1007-92-16 **Robert Hecht-Nielsen*** (`rh-n@ucsd.edu`). *Cortical Neuronal Attractor Network Modules are the Information Processing Units of Human Cognition.*

The speaker's theory of human cerebral cortex and thalamus hypothesizes that these structures are divided into thousands of similar neuronal attractor network modules (with each module containing a small localized patch of cortex, a small localized patch of thalamus, and reciprocal axonal connections between the two). Each module possesses a large, fixed, collection of stable dynamical attractor states termed symbols. Modules carry out only one information processing operation: confabulation (which the talk will define), when commanded. Exactly in analogy with muscles, these cognitive modules must be deliberately controlled with properly timed, phased, and graded command signals: which themselves arise (as do muscle commands) as a result of confabulations in other modules. Each individual item of cortical knowledge is hypothesized to take the form of a unidirectional, highly parallel, two-stage, synfire axonal link between a pair of symbols. Knowledge is acquired by recording meaningful co-occurrences of high activity in such symbol pairs. Results of computer simulations will demonstrate the acquisition of intelligence in a computer-implemented confabulation system exposed to about 8000 books of English text; much in the manner of a human child. (Received November 23, 2004)

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