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ScienceDirect
Brain and Language 99 (2006) 224–225
Brain and Language
www.elsevier.com/locate/b&l

Introduction

Language processing across the life span: New methodologies to study old questions

In November of 2002 a satellite conference was held in conjunction with the 43rd Annual Meeting of the Psychonomic Society in Kansas City. The goal of the satellite conference was to discuss new ways of examining the processes and representations used to comprehend language. Although this goal appears simply stated, there are multiple (perhaps infinite) paths for exploring this cognitive domain that cross various disciplinary boundaries and provide unique perspectives on language processing, but that invariably return us to the fundamental questions of the field.

Our guides on this journey through new and exciting territory were seven scientists who not only provided information about the new tools that could be employed in our research, but also provided examples of the discoveries they had made with these new approaches. A number of these presentations have been contributed to this special issue of *Brain and Language*. Those who presented at the accompanying poster session, who attended the satellite conference, or who have developed or employed novel techniques for exploring questions related to language processing contributed the remaining papers. The papers in this special issue should not be considered an exhaustive list of innovative techniques, methodologies, or tools for exploring language comprehension; limits of space and time prevented us from daring to attempt such a lofty undertaking. Instead, all the papers in this issue were written in such a way as to provide readers from many language-related fields of study more extensive detail about the methodological approaches employed. Thus, the intention of this issue is to provide guidance for the application of a wide range of neurophysiological and behavioral methods to the study of language comprehension.

There are a number of ways to read the papers that have been contributed to this special issue of *Brain and Language*. Given that the conference on which this issue was based focused on two themes, the inventive application of cognitive neuroscience methods and changes in language comprehension across the life span, we maintained these themes during the process of selecting articles for this special issue. First, the articles in this issue provide exposure to a wide cross section of neuropsychological tools, including fMRI, electrophysiological measures, hemispheric laterality, eye movement monitoring, and the examination of patients with pervasive or localized brain damage. Furthermore, many of these tools are being applied in creative ways to further our understanding of the component processes that contribute to language comprehension.

The second prominent theme of the conference and of the contributed papers is how the ability to comprehend language changes over the life span. In keeping with tradition, we have considered changes that occur throughout the life span that influence the development of an adult's language comprehension system. To address this early period of language learning, papers presented here provide fMRI and electrophysiological evidence regarding early semantic and syntactic processes. We also recognize that the adult system is not static; changes continue to occur in the language system as it progresses toward older age. Sometimes the maturation process is accompanied by declines due to wear-and-tear on the system or by declines due to pathology. In short, the language comprehension system is dynamical in nature and is always adjusting to the environment and our summative experience. Therefore, other papers in this special issue address many of the above issues, by providing a cross section of research that examines language comprehension at different stages in the life span of language users.

For their assistance with both the satellite conference and with the preparation of this special issue, we express our gratitude to Susan Kemper, Greg Simpson, Joan Sereno, Allard Jongman, Harry Whitaker, the Roy A. Roberts Endowment, the Mental Lexicon Research Group, and the Psychonomic Society. We also thank all attendees and contributors to the conference and to this special issue. Finally, we acknowledge all of the thoughtful reviewers who contributed significantly to the quality of this special issue.

Acknowledgments

The authors contributed equally to this introduction and are listed in alphabetical order. The preparation of

doi:10.1016/j.bandl.2004.04.003

the manuscript was supported in part by Research Grants DC 004259 and DC 006472 from the National Institute of Deafness and Other Communication Disorders, National Institutes of Health, and by BCS: 0078778 from NSF Division of Behavioral and Cognitive Science.

Ruth Ann Atchley*
Michael S. Vitevitch
Department of Psychology,
University of Kansas, 1415 Jayhawk Blvd.,
University of Kansas, Lawrence, KS 66045, USA
E-mail address: ratchley@ku.edu (R.A. Atchley)

* Corresponding author.