The effect of prosody and dialectal variations on syllable-final nasal mergers in Taiwan Mandarin spontaneous speech

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Our previous work found two syllable-final nasal mergers, /in/→[iŋ] and /əŋ/→[ən], in Northern Taiwan Mandarin, and an additional /iŋ/→ [in] in Southern Taiwan Mandarin (Fon et al. 2011). All Mandarin-Min (a local substrate) bilingual speakers considered the new rule /in/→[iŋ] positive, and the old rule /iŋ/→ [in] negative. /əŋ/→[ən] was also an old rule, deemed positive only by northern Mandarin-Min bilingual speakers, while those from the south considered it as negative. This study examined how dialect and prosody affected the application of the mergers by using a spontaneous speech corpus. Two hours of recordings from four male speakers (two northern, two southern) were transcribed and aligned using Praat, and prosodically labeled following a modified Pan-Mandarin ToBI convention (Peng et al., 2005). Results showed there was a dialect effect. Northerners applied mergers more often than southerners (84% vs.72%). The former employed /in/→[iŋ] and /əŋ/→[n] while the latter employed /iŋ/→ [in] and /əŋ/→[ən]. Prosody also played a role. Southerners were more likely to merge syllable-final nasals at prosodic boundaries than at non-boundaries for both mergers (/iŋ/→ [in] 83% vs. 64%; /əŋ/→[ən]: 100% vs.79%). In contrast, northerners were less likely to merge syllable-final nasals at prosodic boundaries, but only for /in/→[iŋ] (50% vs. 90%). No such difference was found for /əŋ/→[ən]. This implies that recently acquired positive mergers tend to be suppressed by prosodic boundaries, but the old ones are less affected. In contrast, negative mergers are harder to suppress at prosodic boundaries. This is likely due to a heavier processing load at boundary locations.

Keywords: syllable-final nasal merger, spontaneous speech, dialectal variation, prosodic boundary