

Science and meaning

Nicholas Maxwell on why physics can coexist with consciousness

Published in *The Philosophers' Magazine*, Spring 2002, pp. 15-16.

How can we understand our human world, embedded as it is within the physical universe, in such a way that justice is done to both the richness, meaning and value of human life on the one hand, and what modern science tells us about the physical universe on the other hand?

The solution to the problem, as I see it, is a new version of an old idea, which goes back at least to Spinoza, and is sometimes called the *two-aspect theory* or *property dualism*. According to this view, there are two aspects to what exists, the physical on the one hand, and the mental, experiential or human on the other. Everything that exists has a physical aspect. Some things also have experiential or human aspects. Thus flowers have colours and smells. People have thoughts, feelings, inner experiences; they have personalities imbued with features of value, such as courage, meanness or kindness, and live lives more or less meaningful and of value. None of these experiential or human features is reducible to the physical.

A simple argument, usually attributed to Thomas Nagel and Frank Jackson (but actually first spelled out by me several years earlier) establishes that an elementary experiential property, such as *redness*, cannot be reduced to the physical. Being blind from birth does not debar one from understanding the whole of physics. It does, however, debar one from knowing what redness is, the colour that we see and experience. In order to know what that brilliant red colour of poppies *is*, you must yourself, at some time in your life, experience the visual sensation of redness. In short, being congenitally blind does not debar you from knowing and understanding everything that can be predicted by physics, but it does debar you from knowing or understanding what it is for a poppy to be red; hence the redness of the poppy cannot be predicted by physics. Colours, sounds, smells, tactile qualities, sensations, feelings, thoughts, and a multitude of other experiential, human features of things and people, lie irredeemably beyond the scope of physics.

This should occasion no surprise. Physics (and all of natural science reducible to physics), is concerned only with a highly selected *aspect* of what exists, namely that aspect which determines (perhaps probabilistically) the way events unfold. Physics, one might say, is concerned only with the *causally efficacious* aspect of things, an aspect which ultimately, we may conjecture, everything has in common with everything else.

Suppose physics one day completes its task of discovering the true "theory of everything" which, in principle, predicts and explains all phenomena. Given any isolated system, this theory, together with a precise specification of the instantaneous physical state of the system, would (in principle) predict all future states of the system, as long as the system remains isolated. Such a theory would clearly be complete and comprehensive in a dramatic and extraordinary way.

But, despite this, the theory might well not predict all facts about a system. It predicts only those facts that need to be specified (at any given instant) for further predictions to be made. All facts and properties which do not need to be referred to for the above kind of predictive task to go ahead, are ruthlessly excluded from physical descriptions.

Thus, suppose the isolated system is a space capsule with a conscious person inside. The physical state of the capsule, and the physical state of the person's brain and body, are

included in any complete specification of the physical state of the system, used to predict future states, described in similar terms. But colours, sounds, the astronaut's sensations and thoughts, the meaning of what he says or writes in his diary, are all excluded from the physical description because these are not required for the predictive task of physics to go ahead. Physical aspects of these experiential, human features are, of course, specified: light of such and such a range of wavelengths, sound waves in the air, neurological processes in the astronaut's brain, ink marks in the diary - all specified in terms of the instantaneous states of fundamental physical entities. But the experiential, human aspects of these physical processes receive no mention, because they are not required for the predictive task of physics to succeed.

But could one not develop an even more comprehensive theory than the physical "theory of everything", by adding on additional postulates which correlate physical states of affairs with experiential features - redness, the sensation of redness, and so on? This new theory would be really complete and comprehensive: it would predict everything, the physical *and* the experiential.

But a terrible price would be paid. The new theory would not be explanatory. In turning the *physical* "theory of everything" into a *real* theory of everything, one would have to add on endlessly many postulates linking the physical and the experiential, each one of which would be incredibly complex. Even the postulate linking physical states of affairs to a particular hue of red would be extraordinarily complex. The number of such incredibly complex additional postulates is endless, as becomes apparent when one considers the diversity and richness of our human experiential world, and adds on to that experiences of other sentient creatures, actual and possible. The *physical* theory of everything will be explanatory because, like existing physical theories, it will have an extraordinarily simple, unified basic structure. The *real* theory of everything will, by contrast, have billions, possibly even infinitely many, distinct postulates, each one of horrendous complexity. Such a theory might predict, but it would be hopelessly non-explanatory.

We have, here, then, an *explanation* as to why physics is silent about the experiential. Leaving out the experiential from physics is the price that must be paid if the beautifully explanatory theories of physics are to be developed. Physics is silent about the experiential, not because it does not exist, but because (1) physics can perform its predictive tasks without mentioning the experiential, and (2) bringing in the experiential destroys utterly the explanatory character of physics. The silence of physics about the experiential provides no grounds whatsoever for holding (as some suppose) that the experiential does not really, objectively exist.

But can one really believe that colours, and other perceptual qualities, as we experience them, really do exist out there, objectively, in the world (even when no one is around to experience them)? Before answering this question, it is important to appreciate that two quite different meanings can be given to "objective". In the first "existential" sense, something is objective if it exists, but subjective if it appears to exist but does not. In the second "human-related" sense, something is objective if it is such that it is unrelated to humans, subjective if it is such that it is related to humans. Colours are objective in the first sense, but subjective in the second sense. In order to perceive colours as we (normally sighted human beings) perceive them, you must have our physiology; this makes colours peculiarly related to us (or to beings like us), and thus subjective in the second sense. But it is perfectly compatible with this that colours should exist objectively, in the first sense. It is only if one fails to distinguish these two senses of "objective", that the realization that colours are peculiarly related to us will force one to conclude that they are subjective, and thus not really existing out there in the world.

Our inner, conscious experiences may seem inherently and profoundly mysterious for the following reason. We seek to explain and understand conscious experience by calling upon the very best mode of explanation available, namely scientific explanation. The result is that consciousness seems to disappear altogether, and we are left with neurons, synaptic junctions, the incredibly complex physical structure that is the brain, but nothing apparently remotely like a conscious experience. In this way, invoking the best mode of explanation around seems to annihilate consciousness altogether. Consciousness seems inherently resistant to explanation.

Above, we saw that there is a reason, an explanation, for this stubborn refusal of consciousness to submit to being understood scientifically. It is not that there is something inherently inexplicable about consciousness; rather, consciousness, like colour, is just the kind of thing that physics can ignore without undermining its predictive programme, and must ignore if it is to develop its astonishingly explanatory theories. Once this point is appreciated, consciousness no longer seems quite so bafflingly incomprehensible.

But there is more to be said about the comprehensibility of consciousness. For, in addition to scientific explanation, there is a quite different kind of explanation and understanding, which may be called "personalistic" or empathic understanding. We understand another personalistically by imagining that we are the other person, experiencing in our imagination what the other person experiences, sees, feels, desires, believes, fears, plans and intends.

Many psychologists and artificial intelligence experts characterize personalistic understanding rather dismissively as "folk psychology", a precursor of a proper scientific psychology. But this does not do justice to the fundamental status of personalistic understanding. It is basic to our existence as conscious human beings. Bereft of it, we would be deprived, not only of friendship and love, but of communication, language, cooperation, and even science. Far from being a precursor of science, science itself presupposes and rests upon scientists acquiring personalistic understanding of each other. Personalistic explanation is compatible with, but not reducible to, scientific or physical explanation (because it presupposes the experiential which is not, as we have seen, reducible to the physical).

In order to understand our minds, and the minds of others, we need to avail ourselves of personalistic understanding. Consciousness, though resistant to scientific explanation (for the reason given above) can be understood, up to a point, personalistically.

Recognizing the authenticity of personalistic explanation, and its irreducibility to physical explanation, provides a new approach to the problem of how we can have free will in the physical universe. Free will is the capacity to achieve what is of value in a wide range of circumstances. This requires that appropriate, freedom-ascribing personalistic explanations of what we do must be true. When it comes to our free actions, physical and personalistic explanations must subtly and intricately intermesh, so that reasons for our actions match their causes, and indeed, in a sense, *are* their causes.

What is so extraordinary about us is that we are doubly comprehensible - comprehensible physically and personalistically. Our world is riddled with double comprehensibility.

Suggested reading

The Human World in the Physical Universe: Consciousness, Free Will and Evolution,
Nicholas Maxwell (Rowman and Littlefield)

Historical note

The papers that preceded Nagel's 'What is it like to Be a Bat?' by eight years and Jackson's 'What Mary didn't Know' by sixteen are 'Physics and Common Sense', *British Journal for the*

Philosophy of Science 16 (1966) and 'Understanding Sensations', *Australasian Journal of Philosophy* 46 (1968).

When I recently drew Nagel's attention to my papers he remarked in a letter "There is no justice. No, I was unaware of your papers, which made the central point before anyone else". Jackson acknowledged that he had read my 1968 paper.