Sentence Production Treatment for Agrammatic Aphasia – Targeting Underlying Forms

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### Introduction

One of the most frequently occurring types of aphasia is termed non-fluent or Broca’s aphasia. Individuals with Broca’s aphasia verbally express themselves with sentences that lack syntactical and lexical complexity. This expression of simplistic sentences with few verbs is known as agrammatism.

Agrammatic aphasia is described as speaking with great effort, omitting important function words and using structurally impoverished strings of content words. Thompson and colleagues \(^1,2,3\) have developed and refined a treatment approach based on neurolinguistic theory. In this approach training starts with complex, non-canonical sentences at the top of the grammatical hierarchy with the expectation that untrained simpler canonical sentences would be spontaneously produced. The theory emphasizes the centrality of verbs in sentences and how the verb influences the production of a grammatically correct sentence. Influenced by the work of Thompson and colleagues, The Stroke Center-Dallas developed a treatment approach known as Sentence Production Treatment (SPT) \(^4\) to treat individuals with agrammatic aphasia and apraxia of speech. The stimuli consisted of three verb argument canonical sentences and a structured multi-modality treatment approach.

### Objectives

The purpose of this study was to determine if SPT increases the complexity of grammatical elements in three individual case studies: The research questions asked – Will the Sentence Production Treatment (SPT); 1) increase the accurate production of the required verb across the treatment period? 2) increase the accurate production of required verb arguments across the treatment period? 3) improve scores on a formal aphasia assessment after the treatment period?

### Method

#### Participants

- 68-year old R) handed female, 12 months post-onset-LH occlusive stroke with moderate Broca’s aphasia with co-occurring verbal apraxia (50’ TX sessions-36)
- 48-year old R) handed male, 19 months post-onset-LH occlusive stroke with moderate Broca’s aphasia with co-occurring verbal apraxia (50’ TX sessions-29)
- 48-year old R) handed female 12 months post-onset-LH occlusive stroke with moderate Broca’s aphasia with co-occurring verbal apraxia (50’ TX sessions-14)

### Materials and Procedures

- Each participant was presented with action pictures and asked to formulate sentences in a present progressive tense subject-verb-object-prepositional phrase (S-V-O-PP) format. The Sentence Production Treatment Program consisted of the following steps:
  1. SLP elicited the pre-treatment probe by having the client describe the pictures in S-V-O-PP format.
  2. SLP provided appropriate feedback by eliciting unproduced verbs and verb arguments from the participant and then placed the word cards on the Fitzgerald Key, a graphic organizer that illustrated the specific elements of the sentence (e.g., subject, verb, object, and prepositional phrase).
  3. The participant identified the agent, action, and object of the sentence by answering “Wh” questions provided by the clinician.
  4. The participant read the sentence aloud independently or in unison with the clinician three times and were read with continuous phonation.
  5. The word cards were removed from the Fitzgerald Key, and the participant repeated the sentences three times independently.
  6. The participant placed the constituents on the Fitzgerald Key and then read sentence aloud independently or in unison with the clinician three times and again were read with continuous phonation. After the word cards were removed, the participant was instructed to write or copy words or sentence.
  7. The participant described Everyday Language Activity (ELA) \(^5\) picture cards without constituents for a within treatment probe. Steps 1-7 were repeated for all ELA pictures.

### Results

#### Dependent Variables

- Pre and Post Environmental Language Activities (ELA) \(^5\)
- Western Aphasia Battery – Revised (WAB-R) \(^6\)

#### Discussion

The results of these three case studies revealed post treatment increases in the number of untrained verbs and verb arguments. There were also gains on the AQ score on the Western Aphasia Battery-R \(^7\) (+5 points) for each of the three individuals in the chronic period of recovery from aphasia. Additional research is needed to determine the applicability and efficacy of this approach with other types of aphasia and varying degrees of severity.

### References

7. San Antonio, TX: Psychological Corporation.