

Appendix F: "Dennett and the Color Phi"

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(Towards a Working Model of *Real* Minds: Dennett, Helmholtz and Cassirer)

I really *like* Daniel Dennett's "Consciousness Explained"¹. It is not because I can agree with his conclusions, (except in a *certain sense*), that I like it, but because it is a *brutally* candid and forthright exposition of the Naturalist position, proceeding with compelling logic, and without hedging. It is, moreover, a phenomenologically *pure* position. I think it is, (agreeing with his own parenthetical question), really "Consciousness Explained *Away*" however, rather than "Consciousness Explained" because, at the end, "we are all zombies".² There is one crucial argument he makes against the existence of mental states, (i.e. "figment"), however, in which I think he has correctly identified a profound antinomy -and, I believe, a necessary and major modification to our ordinary conception of mind. He has argued it from "the color phi".

"The color phi" names an actual experiment, suggested by Nelson Goodman, wherein two spots of light are projected in succession, (at different locations), on a darkened screen for 150 msec intervals with a 50 msec interval between them. The first spot, however, is of a different color, (red, say), than the second, (green). Just as in the case of motion pictures, (the "phi phenomenon"), subjects report seeing the continuous motion of a *single* spot, but interestingly, they report that it changes color, (from red to green), midway *between* the two termini!³ Dennett bases a very interesting, (and, I feel a very important), argument against the very possibility of a

¹ Dennett, 1991

² I know, I know! I must, in threat of disingenuousness, quote his footnote to this comment: "it would be an act of the utmost intellectual dishonesty to quote this statement out of context."

But the context he demands is 470 pages of careful redefinition and argument against all the normal senses of mental function and existence -qualia, figment, the "substance of mind". The upshot is that it is O.K., (i.e. socially correct), to be a zombie! But the sense in which his statement would normally be understood *out* of context is essentially what it *still* means. He attempts to make any objection, (or any comment on its own prima facie unintuitiveness), unraisable. There is *another* cult, (besides the Feenomanists!), in the jungle, you see! :-)

³ and not, for instance, that it is red all the way till its terminus, with a final and sudden change-to-green.

"Cartesian Theatre", against a unity, (and "figment" = substance), of consciousness on this well documented and reproducible experiment. Dennett's argument, in brief, is this:

Mental states, the "Cartesian Theatre", if they exist, are subject to the laws of causality, of time precedence. For one event to affect another, it must occur *before* it. Let me, for discussion's sake, label the events described. Let E1 be the ("heterophenomenological"¹), perception, (hereinafter to be called by me "h-perception"), of the first, (red), spot. Let E2 be the h-perception of the red-changing-to-green, and let E3 be the h-perception of the final green spot.

Dennett argues, based on the principle of causality, that E2 cannot occur until after E3. Since there were only two actual, (physical), events, (the first and second projected spots), he argues that the h-perceived midpoint, (the "mental event", i.e. red-changing-to-green), cannot occur until *after* the reception of the second actual event, (green projection), as it was that which provided the very sensory data *necessary* to the h-perception of change. Other than a (mystical) hypothesis of "projection backward in time", there remain for Dennett just two possibilities for an internal, "Cartesian Theatre" consistent with the experiment: the "Stalinesque" and the "Orwellian" hypotheses.

The first involves the creation of a "show trial" staged by a subterranean "central committee", (after the fact of both real events, of course, and involving a "delay loop"), wherein the complete, (and partially fabricated), sequence, (red -> red-changing-to-green -> green), is "projected", (i.e achieves sentiency). Under this hypothesis, the whole of our sentiency, our consciousness, occurs "after the fact". The second possibility, the "Orwellian" hypothesis, is that the actual events are received by our sentient faculty *as is*, but that our memory then rewrites history, (just as the thought police of Orwell's "1984" did), so that we *remember* not two disjoint and separate events, but the connected, and pragmatically more probable sequence red -> red-changing-to-green -> green.

¹ Dennett introduces the criterion "heterophenomenological" to describe "mental events", which he does not believe in, to describe whatever-it-is that is named by them, i.e. to talk about them as they are (linguistically) used by real bodies and brains, (which he does believe in), but with a neutral metaphysical commitment.

Dennett argues that ultimately *neither* theory is decidable -that either is consistent with *whatever* level and kind of experimental detail science may ultimately supply, and that, therefore, the only pragmatic distinction between them is purely linguistic, and therefore trivial. He argues that there *is* no "great divide", no actual moment, (nor existence), of sentience, but only the underlying brain process, (which *all* theories must countenance), itself. Based on the "spatial and temporal smearing of the observer's point of view", he expounds his thesis of "multiple drafts" wherein there *is* no "theatre", only brain process -and its various "speakings", (drafts).

And yet the observer himself has absolutely no problem with these events! *His* perspective is very clear: E1 -> E2 -> E3. It is our interpretation, (and rationale), for this sequence that causes the problem.

I think Dennett has a very strong argument, but I want to refocus it. Nondecidability is all very well and good, but it is a much weaker line than the one he started out with- on the possibility of *synchronization*! In a very real sense, I feel it is very similar in intent and consequence to Einstein's "train" argument against simultaneity.

Consider, (with Einstein), an imaginary train moving (very fast)¹ down a track, with an observer standing midway on top of the moving train and observing two (hypothetically instantaneous) flashbulbs going off at either end of the train. The train goes by another (stationary) observer standing (hypothetically infinitely) close by the track as the bulbs go off. Suppose that the moving observer, (OT), reports both flashes as simultaneous. He argues that since both photon pulses reach him simultaneously, (granted for all frames on the local, infinitesimal scale, and thus agreed on (?) by *both* observers who are assumed infinitely close -i.e. side by side), that therefore the pulse from the rear of the train, having to "catch" him, must have left its source sooner than the pulse from the front which added his velocity to its own and so must have left later. Relative to OS, (stationary observer), however, the two sources travel the same distance to a *stationary* target, (himself). Since OT and OS are momentarily adjacent to each other, (i.e. within a local frame), they should be able to agree that the two pulses *arrive* there simultaneously. What they *cannot* agree on, however, (in that instance), is whether the events, (the flashes), *occurred* simultaneously -*nor that the other could have thought, (i.e. could have observed), them so!* Time, in Dennett's words, is "smeared"² We could, of course and significantly¹, *vary the parameters* to make *either* event "earlier" and the other "later".

¹ nearing the speed of light

² Are the observers, (and the experimental apparatus), then "heterophenomenological"?

The argument is that from the standpoint of one observer, he must maintain that the *other* cannot see them as simultaneous, and vice versa! Thus from OS's standpoint, if he sees them as simultaneous, then, since he is stationary, they *occurred* simultaneously. But if they occurred simultaneously, and since OT is moving, then *OT cannot*, (OS argues), see them as simultaneous, (and conversely). And yet both observers pass through an infinitesimal local frame of reference, (side-by-side). Time is "smeared"!

Just as Einstein's two observers, near the limits of physical possibility, cannot agree whether the two lights were *simultaneously* flashed at the ends of the train or not, (i.e. cannot establish a common temporal frame of reference), nor that the other could observe them locally as such, neither, given Dennett's pointed argument, can we establish a common temporal frame of reference for "the world" and "the mind" at the limits of cognition.²

I agree with Dennett that "the color phi" identifies a legitimate and critical aspect of the mind-body problem. The spatial and temporal "smearing" of the percept and the non-explicit reference of qualia that he demonstrates forces a profound extension to our traditional conception of the "theatre". But his dimensional "smearing" actually fits very well³ with the model I am proposing. I submit that it is *more plausible* in terms of the "focus" and "function" of an operational object than in terms of his "multiple drafts", "demons" and "memes" in the "real world". His objections to the ordinary "Cartesian theatre" are admittedly valid, but so were those of Cassirer and Helmholtz before him:

"For example, if we conceive the different perceptual images, which we receive from one and the same 'object' according to our distance from it and

¹ i.e. -relative to Dennett's problem

² For macroscopic science, these limits are at the scale of the speed of light. For atomic physics, they are at the scale of Planck's constant. And for the brain, I suggest, they are at the scale of minimal biological response times, i.e. in the 100 msec. range.

³ when taken "heterophenomenologically" -i.e. with a neutral ontic commitment. Heterophenomenology works both ways!

according to changing illumination, as comprehended in a series of perceptual images, then from the standpoint of immediate psychological experience, no property can be indicated at first by which any of these varying images should have preeminence over any other. Only the *totality* of these data of perception constitutes what we call empirical knowledge of the object; and in this totality no single element is absolutely superfluous. No one of the successive perspective aspects can claim to be the only valid, absolute expression of the 'object itself;' rather all the cognitive value of any particular perception belongs to it only in connection with other contents, with which it combines into an empirical whole.

...In this sense, the presentation of the stereometric form *plays 'the role of a concept'*", (my emphasis), "'compounded from a great series of sense perceptions, which, however, could not necessarily be construed in verbally expressible definitions, such as the geometrician uses, but only through the living presentation of the law, according to which the perspective images follow each other.' This ordering by a concept means, however, that the various elements do not lie alongside of each other like the parts of an aggregate, but that we estimate each of them according to its *systematic significance*...." (Cassirer, 1923, pp. 288-289, citing Helmholtz)

But Cassirer's reformulation of the formal concept itself must be considered for an understanding of his meaning here. The concept, for Cassirer, is *a function*. It is "the form of a series", independent and distinct from what it orders. This is the "systematic significance" which he purports. I urge, extending Cassirer's insight and in the sense of my conclusions of Chapter 2, that the stereometric form itself, the percept,¹ then plays the role of, (is), a function.

From the standpoint of (relativized) Naturalism,² if we take the mind to be schematic, but specifically a "*predictive*" and "*intentional*" schematic model, (which extension I will suggest shortly), rather than a static and "representative" one³, then the temporal and spatial "smearing" of the percept do not have the implications against the "theatre" *per se* that Dennett attributes to them. I have argued that the percept itself is conceptual, (albeit specialized, invariant and constitutive), and therefore, following Cassirer, functional. It is an entity of order

¹ This, the percept as concept, is clearly at odds with, but, (I have argued), a legitimate extension of, Cassirer's ideas. He did not have the perspective of the schematic object.

² cf. Chapter 4

³ i.e. vis-à-vis current process

and process -and it *is* "smeared". That is the normal nature of *functions* -they *are* smeared! What Dennett explains by "multiple drafts", (and the "demonic" process he envisions beneath them), I explain by "focus". We focus the percept, (via implicit definition) according to operational need.

An Extension of the Schematic Model: A Brief Sketch

Let me frame the following in the language of ordinary Naturalism, (this *will* be a short appendix). I want to sketch a very large canvas very quickly.¹ In "the color phi", I think that Dennett has identified a very important difficulty in our ordinary conception of mind. It suggests an enlargement and a more sophisticated perspective on the schematism I have argued heretofore. Though I think I have successfully laid the solid foundation, let me now sketch the design of the cathedral itself, i.e. the design of *real minds*!

I have dealt, previously, with the schematic object. I argued that the object of perception is a schematic artifact of reactive brain process, specifically "designed" to optimize a simple and efficient "calculus" of response. But the converse side to that argument is that an *actual* calculus was enabled! What are the (Naturalistic) implications of that calculus, and of the schematic model?

¹ I could, of course, try to footnote every misconception and every possible claim of inconsistency, but we have already done that, haven't we? I think I have paid my dues. "Predictivity", "intentionality", et al are, under my thesis, perfectly valid conceptions *within* the Naturalist "form" - and I may consistently use them *as such* without self-contradiction! Within the context of my larger perspective, they are model-model correlations, synthetic a priori "slices" across the phenomena.

Follow me in a thought experiment! Keeping your eyes fixed to the front, you perceive, (in your perceptual model), this paper in front of you, the wall behind it, and, perhaps, the pictures of your family. There may be pens and pencils, books. You may hear music from the stereo next to you, (and perhaps still in peripheral vision). There may be a window, and the lights of the neighbor's house beyond it. *But there is no wall behind you!* There is no car in the driveway outside of your house -indeed, there is no "house" at all. There is no city, no taxes, no friends. The sun does not exist in this model. There is no government, no "universe", -no tomorrow! The (purely) perceptual model is incomplete as a model of "reality" and it is, (Naturally!), inadequate even to keep you alive! There is something else necessary for completeness of the model detailed in this book, i.e. a new perspective on it. It is an *intentional* aspect. It is necessary to supply the object behind your back and the reality "over the hill"! It supplies the connection to "tomorrow" and "yesterday". It supplies "causality". It is necessary for the completeness of a model of "*the world*". It is necessary, (specifically following Dennett!), even for the individual "objects" of perception itself, (E1 and E3 for instance). This model, I suggest, is where E2, (the object of Dennett's perplexity), lives. It cohabits there very comfortably with E1 and E3 which, I argue, are *also* predictive and schematic objects. There is a seamless integration, (above the scale of 100 ms, let us say), of what we normally think of as our pure percepts and the intentional fabric within which they are woven.¹ This model, I believe, is the actual "home" of mind, and the legitimate purview of a truly scientific psychiatry.²

¹ But let us turn Dennett's argument around. Dennett argues strongly and convincingly that "figment", (mental states), are logically inconsistent with our, (his), ordinary (naïve) views of cognition and reality. If, instead of accepting his conclusion however, we choose to accept the *reality* of that figment -E1, E3, and E2, -if we believe that E2 is *actually* perceived, (whatever it may be), then his argument takes on a different import and works against the very ground in which it was framed: i.e. his ordinary view of cognition and the Naturalism, ("objectivism"), in which he embedded it. The "color phi", he says himself, embodies a precise and reproducible experiment -you and I would both expect to "see" it!

I consider the "phi phenomenon" *itself* more interesting than the "color phi", however. The credibility and intentional depth of a series of oversized, rapidly sequenced still pictures, (a movie), is quite suggestive. Its potential for an uncanny parallelism with our ordinary experience suggests that the latter, (i.e. ordinary experience), is *itself* a predictive and integrative phenomenon grounded in a schematic, intentional model in precisely the same manner as I propose the "color phi" to be.

² Consider the world-views implicit in paranoia or schizophrenia, for instance, or in bipolar orientations

"Now what is a phenomenal space? Is it a physical space inside the brain? Is it the onstage space in a theater of consciousness located in the brain? Not literally. But metaphorically? In the previous chapter we saw a way of making sense of such metaphorical spaces, in the example of the 'mental images' that Shakey, [a robot], manipulated. In a strict but metaphorical sense, Shakey drew shapes in space, paid attention to particular points in that space, based conclusions on what he found at those points in space. But the space was only a *logical* space. It was like the space of Sherlock Holmes's London, a space of a fictional world, but a fictional world systematically anchored to actual physical events going on in the ordinary space in Shakey's 'brain'. If we took Shakey's utterances as expressions of his 'beliefs', then we could say that it was a space Shakey *believed in*, but that did not make it real, any more than someone's belief in Feenoman would make Feenoman real. Both are merely intentional objects.... *So we do have a way of making sense of the ideas of phenomenal space -as a logical space.*" Dennett, 1991, pps.130-131, my emphasis.

But this is my exact conclusion of Chapter 2. Dennett and I are not so very far apart after all -save in our metaphysics, (wherein we are *very* different). Mind is a *logical* entity -i.e. its "space" is a *logical* space. But Dennett's "mind" is based in associationist logic (after Dreyfus' usage¹), and *dead*, and mine is based in a functional logic, (the constitutive logic of Kant), and *live*. We are *not* zombies!

On the issue of metaphysics, on the other hand, Dennett specifically argues that "nature does not build epistemic engines."² Why, then, does he think that *he*, either as a physical engine of process, (and the "demons" of process), *or* as a linguistic engine of "memes", -*is epistemic*, (i.e. metaphysically so)?³ I don't think that he, or I, are. This was my exact conclusion of Chapter 4.

¹ Or "objectivist" logic after Lakoff's

² Dennett, 1991, P.382

³ Or that *his book* is so?