Sentence Comprehension in Aphasia: Stability of Performance
Gayle DeDe1, David Caplan2, Gloria Waters3, Jennifer Michaud4, Amanda Reddy5
(1) Department of Health Sciences, Sargent College, Boston University (2) Neuropsychology Laboratory, Massachusetts General Hospital

Introduction

• Researchers studying syntactic comprehension impairments often test people with aphasia (PWA) on a single comprehension task. These investigations often assume that any observed deficits would be replicable across similar tasks.

• Dissociations have been observed between sentence picture matching and enactment tasks, which both test sentence comprehension (Caplan & Inglis, 1993). If such dissociations are common, performance on one task may not be a reliable indicator of a deficit affecting a particular syntactic structure or operation.

• The present study assessed consistency of performance in a group of PWA who were tested on the same sentence types over 5 tasks using split-half reliability and correlation analyses of accuracy data. Individual cases were also analyzed to identify the presence or absence of deficits that were stable across tasks and sentence types.

Methods

Participant Information
Neuropsychological examination using single LVAc

Tasks
Sentence Picture Matching (SPM) - Whole sentence and self-paced (AMW) presentations
Grammaticality Judgment (GJ) - Whole sentence and self-paced (AMW) presentations
Enactment (Object Manipulation – OM)

Stimuli
• 3 structural constraints exemplified in 11 sentence types
• 10 examples of each sentence type

Active & Passive
1. Active (A): The boy scratched the man. 2. Full Passive (PF): The man was scratched by the boy.
3. Transitive Passive (TP): The father was hit.

Object & Subject Relations
4. Cleft Object (CO): It was the boy who the father dressed. 5. Cleft Subject (CS): It was the boy who kicked the uncle. 6. Subject Object (SO): The boy who the girl bit tickled the woman. 7. Subject Subject (SS): The girl who hugged the father kicked the man.

Reflective & Full NPs

Stimuli were digitized and auditorily presented via computer.

Results

• Split half reliability on each sentence type across all tasks: Sentence Picture Matching (SPM), Grammaticality Judgment (GJ), and Enactment (OM).

• Split half reliability on each sentence type across all tasks: Sentence Picture Matching (SPM), Grammaticality Judgment (GJ), and Enactment (OM).

• Table showing split half reliabilities for tasks and sentence types within each task (Spearman-Brown)

• Table showing split half reliabilities for tasks and sentence types within each task (Spearman-Brown)

• Table showing split half reliabilities for tasks and sentence types within each task (Spearman-Brown)

Discussion

• The reliability analyses suggest that performance is affected to a similar extent on most sentence types, and that factors other than the ability to assign structure and meaning in specific sentence types are important determinants of patients' performance.

• RT's suggested a speed-accuracy trade-off for SO sentences in SPM, making that performance hard to interpret.

• Case 50051 performed at or below chance on sentences with reflexives and their baseline sentences. This indicates a disturbance affecting aspects of sentence comprehension that goes beyond inserting, co-interpreting, and interpreting the thematic significance of traces.

Reference

This research was supported by grants from NIDCD (DC00942 to David Caplan and DC007564 to Gayle DeDe).