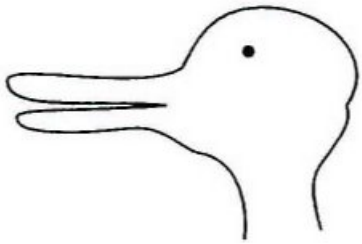
Are Physicists suffering from the Tychonic Illusion ?



To begin with we may examine the duckrabbit picture

Along with such figures as the Necker cube and the Schroeder staircase, Jastrow used the duck-rabbit to make the point that perception is not just a product of the stimulus, but also of mental activity – that we see with the mind as well as the eye. From a constructivist point of view, many illusions illustrate the role of unconscious inferences in perception, while the ambiguous figures illustrate the role of expectations, world-knowledge, and the direction of attention (Long and Toppino, 2004).

For example, children tested on Easter Sunday are more likely to see the figure as a rabbit; if tested on a Sunday in October, they tend to see it as a duck or similar bird (Brugger and Brugger, 1993).

Kihlstrom (2004) and many others have written at great length on this and related perceptual phenomena, and of course many and varied views have been expressed.

And this ties in (Pearson, 1998 ; Margolis, 1998) with Margolis's work, which I have frequently referred to in this blog, on the Tychonic illusion. There was a long correspondence in the literature (Psycholoquy, 1998) but the upshot seems to be that the Tychonic illusion subsists, (Margolis, 2002a) whatever the worldly circumstances of Tycho at the time. I discussed all this in several places before, in my blog on Wed, 17 Aug 2005, for example. I state a portion of this article on Margolis's book below for convenience (Note 1).

In actual fact the matter also ties in with the Wason selection test, which I'll assume is generally well known. On this, Margolis (2002) says "So are cognitive illusions likely to occur and be hard to correct beyond the narrow contexts of psychology experiments? I think that is inevitable, so that it is important that we come to understand these illusions. Careful thought about simple puzzles like Wason can help illuminate what happens in vastly more consequential realms."

Now in both the present circumstances and those of Tycho the position and status of the Tychonic illusion, to those not duped by it, is fairly clear.

In Tycho's case it surrounds the controversy (involving the Pope and various nobles, scientists and others) concerning the disposition of the solar system, now generally clarified, we hope. Margolis and others have already discussed that. To put it crudely, it is almost as if the solar system were just a large duckrabbit, unclearly unidentified or a Wason card test unsolved.
In the present case we are dealing with the properties of time and how it is observed by us. The simplistic way, as adopted by Einstein, the quantum theorists and the computationalists, is to go right ahead and assume we have a block universe (a McTaggart B series) and hang it all on that. (Note 3).

To pursue the analogy a little further, it may be all very well to hang a caravan on the back of a car, by contrivance we can even include the kitchen sink in the caravan hung on the back, but it would be extraordinary folly to hang a 4 bedroom detached house on the back of the car. I will accept that a house move may be possible in that way (I think using heavy trucks it has even been done in Vancouver Island) but it is not a practical way to run things generally and would lead to stress and hardship. In the same way, by its nature the B series does not contain a past, a present and a future, it does not distinguish in any acceptable way any real element of freewill, and plainly does not

represent the universe as we know it. Einstein may well have said "God does not play dice" but it is torturing facts to say that "God created a Universe without freewill, he created humans as robots controlled as by a computer, and he laid it all out for us to see". That God does not correspond to the God of Einstein's somewhat dodgy anthropomorphisms or to that of anyone but a scientist who has made too many assumptions and believes in no grounds to justify them Or if you like, has used an oversimple model. If we say all that, where is God or even further, where is the possibility of conceiving that there may be a God. Certainly the B series is a useful working tool, but it is hardly even a full hypothesis.

It is unscientific to assume that God will or could somehow appear in the works when we know that possibility is right there from the start. The possibility of God is a fundamental axiom of any physical description of the universe and we know that simply because we know that we have that possibility before we start. To say otherwise is like assuming that some important factor will eventually cancel out from our sums, and therefore leaving it out from the start. That is clearly unscientific. Obviously there are ways of leaving out irrelevant factors before we do start. Traditionally, atheists try to do this. My experience is that a convinced atheist is the only person I can think of more philosophically frightening than a convinced cleric, be he Christian, Muslim, or any other. Agnosticism still leaves the door open for God and allows God into a theory as someone's idea, however outrageous it may seem to some. Now given the possibility of God, we do not have to assume he is just or fair, but we could assume that we are rational so it is reasonable to allow the further 'working assumption' that God, if he is indeed there, may be rational too. But the B series rationality of a God escapes most people especially those who see the Tychonic illusion and even more, Wason selection.

Fortunately we have the A series as well, which allows past, present and future to individuals, and the possibility of free will, known to us all in some sense. We don't have to have a past, a present and a future or freewill of some kind if there is an A series. But if we believe our senses we are living with a past, a present and a future and hopefully with some element of freewill - indeed we may be optimistic enough to believe in the existence of a higher power (or powers), called God (or Gods).

As far as I am aware an easy mathematical representation of what is happening in the A series may sometimes be made in terms of some ordinary mathematical techniques already familiar to us from their use in the B series, and that of course there is a tendency to do, but that of course cannot be allowed to confuse the issue of a fundamental difference between the A series and the B series. And it is necessary to remember what we are doing, and that any mathematics which we write down as supposedly representing happenings in the A series is not necessarily an identical representation of what is going on in the A series, and it certainly would not transfer into a piece of B series mathematics without careful thought, if at all, and indeed the mathematics may at best only be a partial representation of what is going on in the A series and certainly not nessarily a complete model of some part of the A series nor representing all the sufficient and necessary constaints of that part.

Certainly, most people would see from common observation that we are not "simply" like in the B series, just in effect a lot of flies preserved for ever in some timeless aspic or solid jelly. And I certainly do not take a Panglossian view that all that will "eventually" come out of the existing physical theories. Yes indeed, it seems that modern physics tends not only to be caught up in the Tychonic illusion but simply to be Panglossian about it. Certainly physics, and even we may hope the future of say the Higgs boson, may have achieved remarkable results during the last 100 years and we may hope that it continues to do so. But we cannot assume that for that reason it has comfortably set out its mathematical stall to adequately cover important and relevant fields like human perception, consciousness and insight, even insofar as these matters are directly relevant to

physics. I think of the early expositions of special relativity in this context, and see how far physics has proceeded in just using them, and their simple analogies of time and distance ! How much further can it proceed using the A series of McTaggart. Perhaps modern string theory (Greene, 1999 and many others pro, con and doubtful) could eventually get us out of our problem, but that in a way, could be just like the Ptolemaic epicycles getting us out of the idea of the earth revolving around the sun. The symptoms looks similar and the matter seems highly Tychonic so starting with an A series and a B series seems the right way around to go about things. It will not damage modern physics as that is in the B series already, nor will it force us to adopt some bizarre new theory. (Note 2) Instead it will complement and add to existing physics, as well as being based on the ideas of someone who was undoubtedly one of Britain's greatest philosophers, namely J.M.E. McTaggart.

It seems to me that one reason why we are in the grim position that we are, may be the dogged insistence of atheists (often wrongly trying to describe themselves as agnostics) trying to leave out anything remotely Godly (almost in an HG Wellsian way) set up against the often equally dogged insistence of clerics to presume some strange opposite view, often enough without even trying to add reason to that view. (I'm sure we have all heard the American snake oil evangelists who often do not have even any decent snake oil). Each party seems to be trying to drive the other to strange excesses.

Clearly if a person uses the A series as well as the B series it does not automatically allow the assumption that such a person has a belief in God, but it does imply perhaps that he knows that there are other people, probably fairly rational in some cases, who do believe in a God or Gods. In fact one could possibly deduce that for a person not to have an A series at all is possibly for him to commit a philosophical solipsism to the point that arguments made by such a person are philosophically incorrect.(Rather like the conference of solipsists said to be the butt of jokes in that their organiser was so pleased to see so many people of the same mind). Even leaving aside the God question, a similarly convincing argument can possibly be made in terms of human psychology but it might be a little longer.

The question of using chaos theory and strange attractors is another issue which I am also exploring at present (Yates, 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2006g, 2007a). And of course I bear in mind the work of Freeman. Especially in considering Freeman's work, we must also give careful attention to the old maxim "the map is not the country" but given that, there is, for example, a very simple suggestion from Calvin (1996) to consider in that context: "When the Necker cube switches back and forth between top-down and bottom-up perspectives, it’s presumably because we’re switching in and out of lobes of an attractor". Now this can be fitted in with the A series in numerous ways but it is not immediately philosophically evident that the "flies in apsic" B series can properly philosophically cope with it at all, except perhaps in some Panglossian way.

References

Brugger, P., & Brugger, S. (1993). The Easter Bunny in October: Is it disguised as a duck? Perceptual & Motor Skills, 76, 577-578.

Calvin W., (1996), "The Cerebral Code", Chapter 5, MIT Press, ISBN 0262531542 ; http://williamcalvin.com/bk9/bk9ch5.htm

Greene B., (1999), "The Elegant Universe", ISBN 0393 058581

Jastrow, J. (1899). The mind's eye. Popular Science Monthly, 54, 299-312.

Kihlstrom J.F, (2004) http://ist-socrates.berkeley.edu/~kihlstrm/JastrowDuck.htm

Long, G.M., Toppino, T.C. (2004). Enduring interest in perceptual ambiguity: Alternating views of reversible figures. Psychological Bulletin, 130, 748-768.

Margolis H., (1998) "Tychonic Illusions: Hard vs. Easy". Psycoloquy: 9(38)

Margolis H., (2002), "Wason's Puzzle and Real Problems", AIBS conference on behavioral economics, Great Barrington MA, 2002)

Margolis H., (2002a), "It started with Copernicus", McGraw-Hill. ISBN 007 138507X

Pearson D., (1998) "Imagery need not be blind to fail - Commentary on Margolis on Cognitive-Illusion" Psycoloquy: 9(34)

Psycoloquy topic Cognitive Illusion, (1998) , http://www.cogsci.ecs.soton.ac.uk/cgi/psyc/ptopic?topic=Cognitive-illusion

Yates J. (2007a), Memetics and the A Series (3); references to the rest mainly in earlier blogs.

Notes

1. Margolis "It Started with Copernicus": This book begins with very ambitious claims. Margolis gives a very impressive Table I-1, giving a list of scientific discoveries made around the year 1600 and a further (empty, qualified) list of the work done in their respect in the previous 14 centuries. He then states on page 6 " The sharp step that is visible about 1600 almost by definition requires something new" and he says that this was not merely improved
experimentation or indeed new mathematical techniques.

Margolis is a distinguished writer so these claims must be taken seriously and considered in conjunction with his work on Wason tests.

We have to try to work out 'what 'something new ' was involved, and why.

Now the rest of the book is mainly a historical exposition and we have to sift through the history to find explanations of current relevance.

Firstly one has to mention that he really may have something new to say, bearing in mind for example his Wason conclusions and also his historical comments about Tycho. The latter are summarised on p48 "It would be 400 years before anyone noticed" (the Tychonic illusion). Following this matter up later he says."we have also seen that many logically accessible discoveries waited 2000 years to be made" (p200) and compare Wolpert "... find a new phenomenon where you could open up a whole new world . you'd jump on it like a shot" ([q-ball] The Telepathy Debate, 18/07/05).

Now what Wolpert says is unfortunate but common and easily sympathised with. Margolis's idea really ought to help to sort it out. Of course we must bear in mind the academic discussions (for example by Topper) on Margolis's Tycho conjecture but as far as I can see, Margolis has a case to proceed with his views - and indeed he does proceed. I can think of several other problems with his comments on Tycho, the chief two being that I am far from sure that Margolis was the first to notice this matter as I had heard it elsewhere much previously but haven't tried to locate it in the scholarly tomes - and secondly I doubt that many people cared all that much for the last 300 or so years. But these points may matter little or more likely, may fit in with Margolis's own theory, when

expounded in detail, if and when it can be.

Also, the Tychonic illusion is likely to have been one illusion amongst many.

On page 26 he criticises Kuhn for use of the term "aesthetic" to describe a part of the valid approach towards theory-selection [At this time I must make the point Kuhn and Popper schools of thought are often regarded as different and Americans often tend to regard themselves as Kuhnians; to me, Popper and Kuhn both appear to be thoughtful philosophers of their time]. Margolis however seems to prefer the word "economy" to deal with what he is talking about and speaks of a "cognitive fit" to make an idea "comfortable". In terms of modern science this idea can be perhaps be used more readily with brain-scanning, though Zeki has spent a considerable time on aesthetic points of view towards brain scans too.

But Margolis points out that an uncomfortable fit of ideas can improve with time, in the sense that 'everyone believes it' and this makes it more comfortable. This probably does not apply to a case like the aesthetic value of Mozart as compared to Salieri. which is unlikely to change significantly with time. So it looks to me as if we already have a way to distinguish between the "aesthetic" and the "economical" with regards to brain scans. One area will change with time and probably circumstance and one area will not, and the cases can be shown on a graph. Indeed we can probably dig out brain scan ideas for 'comfortable' as well.

Most people could already construct a theory comparing and contrasting say "aha!" to "aesthetic", and bear in mind that acclimatisation can occur quite quickly.

Margolis makes p56 the important point that the difference between a Ptolemaic system and a Tychonic system was not AT THAT TIME (my emphasised capitals) logical. Indeed it was aesthetic (or maybe economic). As Kepler pointed out, God could have set up the solar system in pretzel shapes had he wanted. But eventually comfort drove people to Tycho and those after him. Easier to do circles than pretzels in effect.

Now at this point we are clearly tempted to try to work out if such a principle can reasonably be generalised, to the work of say Turing and indeed Schmidhuber and others. Well the first answer is, that such authors will probably automatically try to simplify their models either through their own mathematics or on some metamathematical principle, such as Godel's theorem which in Godel's original formulation was very long but, if you have the patience, very comprehensible. Thus we can certainly simplify models, in size or complexity or understandability, and do our best to choose the simplest one, but the 'beauty' or 'aesthetics' or indeed 'economy' or 'comfort' of an idea will probably need more MRI scans to obtain correlation coefficients. Anyway we still have problems with the white matter, the fact that most results are MRI not DT-MRI and fundamental facts such that to use simple blood flow in this way almost smacks of phrenology.
Anyway there is at least a brisk platform, we now have a pulpit to preach from as they might say in adspeak.

Margolis noted (p58) that Tycho's work was an enormous wrench in terms of comfort away from Ptolemy, even though he still took the sun to travel round the earth. He destroyed the Ptolemaic idea of the spheres and moved the orbits of Mercury and Venus, and this fitted facts as then known. He got away with it possibly because by then Copernicus's work was somewhat accepted or at least scientifically recognised as a theory. It is arguable that Tycho was by now just climbing on to a bandwagon, but simply had respect for Rome. It is almost like the end of Marxism, but it is unlike to be the decline of capitalism as capitalism has tried to make sure that no workable alternative system remains. A faith like Islam is unlikely to fill the gap capitalism will leave. As they say, you cannot beat the system (or Bilderberg, it seems).

So at least Margolis implies a recipe: when a good new theory comes, take away the unobjectionable parts of the old theory, replace them with as much of the new approach as possible, and leave the kingpin of the old theory till last, like gradually and competently removing the foundations of a house. Very Machiavellian, or perhaps purblind and naive?

Margolis says, however, 'why should a (partly) heliocentric system (Tychonic) be appealing to a geocentric astronomer'? Margolis refers to his two qualities 'economy' and 'comfort'. He then refers to Zajonc's experiments, which roughly involved subliminal presentations being supposed to enforce liking partly through familiarity (In the spirit of 'Mother's cooking is best' i.e. repeated exposure to a stimulus brings about an attitude change in relation to the stimulus). It's probably worth noting that Zajonc's work tended to imply reinforcement rather than liking. Anyway Copernicus's view and Tycho's view became familiar if not always accepted. But the only clear advantage that Tycho's view had was that it was similar to Copernicus's view (p64)! One can reach the conclusion, if one chooses, that free speech without penalty could have allowed Copernicus's view to predominate earlier. But Margolis stresses continuing comfort as being important, Tycho's view being substantially similar to Copernicus's. Easier for comfort, to overlook the errors in Tycho's work.

Basically we are left almost with an Edison/Tesla situation. Edison gave Tesla a great contract for the use of Tesla's alternating current (as opposed to Edison's inferior DC) reticulation - the electric chair for executions. In the same way, we could reckon Tycho left the heliocentric solar system idea to Copernicans.

So we have a rough blueprint for the use of MRI for discovery. Aesthetics, economy, comfort, MRI, and correlation coefficients. This lays the groundwork, I may write later in more detail.

2. It is probably unfair to call Penrose's twistor theory a bizarre new theory as I remember first glancing through the proofs of a version of Penrose's twistor theory in Sale, Cheshire, nearly 40 years ago. By now it is a bizarre old theory I suppose, but in its present form it has many competing theories to contend with.The fact remains that even today, the future of string and gravitational theory, and certainly of the TOEs is nowhere near settled.

3. Nearly all decent philosophy conferences dealing with time these days devote a lot of conjecture to the ideas of tensed and tenseless time, which still are very much on the philosophy agenda (as indeed I have mentioned in more detail in earlier blogs of this series) even if not clearly on the physics agenda.