Cross-domain approaches to the language puzzle

Ries S.a,*, Fischer-Baum S.b

a Psychology Department, University of California, Berkeley
b Department of Psychology, Rice University

Historically, language has been studied in isolation from the rest of the cognitive system. Theories of the representations and processes that are involved in language processing have primarily been developed without considering how these representations and processes relate to other cognitive domains. In recent years, however, there has been increasing interest in understanding how information processing in language relates to these other areas of cognition. The current symposium highlights some of this recent research, with the goal of providing a forum for discussing how our understanding of the representations and processes underlying language may benefit from comparing language with other cognitive functions.

The talks in this symposium present a range of studies that apply this cross-domain approach to the language puzzle. The research discussed here will cut across different levels of the language processing system – from sentence processing, to lexical selection and monitoring, to phonological and orthographic processing. Different researchers have focused more on either representational or processing questions. Finally, we have relied on a range of empirical approaches – neuropsychology, electrophysiology, neuroimaging and behavioral experiments. The common thread among these talks is a belief that cross-domain experimentation can contribute to our understanding of the language system.

In the first talk, Stephanie Ries will present electrophysiological and neuropsychological data that suggests that cognitive control processes in language production depend on brain mechanisms that are partly shared with non-linguistic actions. Dan Acheson will discuss electrophysiological and behavioral data that suggests commonalities in the monitoring processes in language production and those in other cognitive domains. Simon Fischer-Baum will discuss the general principles that underlie the representation of serial order in phonological, orthographic and non-linguistic sequences. Finally, Randi Martin will discuss how, in turn, studying the richness of sentence processing in healthy and aphasic speakers can help inform general theories of working memory.

Cross-domain experimentation provides a tool for addressing how language and other cognitive functions operate. But what do these results really teach us about language processing? The contribution of this approach to the development of psycholinguistic theory will be discussed. Furthermore, we hope that this discussion will be useful to those more interested in questions about evidence-based practice in the treatment of aphasia.

* Corresponding author.
E-mail address: stephanie.ries@berkeley.edu.

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