

Philosophical reductionism in psychology

Philosophical reductionism is the attempt to explain 'high level' phenomena such as social behaviour in terms of more fundamental processes such as individual cognitions and, more fundamentally, in terms of brain structures, biochemical processes and genes. Critics of philosophical reductionism are often objecting to the fact that explanations of human behaviour lose their meaning when reduced to more fundamental processes. Legge (1975) gives the example of signing one's name. It is possible, in principle, to explain name-signing in terms of the pattern of muscular movements and neural impulses that give rise to it. This would be a sort of reductionism.

However, in the course of reducing name-signing to nerves and muscles, what is lost is the *meaning* of the activity. When a person signs their name they are doing all sorts of other things besides moving their hand. They may be asserting their identity or formalising a promise, for example. Consequently, the attempt to reduce the social/psychological to the biological loses the important thing that is happening. Name-signing must be understood in relation to the intentions the person has when they do it, and the system of social understandings, norms, conventions and laws in which it takes place. So anti-reductionists would argue that the psychological and social aspects of name-signing are *irreducible*.

The anti-reductionist argument is strengthened the fact that a person can sign their name in many different ways - using a pen, or a crayon, or their finger dipped in paint or by holding the pen in their mouth or between their toes. In each case, the muscular movements and neural signals involved would be different, and yet the social meaning of the act of signing could be the same. Similarly, Fodor (1981) argues that a person's mental states cannot be reduced to the physical activity of their brain. Two people might both thinking '2+2=4'. The mental state is the same in each, but the physical arrangements of the neurons and synapses in their brain, or their pattern of activation would not be. The fact that the same mental state can have multiple physical realisations implies that philosophical reductionism does not work.

In opposition to this type of view, Walsh (1997) argues that reductionism is fundamentally necessary to social science but that it has been misunderstood and frequently misrepresented by anti-reductionists. Walsh draws on Dennet's (1995) distinction between 'greedy reductionism' and 'good reductionism'. 'Greedy reductionism' is the approach in which theorists attempt to construct explanations for behaviour using causal chains that go all the way down to atoms and molecules. It leads theorists to make claims like, "Our behaviour is controlled by molecules - nothing else." (Applewhite, 1981, p1). Greedy reductionism, says Walsh, is generally absurd. It is obvious, for example, that one can't understand a poem by studying the letters and words that make it up (although the existence of the poem still depends on the existence of those words and letters). The problem is that anti-reductionists assume that *all* reductionism is greedy reductionism, and it isn't. In fact, greedy reductionism is not a position that many reductionists take seriously at all.

'Good reductionism' occurs when more fundamental levels of explanation are used to shed light on higher level explanations. For example, a sociologist might ask why crime rates are higher in the US than Japan. The sociologist might explain this variation in terms of social, cultural and political factors. A psychologist could add to this explanation by investigating how individual differences in, for example, aggression or conformity contribute to the difference in crime rates. It might even be possible for a biologist to contribute to this understanding if it could be established that, say, a genetic difference between the populations of US and Japanese societies was in some way involved. What is important is that neither psychology nor biology would be 'explaining away' the social differences identified by sociology. Instead, they would serve to add useful dimensions to the sociological explanation.

Walsh suggests that anti-reductionism represents a sort of scientific immaturity, which tends to hold up progress in understanding. Unless theorists are prepared to consider more fundamental levels of explanation, they run the risk of merely *describing* what people do, rather than *explaining* why they do it.