

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/373043597>

The Task Effect on Light and Heavy Verb Production in Discourse in People with Anomic Aphasia

Presentation · November 2020

DOI: 10.13140/RG.2.2.16645.93921

CITATIONS

0

2 authors, including:



Hyejin Park

University of Mississippi

12 PUBLICATIONS 65 CITATIONS

SEE PROFILE

The Task Effect on Light and Heavy Verb Production in Discourse in People with Anomic Aphasia

¹Hyejin Park, Ph.D. & ²Jessica Obermeyer, Ph.D., CCC-SLP

¹Communication Sciences and Disorders, University of Mississippi

²Communication Sciences and Disorders, University of North Carolina at Greensboro



THE UNIVERSITY of
MISSISSIPPI



THE UNIVERSITY of NORTH CAROLINA
GREENSBORO

INTRODUCTION

- Different types of discourse elicitation tasks and genres can demand varying levels of cognitive-linguistic processing abilities, which may affect language performance (Armstrong, 2000; Dietz & Boyle, 2018; Wallace et al., 2018)
 - Recount and story-retelling rely on memory and macro-linguistic structures (story grammar) and elicit more complex language compared to picture descriptions (MacWhinney et al., 2010)
 - PWA produce greater complexity of verbal communication (Glosser et al., 1988) and greater lexical diversity (Fergadiotis & Wright, 2011) when visual information is limited.
 - High noun-verb ratio and fewer verbs per utterance in procedural task compared to picture descriptions and story-retelling in people with and without aphasia (Stark, 2019)
- Task effect on semantic aspects of verbs: ‘Light’ and ‘Heavy’ production
 - **Light verbs**: Providing simple or vague representations (e.g., *do*)
 - **Heavy verbs**: Providing more specified and elaborated representations of the event schema (e.g., *deliver*)

Research Questions:

Is there a difference in....

1. Proportion of total number of verbs and total number of words across discourse elicitation tasks in people with anomic aphasia (PWA-anomic) and healthy controls?
2. Proportion of light and heavy verbs across discourse elicitation tasks in PWA-anomic and healthy controls?

METHODS

Participants (AphasiaBank)

33 PWA-anomic

21 males and 13 females
Age=65.2 ± 10.52
Education=15.27 ± 4.63

19 Healthy controls

12 males and 7 females
Age=66.2 ± 9.94
Education=15.35 ± 2.48

Materials

- Single picture descriptions (Cat rescue; Nicholas & Brookshire, 1993)
- Sequential picture descriptions (Broken window & Umbrella)
- Story-retelling (Cinderella)
- Recount (Stroke/Illness & Event)



Variables

- Total number of words (using CLAN)
- Total number verbs
 - Including all verb forms, grammatically incorrect verbs, verbs in phonemic paraphasia, verbs in semantic paraphasia
 - Excluding revised, repeated, interrupted verbs
- Light verbs: come, do, get, give, go, have, make, put
- Heavy verbs: other verbs excluding be-copular

Analysis

- Interrater reliability: 30% of transcripts sampled with agreement on light and heavy verb coding = 90.48%
- Chi-squares with alpha corrections ($\alpha=.008$)
 - Total number of verbs compared to total number of words
 - The number of Light verbs compared to the number of heavy verbs

RESULTS

• Proportions of total verbs

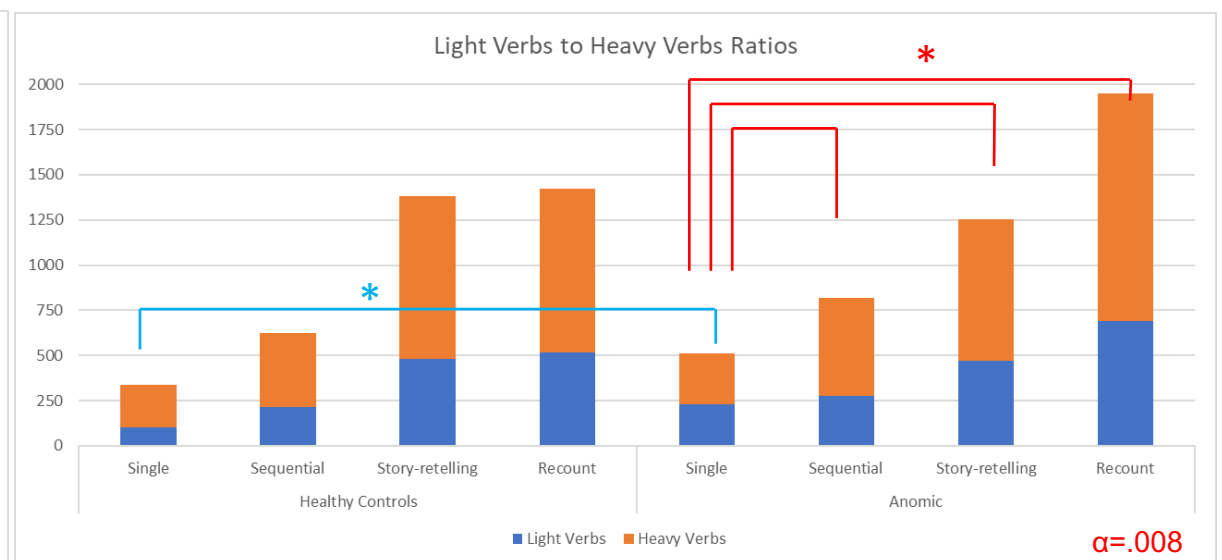
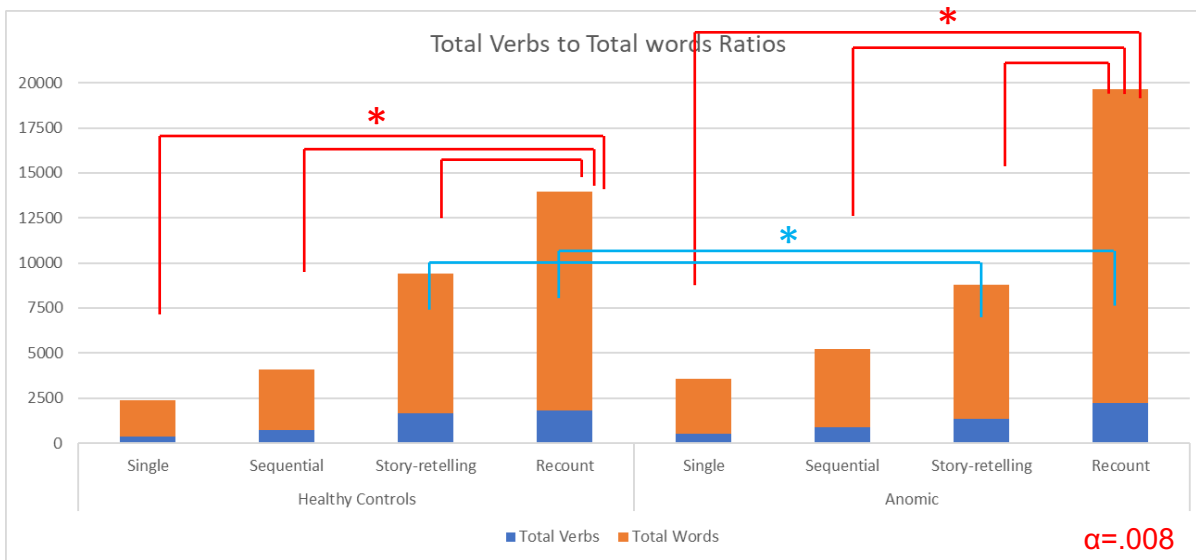
- Significant task effect in healthy controls [$\chi^2(3)=105.22, p=.000$]
- Significant task effect in PWA-anomic [$\chi^2(3)=156.04, p=.000$]

| | Healthy controls | PWA-anomic |
|-----------------|------------------|------------|
| Single | 16.40% | 15.00% |
| Sequential | 17.40% | 16.40% |
| Story-retelling | 17.50% | 15.30% |
| Recount | 13.10% | 11.20% |

• Proportions of light verbs

- No task effect in healthy controls [$\chi^2(3)=3.72, p>.05$]
- Significant task effect in PWA-anomic [$\chi^2(3)=20.36, p=.000$]

| | Healthy controls | PWA-anomic |
|-----------------|------------------|------------|
| Single | 30.80% | 45.40% |
| Sequential | 34.40% | 34.10% |
| Story-retelling | 34.60% | 37.60% |
| Recount | 36.20% | 35.50% |



The Task Effect on Light and Heavy Verb Production in Discourse in People with Anomic Aphasia

DISCUSSION

- **Total verbs to total word ratio task comparisons**

- Task effects on total verb production
- Lower proportion of verbs in recount in both groups
 - ➔ Higher number of other word classes (nouns, adjectives, preposition), may indicate more complex sentences
- Healthy controls produced higher proportion of verbs in story-retelling and recounts compared to PWA-anomic
 - ➔ Task complexity may result in higher cognitive and linguistic demands in story-retelling and recount conditions, which is more demanding for PWA-anomic

- **Light verb to heavy verb ratio comparisons**

- No task effect on light and heavy verb production in healthy controls
- Higher proportion of light verbs in single picture description compared to other tasks in PWA-anomic
 - ➔ Use less specific meaning of verbs due to shared visual information (cf. sequential picture description has more flexibility to expand the story beyond the visual information, which encourages speakers to produce more specific verbs)
- PWA-anomic produced higher proportion of light verbs in single picture description compared to healthy controls
 - ➔ PWA-anomic show greater tendency to rely on shared visual information in single picture description than controls

Conclusion & Future Directions

- Evidence of task effect on total verb production & light and heavy verb production
- Purposefully select a task to assess discourse skills, and be aware of biased production due to the task effect
- Better definitions of light and heavy verbs are needed
- Include various types and severity of aphasia

The Task Effect on Light and Heavy Verb Production in Discourse in People with Anomic Aphasia

REFERENCES

- Armstrong, E. (2000). Aphasic discourse analysis: The story so far. *Aphasiology*, 14(9), 875–892. <https://doi.org/10.1080/02687030050127685>
- Dietz, A., & Boyle, M. (2018). Discourse measurement in aphasia research: have we reached the tipping point? *Aphasiology*, 32(4), 459–464.
- Fergadiotis, G., & Wright, H. H. (2011). Lexical diversity for adults with and without aphasia across discourse elicitation tasks. *Aphasiology*, 25(11), 1414–1430. <https://doi.org/10.1080/02687038.2011.603898>
- Glosser, G., Wiener, M., & Kaplan, E. (1988). Variations in aphasic language behaviors. *Journal of Speech and Hearing Disorders*, 53(2), 115–124.
- MacWhinney, B., Fromm, D., Holland, A., Forbes, M., & Wright, H. (2010). Automated analysis of the Cinderella story. *Aphasiology*, 24(6-8), 865-868.
- MacWhinney, B., Fromm, D., Forbes, M., & Holland, A. (2011). AphasiaBank: Methods for studying discourse. *Aphasiology*, 25, 1286–1307.
- Nicholas, L. E., & Brookshire, R. H. (1993). A System for Quantifying the Informativeness and Efficiency of the Connected Speech of Adults With Aphasia. In *Journal of Speech and Hearing Research* (Vol. 36). <https://doi.org/10.1044/jshr.3602.338>
- Olness, G. S. (2006). Genre, verb, and coherence in picture-elicited discourse of adults with aphasia. *Aphasiology*, 20(2–4), 175–187. <https://doi.org/10.1080/02687030500472710>
- Wallace, S. J., Worrall, L. E., Rose, T., & Le Dorze, G. (2018). Discourse measurement in aphasia research: have we reached the tipping point? A core outcome set... or greater standardisation of discourse measures? *Aphasiology*, 32(4), 479–482.

Author Contact

Hyejin Park, Ph.D.

Assistant Professor
Communication Sciences and Disorders
University of Mississippi

hpark11@olemiss.edu

Jessica Obermeyer, Ph.D., CCC-SLP

Assistant Professor
Communication Sciences and Disorders
University of North Carolina at Greensboro

jaoberme@uncg.edu

Acknowledgement:

Thanks to Jessica Hall, Chase Kozak, Carly Landgraf, Hannah Spurlock, Maliah Wilkinson, & Emily Culbertson

The Task Effect on Light and Heavy Verb Production in Discourse in People with Anomic Aphasia

APPENDIX

Appendix. Chi-square Crosstabulation

| | | Healthy Controls | | | Anomic | | | Healthy Controls | | | Anomic | | |
|-----------------|----------------|------------------|-------------|---------|-------------|-------------|---------|------------------|-------------|---------|-------------|-------------|---------|
| | | Total Verbs | Total Words | Total | Total Verbs | Total Words | Total | Light Verbs | Heavy Verbs | Total | Light Verbs | Heavy Verbs | Total |
| Single | Count | 386 | 1966 | 2352 | 537 | 3035 | 3572 | 104 | 234 | 338 | 231 | 278 | 509 |
| | % within Task | 16.40% | 83.60% | 100.00% | 15.00% | 85.00% | 100.00% | 30.80% | 69.20% | 100.00% | 45.40% | 54.60% | 100.00% |
| | % within Words | 8.40% | 7.80% | 7.90% | 10.90% | 9.40% | 9.60% | 7.90% | 9.50% | 9.00% | 13.80% | 9.70% | 11.20% |
| Sequential | Count | 709 | 3370 | 4079 | 861 | 4377 | 5238 | 214 | 408 | 622 | 278 | 538 | 816 |
| | % within Task | 17.40% | 82.60% | 100.00% | 16.40% | 83.60% | 100.00% | 34.40% | 65.60% | 100.00% | 34.10% | 65.90% | 100.00% |
| | % within Words | 15.50% | 13.30% | 13.70% | 17.40% | 13.60% | 14.10% | 16.30% | 16.60% | 16.50% | 16.60% | 18.80% | 18.00% |
| Story-retelling | Count | 1648 | 7762 | 9410 | 1340 | 7431 | 8771 | 479 | 904 | 1383 | 472 | 784 | 1256 |
| | % within Task | 17.50% | 82.50% | 100.00% | 15.30% | 84.70% | 100.00% | 34.60% | 65.40% | 100.00% | 37.60% | 62.40% | 100.00% |
| | % within Words | 36.10% | 30.70% | 31.60% | 27.10% | 23.00% | 23.60% | 36.50% | 36.80% | 36.70% | 28.20% | 27.50% | 27.70% |
| Recount | Count | 1827 | 12157 | 13984 | 2209 | 17440 | 19649 | 516 | 909 | 1425 | 692 | 1256 | 1948 |
| | % within Task | 13.10% | 86.90% | 100.00% | 11.20% | 88.80% | 100.00% | 36.20% | 63.80% | 100.00% | 35.50% | 64.50% | 100.00% |
| | % within Words | 40.00% | 48.10% | 46.90% | 44.70% | 54.00% | 52.80% | 39.30% | 37.00% | 37.80% | 41.40% | 44.00% | 43.00% |
| Total | Count | 4570 | 25255 | 29825 | 4947 | 32283 | 37230 | 1313 | 2455 | 3768 | 1673 | 2856 | 4529 |
| | % within Task | 15.30% | 84.70% | 100.00% | 13.30% | 86.70% | 100.00% | 34.80% | 65.20% | 100.00% | 36.90% | 63.10% | 100.00% |
| | % within Words | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |