Bachelor of Philosophy Sample Thesis Prospectus

(Communication Science and Disorders)

Title: A Closer Look into the Nature of Agrammatic Comprehension Using the Computerized Version of the Revised Token Test (C-RTT) to Detect Differences Between the Comprehension of Active and Passive Sentences in a Normal Elderly Population

Everyday we use a number of sentence structures in our written and spoken communication. As children, we learn how to do this quickly and discover that there are multiple possibilities to construct sentences with the same meaning. For example, “The man kissed the woman” and “The woman was kissed by the man” are essentially conveying the same meaning but in two different ways. In a colorful and diverse language such as English, how do we learn so many different sentence constructions, and how does our brain make sense of these numerous constructions?

Agrammatic comprehension is a language impairment that can appear in individuals who suffer from aphasia. Aphasia is a neurological disorder that negatively impacts the ability to comprehend and produce spoken or written language. People with agrammatic comprehension experience difficulty in understanding the syntactic structure of sentences, specifically passive sentences. (“The woman was kissed by the man”) relative to active sentences (“The man kissed the woman”).

Several tests have been designed in an attempt to better understand the nature of agrammatic comprehension. Despite the development of these tasks, there is currently no standardized test for this particular communication disorder. There are many reasons for this lack of standardization, including low test sensitivity and an absence of reference data, both normal and pathological. Therefore, no standardized test for identifying individuals with agrammatic comprehension has yet emerged to meet the needs of clinical and research communities.

In my present study, I will attempt to fill this important assessment void by developing a version of the Computerized Revised Token Test (C-RTT) that will detect processing and comprehension differences between active and passive sentences. The C-RTT is a computerized version of the Revised Token Test (McNeil and Prescott, 1978) in which subjects are asked to manipulate certain test objects or tokens based on a variety of auditory commands. Using the C-RTT to create such a test has several advantages. First, test objects are relatively simple; they consist of two shapes (circles and squares) of two sizes (big and little) and vary by five colors (red, green, black, white, and blue). Four of the ten C-RTT subtests require subjects to move tokens to other tokens based on locative, prepositional commands (“Put the little blue circle by/above/etc. the big green square”). More importantly, the C-RTT has a very sensitive 15-point multidimensional scoring system that automatically measures variables such as response time, efficiency, and accuracy (i.e. the correct color and size of the token as well as the correct token position for locative commands).

Regarding the design of the test, I will be creating and assessing a performance task for measuring the auditory processing of active and passive sentences. I will also be working primarily with the commands from Subtest V and Subtest VI, reconstructing each imperative prepositional phrase into an active and
passive sentence. One challenge of this task is to create sentences that are consistent in word length. If there are an equal number of worlds for each sentence across the entire test, then the test’s overall precision will be enhanced. The scoring of responses will remain the same.

After designing and creating this test, I will be administering it to a normal geriatric population. If there is a reliable difference between the comprehensive of active and passive sentences in this population, then this test will provide the first standardized tool for the detection of agrammatic comprehension of active and passive sentences in this population, then this test will provide the first standardized tool for the detection of agrammatic comprehension. I will be specifically studying the following experimental question: Are there significant differences between the comprehension of active and passive sentences in normal elderly participants? If so, then such a finding would challenge current theories of agrammatic comprehension as a linguistic-specific deficit. If, however there are no significant differences between the comprehension of active and passive sentences in normal elderly participants, then such a finding would suggest that any differences found among persons with aphasia can be attributed to agrammatic comprehension instead of inherent task difficulty.

My research in this area will clarify some broader understanding about the comprehension of grammatical meaning and will initiate a stream of additional studies. For example, administering this test to a variety of populations may lead to a greater knowledge in the general processing of active and passive sentences. Testing normal subjects from different age populations may reveal that the ability to comprehend active and passive sentences is optimal within a certain age range. Even a study comparing the performance of native and non-native speakers of English on this version of the C-RTT can unveil the answers to many of our questions pertaining to the way we process and understand language. This version of the C-RTT can also be administered to various pathological groups such as persons with agrammatic aphasia, which would continue to offer additional information about the way we comprehend language.

In the area of communication science and disorders, research in this area can lead to more innovative and effective therapies for individuals who show selective or general deficits in the comprehension of grammatical form. Furthermore, the application of these discoveries may enlighten other disciplines such as psychology, education, and linguistics. By better understanding the nature of language and how we comprehend it, we can improve the ways we communicate with each other and work together efficiently, creating a healthier, more harmonious world.