

## **A simple new approach involving application of category theory to a number of obscure results and hard to fathom facts.**

1. There may not be enough computational ability in the brain to explain some phenomena, including even widely accepted ones like intelligence and insight. (note 3)
2. A quantum computer effect in the brain is frequently postulated nowadays and that would certainly allow extra computing ability. There is no commonly acceptable way this can happen yet except for MWI (Many worlds interpretation). So we take that to be a semiplausible working hypothesis.
3. The work of Hosten and of Vaidman suggests these worlds may in some sense be 'real'. (Dowling 2006)
4. We also have McTaggart's paradox which implies that time requires an A series and a B series. This does not infer that obviously quantum effects, in the sense of Penrose's microtubules for example, help to describe normal brain activity. This is all to the good from the Occam's razor (parsimony principle) standpoint. We are just describing things as we believe them to be.
5. Now we find that dreams can be an indicator of the future, as in one of my preprints under consideration for publication (Yates 2006). This does not imply that we can get racing results etc. from dreams in some way, but simply is a reasonable extension of current mental processes in which we can imagine both past and future, but feel located in neither, though in dreams we seem to be floating a little freer for whatever reason, and my view is closer to that of Hobson than to many others. I have nonetheless extended Stickgold's work a little, perhaps allowing us to dabble in the A series.
6. Because of the obvious relevance of synaesthesia to functionalism as pointed out by Jeffery Gray and obviously even more relevance to computationalism, as referred to in Yates, (2006b) I tried to get some more clear cut synaesthesia results but these are still pretty elusive or even a sort of Perky effect style failure as Yates (2005) has pointed out for some time. I figured that if available, this could give a better idea of the exact nature of the A series. Be that as it may, there seem to be quite a number of other reasons why we cannot simply assume computationalism (Notes 1, 4) and this can make it far more difficult to set up an adequate A series.
7. So what is really wanted now is something which gives solid physical prospects, such as more detailed dream experiments (as I tried to point out in Yates (2006)) or OBEs (out of body experiences) or NDEs (near death experiences). The mathematical and physical prospect of many worlds is better than those of much of today's physics, in fact a useful quantum computer is likely to be built by 2020 (Ball, 2006). As these things go, the present supposed restrictions of any MWI is certainly likely to evolve in that time, and of course we have as yet no details as to how. The A series for instance could be a proper class (note 2) and to begin with we may have to map a pseudo A series onto a mock B series to get results, and in effect I recently suggested something like that in my blog, Yates (2006c). The 'block universes' of the B series type have been relatively easy to handle so far, though philosophically and to the intellect not altogether satisfactory, without an A series.
8. I have looked briefly at the recent NDE work of Dr Peter Fenwick. For example in Fenwick (2004) "The flat electroencephalogram (EEG), indicating no brain activity during cardiac arrest, and the high incidence of brain damage afterwards both point to the conclusion that the unconsciousness in cardiac arrest is total. You cannot argue that there are "bits" of the brain that are functioning;

there are not." It is about that time that a NDE or OBE sometimes occurs. Now the glib idea would be that the reason is that the person is somewhere fully alive in one of the other worlds in the MWI. Why? Perhaps because, as we have had to assume already, the computing power of the brain must be spread over the many worlds and 'our' world has temporarily dropped its bundle so some of the worlds are keeping things together. This may arise from a revised interpretation of Vaidman and Hosten but I certainly do not think things are quite that simple and I can visualise some objections of MW enthusiasts. Still, there is added ground to consider here, given MWI and it seems to me that it may be possible to build on the A series given more data, and most importantly to exclude irrelevancies and reasons for the observed OBE and NDE whilst doing so. But we would be better with a lot more OBE and NDE results if we can get them. And we are certainly getting some dream results with the A series approach but further progress is difficult. These matters are quite important as so far a general assumption is that death is a very simple end to life, like the tail of a snakelike object stretched out along the t axis means the final end of the snake in the block universe. A simple B series interpretation of MWI could do just that as the snake could then simply continue (or not) in other distinctly different of the MW which are diverse from 'our' world. McTaggart's paradox and tensed/tenseless time place the matter in a different light. No-one wants to get the truth about death wrong, whatever the facts are.

## *References*

- Ball P., (2006), 'Oxford University reckon that "A useful (quantum) computer by 2020 is realistic," Nature 440, 398-401
- Dowling J.P, (2006), Nature 439 (Feb 23):919-920.
- Fenwick P., (2004), "Science and Spirituality: A Challenge for the 21st Century"
- Gray, J (2004) "Creeping up on the Hard Problem" , Oxford University Press.
- Yates J., (2006), "Can dreams predict the future ?"
- Yates J., (2006b), ""The Application of McTaggart's results to Consciousness Studies and Category Theory." and Appendix A below.
- Yates (2006c). "Preliminary plans for a detailed MacA"
- Yates J. (2005) unpublished notes, available.

## *Notes*

1. Other reasons can even be simply practical, as for example as illustrated in the difficulties which seem to be encountered with purely computerised CBT (cognitive behavioural therapy) without a trainer/instructor and I also refer later to, for example, the everybody's unsatisfactory Loebner prize results.
2. Goldblatt's 'Topoi' refers to a 'proper class' as 'a class which is not a set'.
3. I am interested in pursuing and possibly considering modifying or improving on any NDE and OOB results believed new or important. The reasons are very briefly as follows.  
There may not be enough computational ability within the brain to achieve the results which it produces - opinions differ and some feel some form of mental 'compaction', as yet not understood, is how it works or a way like Penrose's microtubules idea. (The latter idea by the way I consider totally wrong.) The recent work of Hosten suggests the real possibility of many alternative actual worlds, some very similar to this one, in which computations are being performed for us. It seems that something very strange is going on, is that it is even claimed that a computer has obtained results without actually being run in this universe, and that could imply that it is being run in other universes. I accept that other interpretation's of Hosten's results are possible but it is not even clear that a modified version of Bohm's interpretation may effectively get rid of these worlds. But making the obvious assumption- these other worlds pro tem can be assumed to exist - (and of course a varied but not incongruous result may occur even if they do not, perhaps along Bohmian lines for

example) means that these worlds interact with the present world, in some fashion. How? Well some may say in a purely abstract fashion, as if they simply involved imaginary vectors. But our A and B series approach looks as if it may allow something which seems almost like a real (rather than in some mathematical sense virtual) interaction, and in fact already psychological experiments have been done and sent for publication along lines which look a little like precognition, though not in quite the way most people would conceive it. In fact we are almost as iconoclastic as Susan Blackmore and accept that many of her studies may echo the norm. But we need more experimental results, hopefully, to see how much better a picture we can obtain and any new results which throw light on out-of-body experience or near death experiences could help with this. The present work does not depend on any changes in quantum theory or, seemingly, even unconventional use of quantum theory and in fact so far our techniques fit in with classical physics, even non-relativistic physics where that would apply. However modern mathematical category theory does seem to be necessary, but we do have to try to squarely face the problems that immediately seem to make many category theorists descend to one or another variety of computationalism. Specifically in this regard, qualia problems are always uppermost in my mind. As well as this there are many factors still to be borne in mind, e.g. the unlikelihood of the strict Loebner prize test requirements being met in the near future, and that is always the stance.

4. I do not like to refer to science fiction in a scientific work as even where relevant it often grossly oversimplifies and can simply be incorrect, but in places it is by now coming so close to perilous likelihood that it ill behooves anyone to ignore the dangers of computationalism. Global warming is so high that large commercial interests and governments are likely to consider any alternative to avoid their own corruption being blamed for world resource exhaustion and far worse. So, to illustrate the physical dangers and moral issues, I refer here to a quotation from science fiction, (used in another context about functionalism by Russell Standish; it is even more relevant to computationalism.). As Douglas Adams writes about Arthur Dent's brain: "It could always be replaced," said Benji reasonably, if you think it's important." Yes, an electronic brain," said Frankie, "a simple one would suffice." "A simple one!" wailed Arthur. "Yeah," said Zaphod with a sudden evil grin, "you'd just have to program it to say What? and I don't understand and Where's the tea? - who'd know the difference?" "What?" cried Arthur, backing away still further. "See what I mean?" said Zaphod and howled with pain because of something that Trillian did at that moment. "I'd notice the difference," said Arthur. "No you wouldn't," said Frankie mouse, "you'd be programmed not to."

## *Appendix A*

### **Addition to "The Application of McTaggart's results to Consciousness Studies and Category Theory."**

To save words, I point out the paradox of J.M.E. McTaggart, and the related topics of tensed and tenseless time, are still very current matters. This is not a review so there is no need to refer to the many current papers on the latter.

The semantic arguments embodied in such work as Boroditsky (2000) and which run through much other work, interestingly enough, make clear the importance of psychological experimentation for the achievement of specific results in research on time, and I certainly concur with that. In fact to do so, is part of the present investigation. In that sense, mentioning the semantic aspects of the work is of real value as myself, Boroditsky and others, are already picking up on this point. The idea of McTaggart's paradox being 'out of date', as one reviewer in effect brusquely informed me, is of course another matter.

That would be as naive as to suggest that one popular version of Zeno's paradox is meaningless as a tortoise does not run faster than Achilles. In that case, clearly the author was making a number of mathematical points, and even today, modern results such as those of Kwiat and Hosten can actually

imply, in the MWI, that the Zeno paradox could even lead to many real worlds other than the one we know! So it is wrong to write off prematurely any problems in a paradox or pseudo-paradox, simply as semantics, if we feel like it. Perhaps to abuse semantics in this fashion is to create the worst kind of argumentum ad hominem. What we do is almost the opposite to writing off semantics, or saying it is not with us. What we are discussing here is a universe which can perhaps best be described in A series and B series terms, hence some problems. At the present state of play, I actually take the view that McTaggart should perhaps have curbed his enthusiasm somewhat in some parts in his important work, as for example in his way of involvement of 'God', but the enigma certainly stands. Equally, semanticists and computationalist should curb their enthusiasm at the power of their methods. These methods are powerful, I like them too, but they are no 'silver bullet' for as yet unexplored paradoxes and other situations. That way leads to stultification of all philosophy and thought.

### ***References to Appendix A***

Boroditsky L., Cognition 75 (2000) 1-28  
Dowling J.P, Nature 439 (Feb 23):919-920.