

Notes on “The inevitable implausibility of physical determinism” by Richard Swinburne

Definitions: A mental event is one to which its subject has privileged access; a physical event is one to which no one has privileged access. A pure mental event is one which does not entail the occurrence of a physical event. Pure mental events include conscious events (sensations, occurrent thoughts, and intentions (in actions)) and also continuing mental states (beliefs and desires). Physical determinism is the doctrine that every event has a physical event as its necessary and sufficient cause (and no non-physical event as a cause). It entails Epiphenomenalism, the doctrine that no conscious events (and so no intentions) cause physical (including brain) events.

Three fundamental epistemic principles: (1) The principle of credulity: that what we apparently experience is probably so – barring counter-evidence; this includes what we apparently observe in the public world, what we apparently experience as conscious events, and the logical consequences which we apparently ‘see’; (2) The principle of memory: that what we apparently remember having experienced, we probably did experience - barring counter-evidence; (3) The principle of testimony: that what people apparently are telling us that they experienced, they probably did experience - barring counter-evidence. Beliefs acquired by apparent experience, memory, and testimony are probably true, and so justifiably believed – in the absence of counter-evidence (=defeaters). If (consciously or subconsciously) we have inferred the occurrence of some event  $Y$  from present evidence  $X$ , then an undermining defeater is evidence (making it probable) that  $X$  did not occur or is not good evidence for  $Y$ , whereas an overriding defeater is new evidence that  $Y$  did not happen.

My epistemic assumption (EA) is that:

(1) A justified belief in a scientific theory (which is not itself a consequence of any higher-level theory in which the believer has a justified belief) requires a justified belief that the theory makes true predictions.

(2) A justified belief that a theory makes true predictions is (unless this is a consequence of some other theory in which the believer has a justified belief) provided by and only by the evidence of apparent experience, memory, and testimony that the theory predicts certain events and that these events occurred.

(3) Such justification is undermined by evidence that any apparent experience was not caused by the event apparently experienced, any apparent memory was not caused by an apparent experience of the event apparently remembered, and any apparent testimony was not caused by the testifier's intention to report his apparent experience or memory.

The fundamental criterion (FC) behind (EA) is that justified belief that some event occurred requires the assumption that that event is one to which the believer has privileged access or causes effects to which the believer has privileged access (unless it is justifiably believed to be the consequence of some theory which predicts events justifiably believed to occur). Then justified belief that a theory makes true predictions requires (unless justified by a higher-level theory) the assumption that both a scientist's awareness of the calculations that the theory predicts certain events and the events predicted are accessible to or cause effects accessible to the believer.

It might seem that (unless his belief depends for its justification on some higher-level theory of which epiphenomenalism is a consequence) a believer could be justified in believing epiphenomenalism (and so have some justification for believing physical determinism) in virtue of having evidence of when (relative to brain events) various conscious events occur, which I shall call  $\alpha$ -type evidence. But - given (FC) - such evidence could only be had on the assumption that epiphenomenalism (and so physical determinism) is false.

Libet-type experiments have been interpreted as showing on type- $\alpha$  evidence that intentions do not cause bodily movements. In the original and most influential Libet experiments participants were instructed to move their hand at a moment of their choice within a period (e.g. 20 seconds). They watch a very fast clock, and report subsequently the moment at which they first had the 'intention' to move the hand. They reported the 'intention' to move the hand as (on average) occurring 200 msec before the onset of muscle activity initiating the hand movement. However electrodes placed on their scalp recorded (on each occasion of hand moving) a build up of 'readiness potential' (RP), which was evidence of a particular kind of brain event (which I'll call  $B_1$ ) occurring (on average) 550 msec before the muscle activity. Experiments of other kinds led Libet to hold that subjects misjudge the time of all conscious events by 50 msec, and so he concluded that the 'intention' first appeared 150 msec before the muscle activation, and long after  $B_1$ . So, many have argued, Libet experiments showed that  $B_1$  caused the hand movement, and that the 'intention' was a mere epiphenomenon. But the most natural explanation of the

experiments is to suppose that  $B_1$  causes the 'conscious intention' ( $M_2$ ), and that the intention causes the brain event ( $B_3$ ) which directly causes the movement. We could only have type- $\alpha$  evidence that these experiments show that intentions do not in these particular circumstances cause bodily movements by assuming that on other occasions (e.g. when subjects report the time at which they formed an intention) they do cause them.

It might however seem that someone could have a justified belief in physical determinism by having evidence that in a large sample of physical events (including brain events) every physical event has as an immediate necessary and sufficient causal condition some other physical event. I will call evidence about the relations of physical events to each other type  $\beta$ -type evidence; (on somewhat stretched understandings of 'memory' and 'testimony') this could be obtained without violating (FC). But in order to have a justified belief that the events studied satisfied the above causal condition, someone would need not merely a justified belief that the physical events had certain relations to each other, but also a justified belief that these relations were those predicted by some otherwise plausible deterministic theory. But to have that belief someone would need evidence provided by the apparent testimony of scientists to have calculated this, or their own apparent memory of having calculated this; and -given (FC)- relying on these sources requires assuming that epiphenomenalism, and so physical determinism, is false. Only if a scientist could hold in his mind at one time all his calculations from which it apparently followed that the deterministic theory predicted certain events, could he have a justified belief that that theory made successful predictions, and so a justified belief in physical determinism - which is a most unlikely event.