Why did God make consciousness ? Ways and means to find out.

Introduction

"Why did God make consciousness ?" That is a question which has been asked by many people, specifically including such people as Jerry Fodor (Humphrey, 2008) who seems to have assumed, as indeed almost everyone else does, that phenomenal consciousness must be providing us with some kind of new skill. In other words, it must be helping us do something that we can do only by virtue of being conscious, in the way that, say, a bird can fly only because it has wings, or you can understand this sentence only because you know English. Humphrey thinks rather that it could be to encourage us to do something we would not do otherwise: to make us take an interest in things that otherwise would not interest us, or to mind things we otherwise would not mind, or to set ourselves goals we otherwise would not set.

The difference between these two concepts is outlined and discussed in some detail by Humphrey. Perhaps in his terms consciousness comes closer to being part of a sandbox, allowing a temporary space for the holding of various forms of reality.

Even Jerry Fodor recently claimed, "The revisions of our concepts and theories that imagining a solution will eventually require are likely to be very deep and very unsettling."

Others comment (Mindhacks, 2008) : "We need a place to erase reality and redraw it or the procreative possibilities of our existence are limited by a far more slow process of biological adaptation to our environment. To experiment internally without display on the canvas of consciousness seems as impossible as experimenting in the real world without a real world. How do you test a hypothesis without positing a thesis somewhere? That somewhere is our phenomenological awareness.....I think the problem is that consciousness and unconsciousness are often thought as completely different processes, when in fact simply by focusing our attention to them we can become conscious of most of our unconsciousness processes (not all of them at once, of course, but any of them we choose to focus on). As implied in above quotes, I also think consciousness is clearly related to attention and learning new things. While adults can walks or drive a bike unconsciously and focus their attention to something else, children who are still learning these skills cannot.....It seems to me that psychologists and philosophers have come too much uncritically to accept the assumption that every biological development must serve a purpose and that all we need to do is dream some purpose and we have the explanation for the development in question. This is pretty haphazard reasoning. Evolutionary "purpose" thus becomes a substitute for Divine Will. In the case of consciousness, I don't see in what way assuming it serves a designated purpose contributes a jot to answering the putative hard question of how it arises from biophysical processes."

Recalling the 'Janus' paper by Dudai (2005) and the work of Suddendorf (1999 etc.), imagining needs use of the future and inevitably the conscious mind, thought of as part of the sandbox, must also entail the future. On the other hand, an example given by Humphrey, the triangle illusion, is one of many which do not seem to relate to the future at all, but more to a simple 'sandbox' of the mind. There could therefore be elements of truth in the views of both Fodor and Humphrey.

Now the work of Aks (2003) on self-organised criticality can almost certainly allow us to adduce a mathematical schema - or indeed several schemata - to fit the present position.

How is this related to our MBI ?

We should be able to find out by creating a test or an experiment, whether it be in psychology or in physics or indeed in both. In earlier work, experiments were done relating the 'conscious' (Juliet) mind and the 'unconscious' (Romeo) mind to impulses. These, in fact, were presented by means of a computer game which was 'Tetris' in the rough example shown, though 'Alpine Skier' may have made a stronger impulse, bearing in mind Stickgold's (Cromie, 2000) results. The experiment can be modified by altering

the various parameters.

Currently, a larger series of tests of various sorts is being carried out by the Institute for Fundamental Studies in India.

As has been described earlier, one easy and direct way to do this could be rTMS. A very clear example of the strength of rTMS as a brain moulding tool is given in a simple video (Gazzaniga, 2006) and a typical example of its actual use in a somewhat cognate problem, synaesthesia, occurs in (Mattingley, 2004).

Seneker (2002) and Sagiv (2006) thus came to roughly the conclusion that neurobiological evidence shows that separate features of visual information are projected to different cortical regions of the human brain. Relatively early in the processing of visual stimuli, color and shape are separate, and the brain can encode these features without awareness. This work supports the idea of modularity in the human cortex. It is possible that color-grapheme synaesthesia results from a flaw in the modular organization of the brain. Results agree with the possibility that cortical regions for processing shape and color are abnormally linked, but only during awareness. These findings suggested to them that attention signals associated with awareness are required to produce normal binding.

Leaving aside any theoretical problems with this idea, the practical fact is that here we have a use of brain abnormalities and TMS in order to - hypothetically at least - shed light on fundamental brain processes. Reflections on some of these ideas on brain processes have been discussed in earlier work on this website, but the point being made here is that we do have a real tool which might be able to determine quite a lot of what is going on in the brain

There are problems here. The use of rTMS is in no way a routine procedure, can be heavily invasive, and is known to lead to brain damage in its use in certain cases. A less invasive technique is probably hypnosis, which already has given some results for Mondrians (Kosslyn, 2000),and which in my view may ultimately be of value in the field of synaesthesia. In fact Kosslyn may have come somewhere near inducing a synaesthetic effect on non synaesthetes and whilst no firm current results have yet been obtained from synaesthetes our experiments on hypnosis of colour grapheme synaesthetes suggested that hypnosis seems in our experiments to have (possibly) made an improvement to the degree of synaesthetic ability, and it certainly seems to have worked at reducing alleged synaesthesia, at least temporarily, for those who desire to lose it. The latter result at least seems to agree with common sense, but we take care not to be in any way dogmatic about this.

So it may be possible to use hypnosis in the present series of experiments on the reverse Stickgold effect, since now it is felt that the 'numbing' effect (as it were) of rTMS has somewhat similar brain effects on specific brain areas, as has been illustrated by the mildly controversial work of Dudai (2008) who explains (Maxmen, 2008) "In normal memory retrieval there is a set of areas that are important so we suggest that the area in the left rostrolateral prefrontal cortex is abating this process early on, halting activity that would occur downstream."

The rTMS results seem to suggest a similar numbing, blocking or traffic jam result. I carried out few experiments in hypnosis on known/believed synaesthetes and the work looked promising. In other words, the area denies access to memory-related regions until the hypnotic cue to remember flips its switch. Now Dudai (2008) has done hypnosis experiments combined with fMRI scans to show qualitatively and quantitatively the effects on the brain during temporary imposed memory loss. It therefore may be possible to obtain results in the roughly cognate field of the reverse Stickgold effect and this may also be one way forward on the blocking effect of hypnosis.

Fortunately in the Many Bubble Interpretation, all the ideas of our Introduction above emerge as part of an explication rather than as part of a problem. We use the tentative assumption of the existence of a so-called "conscious mind" (Juliet) and an "unconscious mind" (Romeo) and allow an interplay of both. As earlier blogs have indicated, this is not the only model but it seems to be one which constellates with our overall notions. Freud, Jung and very many others (obviously including by default, conceivably even Jerry Fodor) could well think such a representation to be real enough, so, allowing for later (perhaps

extreme) restrictions and modifications, it should do for us here. In Pinker's terms this is something like 'emergence'.

O'Regan (2001) pointed out that he considered that the metric quality of V1 cannot in any way be the cause for the metric quality of our experience. It is as though in order to generate letters on one's screen, the computer had to have little letters floating around in its electronics somewhere. Further he pointed out that we really have little reason to believe that dreams are pictorial. Dreamlike experiences appear to be unstable and seemingly random, though Stickgold and ourselves have added a modicum of order to the apparent chaos. But a hallmark of dreams is this seemingly random character, particularly of detail, as where for example if there is writing on a card, it is likely to differ each time you look at the card. So there is a fair view that brain does not contain pictures of the detailed environment and even that the visual system per se lacks the resources to hold an experienced world steady. Again, with the MBI, this does not faze us, to whatever reasonable extent O'Regan's views hold.

A broader issue - Attention

Tibetan Buddhists, like various other Asian contemplatives, assert that it is possible to develop various forms of extra-sensory perception and paranormal abilities (Wallace, 1998), using attentional stability and vividness. Attention is a subject which is also currently of great interest in psychology. Some would say that attention is identical with consciousness, but others that this is not (Koch, 2006).

In the experiments of Lau (2007), using TMS, the perceived onset of intention depends at least in part on neural activity that takes place after the execution of action, which could not, in principle, have any causal impact on the action itself. An alternative view that is compatible with the data is that one function of the experience of intention might be to help clarify the ownership of actions (Wegner, 2002, 2003), which can help to guide future actions. This process could take place immediately after action execution. While Lau's conclusions need not disturb MBI enthusiasts very much, they still do seem to come from the use of TMS as a tool.

The extremely interesting article by Koch (2000) suggests how ways to manipulate attention could come closer to our efforts and to those of Stickgold (1999, 2000). Koch (2008) also insists that it is his view, amongst other things, that it is important to separate out the effects of attention from the correlates of consciousness in the search for NCC as he takes the view that it is plausible that some previously proposed NCC might have been contaminated by the neuronal correlates of attention, not consciousness. A process like their dual-task visual gymnastics seems to approximate to the sort of level of mental manoeuvres one would need to play a game of Tetris. We have already shown (and are proceeding to do further work) that such games, may have a time-reverse directional effect, in that the dreams may proceed the game playing. Obviously it would be nice to amplify this effect, amongst other possibilities. The Stickgold effect was very clearly present during "Alpine skier" games, as Stickgold pointed out, and full-scale virtual reality games and tests might be expected also to show a strong effect. By full-scale virtual reality games I am thinking of games like the 'virtual switchback' games that they have at leisure resorts, which offer quite real simulation, often up to the standards of say a Link Trainer (2008). There was such a ride currently in use at an amusement arcade at Blackpool, England and it should be possible to very significantly amplify such effects in such circumstances, and to vary them much more than is possible in reality. Some attempts to set up such virtual environments have already been carried out for other purposes, for example in the different field of attempting to pursue apparent claims of extrasensory perception (Wilde, 2006).

With an environment of that kind, many further experiments could be carried out, for example experiments somewhat like those of Eagleman (2008) or even rather simpler but with added general applicability. Second Life (Physics World, 2008) could also be under consideration but as very much a 'poor man's virtual reality', it clearly has even more restricted applicability and in some ways probably lacks the scope of even games like Tetris. As well as this there are many other parameters which can be adjusted, such as variation of waking up times, times at which sleep takes place, chemical supplements and additives, light and sound stimulations and so on. Further there can be the use of monitors such as Watch-Pat and the various 'lucid dream' monitors on the market, to perhaps alert sleepers, for example as

to a suitable time to wake up and record dreams.

And then of course there is every psychological trick in the book, from those employed by Stanley Milgram to tricks on false memories. For example Loftus (2005) at the University of California managed to put participants off strawberry ice cream, pickles and hard-boiled eggs by implanting false childhood memories: "In the strawberry ice cream experiment a group of students were asked to fill out forms about their food experiences and preferences. Some of the subjects were then given a computer analysis which falsely said they had become sick from eating strawberry ice cream as children. Almost 20% later agreed in a questionnaire that strawberry ice cream had made them sick and that they intended to avoid it in the future." Future studies plan to implant positive memories of fresh vegetables. (Ethics ?)

But there is much more to adjusting parameters than the above, and as we have already described, there are physical and mathematical equations on hand to do so in our proposal.

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Appendix: *Computational neuroscience and some of its problems*

Computational neuroscience as such, is an important subject insofar as it places itself to ask many awkward questions, and often expresses great dissatisfaction with some of the answers. Some of these difficult processes are often applicable in other contexts as well. I give the example of Zhaoping (2008) who recently apparently pointed out "When you see them throw a ball into the air, followed by a second ball, and then a third ball which 'magically' disappears, you wonder how they did it. In truth, there's often no third ball - it's just our brain being deceived by the context, telling us that we really did see three balls launched into the air, one after the other. ..... Mathematical modelling suggests that visual inference through context is processed in the brain beyond the primary visual cortex. By starting with a relatively simple experiment such as this, where visual input can be more easily and systematically manipulated, we are gaining a better understanding of how context influences what we see. Further studies along these lines can hopefully enable us to dissect the workings behind more complex and wondrous illusions". This simple sort of experiment, when redefined in terms of the neuroscience lab rather than those of the juggler, certainly looks like a excellent way to relate context to details and has a close correspondence with other more detailed lucubrations, well illustrated in Zhaoping (2002, 2006, 2007).
But we are not obliged to accept all of Zhaoping (2002, 2006, 2007) or indeed any of it, while we might still retain the brute 'common sense' of the idea about the three balls. Clearly we may accept some of Zhaoping's other reasoning in Zhaoping (2002, 2006, 2007) - and almost certainly might do so - but it is a far step to say we accept it all, or indeed accept in its entirety some such line of research in computational neuroscience. These are topics that philosophers argue about, each perhaps convinced that they are right. In our situation, with the MBI, we could stake the claim that we have ideas that are founded at the very highest level, that of McTaggart's paradox and large category theory - and then go ahead and use a great deal of computational neuroscience to further our work.

Anything like computational neuroscience must be 'down' from McTaggart's paradox and large category theory, we could argue, just as we could argue that simple sums are 'down' from Peano algebras though doubtless the whole philosophical idea of a hierarchy of thought could be quibbled at - but it is probably easier to look at specific facts in computational neuroscience, for example the possibility of overtraining. Now there are certainly checks which can be placed on that process, as there are several methods available to check the degree of generalization and/or to detect overfitting, for example cross-validation and the use of noise addition - and it is not suggested that Zhaoping has overtrained anyway. But the fact still remains that a lot of such 'small' factors could arise in an intricate scheme, and one way or another they usually do, at some point.

An example of where such a thing can admittedly happen is suggested through the work of Strogatz (2007) for example, where the elegant work of Kuramoto seems to have led to rather difficult complex system theory, even though Kuramoto's actual results seem to serve for useful models in many situations. Many attempted 'expansions' of Kuramoto's approach seem to go no further, for various good reasons. On the other hand the ideas of McTaggart's paradox and large categories stand well above all this, and are not specific in nature, even to the extent for example that we are not simply having a disagreement over the relative merits of neutral monism for example, which is about the sort of level to which argumentation over the Penrose/Hammeroff (Hammeroff, 1998) ideas at one time descended. The real crux of the Penrose/Hammeroff matter probably was that Penrose/Hammeroff was wrong about microtubules, superconductivity etc. etc. but right that the Eccles-Popper overall viewpoint of Penrose/Hammeroff could not be simply thrown over readily by (basically naive) computational neuroscience, whether rightly

or wrongly, for a partial reason that it was defined and delineated in roughly Popper-Eccles terms. That level of 'philosophical' dispute is not what we are looking for.

Clearly then, what we must do is to use computational neuroscience to help our measurements but not accept it as necessity in any way in our descriptions. In other words we must use the results of computational neuroscience with reason, if we can relate them in a useful way to other claims. The Zhaoping example above, therefore, looks like we could use it somewhere in an experiment fairly readily but that does not mean that its context must, in essence, ruin other assumptions or views which we might have, or might wish wish to consider later.