MINDS AND MACHINES:
A RADICAL DUALIST PERSPECTIVE

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Abstract: The article begins with a discussion about what might constitute consciousness in entities other than oneself and the implications of the mind–brain debate for the possibility of a conscious machine. While referring to several other facets of the philosophy of mind, the author focuses on epiphenomenalism and interactionism and presents a critique of the former in terms of biological evolution. The interactionist argument supports the relevance of parapsychology to the problem of consciousness and the statistical technique of meta-analysis is cited in support of this position.

There is only one entity in the universe to which we can with certainty ascribe consciousness and that is oneself. Thus, I cannot be certain that you who read these lines are conscious — you may, for all that I can prove to the contrary, be an insentient automaton programmed by nature to behave as if you were conscious. Naturally, I could never seriously entertain such an absurd idea. Other people resemble me so closely, in so many essential ways, that I would have to be psychotic to doubt that they resemble me also in being conscious.

But, what about animals? Descartes played with the hypothesis that animals might conceivably be just animate machines, devoid of all consciousness — although I do not doubt that he treated his horses and his dogs as humanely as the next man. We, at least, cannot doubt that, if we hurt an animal, it suffers. But, as we descend the phylogenetic scale, uncertainty begins to creep in. I sometimes have my doubts about insects. Certainly I have no compunction about exterminating earwigs or cockroaches, and, when it comes to unicellular organisms, I am confident that they are devoid of all consciousness whatever. I would likewise want to withhold attributing consciousness to the entire plant kingdom. Thus, when it comes to consciousness, we seem to operate by analogy: the closer the fellow feeling, the more sure we are that the other party, too, is conscious; the more alien the other party, the less we are inclined to assume that it is conscious.

What about computers? They are man-made and we do not expect our artefacts to possess properties that were not part of their design. We can, moreover, switch them on or off as we please. Thus the disanalogies are very salient. Nevertheless, I do not think it is absurdly far-fetched to suppose that the computations which they perform might conceivably be accompanied by a stream of consciousness of some sort. On the other hand, this supposition may seem somewhat gratuitous since it would add nothing to the efficient working of the machine if it were so endowed. However, at least this cannot logically be ruled out. Indeed, if future generations of computers and robots should intrude in an increasingly intimate way into our lives, we may find it hard to resist endowing them with thoughts and feelings, much as a small child is apt to do with a very lifelike doll.

On the other hand, I strongly suspect that those who talk about 'conscious machines' are actually thinking about 'ultra-intelligent machines'. By this expression I understand a hypothetical machine which could surpass in every respect the cognitive capacities of a human being. This is an interesting question and one well worth discussing but it is, alas, a question on which I am not qualified to express an informed opinion. Conse-

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quently, in what follows, I shall take the title of this paper quite literally and talk about the prospect of there being machines which are conscious in the same sense in which we can say that you and I are conscious.

So far we have discussed only the question of attribution, that is the question of what makes us inclined to attribute consciousness to another entity. We must now pass on to the more profound but contentious question of the mind–brain relationship and its implications for the concept of a conscious machine. There are, I shall argue, two and only two viable views of the mind–brain relationship: epiphenomenalism and interactionism (or, as I prefer to call it, 'radical dualism').[2] This may strike the reader as a highly presumptuous statement in view of the fact that so many advanced thinkers today profess some version of materialism (cf. Dennett, 1991). However, to deny, as Dennett does, that there are any private subjective experiences, as we assume when we talk about our sensations, thoughts or feelings, is, as Dennett himself admits, so counterintuitive that I am content to address myself to those who, like me, accept the reality of these purely mental entities and hence the irreducibility of consciousness.

Let us then consider, first, epiphenomenalism. According to this doctrine it is just a brute fact of nature that certain physical processes, notably certain brain processes, are accompanied by a stream of consciousness or, if you prefer, of subjective experiences. Things could have been quite otherwise. We would have been just as successful, biologically speaking, if we had evolved as insentient automata provided only, of course, that our brains were no less efficient than they now are. And, if, by this reckoning, it is just a brute fact that consciousness accompanies certain brain processes then it is arguable that consciousness might accompany other physical processes — notably the activation of certain computer circuits in the case in question. According to the alternative doctrine, i.e. radical dualism, consciousness is a sign that something other than the brain — call it mind, soul, spirit or whatever — is using the brain to interact with the physical world.

Those, I submit, are the only two options I propose to consider. It may, as I say, strike you as presumptuous considering that so much of the philosophy of mind over the past century has been devoted precisely to denying that this is the choice that confronts us. We have, after all, been exposed to behaviourism, neo-behaviourism, linguistic behaviourism, mind–brain identity theory and, latterly, to the varieties of functionalism which take their cue from artificial intelligence. I must insist, nevertheless, that none of these theories can count as solutions to the perennial mind–brain problem; they are, rather, evasions of the problem. They provide various linguistic formulae for sustaining the pretence that there is no problem as traditionally supposed. However, since they all involve a denial that subjective experience constitutes an irreducible datum, they must be deemed to fall at the first post.

The question, then, is whether the concept of a conscious machine is compatible with either of the two theories of the mind–brain relationship that we have described. Let us consider, first, epiphenomenalism. Since, as we have said, it is a purely gratuitous fact that we ourselves are conscious at all, it does not seem any more gratuitous to suppose

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[2] In addition, there is, of course, the whole idealist tradition which enters Western philosophy with Bishop Berkeley but which has always been a feature of Eastern philosophy of the Hindu and Buddhist variety. Idealism has even enjoyed a revival in recent times in the wake of some interpretations of quantum theory which make a feature of the observer in determining the outcome of a measurement. To me, however, the idea that the vast physical universe, including my own brain, not to mention the hardware of my computer, has no independent existence apart from a conscious observer appears so absurd that it can be dismissed out of hand, despite its many defenders. At all events, I shall ignore it in what follows.

that machines might likewise be conscious even though this would add nothing whatever to their functional efficiency. On the other hand, if we adopt a radical dualist theory, this supposition becomes much more questionable. In the first place, on this view, it would be plausible to suppose that the brain is not a completely self-sufficient or self-regulating system but actually requires the intervention of mind to function effectively. Indeed, from the evolutionary standpoint, it would make sense to assume that organisms in general must have needed this strange symbiotic relationship with mind to survive and flourish; indeed that the whole evolutionary process in animals could not have advanced without the intervention of consciousness. We should also note that our minds develop as the brain with which they interact develops. In the case of computers, however, no such symbiosis would obtain. The computer, presumably, would function perfectly the first time it is put into operation. If we were now to suppose that, at this point, for no reason at all, a mind somehow intrudes — a ghost in the machine if ever there was one! — only then would we be justified in ascribing consciousness. But I think you will agree that, if the notion of consciousness in a machine is tenable at all, it is much more plausible given an epiphenomenal view of the mind–brain relationship than it is from a radical dualist perspective, since, according to the former doctrine, consciousness plays no part in our own mental processes. Let us therefore, consider the relative merits of these two compet-ing doctrines.

The basic weakness of epiphenomenalism lies, I would say, in its implications. Now, I do not altogether agree with William James who insisted that everything in nature must have a purpose. It strikes me that nature and evolution become at times so exuberant as to overshoot the mark. An evolutionist would, indeed, be hard put to show that every property we find in every organism is strictly necessary in its struggle for survival. For example, anthropologists seem agreed that the human brain has not continued to evolve since pre-historic times. But, if that is so, then, among our prehistoric ancestors, there must have been much the same proportion of potential scientific or mathematical gen-iuses as there are today. Yet, as Arthur Koestler pointed out, what conceivable use would it have been to possess such a brain at a time when survival depended on successful hunting?

Now it could be that consciousness emerged, for no reason whatsoever, at some point in the evolutionary process, as an unexpected bonus. But if that is so it follows that the whole of history could have unfolded exactly as it has done except that no-one would ever have been aware — in the true sense of awareness — of anything that transpired! Such an hypothetical universe, objectively no different from our own, would be bereft of all sights, sounds, feelings, thoughts — everything in short that we associate with conscious-ness. Nothing, surely, could be more bizarre than that.

The reason why epiphenomenalism has persisted so successfully in spite of this inherent absurdity is partly because the alternative strikes many today as even more weird and partly because the intimacy of the mind–brain relationship, on which it takes its stand, is something we can all easily appreciate. As the brain develops, so does the mind, if the brain is injured, so is the mind, when the brain decays and dies so, it seems, does the mind. In the light of these blinding truths, the absurdity of epiphenomenalism is readily overlooked and our mental life is taken as no more than a passive reflection of what is going on in the brain. Yet, not only is epiphenomenalism absurd, it is radically counterintuitive. Our language, along with all the assumptions on which our social life is based, presupposes that we are responsible for what we do, in other words that free will is not just a subjective illusion.

Turning, now to the radical dualist alternative, its besetting weakness lies in the fact that we lack a natural history of mind to complement our natural history of bodies and brains. Science, after all, has had very little to say about the nature of mind as such. Even after a science of experimental psychology arose, it concentrated on phenomena that were grounded in physiology. It was thus left largely to metaphysics or religion to elaborate on the nature of mind as such with the result that radical dualism came to be regarded as anti-scientific or obscurantist. I think this is a mistaken view and, in due course, I shall argue that the true science of mind, as distinct from the mind–body ensemble, is not psychology or psycho-physics but parapsychology. In the meanwhile I would point out that there are many well-established facts concerning normal mental processes, in perception, memory, volition etc., that are not easy to reconcile with conventional neuroscience. I cannot elaborate the point here but I would like to draw attention to a book, *The Self and its Brain*, the work of two authors, the philosopher Karl Popper and the neurophysiologist, John Eccles, which elaborates on this theme. Without ever going beyond conventional science or straying into the sphere of the paranormal, it provides some striking arguments which, if they cannot refute, at least cast doubt on the reductionist approach in favour of what they call interactionism and we are here calling radical dualism (Popper and Eccles, 1977).

Although so many scientists are content to ignore the parapsychological evidence, it is, I think worth mentioning that Alan Turing himself, the father of artificial intelligence, recognized that it had a bearing on the debate about minds and machines. In a paper he published in *Mind*, at the very dawn of the computer age, with the title 'Computing Machinery and Intelligence' (Turing, 1950) he discusses the question as to whether a computer could ever rightly be considered as intelligent in the full sense of the word. He introduces what he calls 'the imitation game'. The point is that, if we cannot guess whether the replies we get to questions that we pose emanate from a computer or from another human being, then we are obliged to attribute intelligence, in the full sense of the term, to the machine. Turing was confident that, by the end of the century, such a situation would be a reality and, to some extent, at least, events have justified his prescience. Artificial intelligence has undoubtedly been one of the success stories of this century.

Turing then discusses nine distinct counter-arguments for withholding the attribution of full intelligence to such an hypothetical computer. The first eight of these he rebuts to his own satisfaction. For example, on the question of consciousness, he argues (wrongly in my opinion) that to deny consciousness to a computer, no matter how intelligently it behaved, would lead one into a solipsistic position since one would then have no logical grounds for attributing consciousness to other people. (The force of this argument presupposes an epiphenomenalist view of consciousness which we are here challenging). He comes finally to argument nine and there he admits that he is stumped. This he calls the argument from extrasensory perception. Thus, given that you had a human being gifted with ESP in one room and a computer in another, the player in his imitation game could ask the two candidates to guess a given sequence of cards. Since the computer, using a random number generator, would be able to guess only at chance levels it would soon become clear which of the two was the human being and which the computer. 'Unfortunately', writes Turing, 'the statistical evidence, at least for telepathy, is overwhelming'.

Turing's article was reproduced in a compilation edited by Douglas Hofstadter and Daniel Dennett, which they called *The Mind's I* (Hofstadter & Dennett, 1981). They must have been somewhat embarrassed by Turing's endorsement of ESP as they append a rather fussy little note at the end of his article to reassure the reader that the evidence for

ESP is now no stronger, thirty years after Turing wrote his paper, and, I quote, that 'the majority of physicists — and certainly the majority of psychologists, who specialize in understanding the mind — doubt the existence of extrasensory perception in any form'. What Hofstadter and Dennett should have said, of course, is that the reason why scientists and psychologists continue to doubt the reality of the paranormal is not the lack of evidence — in fact the statistical evidence now compares favourably with that which underlies many of conventional psychology's claims. It is, rather, because psi phenomena (as the parapsychologists call them, meaning ESP or psycho-kinesis (PK)) upsets the physicalist applecart. By definition they are not amenable to explanation in neuro-scientific terms as currently understood.

This is not the place to discuss the evidence for psi but I would like to point out that, during the past five years or so, certain researchers have gone to the considerable trouble of carrying out what, in the trade, is known as a 'meta-analysis'. It consists of combining all known experiments on a given phenomenon (such as the forced choice ESP test, which is what Turing had in mind) using a given technique. Now, the advantage of a meta-analysis is that it permits one to estimate the overall significance, as well as the overall effect size, of the experiments in question. The results show that, even when a generous allowance is made for possible unpublished or unknown experiments which may have failed to reach significance, the overall significance for a variety of phenomena or techniques is astronomical. Such meta-analyses are now available for ESP (both of the forced-choice and open-ended variety) and for PK (both of the old-fashioned dice-throwing variety and the now dominant electronic random number generator variety). Furthermore, when a breakdown is carried out, by having the experiments in question independently rated for the rigour of their methodology, there is no evidence that the overall significance depends on the weaker or more questionable experiments (Utts, 1991). In short, then, the only serious reason today for doubting the existence of the paranormal is that it upsets the received world view.

The relevance of parapsychology to the problem here at issue should now become apparent. If it is the case that a mind can, on occasion, extract information from an object other than its own brain and, if it is the case that a mind can influence intentionally the behaviour of an object other than its own brain, it would be futile to doubt that a mind can interact with its own brain in the ordinary course of life. But this is precisely what interactionism or radical dualism asserts and what epiphenomenalism denies. And since, for reasons I have already mentioned, it is much harder to reconcile the existence of conscious machines with radical dualism than it is with epiphenomenalism, it follows that the prospect for conscious machines, in the literal sense of this term, must (*pace* Turing) be considered very dubious.

One would be hard put to think of any question of fact that has more far-reaching philosophical and cosmological implications than the existence or non-existence of paranormal phenomena. Yet, such is the reluctance to taking such phenomena on board, that no research council or other official fund-giving body would currently dare to finance parapsychological research — at any rate not unless it is heavily disguised as something else, e.g. the psychology of belief and illusion. Such research has only been kept going at all over the past century through private initiative and private benefaction. What is remarkable in the circumstances is not, as Hofstadter and Dennett would have us believe, that so little has come of it but rather that so much has already been achieved by the few who were undaunted.

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