The Self
Based on *Synaptic Self* by Joseph LeDoux (2002)
With elaboration by Jay Gould 12/15/04

The big question in neuroscience: How does the sense of self (not just mind and consciousness) emerge effortlessly from the electrochemical activities of the protoplasmic mass of one’s brain? (pp. 10, 12, & 301) {Note: all italics are mine.}

Your self, the essence of who you are (your personality, etc.), reflects patterns of interconnectivity between neurons in your brain—i.e., your synaptic interactions: You are your synapses. (pp. ix, 2, 4, & 12)

“The self is the totality of what an organism is physically, biologically, psychologically, socially, and culturally.” (p. 31, see also p. 26)

The self is the result of the interaction of nature (genetic inheritance) and nurture (experience, learning, and memory—both explicit and implicit). (pp. 9-30 & 307)

The self is a dramatic ensemble of various aspects that are not usually manifest simultaneously. (p. 31)

The self involves both explicit/conscious aspects (e.g., self-awareness and self concept) and implicit/unconscious aspects (i.e., those not immediately available to consciousness: both preconscious and unconscious in Freudian terminology). (pp. 27, 28 & 31)

“The existence of a self is a fundamental concomitant of being an animal.” Regardless of whether they have the capacity for self-awareness, all animals have at least implicit selves. (p. 27)

“The self can be understood in terms of brain systems involved in learning and storing information, in explicit and implicit systems, about things that are significant in peoples' lives.” (p. 31)

The key to individuality is not to be found in the overall organization of the brain, but rather in the fine-tuning of the underlying networks with their cells and synapses. (p. 36)

“Synapses are ultimately the key to the brain’s many functions, and thus to the self.” (p. 64) “Break the connections, and you lose the functions.” (p. 304)

“Synaptic plasticity occurring in multiple neural systems is coordinated in the process of assembling, and maintaining, the self.” (p. 307) {Note: This involves parallel encoding; convergence and super-convergence zones; bottom-up plus top-down processing--e.g., executive control functions of thoughts in working-memory, i.e., downward causation; as well as emotional states. (pp. 310, & 315-322)}

“We all have the same brain systems, and the number of neurons in each brain system is more or less the same in each of us as well. However, the particular way those neurons are connected is distinct, and that uniqueness, in short, is what makes us who we are.” (P. 303)