

No bridge over the stream of consciousness

Daniel C. Dennett

Center for Cognitive Studies, Tufts University, Medford, MA 02155.

ddennett@tufts.edu www.tufts.edu/as.cogstud/mainpg.htm

Abstract: Pessoa et al.'s target article shows that although filling-in of various kinds does appear to occur in the brain, it is not required in order to furnish a "bridge locus" where neural events are "isomorphic" to the features of visual consciousness. Some recently uncovered completion phenomena may well play a crucial role in the elaboration of normal visual experience, but others occur too slowly to contribute to normal visual content.

I find this a very useful essay, a model, in fact, for philosophers who want to make a substantive contribution to cognitive science: it makes sense of controversy, dispels confusions, and sharpens our understanding of the more distant implications of a wide variety of current empirical work, an important task that is typically beyond the aspirations (if not the talents) of those working in the labs.

First, let me acknowledge that Pessoa et al. have corrected some errors on my part, errors that betrayed my ignorance of a wealth of empirical and theoretical work that had already been undertaken on the vexed issue of filling-in. I am glad they also pointed out, however, that I did point to the very sorts of empirical experiments that "would" disprove my hunch – some of which should already have been known to me. I was not entirely the innovator I took myself to be, then, but I will settle for the role of catalyst, since my rash interloping has served to direct attention and begin the task of clarification that Pessoa et al. are continuing.

Second, I want to propose a friendly amendment to Pessoa et al.'s fine discussion of what they take to be the fundamental mistake of "analytical isomorphism": supposing there must be a "bridge locus" where features of experience and features of neural

activity are “isomorphic.” They are right: the widely felt necessity for just such a bridge locus is a crippling theorist’s illusion. But they do not go on to address the natural question of what should replace this overwrought idea. One is inclined to think that something has to be “isomorphic” to something happening in the brain – a “neural-perceptual parallelism” of some sort is required – on pain of lapsing into dualism or sheer mystery. What is the minimal form?

According to Müller’s (1896) second axiom (a methodological principle, as they say), “perceptual equalities, similarities and differences correspond to neural equalities, similarities, and differences.” The saving move, I submit, is to notice that the data from “introspection” that we need to line up with neural data are not necessarily Müller’s “perceptual equalities, similarities and differences” but rather subjects’ beliefs about perceptual equalities, similarities, and differences. This is another way of making Pessoa et al.’s point about the personal-level/subpersonal-level (first developed in Dennett 1969). What needs accounting for is not necessarily that there is filling-in but that there seems to be filling-in – subjects (naively) believe there is filling-in. And explanations in neural terms must be found for the robust provocation of that belief in subjects under various conditions. If we take the manifolds of subjects’ beliefs about their conscious states (what I call the subjects’ heterophenomenological worlds) as our data set, then so long as every such belief (or better, difference in belief) is accountable in neural terms, we “save the data” because those beliefs – rather than their putative objects: actual equalities, similarities and differences – are the data. The possible wild heterogeneity of neural conditions for provoking such beliefs is just what excuses us from hunting for a bridge locus. Sometimes, filling-in-beliefs may be the normal outcome of processes which include genuine filling-in, and sometimes not. In either case, we would have a suitable neuroscientific explanation of the experience of filling-in (in the neutral sense that does not presuppose that it is a veridical experience of filling-in), so minimal materialism would be safe, the burden of proof discharged.

Third, although I have a variety of reservations about Pessoa et al.’s discussions of various candidates for “completion phenomena,” I will restrict myself to one point. They note that several of the phenomena they discuss (particularly Ramachandran’s [see Ramachandran & Gregory 1991] “artificial scotomata”) emerge on slow time scales, ranging from hundreds of milliseconds to several seconds; but Pessoa et al. do not make the further point that any effect taking longer than about 200 msec of fixation to develop cannot itself be part of normal vision, since the eye is seldom fixated long enough for such effects to develop. Far from showing that these varieties of supposed filling-in occur in normal vision, these long time courses show that they cannot occur in normal vision – so any sense we have in normal vision that the background, for instance, is filled-in cannot be due to such effects. Of course, such special effects might nevertheless tell us something about what happens during the first hundred milliseconds of a normal fixation, but any such inferences must be treated with great caution.

Finally, I want to say that Pessoa et al.’s discussion of my “more Marylins” example is more in agreement with my own view than they have realized. I was using the example to argue (by *reductio ad absurdum*) against the isomorphism principle that it seems to invoke so readily. I was certainly not endorsing it. I say there is something illusory about the ordinary perceptual experience, not because I endorse the isomorphism principle, but because ordinary people do tacitly endorse it, and it leads them to error. I entirely agree that in one sense, there is nothing illusory about the visual experience in this case: the room is papered with identical Marylins, and that’s just what our visual experience is of: a room papered with identical Marylins. But people are (mis-)inclined to think that this in turn means that representations of all those identical Marylins must “therefore” be in their brains – it “follows” from their tacitly held isomorphism postulate. My point is that they are very surprised – to the point of incredulity – to learn otherwise. It is, if you like, a theorist’s illusion, but it turns out that we

are all theorists. That is, we tend to assume the isomorphism principle tacitly, and hence are driven to expect that there is more in the brain than there has to be.