***Serial Position***

# Introduction

# One model of working memory says that we rehearse material to maintain it in short-term memory and that following rehearsal the material becomes part of our long-term memory. This lab activity, which involves memorizing simple lists of words, will show evidence in support of this idea.

# Description of Activity

The activity begins with a fixation cross followed by a button press to indicate when you are ready to begin a trial. A trial begins with presentation of individual words, one at a time with each word presented for just a few seconds. This is enough time to read the word and say it to yourself. Then it is on to the next word until the full list of ten words are presented to you. Following presentation of this list of words, you are asked to type the words you were previously presented one at a time into a text input box.

# Free Recall and Serial Position

# When you type the words that you were previously presented, you are doing what is known as free recall. You may or may not type them in using the same order they were presented, and you may forget one or more. An important piece of the data being collected in this activity is whether you remember the order in which the words were presented or did you remember more words from a particular position. The position in the list is called serial position. You may be presented with “mouse”, “jump”, “kite”, … “pencil”, “hunt”. The first serial position is “mouse”, while “hunt” is in last position.

# Serial Position Curve and Opportunity for Rehearsal

Words in the list are presented one at a time. This means after each word is presented there is an opportunity to rehearse it before the next word is presented. Even after the next word is presented you may find yourself rehearsing the word to yourself. What this means is that words toward the beginning of the list tend to be rehearsed more than words in the middle and end of the list. In the example above, “mouse” will tend to be rehearsed more than “kite” or “pencil” by virtue of the fact that “mouse” was presented in the first serial position. Words presented at the end of the list are special for a different reason: when the list presentation ends the words presented at the end, or most recently, will still be in your short-term memory because they were presented recently, or within the last few seconds.

**Serial Position and Long-Term Memory**

# Cognitive psychologists noticed some interesting patterns when doing word list experiments like this and plotting remembering accuracy as a function of where the words appeared in the list. Words at the beginning of the list were remembered well after a long period of time, suggesting they had made it into long-term memory. This effect is known as the primacy effect and is considered to be a result of the words at the beginning of the list having been rehearsed more and thereby transferred to long-term storage. Words at the end of the list are also remembered well if the testing happens immediately after list presentation. This has been termed the recency effect because the most recently presented words are still in short-term memory when the free recall test happens. If some distracting activity is inserted between the end of list presentation and fee recall testing, such as doing math problems, then the high accuracy for words presented at the end of the list disappears. The primacy and recency effects have been demonstrated over and over again in word list experiments and are linked to representations being in long-term and short-term memory respectively. Words are the beginning of the list (the first serial positions) are in long-term memory because there is more opportunity to rehearse them, while words at the end of the list are in short-term memory and are remembered well only if free recall testing happens immediately after the list.