Deconstructing (ING)

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Over 50 years of research has provided a good understanding of the linguistic and social factors conditioning the variable realization of nasal consonants in word-final unstressed –*ing* (ING) (e.g. Campbell-Kibler 2009; Fischer 1958; Houston 1985; Labov 1966; Trudgill 1974). In contrast, the *vowel* in (ING) has received less attention (cf. Yuan & Liberman 2011), although it has long been noted (e.g. Wells 1982) that its phonetic realization may range from [ə] through [ɪ] to [i]. More recently, the phonetic form [in] has been identified as a third variant of (ING) that is on the rise in Canadian English (e.g. Chambers 2009). However, since most studies of [in] (e.g. Rosen et al. 2016) are based on impressionistic coding, its status remains unsettled. Is [in] a third variant of (ING) or the result of intersecting processes of consonantal and vocalic variation?

This paper attempts to answer this question by analyzing the social and linguistic factors conditioning the (ING) vowel, using data from a corpus of Toronto English (Hoffman & Walker 2010) stratified by speaker sex, ethnic background (British/Irish, Chinese, Greek, Italian, Portuguese, Punjabi) and generation (1^{st} vs. $2^{nd}/3^{rd}$) or age-group (18-30 vs. 40+). From sociolinguistic interviews with 76 speakers, we exhaustively extracted all occurrences of (ING) containing an audible vowel. Each of the 5,612 tokens was coded for its phonetic realization, both impressionistically (by three listeners) and acoustically (via FAVE-Extract (Rosenfelder et al. 2011)), as well as for a series of linguistic and social factors: the preceding segment, the place of the following nasal, the morphological class of the word, and the speaker's sex, ethnic background and generation/age-group. Since the listeners could not achieve at least 90% agreement in coding the phonetic realization of the vowel, for this analysis we use the acoustic measurements, taking the Lobanov-normalized F1 values (an indication of vowel height) as the dependent variable in a mixed-effects regression model with Rbrul (Johnson 2009), with speaker and lexical item as random effects.

The greatest effect on the realization of the (ING) vowel is the preceding segment, with obstruents (especially velars) favoring higher vowels. First-generation non-British/Irish speakers have the highest vowels, presumably reflecting the lack of a tense/lax distinction in their first language. Once we remove these speakers from the analysis, the strongest effect on vowel height is an interaction factor group of speaker sex and following place, with females favoring higher vowels with apicals ([in]) and males favoring higher vowels with velars ([iŋ]). Although vowels with a following velar nasal are slightly higher than those with following apicals, the difference is not significant. These findings argue against the hypothesis of a third variant – rather, [in] lies at the confluence of variation in both components of (ING). We suggest that its salience may stem from the relative perceptibility of vowels depending on the following context.

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