



## Persistence, Probability, or Prejudice?

Last month I discussed the Mpemba effect, a seemingly unreal observation by 13 year old school boy which took several years to gain peer acceptance. Indirectly I asked how objective is “peer review”? One of my own papers, on the post translational rearrangement of Concanavalin A, although accepted for publication, received quite a hostile “peer” review in Nature’s “News and Views” section. Others have been less fortunate; and Nature (Volume 425 Issue 6959 16 October 2003) has owned up to some notable rejections which include Hans Krebs paper on the Krebs Cycle and Stephen Hawking’s Black Hole Radiation.

Variable, transient and weak phenomena are particularly difficult to get accepted. The Mpemba effect is not, it would seem, always reproducible, and it may be better to say that warm water *usually* freezes in a shorter time than cold water. Like many people whose papers or ideas were rejected by their peers, Mpemba persisted and eventually won over his “peers”.

Persistence is fine, but what if something happens in only a minority of cases. A recent trial of a potential TB vaccine (MVA85A) found it to be effective in only 17% of cases, which was reported as being “so low as to be statistically non-significant”. If we ask the question in a different way, however, our views may change. In a dice game, if you needed to throw a six to win, would you give up and admit defeat because the probability of throwing a six was only 16.667%? If you had 100 patients with a fatal illness and a drug which was only 17% effective, would you decide not to treat any-one?

If this reflects on how rationally we judge low probability events, how objective are when we dismiss apparently ridiculous ideas. The theory of Formative Causation met a very hostile reception when proposed in 1981 by Cambridge biochemist Rupert Sheldrake. Sheldrake’s theory was consigned to the realm of pseudoscience by his peers, some of whom reportedly refused even to examine the evidence. A visual image based test was reported [New Scientist (27 Oct 1983)] and a more scientifically rigorous test using day old chickens, published in 1992 in Rivista di Biologica, have both led to disagreement on the statistical significance of the results.

Undoubtedly the most difficult aspect of Sheldrake’s theory is the concept of a “morphic” field. My natural reaction is to dismiss this idea of an invisible field of energy which cannot be directly probed, but pervades the universe and interacts with observable world. Hardly good science! Yet the discovery of the Higgs Boson last year argues heavily in favour of a Higgs Field which confers mass on sub-atomic particles. The Higgs Field is an invisible field of energy, which we cannot directly probe, but which exists throughout the universe and interacts with matter!

I am not arguing in favour of Formative Causation, but can I rationally dismiss the idea of Sheldrake’s Morphic Field if I accept the existence of the Higgs Field? Is a lack of evidence to support a theory, evidence that the theory is wrong?

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