

For my training project this summer, I worked under Dr. Sharon Ash at Penn's Frontotemporal Degeneration Center. Going into the project, my goal was to look for correlations between the linguistic features found in the Written and Spoken Cookie Thefts. I wanted to determine whether or not the linguistic characteristics of the Written Cookie Theft samples matched those of the Spoken Cookie Theft. "Cookie Theft" refers to a task where patients are asked to describe what is happening in a picture and talk about or write as much as they can in a certain time frame. It is typically done orally, and used as a diagnostic test for aphasia. There have been many studies done with spoken Cookie Thefts due to its large body, but there are very few studies using written samples. My hypothesis is that the linguistic trends in both the speech and writing samples should be the same. It is based on the concept that since aphasia primarily affects people's language abilities, it can be manifested in both modalities. I looked at samples of various neurodegenerative diseases, which included the different variants of Primary Progressive Aphasia (PPA), Alzheimer's, Parkinson's, and ALS. I transcribed the written samples onto Word and then used Excel to document features such as words per minute, well-formed sentences, nonfinite verbs, nouns used, and content. In order to analyze the results, I learned how to use the basic functions of R.

Moving forward, I plan to narrow down the diseases to just PPA and compare each patients' spoken samples with their written samples, rather than analyzing the data just based on phenotype, since there are many variables that have not been accounted for. For example, since certain patients had spoken samples but no written samples, there would be variation in the patients' disease durations and ages. In addition, the small number of Written Cookie Thefts proved to be an issue because it caused some data to be skewed. However, despite these issues, the preliminary data collected from the Written Cookie Thefts mirror the results from the Spoken Cookie Thefts. Certain phenotypes exhibited similar trends in both modalities, such as aphasics producing the fewest number of dependent clauses or well-formed sentences. There are also features in writing that cannot be expressed in speech, such as spelling errors, punctuation, and handwriting.