

The Slow Development of Real Time Spoken and Written Word Recognition

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A fundamental property of language is ambiguity –phonetic categories are rife with variability and overlap, words have multiple meanings, and syntactic phrases can play multiple roles in a sentence. Thus, even skilled language users must deploy sophisticated real-time processes to interpret language in the moment. Typical approaches to language acquisition have focused largely on representation – how do children acquire the words, categories and structures of language? I argue here that a focus on representation cannot be sufficient to explain language development—the inherent ambiguity and context dependency of language means that children must also develop real-time processing skills.

This presentation addresses these issues in the context of spoken and written word recognition. The cognitive science of skilled (adult) word recognition has converged on a clear mechanistic framing built around competition, and the use of eye-movements in the visual world paradigm offers an unparalleled picture of these real-time dynamics. This offers an opportunity to characterize how these processing skills change with development and language disorders. I start with a recent series of studies on the development of these skills and shows that even basic speech and word recognition skills develop extremely slowly—through early adulthood—and may begin to decline as early as middle age. I also discuss work on language disorders which shows a completely different profile of competition. This suggests a multi-dimensional characterization of individual differences in processing (across time and ability). I next present new ways to assess the dynamics of written word recognition using similar tools. Finally, I present preliminary results from a new longitudinal study—the *Growing Words Project*—that integrates these ideas. Growing Words assesses both spoken and written word recognition throughout the school age years and links them to changes in reading, language and cognition to identify potentially causal factors that lead to the differences in real-time language processing.