Vowel reduction based on prosodic position in Dutch

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Vowel reduction in Dutch is a phenomenon which only targets vowels found within unstressed syllables (Kager, 1989). However, not all unstressed vowels are equal in terms of reduction. There is a multitude of factors contributing to vowel reduction in Dutch, including, but not limited to: Word position, syllable weight, segmental context, sociolinguistic context, vowel quality, and word-internal prosody.

For instance, Dutch vowel reduction can occur only word internally, preferably in open syllables beginning in a consonant other than /ɦ/ (Booij, 1995; van Oostendorp, 2000). Vowel reduction tends to only occur in less formal contexts, as it is considered sub-standard (van Oostendorp, 2000; Booij, 1995; Kager, 1989). Specific vowel quality also matters in vowel reduction in the sense that some vowels are less often reduced than others. Distinct vowel reducibility hierarchies have been proposed in Booij (1995) and Kager (1989), based on vowel quality. Vowels at the top of the hierarchy (i.e. /e/) are more reduced than vowels at the bottom of the hierarchy (i.e. /u/). Despite the lengths at which vowel reduction has been discussed in Dutch, conclusions have been almost exclusively made based on impressionistic data. The only instrumental study of Dutch vowel reduction is to be found in van Bergem (1994).

The variable I focus on the most here is word-internal prosody, as some prosodic positions within the word are inherently more prominent than other ones, even among unstressed syllables. For instance, in sequences of syllables embedded between two stressed syllables, the second syllable is usually less reduced than the first one (Kager, 1989). Consider Dutch *locomotief* ($_{,}\sigma\sigma_1\sigma_2{}'\sigma$). In this example, σ_1 tends to be reduced more than σ_2. Multiple theories have been proposed in order to account for such differences of prominence between word-internal unstressed syllables, usually by recourse to prosodic structures intermediate to the syllable and the word.

The most convincing account of differential vowel reduction in unstressed syllables is provided in Kager & Martínez-Paricio (2018), by positing an internally-layered foot structure in Dutch (Martínez-Paricio, 2012; Martínez-Paricio & Kager, 2015). Following this account, foot initial positions are posited as inherently more prominent than other positions within the foot, and feet in Dutch can be recursive (e.g. $(\sigma_1('\sigma_2\sigma_3)_{FtMin})_{FtMax}$). For instance, within $(\sigma_1('\sigma_2\sigma_3)_{FtMin})_{FtMax}$, σ_2 is more prominent than σ_1, because it bears stress, which is more prominent than σ_3, because it is foot initial, hence the fact that σ_1 more readily reduces than σ_3. In the case of Dutch *locomotief* ($_{,}\sigma_1\sigma_2\sigma_3{}'\sigma_4$), Kager and Martínez-Paricio (2018) argue that the difference in reduction behavior between σ_2 and σ_3 is due to the internally layered foot structure of the word: ($_{,}\sigma_1\sigma_2)(\sigma_3('\sigma_4)$)

The main goal of the current study is to acoustically measure whether vowels contained within series of two syllables embedded between two stressed syllables are indeed reduced to different degrees in Dutch, as this has never been done before. If there is an significant observable difference, I will additionally attempt to verify whether Kager & Martínez-Paricio (2018)'s internally layered foot account correctly maps onto the collected data.

In order to collect data, a production task will be conducted. Participants will be recorded reading Dutch sentences containing words of four to five syllables containing identical unstressed vowels in different prosodic contexts. The prosodic contexts are unstressed strong (i.e. foot-initial) and unstressed weak (i.e. non-foot-initial). The list has already been devised through queries on the CELEX corpus (Baayen et al., 2022).

References

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