Multiple sources of context are known to influence speech categorization. Typically, context-dependent speech perception is studied by manipulating a single type of context (e.g., acoustic, lexical). In natural speech, multiple sources of information are present.

1. **How does the combination of different types of context influence phonetic categorization?**
2. **Is listeners' reliance on various sources of available context modulated by attention?**

The present experiments manipulated:
- **ACOUSTIC context**
- **LEXICAL context**
- **situational context/ attention**

**Task: categorization of English /s/ and /ʃ/**

Main difference in spectral distribution of energy/spectral center of gravity; values for male English speaker in this study:
- /s/ 6222 Hz (sd 222 Hz)
- /ʃ/ 3954 Hz (sd 405 Hz)

Fricatives in word-nonword pairs:

\(\text{aboli}[ʃ] \rightarrow \text{aboli}[s], \text{indu}[s] \rightarrow \text{indu}[ʃ]\) -> lexical context

Words were preceded by sequences of 12 nonspeech tones with means one standard deviation above the spectral mean for /s/ or below the spectral mean for /ʃ/ -> acoustic context

**Experiment 1**

40 different words (20 /s/, 20 /ʃ/)

highly informative lexical context -> attention on lexical processing

**Experiment 2**

4 different words (2 /s/, 2 /ʃ/): low informative lexical context, many repetitions -> little attention on lexical processing

**Listener use lexical and acoustic context**

but interaction of effects

- Acoustic context effect for /s/ and /ʃ/ words
- Effect of lexical context only following the high tone sequence

**Listening Situation mainly affects lexical effect.**

**Acoustic effects are stronger in weaker lexical contexts**/ with less attention to lexical context.

(although here only for /ʃ/-words -> potential word-specific effect).

**Conclusion**

Acoustic, lexical, and situational context affect phoneme categorization. Listeners use all information available and weigh cues according to their informativeness in a given listening situation.

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