

Experimental philosophy and the MBI

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Abstract

Various facets of the MBI are discussed, and how it can be used in connection with experimental philosophy, experimental psychology and neuroscience. Brief historical references are given. The large implications of the MBI with regards to McTaggart's paradox and the resolution of the difficulties with quantum mechanics is mentioned. Later sections deal with the mereological fallacy, multiple universes, teletransportation, mind cloning and mind splitting. Dreamwork is chosen as a prime example of the use of the MBI and recent work by Tononi and Baars is referred to.

Introduction

In this paper we deal generally with various facets of the MBI ("Many Bubble Interpretation"), (Yates, 2008), and how it can be used in connection with experimental philosophy, experimental psychology and neuroscience. I begin in section (1) with brief historical references and then proceed in section (2) to refer to the large implications of the MBI with regards to McTaggart's paradox and the resolution of the difficulties with quantum mechanics, continuing in sections (3) and (4) to deal briefly with the mereological fallacy, multiple universes, teletransportation, mind cloning and mind splitting. Dreamwork is chosen as a prime example of the use of the MBI and recent work by Tononi and Baars are referred to in that connection in section (5).

(1) History of my Contact with Experimental Philosophy and some other matters

My first contact with experimental philosophy was probably a comment in about 1967 by Ted Bastin during a meeting with Ted Bastin, and also Dorothy Emmet and R.B. Braithwaite (the 'epiphany philosophers') at a large house in Cambridge. The "Epiphany Philosophers" seemed to take it as a goal to show that christianity and science were not only compatible but that they supported one another. Further, some of their considerations of matters such as ESP could certainly be taken as pseudo-science and as such I certainly never endorsed them. It also appeared that Ted Bastin's contention at one time (Noyes, 1999) was that paranormal phenomena should be defined as contradicting physics.

From a philosophical point of view, I thought then, and still think, that there could hardly be a basic objection to making hypothetical contentions of a somewhat speculative nature as it allowed for at least a metaphorical way - if a somewhat doubtful and even sometimes probably far too naive way - to the nicing down particularities in metaphysical conjectures. Some of such conjectures could give rise to real practical concerns with the forwarding of technology, in such

ways as proposed 'mind uploading' and 'mind duplication'. I go into a little more detail later in the essay, whilst considering the work of Parfit.

However. The term 'spam' was not at that time used, I believe, as the art term it seems to have become but I think Ted did not at that time altogether approve of some of the rather mechanical sounding questionnaires which are still associated to some extent with the concept of experimental philosophy and there seemed to be a feeling that the idea of experimental philosophy could well become popular, but could eventually degenerate. The effect is probably noticed as early as 1938 in the work of Naess (Naess, 1938 ; Appiah, 2007). I suppose part of the problem is that we might in effect, be throwing away the baby with the bathwater by being over zealous with some of our refinements. This must of course be avoided when it is appropriate to do so.

To sum it up, to me experimental philosophy sounded as if it might be a good idea and that it might allow such positive factors as the sharpening up, refining, and sometimes rejecting for day to day purposes, the ideas of folk philosophy.

(2) The MBI ('Many Bubble Interpretation') and its use with McTaggart's Paradox

A plan for a model of the MBI ('Many Bubble Interpretation') is described in Note 5 of Yates (2008) and elsewhere in the same paper. The MBI has already shown its utility and potential further utility as described in Yates (2008). The McTaggart paradox is regarded nowadays by many philosophers as a real paradox, which it is. Much literature is available to that effect and this will be assumed, though it can be argued in detail as has been the case elsewhere. We resolved McTaggart in Yates (2008) and the effect shown is that, to do physics or neuroscience properly, we need to bear the paradox in mind, and to use both A and B series. As an analogy, not to do so would be like pretending to live not in 3 spatial dimensions, but instead to live in Flatland. Mathematical detailing of the MBI can have a very intimate connection with the human brain and we have used a neutral monist approach, though not critically, and we tend to bear neutral monism in mind for the future. The Gestalt Bubble model of Lehar (2003) is of course not the same as the Many Bubble Interpretation (MBI), although for many years I also have been a great enthusiast of the work of Kohler and Wertheimer, as well as Lewin and Leeper and so there may be some similarities in approach.

Velmans (2003), whose model has some philosophical appeal, holds a different view from authors like Lehar (I've often referred to Velmans' work in my blog, <http://ttjohn.blogspot.com/>), and for this present paper I hold a similar view, up to a point. Velmans states that Lehar argues that the phenomenal world is in the brain, and concludes that the physical skull is beyond the phenomenal world. Velmans argues that the brain is in the phenomenal world and concludes that the physical skull is where it seems to be. This fits in with my own work and Velmans is also a monist. James, too, was also said to be a kind of neutral monist, as Velmans (2003) points out.

And, although Velmans (2008) very reasonably makes objections (particularly in his notes 4 and 5 and related comments) to some of the ideas put forward by Baars, the popular GWT (Global workspace Theory) model of Baars has some advantages for general use, though particular instances such as Baar's theories on magnetic fields may need to cope with some objections, and may be a little too direct. We can consider the model overall and with some refinement it can possibly cope with the thrust of my argumentation.

I will continue in Section (3) by surveying the alleged mereological fallacy and multiple

universes, and then go on in Section (4) to discuss brain cloning, and in Section (5) I will briefly discuss the ongoing experiments in dreamwork, one of the many possible applications of the MBI.

(3) The mereological fallacy, multiple universes and related matters.

The mereological fallacy (Hacker, 2003) is supposedly that it isn't actually your brain that does the thinking at all. In fact, the very idea that it does is virtually incoherent: not just wrong, but meaningless. Only you as a whole entity can do anything like thinking or believing. Hacker's views are essentially based on the philosophy of Wittgenstein, which many serious thinkers disagree with entirely, or accept at best only in part as in Hohwy (2003), and in present cases relevant to neuroscience, Hohwy and Frith (2004). In fact Table 1 of Hohwy and Frith (2004) almost in itself constitutes a formula for the start of writing an experimental philosophy paper but it needs more 'aha' possibility added for an appropriate questionnaire, like the early ideas of Knobe (2003) have.

To discuss Knobe's ideas I must go into a little detail about various multiple universe conjectures.

We must distinguish plainly between firstly such ideas as the many worlds interpretations of such as Deutsch and Everett, which largely seemed to be based on the many peculiar and at times often seemingly paradoxical results which arise in relation to quantum theory; indeed the still commonly accepted Copenhagen interpretation, sometimes even described as the "shut up and calculate" interpretation, is still frequently made use of, despite its problems - indeed it was over 30 years ago that Sir Rudolf Peierls commented to me, at a meeting I had convened at the Institute of Physics, London, as to the advantages that alternative-universe approaches seemed to have over Copenhagen. Since then we have had the work of David Deutsch, Gerard 't Hooft and much other work, and hopefully this will eventually help to illumine remaining difficulties in quantum mechanics and produce other results and perhaps even allow us to specifically explicate and use in detail, at least quantum multiverses - or other and totally different approaches. But like the poor, the problems of quantum mechanics are unfortunately still with us. However up to a point we may still stand aloof from all this in our present treatment. In the MBI (or 'Many Bubble Interpretation') the Schrodinger cat problem and other such problems slot in neatly enough, and to all intents and purposes are resolved or resolvable ! And for a start quantum theory as at present described in the literature is totally B series anyway, and we know in the MBI that for a proper description of a universe we need to use an A series also.

But of course we now have a newish breed of speculated universes, namely the multiverses of such people as Tegmark, Rees and Vilenkin. Tegmark (2007) neatly classifies his universes currently in 4 levels, and roughly speaking the old style 'quantum multiverses' seem to occur in level 3. But it seems to me that, however worthy such attempts may be, they are still in my opinion very clearly within the realm of speculation, like the continuous creation theory and other theories of Fred Hoyle, and like the 'Fundamental Theory' of Eddington of previous times. Does this matter ? I think it does, as we need a serious breakthrough if any great merit is to be ascribed to such work. At the end of the day, of course there may well be some points of such theories sufficiently in touch with known reality to allow us to proceed, and of course that is important, but such a toehold in scaling the mountain of wisdom will definitely not do for all, even though we must admire the efforts of such intrepid mountaineers. Now one rider to this probable fact is that philosophical studies based on such theories can be a bit lacking. I am talking for example of Knobe's ideas on freewill and this was basically discussed by him, in

Knobe (2008). The interviewer John Horgan presents the view which can lead to the idea that a relatively straightforward inflationary universe theory could be best left unused because of moral implications.

Now at this point I think it is correct to mention some brief details about the background of these two authors. Horgan it seems is an agnostic journalist increasingly disturbed by religion's influence on human affairs. His details are available on the web, and seem to be mainly in the realm of popular science. He is currently unhappy with the Templeton Foundation which he seems to feel should have been more even-handed in their funding, by awarding the Templeton Prize to someone like Richard Dawkins for example and on the other hand seems to have bet Michio Kaku that "By 2020, no one will have won a Nobel Prize for work on superstring theory, membrane theory, or some other unified theory describing all the forces of nature." Joshua Knobe is a well known philosopher whose father-in-law is Alexander Vilenkin, Director of the Institute of cosmology at Tufts University, and with whom Joshua Knobe has discussions about the universe, and indeed has published with jointly.

Basically I cannot concede to Horgan's idea that important theories (like Tegmark's or Deutsch's theories, for example) may be only 'metaphysical' in the sense that they may never have any currently acceptable proof. Also I cannot concede to Knobe's apparent idea that Vilenkin's theory, one out of many, is necessarily likely to be the right theory to follow, although Knobe (2008) himself wisely states high levels of general philosophical doubt.

It seems to me that for any theory, from my standpoint there should be a meaningful likelihood that it can be proved or disproved at some present time or within the foreseeable or conceivable future. The ideas of Max Tegmark and David Deutsch, for example, look as if they are sitting there on the shelf waiting for elements of proof or disproof and whether these can be found, at some point, can be good reasons as to whether they are worthy of consideration in current physics and related disciplines. Though they could, regardless, perhaps cast meaningful shadows on the wall of philosophical speculation. Anyway the hope in present ventures is to obtain meaningful and provable results. My problem here is that some of Knobe's ideas (Knobe, 2006) on freewill would appear to be based on the philosophy of Vilenkin.

The inflationary world idea of Knobe (2006) is very clear and refers to real, observable worlds, given that Vilenkin's theory is more or less correct. It also seems to me that Knobe's theory does indeed differ from the actualism of Ayers, which is just a strong form of determinism, in some forms ruled out by way of chaos theory anyway. On the basis of inflationary theory Knobe says we may not even have "a unique copyright on our own identities" These new theoretical ideas casts up a set of new philosophical questions. Now my worry is that we are here going well into unknown territory. I for one do not accept that there is any good evidence for the inflationary world idea. Philosophers may like to speculate on it and I do not contest that idea, but a blind semi-acceptance of its truth is very much another matter. One positive possibility may be the assignment of likelihood possibilities or betting odds, so we can know how to decide how much time to give such theories or even to set up some ranking order.

For example in (Marshall, 2000) on MWI (the "Many Worlds Interpretation") it seems that "Political scientist" L David Raub reports a poll of 72 of the "leading cosmologists and other quantum field theorists" about the "Many-Worlds Interpretation" and gives the following response breakdown.

"Yes, I think MWI is true" 58%
"No, I don't accept MWI" 18%
"Maybe it's true but I'm not yet convinced" 13%

"I have no opinion one way or the other" 11%

Amongst the "Yes, I think MWI is true" crowd listed are Stephen Hawking and Nobel Laureates Murray Gell-Mann and Richard Feynman. Gell-Mann and Hawking recorded reservations with the name "many-worlds", but not with the theory's content. Nobel Laureate Steven Weinberg is also mentioned as a many-worlder, although the suggestion is not when the poll was conducted, presumably before 1988 (when Feynman died). The only serious "No, I don't accept MWI" named is apparently Penrose.

Obviously these statistics would not be easy to prepare, and probably would be much harder than simply referring to the citations index. Status of person holding the opinion and accessibility and clarity of a particular theory would be just some of the factors involved. Also it would be unwise to expect too much of new or revolutionary theories, or to base too much on impressive personalities. Joshua Knobe himself, who is seemingly becoming more and more doubtful as to which if any views on many philosophical matters are relevant or justified, seems to have begun his polls with a much less straightforward idea of how to indulge the philosophical relevance of various views, and I mention in particular the very interesting paper of Kimpe (2008) in this regard. To my mind Kimpe's (2008) paper illustrates at least one way, though it be pedagogical, as to how this sort of thing should be carried out, and of course we also have the highly inspiring early example of Knobe (Nadelhoffer, 2008). My own feeling is that a touch of Milgram (1974) could be needed for further work, and indeed in Slater (2006) the UCL group got their volunteers to wear VR helmets to experience a simulated version of the Milgram experiment. It was designed to be the same, but the strangers getting shocked were just computer animated avatars. Yet the UCL team conclude their test subjects reacted on "the subjective, behavioural and physiological levels as if it were real in spite of their knowledge that no real events were taking place." Measurements of heart rate and heart rate variability showed they reacted as though the situation was real. They were just as aware and worried they were doing wrong, but shocked the stranger anyway. Other experiments seem to have also shown much the same effect, and one could very easily be led to suppose that some feelings of grief, kinship and empathy are merely biological reactions. Without doing a study of these matters, I tend to assume that some of these reactions relate simply to the novelty of the avatar situation, and may reduce in effect the more generally experience on these matters is available. Also there is the immersive effect and the fact that the participants knew they were being watched. It is also very unclear as to the ethical situation of such experiments, and whether such methods can be used in other mass murder experiments. On the other hand these factors can be partly put aside, bearing in mind the massive and apparently largely harmless exposure of world cultures to some forms of television and video gaming.

Slater's (2007) subsequent experiments indicate that much more work needs to be done on the effect of virtual environments, but that the Slater (2006) result was no individual chance happening. Slater (2003) makes it plain that the idea of 'presence', and probably many other concepts, may need to be meticulously defined for philosophical purposes in a world which is part VR and part factual reality.

Philosophy has so far not had quite the same need of definition, and it could turn out to be very enlightening - given enough further experiments. The task is probably large but well within our control, in my view.

(4) Teletransportation and brain cloning

However now we will get down to a simple case, the one referred to by Parfit (1984) in

"Reasons and Persons" as teletransportation on p199-200 of the above book. I have to say that whilst the theoretical possibilities of teletransportation may be there, using methods which have been used for atoms, the actual teletransportation of human beings or indeed any animate matter - even beings as hardy as tardigrades (Jönsson , 2008) for example - is so far not possible and for a variety of reasons may never be so.

As Parfit points out, for circumstances like the above, Wittgenstein would have pointed out "It is as if our concepts involve a scaffolding of facts if you imagine certain facts otherwise.....then you can no longer imagine the application of certain concepts" or Quine who advised not to "suggest words have some logical force beyond what our past needs have invested them with". But Parfit says (to paraphrase) "we strongly ... don't like" - unpleasant consequences of teletransportation. And we believe that these visceral reactions will also apply even in real circumstances. At the present state of experimental philosophy, this also seems to mean that the Wittgenstein/Quine view may be the view (i.e. we can ignore such outlandish possibilities, prior to any actual such device being in play, or as existing as a mere hypothesis) on our 'abstract' side, and the 'visceral' view may apply to our judgement for real cases (i.e. if we suppose that such a device could somehow be brought into being).

And we certainly seem to have come much closer, in recent years and since the publication of Parfit's book, to a 'visceral' situation rather than an 'abstract' one, so if we were to consider Parfit's view directly in terms of experimental philosophy, we would be perhaps wise to frame our queries in accordance with the temporal change, if we were to ask a class of aspiring young philosophers about such issues, in a rather similar way to Kimpe (2008). And indeed some of these interviews if repeated every few years might give outstandingly differing poll results.

Effect of Temporal Change on Philosophical Reasoning : But indeed we would probably for the moment at least, confine our attentions for the moment to late 20th and 21st century philosophers like Parfit, who must have been involved with the effect of temporal change (scientific change being of most importance as this can induce immediate 'no-no', but also spiritual change and political change) on philosophical reasoning over a period of time already. That of course partly accounts for the changing views of philosophers even in the 20th century, Bertrand Russell's changing (political) views on the use of nuclear bombs being only one instance out of many. And it probably also accounts in part at least for Joshua Knobe's expressed feelings for the apparent indeterminism of philosophical results, perhaps not to the level of Heidegger or Wittgenstein (Minar, 2001) who seem to try to show us how skepticism presents a symptom of our way of inhabiting our condition. They take a view as if the world had first to be stripped of the taint of meaning before it could again be rendered an hospitable environment for the dwelling of mortals.

Since Knobe takes a look at a world, constantly changing even in basic scientific and physical understanding all the time, thus leading to a continual shaking of its philosophical foundations, he is understandably not eager to take very definite views on many matters, as next week's scientific advance in (say) perception theory could undermine an entire philosophical structure of a lifetime ! Not that the proponents of such a theory will want to admit it, of course, any more than Heidegger after World War II must have really wished to truly change his philosophical lucubrations from a semi-political viewpoint to a quasi-poetical one, but circumstances, and not just physical circumstances must have made him 'want' to do so. So too Knobe has his 'abstract' and his 'visceral' and it is probably possible to take great pains to venture from there. His views on such matters as freewill, morality, ethics, and even crime and punishment, seem to be up to a point conditioned by his tentative acceptance of Vilenkin's physics, and the fact that he is attempting to obtain great achievements in his thought, and indeed to relate, through

experimental philosophy, his 'take' on these matters to that of others. From the present point of view a fairly all inclusive theoretical base and nonetheless a directed approach seem the most appropriate, at this time. And we bear in mind that the use of experimental philosophy may be one good way to attain this.

Perhaps obviously, deep questions of relativism arise and I try to proceed with the work by avoiding these, and also avoid a detailed consideration of the perhaps rewarding work of Gadamer on hermeneutics, or for that matter of Davidson's work.

Parfit on p203 of "Reasons and Persons" says that he considers identity as "the spatio-temporal physical continuity of an object". (One perhaps looks at Kimpe (2008) to consider the mereological aspect of this matter). One can see the relevance and explication of physical continuity, probably, but psychological continuity (and particularly continuity of memory) are also reasonably considered by Parfit at some length on p205 et seq. However in regard to something like memory, which leaves the impression of relating to the obvious physical aspects of the brain, but to an as yet unclearly defined mental feature, we seem to be right there at the coal face of understanding, and could go very wrong. We certainly do not even know accurately how to erase very specific and individually chosen memories by physical means, for example, using needles or electrodes in very small areas. Many people say that such things as thoughts and memories are spread out in some way over the whole brain, as it were like a mathematical Fourier transform. And of course Hacker goes even further than this, suggesting that it is one thing to suggest on empirical grounds correlations between a subjective, complex whole (say, the activity of deciding and some particular physical part of that capacity, say, neural firings) but there is considerable objection to concluding that the part just is the whole. Hacker then uses the traditional Wittgenstein view that to do so is nonsense. For myself I would not care to take the traditional Wittgenstein approach so far, but like Parfit would like to consider the evidence as and when it arises through neurological experiments. And Parfit's continued strivings can be looked at fairly benignly until at least p209, up to which he more or less accepts the possibility of and/or need for some sort of physical and psychological continuity.

It seems to me that in the teletransportation case of Parfit, there can be both physical and psychological continuity for both of the persons (the teletransported person and the clone), as the original person has obvious continuity and the person on Mars also has continuity in space and time, using real teleportation methods of the kind - not known when Parfit wrote his book - we have at the moment for single particles, if these can be extended to larger objects. There is a quantum effect during the creation of the clone, but this is day to day and in an emaciated way is satisfactory in B-series quantum physics, and also occurs in the MBI. The only problem is that we now have two 'originals'. A perfect chance for experimental philosophy to ask each of them questions to decide which is the authentic item, and, to me, it seems fair enough if they both seem to be authentic. But duplication is common in every production line and if people can be duplicated, both duplicants should have importance, and in fair systems, human rights.

The only 'visceral' worry to either clone should probably be as to whether he and other clones are treated fairly. Whether such a worry need occur depends on historical circumstances which are not yet with us, and which basically seem to have no immediate connection to the act of cloning

Amusingly, then, mass production could almost produce a 'detournement' effect on Heidegger's ideas. Heidegger apparently (according to Steiner) warned as early as the 1920s that 'as this soap powder [i.e. conveyor belt consumerism] spreads over the planet, over the universe, it will be almost impossible for you to be you and not just one'. On the contrary, individual 'ones' and their clones may each be able to show great individuality from a basic cloned person, and each

one of us may become independently available as millions of quite separately acting individuals, totally disconnected to each other, with their own psychological reactions after the cloning. Furthermore, unlike Vilenkin's inflationary world-view where it could be said free will (given the noted restrictions) is effectively almost written out of the scheme of things in the universe, overall, there would be an almost limitless free will available for individuals to put into practice, as each clone could try something different and even compare notes. Whether there would be any means of contact between clones, other than normal physical ones available to everyone, is of course unknown. And of course such a universe could also exist in (or on top of) Vilenkin's version.

Returning now to the work of Parfit, on p273 he starts discussing mind backups. Again, this is outside of existing technology, so up to a point one could assume discussion on the matter is empty. The idea presumably is that the mind backup will simply replace the existing mind, should it become damaged, say in transit. However such a backup in practice is unlikely to have access to what happens in the mind after backup and until fatality, so is likely to be 'just another approximate clone'. Maybe whether individuals would see such a clone to be of value could depend on their circumstances, for example family responsibilities and commitments for continuity of an existing enterprise. But it seems clear that personal continuity will have been breached.

At this point we have to bear in mind that Parfit is what he claims to be a 'reductionist' and in his understanding, persons are nothing over and above the existence of certain mental and/or physical states and their various relations. But this point in his chain of argument appears to be circular as he either claims that we can give a full description of each individual thought without assuming it has a thinker, or perhaps he is claiming that we can describe the totality of our thoughts without assuming that that has a thinker. That a person's life may be seen for some purposes as a sequence of temporal events, each one an aggregate of mental or other events, provides no grounds for the assumption that the person themselves can be identified as being this sequence. Such a sequencing may perhaps be used to tag, or keep track, of a person and even to develop theories such as the MBI, but that does not mean that we have thereby established the sequence or tagging as being the person himself. Furthermore Nagel (Harth, 2004) and others seem to define reductionism in a somewhat different way to Parfit.

(5) Use of MBI and GW theory for dreamwork

We are seeing apparent continuity of human beings' existence whilst dreams occur. Most normal people simply welcome a good night's sleep, and have no fear that it will be the end of their life, or that a new person will take their place when they 'wake up' the following day. Parfit and others have of course considered such possibilities, but we can probably rule them out for the current practical exercise.

We have already used dynamic systems modelling for the sleep condition and referred to it in Yates (2008). For the interim, rather than refining existing models we intend to try to determine empirical factors which will sharpen and enhance the reverse Stickgold effect, but to relate such progress to MBI theory also.

We note from Knobe's work that there seem to be two aspects to any real philosophical views, namely abstract ideas or views and visceral ideas or views. This suggests the possibility of something quite different to Pavlovian 'conditioning' or effects of such a nature, such as simple computer-aided classical conditioning after the manner of Richard F. Thompson. The idea is simply to give some of the subjects small rewards during the process of dream recording, likely to take place over about 10 days with the reward given mid-session. The control group will not

be given rewards and we will see what difference this makes to the dreams, if any. A number of other techniques will be used during the tests, some of which are currently ongoing.

Global workspace and other theory : In connection with his theories of consciousness, Tononi (2008) claims that consciousness fades during early sleep, and that this is likely to be due to the dreamless brain either breaking down into causally independent modules, shrinking its repertoire of possible responses, or both. He has carried out work using EEG and rTMS results to help to validate this view. As Tononi puts it his theory suggests that "the brain breaks down into little islands that can't talk to one another." Now this is a reasonable postulate in the B series and whether in effect something similar occurs in the A series (which may well have additional ability to integrate information in the brain, notwithstanding B series dissociation) is as yet undetermined. Stickgold had said earlier "He has plainly and elegantly demonstrated a breakdown in the ability of cortical areas to interact normally as we fall asleep, but he hasn't provided any reason to think that this is related to the changes in consciousness as we fall asleep." "Scientists have nothing approaching an understanding of why we are conscious when we are awake or, indeed, why we are awake. So looking for what changes cause a loss of consciousness is a very difficult question because we don't know what we're looking for. I don't think this adds anything substantive about consciousness. It does add some information about the changes in brain function that accompany the shift to sleep, in a very elegant and beautiful way to show it." Tononi however seems to be of the view that "the ability of distant parts of the brain to communicate with each other constitutes consciousness."

I have by now written at length about psychological aspects of this matter - clearly a lot can be said about the hard problem , where the deceptively simple position could roughly in effect be that "the map is not the country" (or, "the Tononi effect is not consciousness"), and indeed a lot can also be said about the work of Jack et al (2007), who can also see that there are problems but would favour a different mode of tackling them. From my own standpoint, dynamic systems theory may give interesting results for the MBI, but our additional experiments could also be helpful. And, we clearly would be much happier if we could carry out mind cloning to help with the parameters (as in that case, the differences between the A series of the clones might help with parameter values, but for the moment we can certainly contrive to make do with dreams and other experimentation. But the assumption of the mere possibility of cloning could perhaps help us to better formulate the A series.

In Baars (2006) it is pointed out that Hobson and Stickgold have suggested a neural mechanism for this phenomenon in terms of cholinergic activity during REM sleep. Thus the only memory available for the recall of a dream is the small capacity WM (working memory), resulting in dream amnesia. The limited capacity of WM would yield a memory only of the final small portion of the dream. The rapid decay of WM would account for no memory of the dream at all after a slow awakening.

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