Jouw "voornaam" is niet mijn "voornaam": An acoustic analysis of individual talker differences in producing lexical stress in Dutch

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Different people talk differently, even speakers from the same region. This individual variability results in large acoustic variability in speech, both at the segmental level (productions of vowels and consonants) and the suprasegmental, or prosodic, level (e.g., lexical stress). While individual differences in segment production are well established in the literature, relatively little is known about how individual talkers differ in their prosody. The present study examined individual-talker differences in productions of lexical stress. We recorded 744 tokens of Dutch segmentally overlapping words (e.g., VOORnaam vs. voorNAAM; 'first name' vs. 'respectable') in variable sentence contexts from 40 native speakers of Dutch (balanced gender; relatively homogeneous Nijmegen-centered sample), and measured acoustic cues to lexical stress (mean F0, F0 variation, duration, spectral tilt, intensity, and vowel quality). Linear Discriminant Analyses (LDA) on data from each individual participant yielded sets of cueweights for each participant, informing us on their phonetic cue-weighting strategies. Results showed – on top of a general trend to primarily use mean F0, intensity, and duration – that each participant also employed a unique combination of cues to signal lexical stress, illustrating large prosodic variability between talkers. Moreover, classes of cue-weighting strategies emerged, with a large group of primarily F0-weighting talkers and another group of primarily intensityweighting talkers. Furthermore, based on LDA accuracy scores, we confirmed that spectral tilt was a more reliable cue to lexical stress than intensity for /a:/. However, when 9 other vowels were included in the analysis, this advantage disappeared, suggesting that for a larger sample of Dutch vowels both cues are equally important. Together, these outcomes contribute to a more comprehensive acoustic description of lexical stress in Dutch, allowing group-level and individual-talker inferences.