Fall 2021

Assignment No. 1

Total Marks: 20

Lectures: 1-12

Instructions:

- Upload your assignments in a proper format, i.e. MS word file. Do not upload a pdf or other type of file. Corrupt files will be awarded zero marks.
- The assignments should be zoomed in at 100%.
- Please avoid plagiarism. Do not copy paste from any website or from any other student. Do not hire ghost / paid writers. Do not use paraphrasing software. Plagiarized work will be marked zero.
- After the due date, the assignments submitted via email would not be entertained.
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- The font colour should be preferably black and font size 12 Times New Roman.
- Follow all steps (a-f) of the assignment.

Assignment No. 1 Question – ENG511

Q. Our internal lexicon stores several aspects of world knowledge and organize this information. This organized information is accessed during language comprehension. There are different models to explain how this accession process operates e.g. search, logogen and cohort models.

1. How do these models differ from each other?

An important aspect of Morton's Logogen Model is that both sensory and contextual information interact in such a way that there is a trade-off relationship between them; the more contextual information input to a Logogen from top-down sources, the less sensory information is needed to bring the Logogen above threshold for activation. This feature of the Logogen model enables it to account for the observed facilitation effects of syntactic and semantic constraints on speed of lexical access as well as the word frequency and word apprehension effects reported in the literature. In the presence of constraining prior contexts, the time needed to activate a logogen from the onset of the relevant sensory information will be less than when such constraints are not available because less sensory information will be necessary to bring the logogen above its threshold value. In contrast to Logogen Theory which assumes activation of only a single lexical item after its threshold value is reached, Cohort Theory views word recognition as a process of eliminating possible candidates by deactivation. A set of potential word-candidates is activated during the earliest phases of the word recognition process solely on the basis of bottom-up sensory information. According to Marslen-Wilson and Welsh, the set of word-initial cohorts consists of the entire set of words in the language that begins with a particular initial sound sequence. The length of the initial sequence defining the initial cohort is not very large. According to the Cohort

Theory, a word is recognized at the point that a particular word can be uniquely distinguished from any of the other words in the word-initial cohort set that was defined exclusively by the bottom-up information in the signal. This is known as the "critical recognition point" of a word. Upon first hearing a word, all words sharing the same initial sound characteristics become activated in the system. As the system detects mismatches between the initial bottom-up sensory information and the top-down information about the expected sound representation of words generated by context, inappropriate candidates within the initial cohort are deactivated.

2. Which model appears to be the best positioned to explain the entire process of lexical access? Discuss the particular model in detail. (20 Marks)

In Cohort Theory, as in the earlier Logogen Theory, word recognition and subsequent lexical access are viewed as a result of a balance between the available sensory and contextual information about a word at any given time. In particular, when deactivation occurs on the basis of contextual mismatches, less sensory information is therefore needed for a single word candidate to emerge. According to the Cohort Theory, once word recognition has occurred, the perceptual system carries out a much less detailed analysis of the sound structure of the remaining input. As Marslen-Wilson and Welsh have put it, "No more and no less bottom-up information needs to be extracted than is necessary in a given context". Morton proposed one of the earliest activation models. In Morton's model, each word (or morpheme) in the lexicon is represented as a logogen, which specifies the word's various attributes (semantic, orthographic, phonological, and so on). The logogen is activated in either of two ways: by sensory input or by contextual information. Consider first the sensory route. As orthographic or phonological features of the input stimulus are detected, they are matched to the logogen. The logogen functions as a scoreboard or counter; when the counter rises above a predesignated threshold, the item is recognized. With regard to the contextual information, the semantic and syntactic structure of a sentence may influence the activation of the logogen for a given word. Consider the following sentence:

(13) Her closest relative was appointed as her legal guardian.

(13) "Her closest relative was appointed as her legal guardian."

We can anticipate the word guardian due to the expectations created by earlier words in the sentence. The activation of the earlier words influences the logogen for the final word, temporarily lowering its threshold. Thus, it is easier to recognize guardian in this context than if presented in isolation. In the original version of the logogen model, the information about the associations between different words is not contained in the logogen system itself but rather in a separate cognitive system that feeds back to the logogens. In the Logogen model, these two routes are assumed to work in parallel; sensory and contextual matches increase the same counter. Thus, when many sensory features are detected (as when the word is presented loudly), the corresponding word will be activated even if it is somewhat unexpected. Similarly, an expected word will be activated even if presented in dim light. Of course, if both sensory and contextual features are detected, then the word is easily detected.