

science, to be ultimately successful, needs to provide a deterministic account of a *mechanics of thought*—that is to say, an account of a thought process as a strictly mechanistic causal process. To provide such an account would be the intimate joining of *thinking* with the physical system (neocortex) that *implements* that thinking. This seems to require the mind to be computerlike, and there is strong scientific dissent on this matter (cf. Roger Penrose's two recent books *The Emperor's New Mind* [1989] and *Shadows of the Mind*, as well as Jack Copeland's excellent introductory work *Artificial Intelligence: A Philosophical Introduction* [1993]). This debate is certainly worth the Christian's watching and participation. Thus far it is safe to say there is no such thing as the procreation of a thinking machine—no such thing as *artificial* intelligence, but work in this area sharply focuses attention on human nature and the nature of rationality as a cause of behavior.

causal theory of knowledge: any theory of knowledge acquisition that focuses on the entire etiology or causal origin of the ideas we take for knowledge. According to causal theories it is the environment's causal interaction with the brain that produces whatever genuine knowledge we have. At present, we are very far from a successful formulation of a strictly causal theory of knowledge. One primary problem with pure causal theories remains the irreducibility of the mental to the physical.

cognitive: pertaining to cognition (sensory or verbal), or in general, telling truth from falsehood by some degree of rational attention.

cognitive architecture: the actual neural organization responsible for the flow of information in the brain. Artificial intelligence has put forth two such architectures: classical computational architecture and connectionist architecture (also called parallel distributed processing).

cognitive competence/ability: the ability to perceive, believe, and know by virtue of one's cognitive architecture.

cognitive link: the idea here is an actual *connection* between the structures of the mind-brain and the extra mental reality that impinges upon it, resulting in cognition. For example, in visual cognition light energy is converted by the optical system into electro-chemical energy which the brain "synthesizes" as a phenomenal visual manifold. A similar story holds