Sentence production in a discourse context in latent aphasia: A real-time study

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Introduction

- Latent Aphasia:
  - Perform within normal limits on tests (e.g. WAB).
  - Self-reported communication is slow, effortful, & anomic.
- Processing speed as a marker of latent aphasia:
  - Number and duration of pauses reflect real time linguistic processes (e.g., Goldman-Eisler, 1972; Levelt, 1989).
  - Latent aphasia: Slower speech rate than neurotypical controls and faster speech rate than people with anomic aphasia (DeDe & Salis, 2020; Fromm et al. 2017).

Present Study

Examine distribution and duration of silent and filled pauses from the Cinderella story in people with latent aphasia, anomic aphasia, and controls.

Research Questions

1. Are pause durations longer between or within utterances, and does this factor differ as a function of group?
2. Are pauses longer before or within complex and simple utterances, and if so, does this change as a function of group?
3. Is the "cost" (i.e., increased pause duration) associated with producing a longer utterance constant across groups?

Methods

Participants from AphasiaBank

	Group (n=10 per group)		
	Latent aphasia	Anomic aphasia	Neurotypical
Age	61.5 *(12.9)*	58.5 *(6.4)*	60.3 *(12.1)*
Education	15.9 *(2.7)*	16.0 *(3.6)*	15.2 *(1.9)*
Sex	7 F, 3 M	7 F, 3 M	6 F, 4 M
Time post onset	5.5 *(4.8)*	5.8 *(4.3)*	n.a.
WAB-R Aphasia Quotient	97.2 *(1.8)*	87.2 *(6.9)*	n.a.

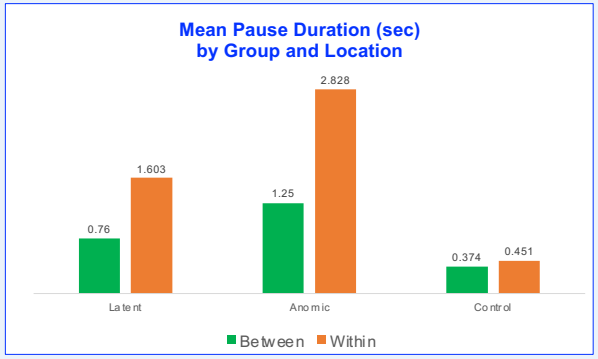
Values shown are mean *(SD)*.

Procedure

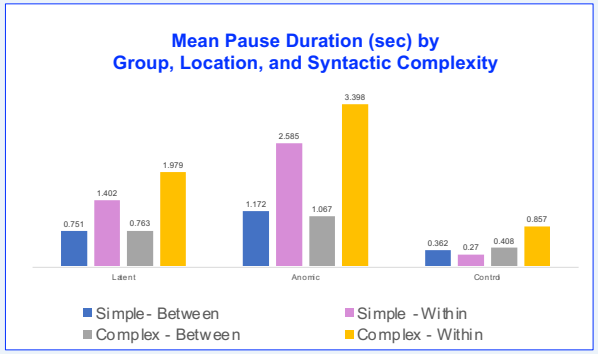
- Cinderella stories imported into Praat.
- Coded pause duration (≥ 200 ms silent or filled) for:
  - Location: Between or Within utterances.
  - Syntactic complexity: Simple or Complex utterances.
    - Complex: ≥ 1 embedded clause.
  - Utterance length: Number of words.

Results

Research Question 1: Significant location x group interaction.

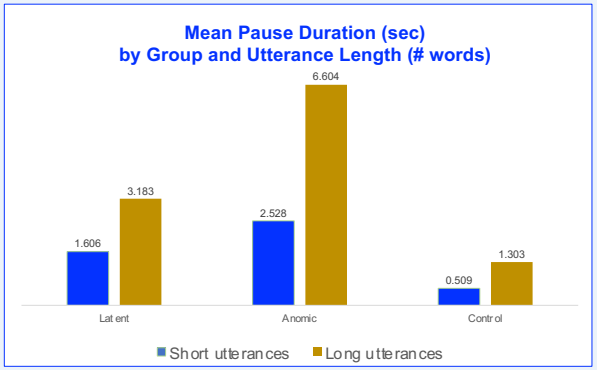


Research Question 2: No significant effect of syntactic complexity.



Research Question 3

- Analyses controlled for pure word rate.
- Significant utterance x length interactions:
  - Short utterances: no group differences.
  - Longer utterances:
    - Anomic > Latent aphasia, Latent aphasia >controls.



Conclusions

- **Research Question 1**
  - Planning for clauses vs. utterances.
  - Possible pragmatic function for people with aphasia.
- **Research Question 2**
  - Non-significant complexity effect may reflect lack of utterances with non-canonical word order.
- **Research Question 3**
  - "Cost" of adding words is greater for people with more severe aphasia, above and beyond the time taken to produce each word.
- Temporal measures are sensitive to deficits in latent aphasia and likely reflect deficits in linguistic processing speed.

Acknowledgements

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References

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