

Rick Dale - Abstract

### **Meaning Must Be Multimodal**

We consider very general conditions that hold in human brain evolution and its computational implications, and identify multimodal and multiscale organization as two key characteristics of emerging cognitive function in our species. This suggests that human brains, and cognitive function specifically, became more adept at integrating diverse information sources and operating at multiple levels for natural linguistic performance. We argue that a foundation of meaning specifically, and language more generally, must be multimodal and multiscale. We describe directions for new developments in theory and modeling of meaning, and language in general, as an integrated system.

With Chris Kello (UC Merced) and P. Thomas Schoenemann (Indiana).