivist) seems to imply that either no colour perception is veridical or that the instantiation of phenomenal colours in distal stimuli is independent of the atomic and molecular make up of them.

[4] TECHNICAL ISSUE 1. Do additional considerations force the argument too far? Hardin has argued that the above constitutes one arm of a destructive dilemma. The other arm purports to take down SDT. Hardin argues that colours are no more in sensations than they are in distal stimuli, and concludes that there are no colours. Colour talk should be eliminated in favour of neurological description, and colours should be taken to go the way of phlogiston.

I have elsewhere (including Phenomenal Qualities Project, November 2010) proposed that Hardin's arguments fail to support the second arm of the dilemma; for example, his claim that, in addressing von Bezold Spreading Effects and Motion After Effects, SDT must commit to sense data bearing *contrary* attributes, fails sufficiently to consider the sharing of the contraries among distinct sense data associated with distinct fixations. Contra Hardin, we have an argument by elimination to sensations, rather than a destructive dilemma against colours.

[5] TECHNICAL ISSUE 2. Does SDT imply that sensations are non-physical? There seems to be little reason to think that SDT should be committed to dualism. Descartes' Dualism derives from an idiosyncratic and implausible doctrine that each substance depends on a unique Primary Attribute, so that Thinking Substance may partake exclusively in Thought, and not in Extension, the Principal Attribute of Material Substance. Such an ontology has little going for it. Other less systematic dualist views than Descartes' derive from a congeries of diffuse theological and aspirational commitments, not to be discussed here.

SDT is committed to the idea that we mistake our sensations for external objects, and their attributes for attributes of external objects (cf. Prichard.) We do that because, outside the seminar room or away from the computer, we are all Naive or Direct Realists, sanely but wrongly.

A superficial case might then be made that, because the Naive Realist is aware of nothing discernibly non-physical in the intuitable character of sensations in what she takes to be external objects, then the sense datum advocate may be comfortable in taking properties, like colours, to be physical.

A more judicious response would be to acknowledge that detailed examination of colours shows that their properties and relations do not have a physical underpinning in external objects, but it does not show that there is no physical underpinning at all. Further, there are empirical clues that sensations are dependent on the brain. The plausibility of centre-surround opponency models of neurons close to the retina, among other things, confirm this.

Whether sensations are familiar physical items in an unfamiliar guise, unfamiliar physical items, or non-physical items must be determined by empirical work; that sensations are non-physical (i.e. don't have characteristic energies, say) is not a starting point for SDT. Further, there is no reason ab initio to suppose that phenomenal space is not physical space.

[6] TECHNICAL ISSUE 3. What is meant by the 'Phenomenal Array'? I mean that array that you mistake for the world outside you at any given time. Quibble about 'mistake', but it suffices to pick out the Phenomenal Array. This allows a more natural formulation of the doctrine of Naive or Direct Realism than the usual appeal to lack of mediation in perception.

- Naive or Direct Realism: the (visual) Phenomenal Array is the Visual Field (distal stimuli).
- SDT: the Phenomenal Array is not the Visual Field, and is likely part of the brain.

[7] TECHNICAL ISSUE 4. Is the Phenomenal Array in the brain? Is there a place where it all comes together?

'Naive' SDT says yes, a unitary, simply connected zone. Others, less 'naive', say no, some assuming that disjoint elements are distributed in neural 'archipelagos'. I consider some examples of the 'archipelago' approach, and argue that they face similar problems of assembly for phenomenological elements.

- Example One: Semir Zeki offers a doctrine of 'microconsciousnesses' which are phenomenal but single modality. He bases this in a double dissociation argument on V4 and V5, and, likely, an over-interpretation of Riddoch Syndrome – a variety of blindsight.
- Example Two: Parvizi and Damasio argue that resources sufficient for consciousness exist in the Ascending Reticular Formation.
- Example Three: Merker: proposes there are sufficient resources in the Superior Colliculus.

Parvizi and Damasio, and Merker are notable for highlighting the role of *sub-cortical* structures in the production of consciousness. Traditionally, as in Zeki's case, most arguments against there being a place where it all comes together have focused on on the cortex (hippocampus, perhaps, too). Sprague and similar paradoxical effects, plus mathematical simulation by Malcolm Young et al call into question the effectiveness of double dissociation in isolating function to cortex. (In the Sprague effect, unilateral removal of visual cortex undermines target detection and tracking in the contralateral visual field. Subsequent lesioning of the contralateral – subcortical - superior colliculus restores those competences, without any restoration of excised cortical tissue!) However, I conclude that neither cortical nor subcortical sites are eliminated as yet. A major issue to be confronted is the reconciliation of the outputs of temporal and nasal retinal halves divided at the optic chiasm and the consequent division of the visual world by left and right cortices.

[8] TECHNICAL ISSUE 5. How can there be room in the brain for sense data? If we suppose that the Phenomenal Array is a 3D simulacrum of the external world, then we are obliged to confront some important questions. Given that, in the brain, there are no void spaces, and even in those spaces in which the neuronal density is negligible, there are still tissues and fluids which do not register in awareness and attention. Here I argue that the Phenomenal Array is not discernibly three-dimensional, a counter-intuitive view. My grounds include the observation that at any given visual fixation only the segment of the Phenomenal Array corresponding to the foveal region offers sharply delineated figure-ground separation and occlusion. Even if the Phenomenal Array were 3D, its appearance would be indistinguishably replicated by a 2D surface with the appropriate combination of sharp contours, contour blur, surface blur, texture gradients, and luminance variation in the foveal zone. Having the production of colours, say, on a surface rather than in a 3D volume in the brain reduces the need for remote neurological influences in the formation of sensations, and is conformable to the brain's efficient use of *laminar* structures in the cortex generally, and in 'binding' devices such as the superior colliculus (visual, auditory, somatosensory) and the lateral geniculate nucleus (magno-, parvo-, and konio-cellular projections), for example. I conclude with the conjecture that our conviction that the Phenomenal Array is three-dimensional is a cross between what Bacon called an Idol of The Tribe and what Titchener called Stimulus Error, allowing what we know to be true of the distal stimulus to bias our claims about subjective experience.

[9] CONCLUSION. Implications for empirical testability for SDT. The relation of SDT to Intentional Representationalism, and Disjunctivist Naive Realism.