Comprehension of degraded speech: Exploring the role of attention and speed of processing in top-down prediction

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Dedicated to ...

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Abstract

This thesis investigates the dynamic interactions between top-down predictive processing and bottom-up auditory processing in comprehension of degraded speech and adds three aspects to the existing theoretical framework of predictive language processing: 1. attention to context, 2. rate of flow of information, and 3. concurrent processing of secondary information along with language processing. First, it empirically establishes that listeners' attention to and realization of the context of a sentence is essential in the forming top-down semantic predictions in the comprehension of spectrally degraded speech. Then it shows that the facilitatory effect of semantic context appears in a graded manner when the speech is moderately degraded, while the comprehension of least degraded speech is overall better than the moderately degraded speech. That is, the difficulty of processing degraded speech is higher than processing less degraded speech. This further leads to two questions: 1. Does the difficulty in the processing of degraded speech change with a change in the rate of information flow as it affects the time of processing the speech. If so, how does the speech rate interact with semantic predictability of degraded sentences? 2. Does concurrent cognitive processing of a secondary task impair the processing of degraded speech differentially for different levels of degradation. These questions are further investigated in this thesis and found that when the rate of speech ... It was also found that when the secondary task is performed along with listening to degraded speech of different levels ... —

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HP, MP, LP . High-, Medium-, or Low-predictability

YA, OA . . . . Younger, or Older adults

ch . . . . . channels

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This chapter comes from the manuscript that is under prep for JML.

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Appendices

A

The First Appendix

This first appendix includes an R chunk that was hidden in the document (using `echo = FALSE`) to help with readibility:

In 02-rmd-basics-code.Rmd

And here's another one from the same chapter, i.e. Chapter ??:

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