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Phonetic variation in accents of Dutch: an experimental study on the effect of vowel variation on L1 and L2 perception

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Background and motivation: Variability is a key property of any type of natural speech and it can have various causes, including regional talker accents. Previous research on the effect of regional variation in SLA has often focused on the role of L1 regional variation (e.g. Chládková and Podlipsky, 2011) or on the acquisition of L2 regional varieties by different groups of learners (e.g. Escudero & Boersma, 2004). The current study is innovative in its aim to examine how listeners perceive vowel variation in multiple regional accents in their L2, compared to standard accents, and in relation to L1 listeners.

Research question: We address the question of whether phonetic variation in a regional accent in Belgian Dutch affects the perception of Belgian Dutch and French listeners. Additionally, and driven by current speech learning models (e.g. SLM-r, Flege & Bohn, 2021), we examine whether the effect of regional variation is moderated by the type of vowel ('easy' vs. 'difficult' vowel) and task (categorization vs. transcription task).

Method: A total of 40 listeners performed a categorization task with isolated words containing four Dutch vowels and a transcription task assessing the intelligibility of the same stimuli embedded in nonsensical sentences. Stimuli were produced by four native speakers of Dutch. Two speakers read the stimuli with a Standard Dutch and two with a regional Dutch accent (specifically, the Brabantine accent spoken in Antwerp), in which the vowels are crucially different. Inferential statistical analyses were carried out in R using the lme4 package (Bates et al. 2015) to carry out a mixed-effects logistic regression with the responses on the test trials (correct vs. incorrect) as the dependent variable.

Results: The results revealed that the Belgian French listeners, who are exposed to the Standard Dutch accent in their foreign language classrooms, did not experience more difficulty categorizing or transcribing regionally accented vowels than Standard Dutch vowels, though they were outperformed by native Dutch listeners on both tasks. No task effects were observed, i.e. participants did not perform better on the transcription task than on the categorization task.

Discussion and implications: The results suggest that a regional accent does not necessarily present an additional challenge to non-native listeners and that the acoustic properties of L2 accented vowels and their relation to L1 vowels may be decisive in the listeners' success at identifying L2 vowels. In the field of Dutch as a Second Language, it has been suggested that regional accents in Belgian Dutch are highly problematic for L2 learners. While this may be true for morphological or lexical variation, it should not be assumed that all phonetic variation presents a challenge for L2 learners. In fact, our results showed that Standard Dutch vowels and vowels in the regional accent were overall equally difficult, even though the L2 learners had had little exposure to the regional accent. Although we should be careful not to overgeneralize the results of our study, the observation that listeners show great tolerance for vowel variation in different accents is in line with recent research by Shaw et al. (2018) and has implications for modelling L2 representations as well as for implementing accent variation in teaching second languages.

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