

PH.D. DISSERTATION (CHAPTER 4)  
 NATURALISTIC SPEECH MISPERCEPTION (UNIVERSITY COLLEGE LONDON)  
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In this document, I have attached the **abstract** and **Chapter 4** of my Ph.D. dissertation on Naturalistic Speech Misperception from University College London as well as a 2017 **LSA (Linguistic Society of America) poster** which is an extension of the Ph.D. work. The complete dissertation can be obtained via the URL [<https://goo.gl/SRJeZC>, pdf].

## Abstract

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This thesis presents a new corpus containing  $\approx 5,000$  instances of naturally occurring misperception of conversational English, which is the result of a standardised format for the orthographic and phonetic transcriptions and meta-data of existing naturalistic corpora. The data are available at [www.searproject.org](http://www.searproject.org).

I examined top-down phonetic/phonological factors and bottom-up lexical factors for their contributions in naturalistic settings. On the feature level, voicing/place/manner confusions were best explained using sonority, featural underspecification (Lahiri & Reetz 2002) and markedness (Lombardi 2002), and vowel height/backness confusions using perceived similarity (Steriade 2001) and chain shifts (Labov 1994).

On the segment level, I found that confusions can be explained with acoustic/featural distances, and extreme signal-to-noise ratio and narrow bandwidth were less ecologically valid. Furthermore, three well-known sound changes (TH-fronting, velar nasal fronting and back vowel fronting) were consistently found in naturalistic and experimental data.

On the syllable level, codas are more likely to be misperceived than nuclei/onsets for monosyllables, but onsets are more likely to be misperceived for polysyllables. Fewer errors occur in the stressed syllables than in unstressed syllables in polysyllabic words, but not monosyllables. Initial syllables are more likely to be misperceived than medial syllables, which in turn are more prone to misperception than final syllables.

On the word level, listeners were found to perceive a word of similar frequency as the intended word in a misperception – but crucially not a more frequent word. This supports the graceful degradation account of a malfunctioning system (Vitevitch 2002). On the utterance level, listeners were sensitive to the predictability of a word, suggesting that less predictable words are more likely to be misperceived.

Together, these analyses establish the naturalistic corpus as an ecologically valid resource and a benchmark of misperception, bridge the gap between experimental and naturalistic studies, and highlight the need of examining misperception with units larger than nonsense syllables.

## References

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