

Causes and Intentions

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Daniel Dennett's theory of intentionality has much to recommend it. Nevertheless, it could be significantly strengthened by addressing the causes of intentionality, that is, the mechanisms underlying intentional behavior. I will discuss three problems that a causal theory of intentionality could alleviate: attribution of rationality (or optimality), alternatives to sentential representation, and directedness of consciousness.

According to Dennett (p. 15) intentionality is the characteristic property of intentional systems, which are systems whose behavior can be accurately predicted by adopting the intentional stance. The intentional stance makes its predictions by assuming the systems is "rational" or "optimal." There are several difficulties with this assumption, as Dennett is aware (pp. 53-54, 98, 255, 259, 295-297). First, rationality is in the eye of the beholder: the meaning of intentional states is relative to their interpreter. In an attempt to establish an objective basis for such meanings, Dennett appeal to the "eye" of a special interpreter: Mother Nature (pp. 298-300). Dennett is on the right track here, but had he gone a little further he could have avoided the dubious practice of treating nature as an intentional agent.

The second problem with the required attributions of rationality and optimality is that they make it difficult to account for the many observed irrational and suboptimal intentional systems. Many (most?) organisms, beliefs, behaviors, customs, species, practices, theories, and so forth, are neither fully rational nor optimal. Yet they survive and even spread. Why?

This question is answered by the theory of nonequilibrium thermodynamics (Nicolis & Prigogine 1977; Prigogine & Stengers 1984). Briefly, the second law of thermodynamics says that in the absence of a flow of matter or energy, structure decreases

(i.e., entropy increases). Thus, when structure persists or increases, there must be some mechanism that causes a flow of matter or energy and hence a local decrease in entropy. A nonequilibrium system must be structured in such a way that it can draw matter or energy from its environment and thereby postpone its approach to equilibrium. The key point is that intentional systems, such as animals, plants, species, societies, customs, and behavioral patterns, are all nonequilibrium systems. The intentional stance is really a very simplified and idealized nonequilibrium thermodynamics.

There are several advantages to the thermodynamic approach. First, the notion of a nonequilibrium system is as objective as thermodynamics itself (cf. pp. 32-33). Second, maintenance of the nonequilibrium state provides a more objective basis for "natural functional meaning" than does trying to "read Mother Nature's mind" (cf. pp. 298-300). Third, the thermodynamic approach is more fruitful, since it provides a basis for identifying the mechanism that keeps the system from equilibrium. Science prefers causal explanations to behavioral descriptions because knowledge of causes gives a deeper understanding of the phenomena (Aristotle Posterior Analytics, 71b9-13; See also Cartwright 1983). Finally, the over-idealizing assumptions of rationality and optimality are replaced by a (causally explicable) tendency to avoid equilibrium (cf. pp. 53-54, 255, 259).

Dennett discusses (pp. 217-255) tacit knowledge, but does not give it its due. His analysis, like most in the literature, is hampered by an inability to imagine any mental representation that is not in essence linguistic (pp. 35, 232). This is hardly surprising in view of the Anglo-American tradition's neglect of ready-to-hand experience (Heidegger 1962, p. 98).

No longer is the linguistic paradigm "the only game in town" (p. 35). The rapidly developing theory of neural networks has the potential of providing a nonlinguistic account of knowledge (see for example Rumelhart, McClelland & al. 1986). What is most exciting is that it may explain the mechanisms underlying tacit knowledge, including linguistic behavior (MacLennan 1988).

Will neural network theory, or any form of eliminative materialism (Churchland 1979, p. 5; 1984, pp. 43-49), better "folk psychology" in its ability to make concrete behavioral predictions? Probably not. A more reasonable expectation is that neural network theory may explain the causal mechanisms underlying important mental phenomena (such as concepts and beliefs). We shouldn't be disappointed at this outcome, since causal explanations give a deeper understanding than predictive

calculi. For concrete predictions it will be hard to improve on our ready-to-hand understanding of other people. (See Churchland 1986 for more on the potential contributions of neuroscience to philosophical problems.)

To Brentano (1925) intentionality is "a direction upon a content"; Husserl (1931, 84) understands it as "the unique peculiarity of experiences to be the consciousness of something." Over the years the study of this important phenomenon has been replaced, at least in the Anglo-American tradition, by an emphasis on linguistic issues (such as referential opacity). This emphasis may prove to have been misplaced if in fact tacit knowledge is presupposed by sentential knowledge (MacLennan 1988). Although Dennett acknowledges this possibility (pp. 100-101, 201, 220-223), he never completely breaks free of his sentential biases (pp. 35, 56, 100-101, 224).

Things brings me to my final criticism of Dennett's instrumentalist theory. Because it treats intentional systems as "black boxes," it cannot even address what is perhaps the central problem of intentionality: How is it possible for a mass of neural tissue to be aware of something? Answering this question requires a causal theory of intentionality, that is, an explanation of the mechanism by which brains produce the phenomenon of directed consciousness. I do not see how this can be accomplished except through some form of eliminative materialism.

The benefits of a causal theory of intentionality would be many. Once we understand the mechanism by which consciousness is produced, the question of whether this or that animal is conscious reduces to seeing if it has the requisite structure (cf. pp. 254, 272-276). Consideration of the mechanism will also establish whether computers can be conscious (cf. pp. 323-337; Searle 1980). Questions of levels of intentionality (pp. 243-250) and privileged access (pp. 312-313) are similarly answerable with a causal theory.

Is there any hope for a causal theory of intentionality? It is certainly a long way off. But, in the meantime, instead of replacing the hard but interesting causal questions with more tractable but less interesting instrumentalist questions, perhaps we should simply say "Ignoramus."

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