Simplifying Discourse Analysis for Clinical Use

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INTRODUCTION

- Aphasia batteries lack the sensitivity needed to identify the subtle language deficits in people with mild aphasia (PWMA).
- Analyzing discourse is an effective method of identifying the informativeness and efficiency of language production (Dietz & Boyle, 2017).
  - Discourse analysis is time consuming. It can take up to thirty minutes to transcribe and analyze one minute of discourse.
  - This is not feasible for a busy clinician. (Bryant, Spencer, & Ferguson, 2017).

AIMS

In order to identify a faster, simpler method of discourse analysis, we explore the relationship between verb use and informativeness, efficiency, and Correct Information Unit (CIU) count. Specifically, we investigate whether:

- verb production is associated with more informative discourse
- verb errors are associated with decreased discourse efficiency
- verb production is associated with more CIUs

METHODS

- Language samples obtained from AphasiaBank (MacWhinney, Fromm, Holland, 2011) from participants classified as anomic (n=102) or not aphasic (n=27) on the Western Aphasia Battery (Kertesz, 2006) (Table 1).
- Total verbs used correctly and incorrectly were counted for each transcript.
- Correct Information Units (CIUS; Nicholas & Brookshire, 1993) were calculated for each transcript.
- Greater than 90% intra- and inter-reliability was established between research assistants.
- Strength of associations were determined based on correlation coefficients.
- Simple linear regressions were conducted for variables with significant correlations to determine whether verb use predicted the various discourse measures.

Table One: Group Demographics (Unclassified Aphasia and Anomic Aphasia

Demographic	Participant Data	
	Unclassified Aphasia	Anomic Aphasia
Total Number		
	27	102
Gender		
% Male	33	58
Age		
Average	61	62
Range	29-81	33-86
Years of Education		
Average	16	16
Range	12-21	12-23
Aphasia Duration		
Average	5	5
Range	1-16	.5-20
Years SLP Tx		
Average	2	2
Range	0.2-8	0-10
WAB AQ		
Average	96	85
Range	93-99	63-94

Note. All time-related data is represented in years

RESULTS

- There was a **significant weak correlation** between **informativeness and total number of verbs** used (r=.016, n= 119, p= .0001) (see Table 2 and Figure 1).
- There was a **significant moderate correlation** between **efficiency and total number of verbs** used (r=.457, n= 117, p=.0001) (see Figure 2).
- There was a **strong significant relationship** between **the total number of CIUs and total number of verbs** used (r= .811, n= 119, p= .0001) (see Figure 3).
- Results of the regression indicated that correct verb use explained 20.7% of the variance in efficiency and total number of verbs explained 65.8% of the variance in total CIUs (see Table 2).

Table Two: Results of Pearson Correlations and Simple Linear Regressions

Pearson Correlation Coefficient

Variables	Pearson's R
Informativeness and Total # of Verbs	0.016*
Efficiency and Total # of Correct Verbs	0.457*
Total # of CIUs and Total # of Verbs	0.811*

Simple Linear Regression

Variables	R^2
Informativeness and Total # of Verbs	x
Efficiency and Total # of Correct Verbs	0.209*
Total # of CIUs and Total # of Verbs	0.658*

Note. Asterik denotes correlations significant at the level of p<.01

Figure One: Informativeness vs. Total Verbs Used

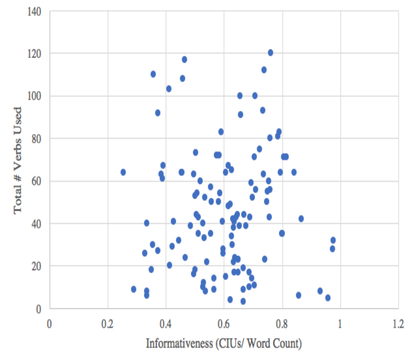


Figure Two: Efficiency vs. Total Verbs Used Correctly

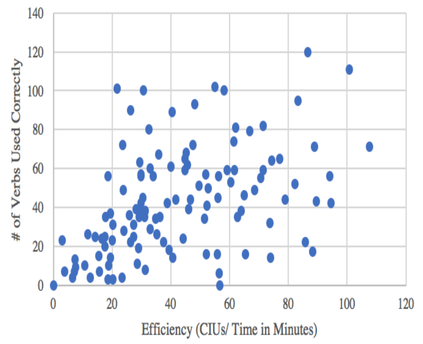
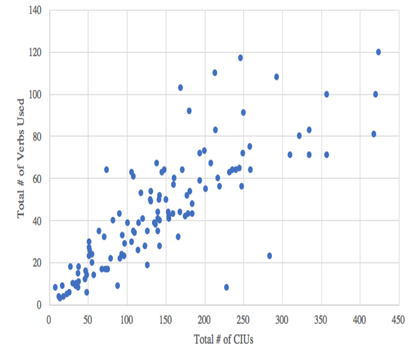


Figure Three: Total # of CIUs vs. Total # of Verbs Used



DISCUSSION

- **The simple tallying of verbs may offer an efficient, practical alternative to analyzing discourse for CIUs.**
- CIU analysis requires transcription and evaluation of each word as it relates to the sample but counting verbs is something that can be done in "real time" making transcription unnecessary.
- Our results suggest that CIU counts can be predicted by total verb use and, by extension, the efficiency and informativeness of discourse. These results may have immediate clinical utility.

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