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# *What Does the Evidence Tell Us about the Biological Value of Consciousness?*

*Comment on Robinson (2007)*<sup>1</sup>

Views on whether consciousness has biological value tend to be rather polarised. The majority of people seem to assume that consciousness is obviously adaptive, whilst a minority are entirely convinced that consciousness is epiphenomenal (Blakemore, 2005; Chalmers, 1996; Eccles, 1994; Pockett, 2004; Popper and Eccles, 1977; Robinson, 2007; Swinburne, 1996; Velmans, 1991). When views are so strongly polarised, it is rather important that the issue be examined in a thorough and objective manner, which Robinson (2007) fails to do.

Robinson claims that evolutionary principles are compatible with his belief that consciousness has no effects on behaviour, and states that all evolutionary arguments that consciousness can contribute to behaviour are false. He discusses arguments put forward by James (1890) and Plantinga (2004), and a rather general argument that evolutionary considerations suggest that consciousness is adaptive. But Robinson does not confront a much more difficult problem for epiphenomenalism, which relates to the very wide range of qualia that constitute the 'building blocks' of our ongoing experience, and how these could have arisen, if not by natural selection. (By 'qualia' I mean our experiences of colours, sounds, smells, tastes, contact with

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[1] William S. Robinson (2007), 'Evolution and epiphenomenalism', *Journal of Consciousness Studies*, **14** (11), pp. 27–42.

objects, feelings of pain, hunger, joy, doubt, acceptance, and all the many other components of consciousness.)

### 1. James' Evidence Against Epiphenomenalism

The gist of James' argument is that pleasurable feelings commonly occur in connection with beneficial events, unpleasant feelings with harmful events, and that these coincidences are best explained on the basis that these feelings evolved by natural selection because they can influence behaviour. He wrote that:

It is a well-known fact that pleasures are generally associated with beneficial, pains with detrimental, experiences. All the fundamental vital processes illustrate this law. Starvation, suffocation, privation of food, drink and sleep, work when exhausted, burns, wounds, inflammation, the effects of poison, are as disagreeable as filling the hungry stomach, enjoying rest and sleep after fatigue, exercise after rest, and a sound skin and unbroken bones at all times, are pleasant. Mr. Spencer and others have suggested that these coincidences are due, not to any pre-established harmony, but to the mere action of natural selection which would certainly kill off in the long-run any breed of creatures to whom the fundamentally noxious experience seemed enjoyable. (James, 1890, p. 143.)

In countering James' argument Robinson claims (p. 34) that: 'The picture that James suggests is that actions taken in circumstances in which they produce beneficial results will usually produce *P* [that is, pleasurable feelings], and *P* will be efficacious — namely, *P* will cause changes in us that tend to increase the likelihood of similar actions in similar circumstances.' (Italics added.)

Robinson appears to assume that James considers that all these feelings evolved because they cause operant conditioning. An example of operant conditioning would be when an addicted gambler puts coins into a poker machine, which periodically gives a payout that seems large but, on average, does not cover his losses. The sound and sight of all those coins (and, possibly, the pleasant feelings) cause operant conditioning, and the gambler is impelled to put in more coins, and to visit similar machines in the future.

In fact, neither the quote from James, nor anything else in this chapter of James' book, supports Robinson's claim that James is referring to the effects of pleasant feelings as being due to conditioning. Indeed, James seems to be clearly implying that the assumed biological value of pleasant feelings is some sort of immediate effect on behaviour. James (pp. 143–4) states that: 'An animal that should take pleasure in a feeling of suffocation would, if that pleasure were efficacious

enough to make him immerse his head in water, enjoy a longevity of four or five minutes.'

James is concerned with the fact that pleasant feelings are most often experienced in relation to beneficial objects, and similarly for unpleasant feelings toward noxious objects, which seems quite a coincidence, unless these feelings have evolved by natural selection because of their immediate effects on behaviour (which is not to deny that they may also have conditioning effects). Hence this 'coincidence' suggests that consciousness does directly influence behaviour in some way. This is a much more difficult interpretation of James to answer than the very doubtful interpretation preferred by Robinson.

In connection with James' statement, Robinson also makes the point (p. 35) that: 'It is ... imaginable, within thoroughly evolutionary principles, that creatures much like ourselves could have developed that had behavioural preferences, motivational systems, and reward systems that are somewhat similar to ours but that do not involve N (*P*) [that is neural systems that produce pleasant feelings]. On present assumptions, they would be creatures in which beneficial actions were not generally accompanied by pleasure.'

However, the fact that Robinson regards such a scenario is imaginable does not constitute evidence of anything at all. And, what is worse, this scenario actually implicitly assumes that pleasurable feelings can have no effects on behaviour, otherwise the imaginary creatures could not be 'much like ourselves'. If consciousness, including pleasant feelings, has a significant influence on behaviour, these imaginary creatures would necessarily be quite different from us, because they lack pleasant feelings and, presumably, any kind of consciousness.

In summary, Robinson's attempted rebuttal of James misses the mark, and fails to offer a more likely explanation of James' evidence than James' own suggestion that these feelings evolved because they, and therefore consciousness, can influence behaviour.

## 2. Plantinga's Argument Against Epiphenomenalism

Plantinga (2004) includes an argument which is rather similar to James'. In essence, he claims that the fact that our beliefs are generally correct is evidence that consciousness evolved by natural selection, and must have biological value.

Plantinga's argument seems so weak as to barely justify further discussion. As Robinson notes, beliefs are often incorrect. He writes (p. 38) that, '... beliefs in phlogiston, contingent identities, and

communications from the dead come to mind as examples.’ And we can all think of many more everyday examples.

Robinson asks (p. 38), ‘How can these facts [about obviously false beliefs] be made compatible with the view that evolution selects for reliable processes of belief formation?’ — which would seem to be the end for Plantinga’s argument against epiphenomenalism.

### **3 The General Argument From Evolution Against Epiphenomenalism**

In broad terms the argument from evolutionary considerations is that all complex properties of organisms have evolved by natural selection, therefore it is very likely that consciousness also evolved by natural selection, and that it is likely to have evolved because of its beneficial input to behaviour.

Robinson’s response to this argument (p. 28) is that, ‘... in a given subject, S, each qualitative event, Q [that is each experience], is caused by some neural event, N. Besides causing the qualitative event, N causes neural events and it is these neural effects of N that cause ... the behavioural events that are commonly (but mistakenly, according to epiphenomenalism) regarded as effects of Q.’

This is the standard epiphenomenalist claim that the neural events which cause experiences also cause behaviour, but that our actual experiences do not influence behaviour in any way — a claim which is completely unsubstantiated. In order for this claim to have scientific credibility, epiphenomenalists need either to provide evidence from experiment or observation in support of it, or state what could be done to provide such evidence.

Robinson goes on to state that any argument from evolution can only say that experiences either have effects on behaviour or are connected to neural events that have these effects. This is correct. We cannot say which of these two applies until we have evidence one way or the other, and, unfortunately, Robinson does not offer any evidence in support of his view.

Robinson claims that evolutionary arguments against epiphenomenalism fail. But this claim is without substance, because discussing the evolution of consciousness in such broad terms, as Robinson has done, is really rather meaningless. Any part of an organism, perhaps an internal organ, whose function is unclear (as the function of consciousness is unclear) could be claimed to have no purpose on the basis of a general argument such as Robinson’s. But biologists would not make such a claim. They would examine the organ more closely

before coming to any conclusion. The same needs to be done for consciousness, but Robinson has failed to do this.

The epiphenomenalist claim that the neural structures do the work and consciousness is an impotent side-effect (for example, Blakemore, 2005; Pockett, 2004; Robinson, 2007), implicitly assumes that we can meaningfully separate consciousness from the neural structures that generate it. I need now to digress briefly to consider whether epiphenomenalists, such as Robinson, can justifiably assume that consciousness is separable from its underlying neural systems.

#### **4. Is Consciousness Functionally Separable From Its Underlying Neural Events?**

When epiphenomenalists, such as Robinson, claim that the work is being done by unconscious neural events and that consciousness is epiphenomenal they are implying that, in terms of biological value, consciousness is separate and distinct from the neural processes that cause it. At first sight, this seems reasonable because our experiences seem quite different from neural events, and this tends to give us the impression that the two aspects of the 'conscious mind' — the neural and the experiential — are meaningfully separable. But we actually have no evidence that this is correct. It could well be that the neural events and consciousness are a unity that cannot validly be separated. The fact that we only experience an aspect of it may mean nothing biologically. From a biological perspective, this subjective separation could be quite arbitrary and meaningless.

We do not have clear evidence whether or not consciousness is biologically separable from the neural events that generate it. This fact needs to be taken into account in establishing evidence for or against epiphenomenalism. To be confident of our conclusions, we need to take a conservative position in our discussions.

The conservative position for epiphenomenalists is that they must either offer evidence that consciousness and its neural events are separable, or else they must present evidence that neither the neural processes nor our experiences, have biological value. Robinson, has offered no evidence that the two components of the conscious mind — the neural and the experiential — are separable, and he accepts that the neural events are adaptive. Therefore his arguments fail.

However, when we oppose epiphenomenalism, and provide evidence that consciousness does have biological value, our evidence must be based on an assumption that consciousness and its neural events *are* separable, since for this argument, separability is the conservative

— the more demanding — assumption. This is the position I have taken in the next section.

### **5. The Evolving Unit As Evidence Against Epiphenomenalism**

Robinson claims (p. 29) that ‘evolutionary considerations can have no part in explaining why we have qualitative events [that is, consciousness] at all’, but he offers no reasons why this must be so. In fact, it is incorrect, because evolutionary considerations, such as James argument, provide evidence that consciousness does have biological value. Indeed, when we examine all the evidence we find that it is rather strong.

When considering evolution as evidence of biological value we need to be quite clear about what is evolving. Humans and other organisms change over time as a result of evolutionary processes, but the changes occur at a much finer level than the entire organism. Any organism gains fitness through natural selection as a result of beneficial changes in its components, which might, for example, be improvements in body colour (for camouflage) or limb length (for faster movement). An organism evolves as the sum of the evolutionary changes in its component parts. Similarly, consciousness evolved over time as a result of changes in its components. Hence, if we are to look for evidence of biological value based upon evolutionary considerations, we need to be thinking about the fine structure of consciousness. We need to look at the qualia of our experiences and ask whether these offer evidence for biological value.

Qualia are components in consciousness, but are not general properties of neurons. Qualia somehow result from the normal electrochemical events in complex neural arrays, but they are not properties of individual neurons. Qualia are a very different representation of data from that generally occurring in neurons.

Qualia have resulted from a very complex evolutionary development in the brain. The question is whether this development occurred because of the adaptive value of qualia, or whether it evolved for other purposes, with qualia as a by-product, as epiphenomenalists claim. Since qualia are such a surprising property of the brain, the ‘evolution for qualia’ hypothesis is a simpler and more likely explanation than the ‘by-product’ hypothesis, which asks us to believe that such unlikely properties occurred by chance without having any biological value. The ‘by-product’ hypothesis must therefore be regarded as

being less parsimonious, and, as such, less attractive to scientists than the 'evolution for qualia' hypothesis.

Not only are qualia surprising effects of neural structures, but the variations among qualia are even more surprising in their complexity, for example, the qualia of visual experience include the colour spectrum, with varying colour saturation and dark-light contrast. All these occur as a result of evolved neural structures, and the possibility that they are chance side-effects must be virtually zero. But consciousness is still more complex, being made up of the entire range of visual, auditory, gustatory, tactile, and feeling qualia, and so on, together with their interrelationships in three dimensions. Consciousness is an extremely complex evolved property. Whenever we see such a complex property of a living organism, we know that it must contribute in some way to the organism's biological fitness, or to have contributed to fitness at the time it evolved. That being so, we can be confident that consciousness, too, improves the biological fitness of its possessors, and that it must do so by useful contributions to behaviour.

## 6. Conclusions

Robinson concludes, that (p.41), '... certain cases that are conceived as causation of behaviour by qualitative events [that is, experiences] or occurrent beliefs are better regarded as cases in which the qualitative events or occurrent beliefs and the behaviour are coeffects of neural events.'

This claim, that the neural processes underlying consciousness are adaptive, whilst consciousness itself has no effects at all, fails because he omits to offer a shred of actual evidence in support of it. This view is no more than his personal belief, and, as Robinson has warned us, beliefs are prone to error.

James wrote that the fact that pleasant feelings are generally experienced in relation to what is beneficial to us, and unpleasant feelings are generally experienced in relation to what is noxious, is evidence that consciousness evolved and must influence behaviour. At the end of Robinson's paper, James' evidence still stands, effectively unchallenged. Indeed, these feelings are just one component of the very complex structure of consciousness. And the complexity of consciousness, and the complexities of its components, are clear evidence that consciousness is a property that has evolved in many stages, and therefore must have biological value.

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