

# Center for Cognitive Science

University at Buffalo, State University of New York

Presents

## Distinguished Speakers Series

# Terrence Deacon, Ph.D.

Department of Anthropology, Boston University

**Tuesday, April 10, 2001**

Screening Room

Center for the Arts, North Campus

3:30 p.m. - 5:00 p.m.

# Human Brains: The Difference That Makes The Difference

Within the divergent structures of human brains lie the clues to our most unique human abilities: from language to esthetic appreciation. By exploring how human brains structurally diverge from patterns common to other primate and mammal brains we can find hints about which brain differences make the difference. But there are many differences. How do we know which ones matter most? In this presentation I will review some of the evidence concerning these differences, the mechanisms underlying them, and their implications for language functions. By investigating the ways that neurodevelopmental processes have been modified in humans, I will show that our unique abilities have not been produced by the addition of new structures, but rather from subtle modifications of existing primate brain systems. Looking more closely at some of these modifications to the "standard primate brain plan" we find that they correspond closely with some of the most unusual neural demands that are imposed by language processing. Three of these neural adaptations to language are explored: the neural bases for symbolic, vocal, and syntactic abilities. Using these insights I will suggest ways to clear up some confusions about what must be innate and why (or why not), and suggest some unexpected new ways to think about how languages and brains have co-evolved in our prehistory.

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