Vowel centralization in Romanian: Traces of sound change in connected speech
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This study explores the hypothesis that traces of sound change can be found in connected speech processes as loci of variation. We study this variation through its hypothesized link to errors produced by an ASR system run on continuous speech. The case study is the vowel alternation [e] – [Ã] encountered in Romanian historically, as a relatively marginal sound change with unclear conditioning, and synchronically, as a phenomenon commonly observed in continuous speech. The specific question addressed in this study is whether the synchronic phenomenon in Romanian continuous speech is simply the result of general vowel reduction, or it preserves some of the characteristics of the sound change, such as its apparent sensitivity to a labial consonantal context. We focus on the prepositions pe 'on' and de 'of', chosen specifically for their status as function words undergoing more frequent and stronger vowel reduction than lexical words. We use an ASR system developed for Romanian to identify the prepositions in 7 hours of Romanian broadcast news, containing continuous read or semi-prepared speech and spontaneous speech (debates). The system is allowed to align two possible variants with the orthographic symbol <e>: a front vowel and a central vowel. By comparing counts on the ASR system output we find that:

- a preceding labial does make a difference for the quality of the vowel <e>;

- a following non-front vowel also affects the quality of the vowel, as in vowel harmony;

- and these effects are cumulative with a general tendency for vowel reduction which is stronger in the function words de, pe than in the same sequences encountered elsewhere in the corpus.

We propose that the results obtained allow us to better understand the conditioning environment of the past sound change, and at the same time reveal language-specific articulatory and co-articulatory settings and dynamic patterns as they emerge and can be observed in continuous speech. Relying on ASR system errors can be a promising way of exploring hypotheses about sound change.