

PREFACE

Semantic Memory and Language Processing in Aphasia and Dementia

Semantic memory is the system of human memory dedicated to representation of core knowledge about the world.¹⁻³ Semantic memory supports object identity (e.g., *this round thing is an apple*), encyclopedic facts (e.g., *apples grow on trees*), and word meaning. Impairment of semantic memory can produce devastating effects on language comprehension and production, and such effects are prominent across a range of clinical populations with acquired neurologic damage (e.g., dementia and aphasia).⁴⁻⁹ Nevertheless, the etiology and character of semantic impairment differs across these populations. These qualitative differences emerge from a variety of causes, including lesion size, lesion location, cortical reorganization of cognitive function after stroke, and dynamic change associated with cortical atrophy in dementia. Furthermore, heterogeneity in semantic impairment across patient populations necessitates different theoretical and clinical approaches to remediation. This is apparent in the differences that underlie semantically based language treatments for aphasia and dementia.

Semantic training in aphasia is typically based on the assumption that difficulties stem from impaired linguistic access to concepts, which themselves are intact. That is, patients with aphasia may have difficulty accessing the meaning of apple through language but show significant improvement when apple is presented in a visual modality. This modality-specific advantage is often reduced or may be entirely absent in advanced dementia as core knowledge of APPLES erodes.¹⁰ Improved specificity in language rehabilitation demands that clinicians recognize and accommodate

these factors. The aim of this special issue is to improve the reader's awareness of just such characteristics.

In the first article, Antonucci and Reilly introduce several dominant theories of semantic memory organization and outline their corresponding neural substrates. This primer provides a framework for understanding the effects of semantic impairment on language processing in specific clinical populations such as Alzheimer's disease (Altmann and McClung) and semantic dementia (Reilly and Peelle). Harnish and Neils-Strunjas examine the effects of semantic impairment on reading and writing, followed by summaries of treatment for anomia in semantic dementia by Henry, Beeson, and Rapcsak and the concluding article by Kiran and Bassetto dealing with complexity-based approaches to treatment in stroke aphasia.

As guest editor of *Seminars in Speech and Language*, I express sincere gratitude to each of the contributing authors whose talent is actively shaping the future of research in adult neurogenic language disorders.

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Guest Editor

REFERENCES

1. Tulving E. Episodic and semantic memory. In: Tulving E, Donaldson W, eds. *Organization of Memory*. New York, NY: Academic Press; 1972: 381-403
2. Warrington EK. The selective impairment of semantic memory. *Q J Exp Psychol* 1975;27: 635-657

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3. Funnell E. Evidence for scripts in semantic dementia: implications for theories of semantic memory. *Cogn Neuropsychol* 2001;18:323–341
4. Gonnerman LM, Andersen ES, Devlin JT, Kempler D, Seidenberg MS. Double dissociation of semantic categories in Alzheimer's disease. *Brain Lang* 1997;57:254–279
5. Grossman M, Koenig P, Troiani V, Work M, Moore P. How necessary are the stripes of a tiger? Diagnostic and characteristic features in an fMRI study of word meaning. *Neuropsychologia* 2007;45:1055–1064
6. Hodges JR. Semantic dementia: disorder of semantic memory. In: D'Esposito M, ed. *Neurological Foundations of Cognitive Neuroscience*. Cambridge, MA: MIT Press; 2003:67–87
7. Kiran S, Thompson CK. The role of semantic complexity in treatment of naming deficits: training semantic categories in fluent aphasia by controlling exemplar typicality. *J Speech Lang Hear Res* 2003;46:773–787
8. Kiran S, Tuchtenhagen J. Imageability effects in normal Spanish-English bilingual adults and in aphasia: evidence from naming to definition and semantic priming tasks. *Aphasiology* 2005;19:315–327
9. Lambon Ralph MA, Graham KS, Ellis AW, Hodges JR. Naming in semantic dementia—what matters? *Neuropsychologia* 1998;36:775–784
10. Coccia M, Bartolini M, Luzzi S, Provinciali L, Lambon Ralph MA. Semantic memory is an amodal, dynamic system: evidence from the interaction of naming and object use in semantic dementia. *Cogn Neuropsychol* 2004;21:513–527