Phonetic variation and contrast neutralization patterns in Romanian fricatives across different speech styles

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We compare the acoustic properties of Romanian fricatives across three different speech styles: controlled experimental speech (n=31) [5], (b) continuous speech from news broadcasts (141 speakers) [3, 6] and (c) conversational speech collected using the Map Task approach [following 1, 2]. Previous work with Romanian controlled speech [4, 5] identified two phenomena related to fricatives: (1) /h/ is realized as glottal, velar and palatal, with a complex allophonic/free variation distribution, and (2) the plain-palatalized contrast (which has high functional load as a number and person marker) is partially neutralized with alveolars and postalveolars. We use a novel tool [5] to identify the properties of these fricatives and neighboring vowels. The feature set employed for coding their acoustic properties comprises cepstral coefficients 0-5. We measure the acoustic features at 10-ms intervals; the measures obtained are then binned into three contiguous regions for each segment (onset, steady state, and offset). The boundaries between regions are set using a hidden Markov model to determine three internally uniform regions with respect to their acoustic properties. The mean value of each acoustic feature within each region is then obtained. This enables us to identify changes over time, which are crucial in the case of partial neutralization. By identifying (1) the various acoustic manifestations of /h/ and the frequency/environment of their occurrence, and (2) the neutralization patterns of the plain-palatalized contrast, this study documents the properties of Romanian fricatives and contributes to our understanding of the dynamics of sound change in phonological systems.

References

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