I. Introduction

Acoustic study to determine whether word-final nasals are devoiced, deleted or maintained in Romanian.

- Petrovici (1930), in work on Romanian nasals claimed that word-final nasals following /s/, e.g., *basm* ‘fairytale’, are devoiced about 50% of the time.
- Vasiiliu (1965) in his work on Romanian phonology said that all nasals in Romanian that are word-final and follow a consonant are partially devoiced.

II. Methods

- 7 Native Romanian speakers
- Words read in frame sentences.
- The target word is utterance final.
- Duration of coda consonants, preceding vowels, and nasal releases measured.

III. Results

Word-final /sm/ sequences

- 80.4% of /m/ tokens in the /sm/ sequences are devoiced.
- Most voiced tokens are from one speaker (S5) (Figure 2). Data from another environment (where a vowel-initial word follows the word-final nasal sequence) suggest that even this speaker normally devoices (Figure 3), but was using very careful speech in this subset of the data.
- 91.7% devoicing in /sm/ sequences if data from S5 is not considered.

Word-final /mn/ sequences

- Figure 1 indicates that /n/ is not deleted in word-final /mn/ sequences because the mean duration of /mn/ is longer than that of word-final /n/ or /m/.
- A consistent release was identified at the end of the /mn/ sequence (Figures 4-8).
- A silent period between the end of voicing and this nasal release provides evidence for the presence of a devoiced nasal (Figure 7).
- Speakers vary in how they realize final /mn/ sequences (Figures 4-8).

IV. Discussion

Figure 4 An example from S6, who typically has a voiced portion of the nasal, then a voiceless period, then a brief low-amplitude broadband noise that is taken to be the final nasal consonant. S2 and S4 show a very similar pattern (Figures 5-6).

Figure 5 An example from S1. This speaker shows a pattern similar to the previous three, except that he also consistently has an additional low-amplitude broadband noise in the middle of the /mn/ sequence. This is probably the release of the /m/, so this speaker has a release noise for each nasal separately.

- Because of low amplitude and devoicing, it is difficult to identify the boundary between the /m/ and the /n/, so rather than measuring duration of the /m/ and the /n/, duration of the voiceless part of the nasal sequence, of the voiceless part, and of the release noise (if present) are measured.

IV. Conclusions

- Devoicing occurs in the /sm/ sequence.
- Devoicing occurs in the /mn/ sequence in this environment except in one speaker.
- The method in which speakers realize the /mn/ sequence varies across speakers.
- Articulatory data in combination with acoustic data is necessary to determine which part of the nasal sequence is the /m/ and which is the /n/, and to confirm the original of the broadband release noises.

IV. Future Research

- Perception test using non-native listeners to determine what can be heard.
- Ultrasound and video data to determine the timing of articulations of /mn/ sequence.
- Oral and nasal air flow measurements to determine the the origin of the word-final /mn/ release and to confirm that nasals are devoiced rather than deleted.
- Electroglotograph data to determine the exact timing of voicing in relation to the spectrogram.

References

Petrovici, Emile. 1930. De la nasality in Roumain. Institut de Arte Grafice ‘Ardealul’. Cluj

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