



# Evaluating Informative Content and Global Coherence in Fluent and Nonfluent Aphasia

## ABSTRACT

Discourse analysis provides an alternative method to standardized testing for evaluating communicative effectiveness and functionality in persons with aphasia. In addition to its practical and relevant application as a measure of generalization following intervention, discourse analysis can also be utilized to assess how linguistic breakdowns impact functional communication. These patterns of breakdowns can in turn become targets for therapeutic intervention. The current study examined whether persons with fluent and nonfluent aphasia differ on utterance level discourse measures and in the types of error violations made contributing to breakdowns in discourse organization.

### **Learner Outcomes:**

- List types of global coherence violations
- Identify the types of global coherence violations that are most common in persons with fluent and nonfluent aphasia
- Describe two utterance level discourse measures that can be used to evaluate the connected speech of people with aphasia



## INTRODUCTION/OBJECTIVE

### Introduction:

Discourse Analysis as a Measure for Evaluating Communicative Effectiveness and Functionality:

- Practical and relevant approach to measuring generalization effects in response to intervention
- Can be utilized to assess how linguistic breakdowns impact functional communication
  - Patterns of breakdowns can be targets for therapeutic intervention

Discourse Level Communication Breakdowns in Fluent and Nonfluent Aphasia:

- Studies typically compare persons with aphasia to controls on various discourse measures
  - Little understanding of how persons with fluent and nonfluent aphasia differ
- Identifying differences in linguistic breakdowns is important for establishing comparative norms and identifying targets for intervention to maximize communicative competence

### Study Objectives:

- Determine whether persons with fluent and nonfluent aphasia differ on:
  - utterance level discourse measures of information content and global coherence
  - the types of violations made which contribute to breakdowns in global coherence



## METHODS & MATERIALS

**Participants:** 31 persons with aphasia (18 nonfluent; 13 fluent)

**Discourse Samples:** Picture description samples obtained from AphasiaBank (MacWhinney, Fromm, Forbes & Holland, 2011)

### Variables of Interest:

Utterances with New Information (UNIs): Defined as a coherent, relevant utterance providing information not previously given in the discourse sample (del Toro et al., 2008)

Global Coherence: Defined as the extent to which a discourse unit relates to an overarching semantic topic. See Table 1 for scoring scale.

Global Coherence Errors: Utterances with low global coherence scores (i.e., 1 or 2) were subsequently coded for 7 identified coherence violation types. See Table 2.

Table 1. Global Coherence Scale

Outcome	Definition	Rating Scale
Global Coherence (Wright & Capilouto, 2012)	The global coherence of each utterance is scored by the degree to which it is related to the global discourse topic	4 = definite relationship 3 = utterance is related to the topic but with tangential information or information that must be inferred. 2 = utterance is remotely related to the topic, egocentric, or unimportant 1 = no relationship

Table 2. Global Coherence Errors

Violation	Definition
Not Complete	utterances abandoned before conveying all the required information
Nonspecific	utterances that are ambiguous due to an overreliance on vague/nonspecific words
Incorrect	utterances with erroneous information
Detail	utterances that convey unimportant information
Commentary	utterances that include comments on the task or task performance
Off topic	utterances not related to the topic due to being egocentric or incorrect, but that do not fit into the aforementioned categories
Repeated	utterances that repeat previously provided information without adding any additional information

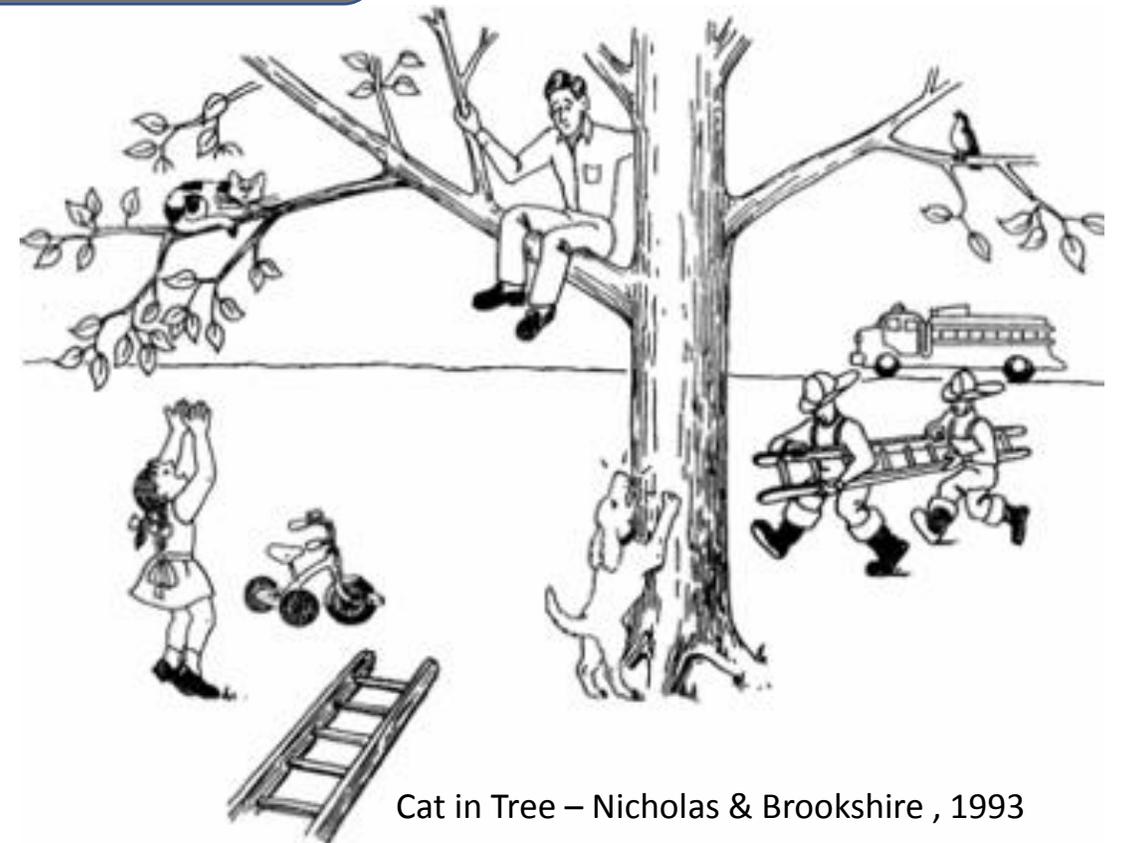


## METHODS & MATERIALS

Cheat sheet: Not complete,  
Nonspecific, Incorrect, Detail,  
Commentary, Off topic, Repeated

Table 3. Sample Error Code Scoring

Utterance	UNI	GC	Error
She had been in her little ride there			
And there was a book there that they could get higher and get the bird			
Firemen			
I don't know what it is			
The firemen, my wife's cousin is one			
The bird is happy, singing along.			



Cat in Tree – Nicholas & Brookshire , 1993



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## RESULTS

Table 4. Participant Demographics

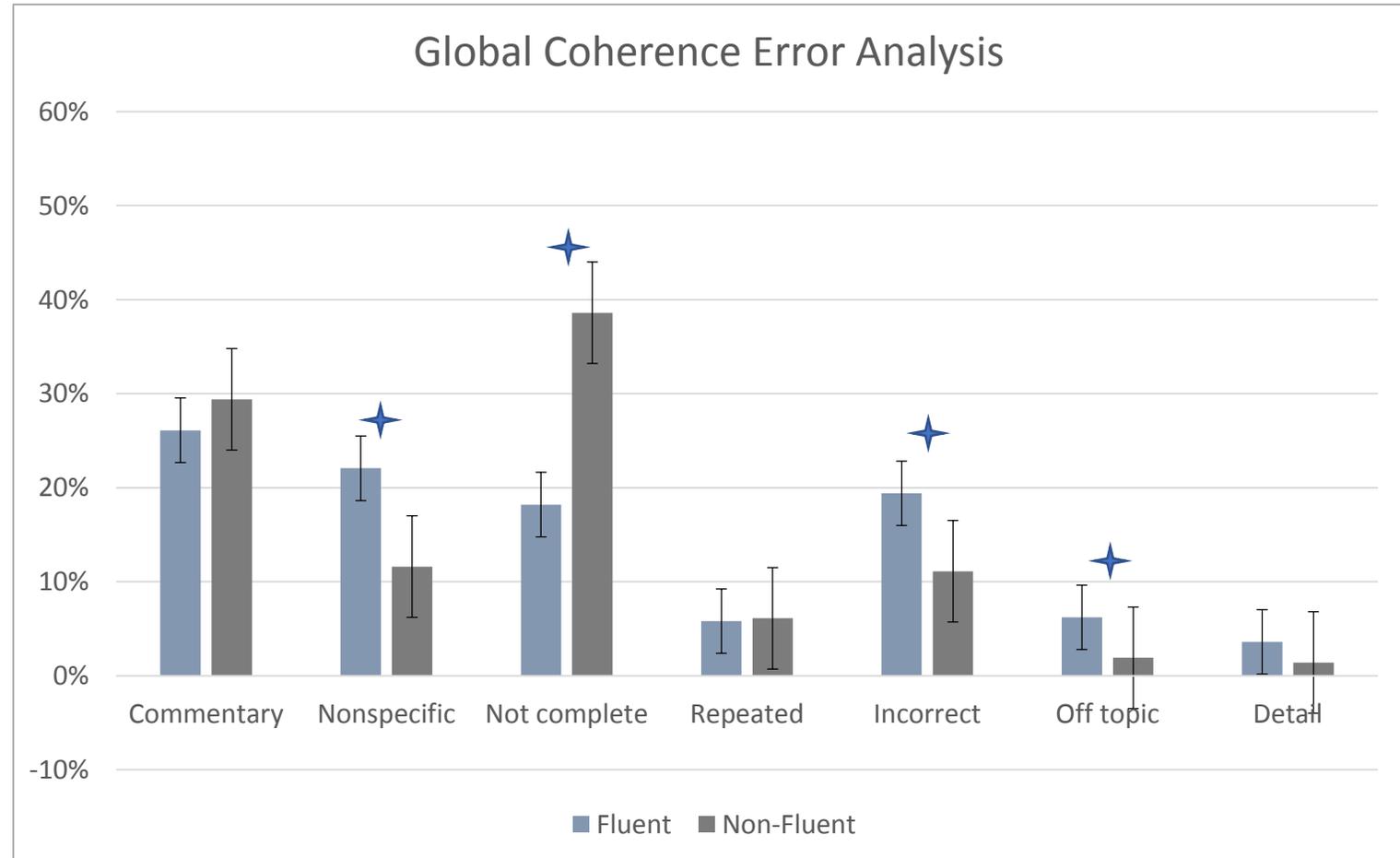
Variable	Nonfluent Mean (SD)	Fluent Mean (SD)
Western Aphasia Battery - Aphasia Quotient	59.32 (10.15)	65.84 (11.45)
Age	57.32 (13.72)	65.32 (11.77)
Time Post-onset	5.05 (3.48)	4.27 (3.58)
Education (years)	13.94 (1.81)	16.46 (4.12)

Table 5. UNIs and Global Coherence Scores by Group. Comparisons made via Mann-Whitney U test.

Variable	Nonfluent Mean (SD)	Fluent Mean (SD)
UNIs*	.30 (.21)	.52 (.17)
Global Coherence*	1.66 (.55)	2.15 (.39)

\*Indicate significance at alpha  $p < .05$

Figure 1. Global Coherence Error Analysis by Group





## CONCLUSIONS

- Persons with fluent aphasia produced significantly more UNIs and averaged higher global coherence scores even though aphasia severity was not significantly different between groups
- Persons with fluent and nonfluent aphasia demonstrated distinct patterns of errors related to breakdowns in the organization of their discourse
  - Persons with fluent aphasia produced more utterances which contained vague/nonspecific words, erroneous information and were unrelated to the topic
  - Persons with nonfluent aphasia produced more utterances which were single words or abandoned before conveying all the required information
- Despite the greater presence of multiple error types in persons with fluent aphasia, results suggest that fluency is an important facet of discourse ability
- Results suggest possible unique targets for assessment and intervention to improve communicative competency at the discourse level



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