CHAPTER 7

Variable (ING)

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7.1 English Unstressed *ing*

In this chapter and the next, we will examine two of the most widely analyzed variables in English: the realization of unstressed word-final *–ing*, conventionally referred to as variable (ING), and coronal stop deletion, or CSD. (ING) captures the alternation between forms like *running* [ɹʌnɪŋ] and *runnin'* [ɹʌnɪn], which is nearly ubiquitous in English-speaking communities. An extensive list of sociolinguistic studies has examined this variable in various parts of the English-speaking world (e.g., Fischer 1958; Labov 1966, 2001; Trudgill 1972, 1974; Wald and Shopen 1981; Horvath 1985; Houston 1985, 1991; Tagliamonte, 2004; Campbell-Kibler, 2007, 2008, 2009; Hazen, 2008; Wagner, 2012; Walker, 2013; Kendall, 2013; Forrest, 2015). Nevertheless, relatively few studies have examined variable (ING) in language contact situations and only a handful of studies have investigated (ING) among non-white Anglo, non-African American groups. Here, with the exception of Merrill (1987), which we will discuss shortly, the primary published accounts have been in non-US contexts. For instance, Drummond (2012a), Schleef et al. (2011), Meyerhoff and Schleef (2012), and Schleef (2013) examined (ING) in the English speech of Polish migrants in communities in England, while Walker (2013, 2017) examined (ING) in the English of Italian, Portuguese, and Chinese heritage groups in Toronto, Canada. The studies of Polish migrants in the United Kingdom have indicated that L2 speakers both fall into line with native speakers' internal constraints for (ING) and are subject to influence from their L1. That is, in the case of Drummond's (2012a) study of Polish migrants, L2 speakers realized forms like [-ɪŋk], which can be attributed to their L1 phonology, although they simultaneously showed grammatical category effects favoring [-ɪn] forms to match those from studies of native English speakers (see below). Walker's analyses of heritage language groups

in Toronto have highlighted the complexity of the (ING) variable, raising questions about how well traditional accounts of the variable as only two opposing variants (primarily whether the nasal coda is dorsal or coronal) map onto the variability found in the diverse heritage language groups of Toronto. This observation is relevant for MxAE, for which the limited discussions of (ING) have already highlighted the fact that the variable contains more variation than just an alternation of the place of the nasal coda.

For MxAE, there has also been some discussion of (ING), but it largely relates to a third variant pronunciation, [-in] or "-een," and studies of vowel variation. Register (1977) first reported [-in] from Tucson, Arizona. García (1984) briefly mentioned the occurrence of this variant among Los Angeles Latinos and even some younger non-Latinos, adding in a footnote that other observers had heard it among Latinos from other states. Galindo (1987, 1988) analyzed the realization of unstressed /ɪ/ as [i] in Austin, Texas, including both *–ing* words and other cases of unstressed /ɪ/. Although she did not distinguish /n/ from /ŋ/ (or from /m/) and did not separate *–ing* forms from other words in her analysis, she did note that position before a nasal showed the highest probability of /ɪ/ being realized as [i]. Mendoza-Denton (2008), examining a community in the San Francisco Bay area, found that the only context favoring realization of /ɪ/ as [i] was position before /ŋ/ and that this realization was especially frequent in *-thing* pronouns. [-in], as García (1984) noted, is not restricted to MxAE. In fact, Woods (1991) found it among white Anglos in Ottawa, Canada, a city with few Latinos. He attributed its presence there to hypercorrection of [-ɪn] to [-in].

Of the earlier studies, Merrill's (1987) dissertation is perhaps most germane to the present endeavor. Merrill analyzed (ING), among other variables, in a survey involving 24 subjects whose first language was Spanish (all Mexican Americans) and 24 subjects whose first language was English (all Anglos, based on the subject descriptions in Merrill 1987: 300–05), evenly distributed across three age groups, in the city of McAllen, in southern Texas. She attempted to code (ING) for five variants ([-ɪŋ], [-ɪn], [-iŋ], [-in], and [-iŋg]) for her speakers, although she was able to detect very few or no instances of any variants other than [-iŋ] and [-ɪn] and ended up limiting her analysis to these two forms. This outcome – her failure to uncover the other variants and her reporting the high correspondence of the tense vowel with a velar nasal and the lax vowel with a coronal nasal – is likely a function of her impressionistic coding and the methods of the time. It might be

added, nevertheless, that the fact that she expected to find the other variants conforms with the discussion above, that MxAE involves a wider range of vowel variants than expected for Anglo varieties. Merrill's analysis examined a range of factors, including phonological and grammatical contexts, speech style and speaker sex, and the generational cohort of the Spanish L1 speakers. A number of trends emerged in her analysis, including a higher rate of use for [-iŋ] for her second generation Spanish group over the first generation and for females over males, although most of the patterns she detected did not reach statistical significance. Some statistical differences did emerge, including that the Spanish L1 speakers had some differences in how grammatical category influenced (ING) – such as producing more [-iŋ] in pronouns and less [-iŋ] in prepositions than English L1 speakers – and did not conform to the stylistic pattern that emerged for the native English speakers. Ultimately, however, Merrill concluded that her (ING) analyses suggest that her Spanish L1 speakers' use of (ING) did not diverge sufficiently from that of the local English monolinguals to constitute a separate variety.

Studies of (ING) in traditional contexts find recurring and usually stable patterns. In fact, (ING) is perhaps best known for being the paragon example of a stable variant, with various studies identifying age-graded patterns without change over time. Rates of variable (ING) are known to vary by a range of other social factors, including the gender, socioeconomic status, and regional background of a speaker. For example, lower socioeconomic status speakers have been shown to have higher rates of [-ɪn] than higher socioeconomic status speakers (e.g., Labov 1966) and Southern speakers have shown to have higher rates of [-ɪn] than other regional groups. For example, Hazen (2008), in a comprehensive survey of (ING) across West Virginia, finds that residents of southern West Virginia use higher rates of [-ɪn] than residents of the northern parts of the state. Typically, males are identified as using higher rates of [-ɪn] than females (e.g., Fischer 1958; Labov 1966; Trudgill 1974; Wald and Shopen 1981; Horvath 1985, Forrest 2015), although a few more recent studies, such as Hazen (2008) and Drummond (2012a), have found women using more [-ɪn] than men. To the extent that ethnicity has been considered in studies of (ING) in the USA, studies typically find that African Americans use much higher rates of [-ɪn] than Anglos (Labov 1966, 2001; Anshen 1969). Kendall (2010), for instance, reported that adolescent female African Americans in his study produced 84 percent [-ɪn], even in the context of an interview with an Anglo adult with relatively standard speech who realized only 28 percent [-ɪn] in her own speech.

A variety of linguistic factors have been shown to condition (ING) realization, including grammatical category, phonological environment, syllable-length, and word frequency. Grammatical category has been studied especially extensively in most of the studies since Wald and Shopen (1981). While different sociolinguistic studies have coded and discussed the effects of grammatical category in different ways, verb-like forms and noun-like forms are often viewed as poles (see Drummond 2012a: 109), with numerous findings across studies reporting that verbal forms tend to favor [-ɪn] but noun-like forms disfavor that form.[1] A number of studies have found some phonological environment effects, although these have been consistently less influential than grammatical category effects, and some reports have viewed phonological effects to be absent or secondary (Labov 2001; Tagliamonte 2004). Nevertheless, the extent to which phonological factors influence (ING) realizations appears to distinguish American English configurations from at least some of British English configurations. Within England, different varieties often show greater phonological influences (e.g. Schleef 2013). When they occur as influential factors, following phonological environments typically show a regressive assimilatory effect – alveolar following consonants promote [-ɪn] while velar following consonants promote [-ɪŋ] (Houston 1985; Tagliamonte 2004; Kendall 2013; Forrest 2015) – while preceding phonological environments have been found to have a dissimilatory effect in some studies (Houston 1985; Tagliamonte 2004) but more frequently, especially outside the United Kingdom, they have not proved to be significant (Labov 2001; Hazen 2008). Other factors, such as syllable length effects (Tagliamonte 2004; Kendall 2013) have been studied less often but appear to show similar effects across English varieties (only multisyllabic words with unstressed final *–ing* qualify as the variable context for (ING); two-syllable words have the highest rate of [-ɪn] realization with rates decreasing as word length increases). Word frequency has less consistently been found to exert an effect, although recent work by Forrest (2015, 2017) suggests that frequency effects may be more important in (ING) variation than previously assumed.

Most of the aforementioned studies of (ING) have treated the variable as a binary, contrasting two possible forms, a "less-standard" coronal *–in'* form (≡[-ɪn]) and a "more-standard" dorsal *–ing* form (≡[-ɪŋ]). As indicated by the discussion above, a few recent studies have examined a wider range of realizations, with, for instance, Drummond (2012a) including oral stop forms, [-ɪŋk] and [-ɪŋg]. Most recently, Walker (2017) instrumentally examined the vowel realizations in (ING) forms

among the Contact and the City Corpus (Hoffman and Walker 2010). For the present study, (ING) forms were coded impressionistically into five possible categories, based on initial assessments of the forms realized in North Town. Three of these forms occur frequently in the North Town data, [-ɪŋ] (N = 926), [-ɪn] (N = 1,149), and [-in] (N = 525), and two occur infrequently, [-(ɪ)m] (often but not always syllabic [-m̩], N = 55), and a null, or zero, form, zero (N = 47). Data were coded from 42 of the North Town speakers, 31 Mexican Americans and 11 Anglos, with an average of 64 tokens coded per speaker.

We investigate (ING) variation in three ways. We first look, in §7.2, at (ING) from a social perspective, asking how (ING) patterns compare between Mexican American and Anglo speakers in North Town, and also examining the effects of the other available social/demographic factors along with the role of grammatical category, the linguistic constraint expected to have the most influence on (ING) patterns. In §7.3, we focus on the data from the 31 Mexican Americans to look more closely at a wider set of linguistic constraints on variable (ING) in MxAE alone. Then, in §7.4, we turn our attention to four speakers for whom we have coded the (ING) data to a greater depth to examine some more nuanced questions about (ING) variation.

7.2 Variable (ING), Ethnicity, and Other Social Factors in North Town

Tokens of (ING) were coded from the North Town recordings by the second author. Coding was conducted through a combination of auditory judgment and scrutiny of spectrograms. The [-ɪŋ] and [-in] forms are especially difficult to distinguish from each other because [-ɪŋ], which might more accurately be transcribed [-ɪiŋ], shows continuously falling F_1 and rising F_2 values as it approaches the dorsal nasal. Generally, F_2 exhibits a slight fall after [i] as it approaches a coronal nasal, indicating that the token is realized as [-in]. Replaying of tokens and spectrographic examination of different splices of the signal were employed as needed.

As noted above, the five variants of (ING) occur at different rates, with zero and [-(ɪ)m] forms occurring infrequently. Figure 7.1 displays the proportions of the three major variants, with the two minor variants disregarded, for each individual. Anglos are bunched along one side of the triangle, reflecting the fact that they seldom or never use [-in]. Several of them are concentrated in the corner representing nearly categorical use of [-ɪn]. This high rate of [-ɪn] use among the Anglo speakers accords with

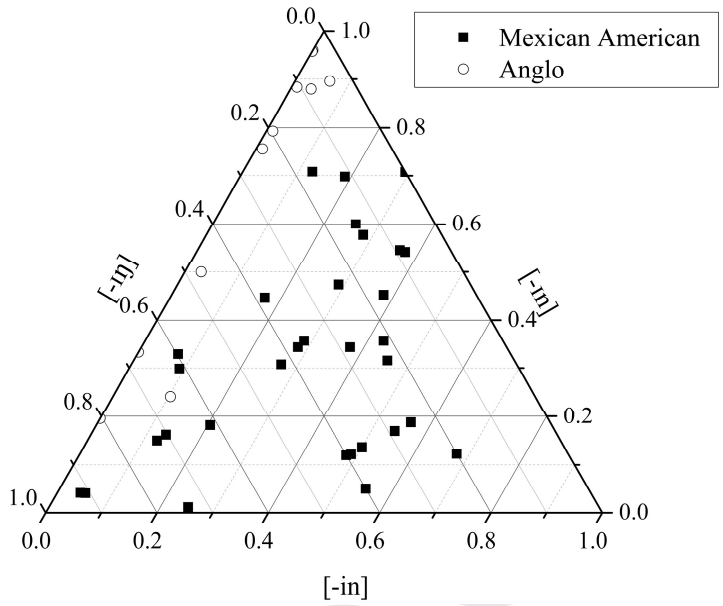

Figure 7.1 Configuration of individual speakers for the three main realizations of (ING).

other descriptions of rural Southern Anglo American English varieties (e.g. Anshen 1969; Wolfram & Christian 1976). Mexican Americans, with a few exceptions, tend to occupy the interior of the triangle. A Pearson's chi-squared test confirms that the differences between Anglos and Mexican Americans are significant ($\chi^2 = 492.4$, $p < 0.00001$).

Figure 7.2 shows the aggregated rates of use for each of the variants, including the minor ones, by ethnicity. As a whole, Mexican Americans use [-ɪŋ], [-ɪn], and [-in] at relatively similar rates. Anglos exhibit 68 percent usage of [-ɪn]. Moreover, the status of [-in] as a MxAE form that lies almost completely outside the repertoire of local Anglos is reaffirmed. A considerable fraction of the Anglo tokens of [-in] occurred after dorsal sounds as a result of coarticulation, whereas coarticulation could not account for most of the Mexican American tokens. As for the zero and [-(ɪ)m] forms, it may be noted that zero is more common among Mexican Americans and [-(ɪ)m] among Anglos. Most of the [-(ɪ)m] forms among Anglos are instances of *something* realized as [sʌmʔpm̩]. Among Mexican Americans, however, many [-(ɪ)m] forms are instances of other words

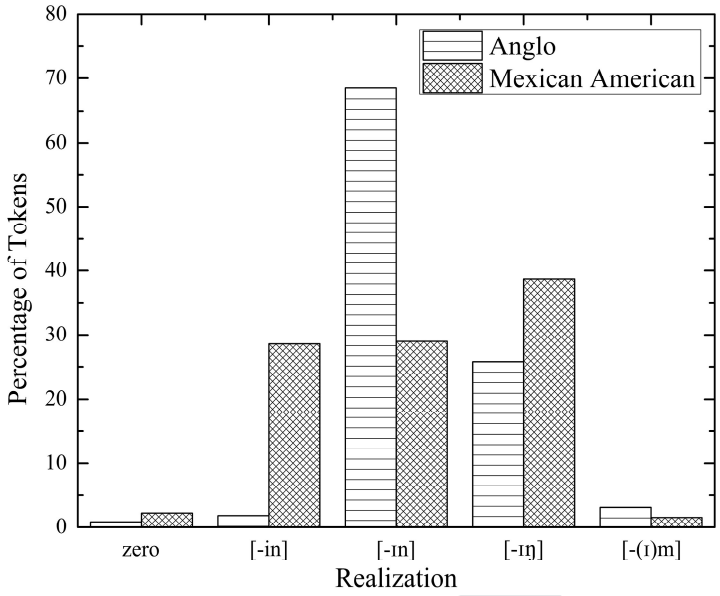

Figure 7.2 (ING) realizations by ethnic group.

showing assimilation to a following labial, as in "tell[ɪm] me" and "go[ɪm] back." The zero tokens do not show obvious lexical or phonological patterns.

Figure 7.3 shows the North Town (ING) data by grammatical category and ethnicity for the three frequent realizations of (ING), [-ɪŋ], [-ɪn], and [-in]. Grammatical categories were coded into eight levels: progressive verbs, adjectives, gerunds modifying nouns, other gerunds, nouns, participles, the prepositions *during* and *according*, and the pronouns *something* and *nothing*. A comparison of the grammatical patterns by ethnicity points to some substantial differences, not only in the forms used by the two groups but also in their grammatical conditioning. Anglos here continue to conform to expectations from the larger literature, with adjectival and nominal forms disfavoring [-ɪn] and other categories strongly inclined toward [-ɪn]. Mexican Americans also show relatively high rates of [-ɪŋ] for adjectival and nominal forms, and, like the Anglos, favor [-ɪn] for prepositions, but they show some substantial differences from the Anglos, such as in the case of gerunds modifying nouns. Moreover, levels of [-ɪn] usage differ less dramatically by grammatical use among Mexican Americans than among Anglos.

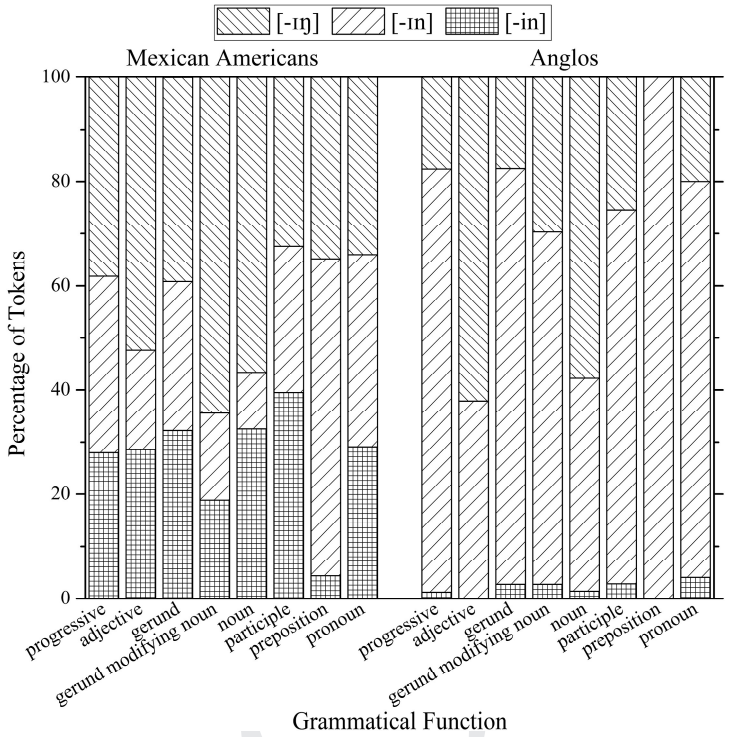

Figure. 7.3 (ING) realization by grammatical category and ethnicity for the three main realizations.

In order to evaluate just how different (or similar) the grammatical category effects are between (ING) use in MxAE and in Anglo MAE, we ran a conditional inference tree (ctree) analysis (Hothorn, Hornik, and Zeileis 2006) using the *partykit* package in R (Hothorn and Zeileis 2014). The resultant tree is displayed in Figure 7.4.

The conditional inference tree confirms that (ING) patterns differ between the two groups in North Town. Ethnicity is the most influential factor in the analysis, causing the first split in the tree. Then, grammatical category effects exhibit clear differences. In line with our observations above and expectations from prior studies, Anglos, the left main branch of the tree, show splits between pronouns and other grammatical categories because of the frequent occurrence of [-(ɪ)m] in *something*. Then adjectives and nouns split from the remaining grammatical categories with a higher rate of [-ɪŋ] over [-ɪn] in contrast to the other categories. The Mexican

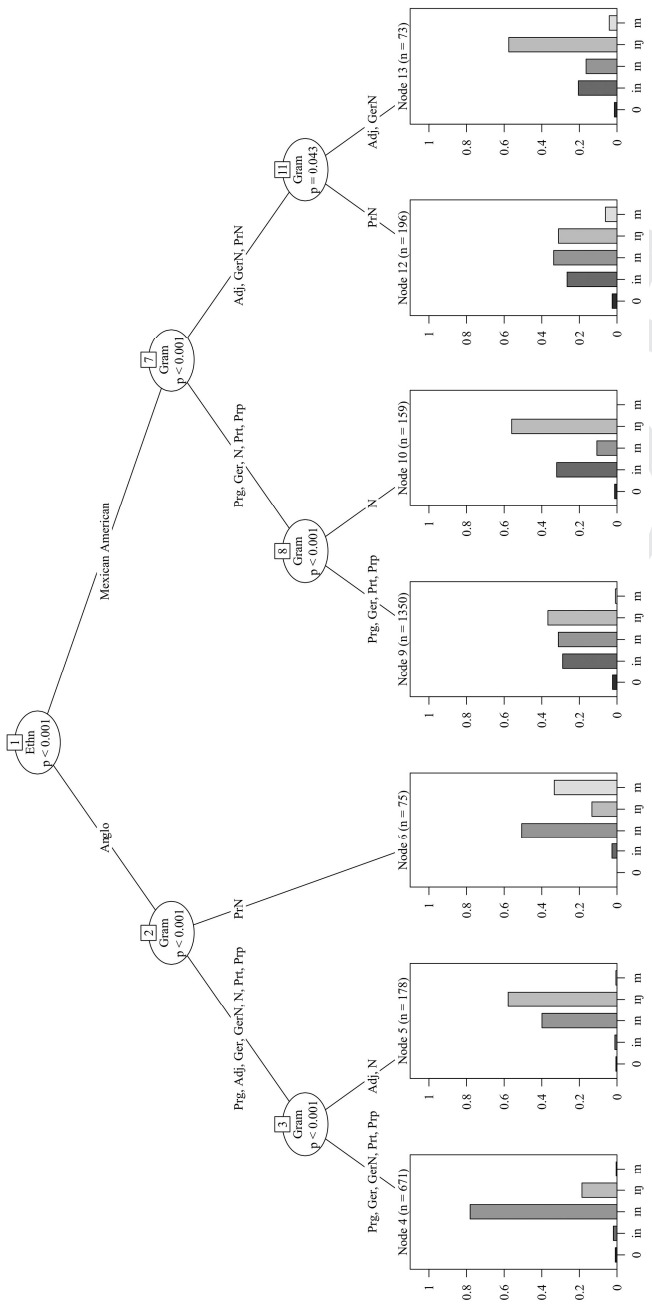

Figure 7.4 Conditional inference tree results, considering ethnicity and grammatical category for (ING). (Prg = progressive verb, Adj = adjective, GerN = gerund modifying noun, Ger = other gerund, N = noun, Prt = participle, Prp = preposition, PrN = pronoun (*something* or *nothing*).)

Americans, the right main branch of the tree, show different and less expected splits. The first split separates adjectives, gerunds modifying nouns, and pronouns from the other grammatical categories – progressives, other gerunds, nouns, participles, and prepositions. Nouns then split from this latter group favoring [-ɪŋ] and then [-in] and disfavoring [-ɪn] while progressives, gerunds, participles, and prepositions show relatively balanced rates of [-ɪŋ], [-ɪn], and [-in]. In the final branch, pronouns, with relatively balanced rates of [-ɪŋ], [-ɪn], and [-in], split from the adjectives and gerunds modifying nouns, which favor [-ɪŋ].

To assess what (other) social factors influence the realization of (ING) in North Town, a series of mixed-effect logistic regression models was tested on the (ING) data for the three frequent realizations, [-ɪŋ], [-ɪn], and [-in]. Models included a random intercept for speaker. Two models were developed, one that tested for the use of [-ɪŋ] as the dependent variable and one that tested for the use of [-ɪn] (i.e. the first model assessed whether the realization was the standard [-ɪŋ] as opposed to one of the other two main realizations and the second model tested [-ɪn] against [-ɪŋ] and [-in]). Models were developed focusing on the four social factors of speakers' ethnicity, generation, sex, and educational level. Generation, as elsewhere in this volume for discrete variables, is treated as four groups from generation 1, the oldest group, used as the reference level, to generation 4, the youngest group. Sex is treated as a binary factor, with female tested against a reference level of male. Education is examined, also following the practice for discrete variables in other chapters, as a three-level factor, with level zero (the reference level) meaning no high school education, level 1 meaning at least some high school but no post-secondary education, and level 2 meaning at least some post-secondary education, up to a post-graduate degree. Models also included the internal factor of grammatical category (coded into 8 levels, as described above), in that this factor is expected to be the main linguistic factor at work and we are interested in possible interactions between ethnicity (or other social factors) and grammatical category. For our purposes here of assessing social factors, other possible internal factors were not included (see §7.3 for a more complete assessment of internal, linguistic constraints for the Mexican Americans). All two-way interactions were examined. Models were developed by step-wise comparisons of models differing a step at a time using likelihood ratio tests (cf. Baayen 2008). A separate model testing [-in] against [-ɪŋ] and [-ɪn] is not included here, since Anglos realize so few of this variant ($N = 17$).

The best model for [-ɪŋ] identified a significant interaction between ethnicity and grammatical category (but not a significant main effect for

Table 7.1 *Best-model logistic regression results for use of [-ɪŋ] as opposed to [-ɪn] or [-in], with speaker as a random effect. Reference settings are grammatical category = progressive, ethnicity = Anglo, generation = 1st. Akaike Information Criterion = 2666.2, Bayesian Information Criterion = 2783.4, log likelihood = −1313.1. Sex and educational level were not significant in preliminary models and are thus excluded here.*

Random effects:				
Group	Variance		Standard dev.	
Speaker (Intercept)	1.553		1.246	
Fixed effects:				
	Estimate	Standard error	z value	p value (>|z|)
Intercept	−2.389	0.443	−5.398	<0.0001
Gram. Cat. = Adjective	2.763	0.485	5.699	<0.0001
Gram. Cat. = Gerund	−0.036	0.262	−0.138	0.8905
Gram. Cat. = Gerund modifying noun	1.304	0.498	2.619	0.0088
Gram. Cat. = Noun	2.275	0.292	7.804	<0.0001
Gram. Cat. = Participle	0.709	0.379	1.872	0.0612
Gram. Cat. = Preposition	−11.799	21.446	−0.550	0.5822
Gram. Cat. = Pronoun	0.261	0.452	0.577	0.5637
Ethnicity = Mex. American (not Anglo)	0.612	0.521	1.175	0.2402
Generation = 2 (not 1, oldest)	1.622	0.549	2.955	0.0031
Generation = 3 (not 1, oldest)	1.387	0.575	2.413	0.0158
Generation = 4 (not 1, oldest)	1.029	0.636	1.619	0.1056
Gram. = Adjective x Ethn. = Mex. Am.	−2.338	0.739	−3.165	0.0016
Gram. = Gerund x Ethn. = Mex. Am.	0.203	0.301	0.673	0.5011
Gram. = Ger. mod. noun x Ethn. = Mex. Am.	0.091	0.617	0.148	0.8824
Gram. = Noun x Ethn. = Mex. Am.	−1.401	0.355	−3.952	0.0001
Gram. = Participle x Ethn. = Mex. Am.	−0.858	0.452	−1.901	0.0574
Gram. = Preposition x Ethn. = Mex. Am.	11.842	21.450	0.552	0.5809
Gram. = Pronoun x Ethn. = Mex. Am.	−0.287	0.493	−0.581	0.5613

ethnicity), a significant effect for generation, and a significant effect for the internal factor of grammatical category. Speaker sex and educational level were not found to be significant or to improve the models. Similarly, ethnicity and generation were not found to interact significantly (although we note that fewer Anglos are available across the generations). Results for the best [-ɪŋ] model are included in Table 7.1.

For [-ɪn], the best model identified significant main effects for ethnicity, sex, generation, and grammatical category. No interactions were significant and educational level was not found to be significant. Results for the best [-ɪn] model are presented in Table 7.2.

Table 7.2 *Best-model logistic regression results for use of [-ɪn] as opposed to [-ɪŋ] or [-in], with speaker as a random effect. Reference settings are grammatical category = progressive, ethnicity = Anglo, generation = 1st. Akaike Information Criterion = 2547.4, Bayesian Information Criterion = 2629.5, log likelihood = −1259.7. Educational level was not significant in preliminary models and is thus excluded here.*

Random effects:				
Group	Variance		Standard dev.	
Speaker (Intercept)	1.189		1.090	
Fixed effects:				
	Estimate	Standard error	z value	p value (>|z|)
Intercept	2.268	0.387	5.863	< 0.0001
Gram. Cat. = Adjective	−2.058	0.397	−5.184	< 0.0001
Gram. Cat. = Gerund	−0.293	0.130	−2.259	0.0239
Gram. Cat. = Gerund modifying noun	−1.184	0.314	−3.775	0.0002
Gram. Cat. = Noun	−1.930	0.198	−9.766	< 0.00001
Gram. Cat. = Participle	−0.629	0.207	−3.034	0.0024
Gram. Cat. = Preposition	1.215	0.499	2.434	0.0149
Gram. Cat. = Pronoun	0.132	0.181	0.729	0.4659
Ethnicity = Mex. American (not Anglo)	−1.435	0.494	−2.907	0.0037
Generation = 2 (not 1, oldest)	−1.114	0.487	−2.287	0.0222
Generation = 3 (not 1, oldest)	−0.947	0.517	−1.831	0.0671
Generation = 4 (not 1, oldest)	−1.698	0.572	−2.968	0.0030
Sex = Female (not male)	−1.112	0.416	−2.675	0.0075

Thus, Mexican Americans and Anglos differ significantly in their use of [-ɪn]. In accordance with Figures 7.1 and 7.2, Mexican Americans use fewer [-ɪn] forms than their Anglo counterparts. For [-ɪŋ] use, ethnic differences are less pronounced, although we find that Mexican American speakers have somewhat different constraints on their use of [-ɪŋ] (through the interaction with grammatical category). We also find a sex difference for [-ɪn] use, in agreement with widespread findings, in which males of both ethnicities favor [-ɪn] over females. Finally, we also observe from this analysis that generational differences exist in the realizations of (ING) in North Town. The latter are shown in Figure 7.5. The first generation – the oldest speakers – realizes by far the highest rates of [-ɪn]. The second generation realizes the highest rates of the standard form [-ɪŋ], with rates then decreasing among the youngest two generations. The youngest speakers, generation 4, realize the highest rates of [-in]. The behavior of the second generation is probably skewed by the fact that university-educated

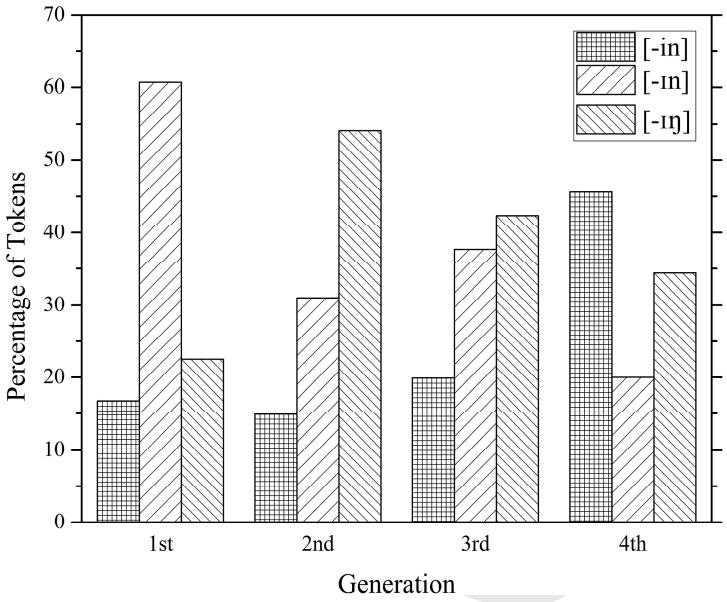

Figure 7.5 (ING) realization by generation for the three main variants.

subjects were over-represented among the second generation in our sample. The pattern across generation groups for [-in] presumably reflects an increased use of that variant over time if it is not due to age-grading.[2] If [-in] indeed constitutes an incoming variant for the Mexican American speakers, it apparently represents a case in which an interference form that had previously occurred at relatively low levels has acquired new meaning as an identity marker and has thereby expanded rather suddenly.

7.3 Internal and External Constraints on Variable (ING) in Mexican American English

We turn now to focus on (ING) specifically in MxAE by examining the speech of the 31 Mexican American speakers from North Town for whom we have (ING) data. 1,778 (ING) tokens were coded for the Mexican Americans. In line with Figure 7.1 above, the most frequent form was [-ɪŋ] (N = 688), although [-ɪn] (N = 516) and [-in] (N = 508) also occur at high rates. The less frequent forms occur with rates of N = 40 for zero and N = 26 for [-(ɪ)m]. While zero and [-(ɪ)m] occur at low rates, it is still the case that the majority of speakers use more than three of the possible forms; 22 of the

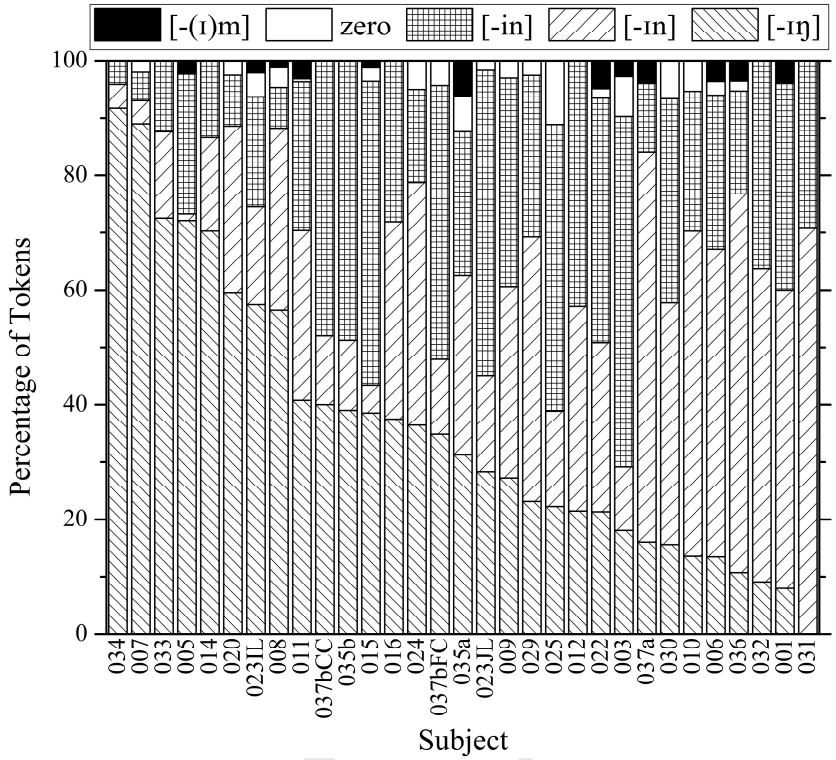

Figure 7.6 Distribution of (ING) forms for Mexican American subjects.

speakers realize at least one token of zero and/or [-(ɪ)m]. Figure 7.6 displays the distribution of forms across the speakers analyzed.

To better understand the data, we ran a series of mixed-effect logistic regression models on the (ING) data. Here we include both external, social factors *within* the Mexican American group (generation, sex, and education) and a range of internal, linguistic factors. The external, social factors are coded as described in §7.2 above. Ethnicity, of course, is not relevant and so is excluded.

For internal factors, grammatical category was included with the eight levels as described above (progressive verb as the reference level versus adjective, gerund, gerund modifying noun, noun, participle, preposition, and pronoun). Phonological effects related to the surrounding environment of an (ING) tokens were examined by means of coding a series of Boolean predictors (was the preceding consonant: labial? coronal? dorsal?

was the following consonant: labial? coronal? dorsal?). Word length (in σ) was also coded, following Kendall 2013. Word frequency was coded as a three-level factor group, based on a within-dataset measure.[3] Hapax legomena – words that occur only once – in our dataset (N = 155) were coded as "very low" frequency. Words occurring between two and five times in the dataset (N = 98) were coded as "lower" frequency. Finally, words occurring six or more times (N = 54) were coded as "higher" frequency and used as the reference level for the factor. Two measures of priming were also tested, one based on whether the speaker's previous (ING) token was the same as the present token and one based on whether the speaker's interlocutor's previous (ING) token was the same as the speaker's present token. This latter case never arose as significant in any of the models tested and is not discussed further. Speaker and the (ING) word are included in the models as random intercepts. For the modeling for each variant of (ING), we started with a maximal model testing all of the coded factors and then trimmed down the models to include only factors with levels reaching $p < 0.10$. Table 7.3 summarizes the statistical patterns in the data by listing the model estimates and p values for all factors included in the final models for each of the five realizations of (ING).

To begin by considering the two rare cases, zero and [-(ɪ)m], we can observe that no internal factors help to account for the zero form, the complete deletion of the (ING). Modeling indicates some marginal social factors, suggesting trends in which the youngest speakers (generation 4) and the least educated speakers (the reference level for the education category) are the highest users of the zero form, although strictly speaking neither of these factors reaches significance. For [-(ɪ)m], modeling shows that a) pronouns (namely, *something* realized as [sʌmʔpm̩]) and b) instances in which the following consonant is labial significantly promote this realization. This result was expected. [-(ɪ)m] is also preferred by males over females (p = 0.0471) and by the oldest generation (seen by the negative estimate for all other generations), although only the comparison between the oldest generation and generation 3 reaches significance (p = 0.0380). In general, the sparseness of significant predictors, especially for ø, is unsurprising given how few tokens occur in the dataset.

Turning to the more frequent variants, we first consider [-in]. [-in] forms are predicted by the largest set of internal factors. It is statistically favored in participle forms (e.g. "he had a lot of people work*een* there," uttered by an elderly female; "he saw sometheen com*een* to his house," uttered by a young female) and marginally disfavored for the prepositions

Table 7.3 *Mixed-effect logistic regression statistical models for the five variants of (ING), displaying all of the factors found to be significant for any of the variants. Cells with estimates of – represent factor groups not included in that variant's model. Shading represents significance level, with* p ≥ *0.10 indicated with no shading, 0.10* > p ≥ *0.05 indicated with light shading, 0.05* > p ≥ *0.01 indicated with medium shading, and* p < *0.01 indicated with heavy shading.*

	[-ɪŋ]		[-ɪn]		[-in]		o		[-(ɪ)m]	
Factor	Est.	*p* val.	Est.	*p* val.	Est.	*p* val.	Est.	*p* val.	Est.	*p* val.
Intercept	−3.429	–	1.135	–	−0.465	–	−3.272	–	−10.409	–
Gram. Cat.[a] = Adj.	0.440	0.4497	−0.622	0.3964	−0.322	0.5913	–	–	1.654	0.6574
Gram. Cat. = Gerund	0.173	0.2590	−0.335	0.0409	0.171	0.2651	–	–	−1.433	0.2791
Gram. Cat. = Ger. Mod N.	1.092	0.0029	−0.846	0.0719	−0.603	0.1514	–	–	1.527	0.4671
Gram. Cat. = Noun	0.850	0.0003	−1.349	<0.0001	0.142	0.5520	–	–	−31.373	0.9511
Gram. Cat. = Participle	−0.179	0.4826	−0.574	0.0321	0.563	0.0194	–	–	1.432	0.2742
Gram. Cat. = Prep.	−0.055	0.9323	1.205	0.1609	−2.056	0.0646	–	–	−2.645	0.8041
Gram. Cat. = Pronoun	−0.557	0.1137	−0.244	0.6152	−0.222	0.5169	–	–	10.699	0.0119
Prec. Cons. = Labial	0.824	0.0013	–	–	−0.507	0.0486				
Prec. Cons. = Coronal	1.254	<0.0001	–	–	−0.744	0.0069	–	–	–	–
Prec. Cons. = Dorsal	0.795	0.0003	–	–	−0.713	0.0019	–	–	–	–
Fol. Cons. = Labial	0.431	0.0078	–	–	−0.733	<0.0001	–	–	4.960	0.0012
Fol. Cons. = Coronal	0.295	0.0319	–	–	−0.494	0.0003	–	–	–	–
Fol. Cons. = Dorsal	0.732	0.0001	−0.341	0.0711	−0.452	0.0269	–	–	–	–
Word Length (per σ)	–	–	–	–	0.342	0.0688	–	–	–	–

Word Freq.[b] = Very Low (1)	–	–	−0.775	0.0065	0.588	0.0120	–	–	–	–
Word Freq. = Lower (2–5)	–	–	−0.790	0.0011	0.694	0.0001	–	–	–	–
Self-Primed	0.382	0.0027	–	–	0.264	0.0464	–	–	–	–
Generation 2 (not 1)	1.495	0.0034	−0.490	0.4001	−0.925	0.0094	0.204	0.7328	−1.894	0.1504
Generation 3 (not 1)	1.556	0.0036	−0.571	0.3365	−0.819	0.0254	0.288	0.5983	−3.757	0.0380
Generation 4 (not 1)	0.724	0.2263	−1.374	0.0258	0.362	0.3729	1.005	0.0525	−1.944	0.2012
Sex = Female	–	–	−1.170	0.0087	–	–	–	–	−2.188	0.0471
Educ. Level = Lower (not none)	–	–	−0.486	0.4403	–	–	−0.992	0.0646	–	–
Educ. Level = Higher (not none)	–	–	−1.282	0.0824	–	–	−1.128	0.0973	–	–

[a] Gram. Cat. levels are comparisons against the reference level progressive verb.

[b] Word Freq. levels are comparisons against the reference level "higher." The three levels are based on within-dataset relative frequencies. Words occurring just once (hapax legomena) are categorized as "very low," words that occur 2 to 5 times are categorized as "lower" and words that occur more than 6 times are categorized as "higher." The highest frequency words in the dataset are "going" ($N = 157$), "something" ($N = 148$), "doing" ($N = 95$), "working" ($N = 92$), and "getting" ($N = 57$).

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during and *according*. Oddly, [-in] is statistically disfavored by all of the phonological environments that were coded. From the data considered here, we cannot say whether some other, uncoded for, set of phonological environmental factors is promoting the use of [-in]. Word frequency also arises as a significant predictor of [-in] with lower-frequency words favoring [-in] over higher-frequency words. We also find a marginal effect for word length, with longer words tending to favor [-in]. The only social factor influencing [-in] is speakers' generational cohort, with the middle two generations disfavoring [-in] relative to the oldest and youngest generations. The frequency and word length effects suggest that [-in] is competing with [-ɪŋ] more than with [-ɪn], in that lower frequency items and longer words would be expected to pattern more with [-ɪŋ] than with [-ɪn]. However, the generational pattern suggests that middle-aged speakers are avoiding [-in], treating it more as a non-standard form (according to age-grading patterns and their typical interpretations). Because the youngest speakers use the most [-in] (see Figure 7.5) and use [-in] as their most frequent form of (ING), it seems plausible that [in], formerly a mildly disfavored form whose vowel was associated with Spanish interference (as shown in Chapter 6), could be emerging as a widespread MxAE identity marker and that the young generation in North Town is acknowledging this new status. However, with little prior work on this variant, or on MxAE patterns for (ING) in other communities, these outcomes must remain, and point to, areas for future work. For [-ɪn], we find patterns that are both similar to and different from typical findings for American English varieties. We do see evidence for the expected verbal vs. nominal split, with all grammatical categories other than prepositions obtaining negative – i.e., disfavoring – estimates in comparison to progressive verbal forms (the reference level). Nouns are highly significantly different from progressives and have the largest negative coefficient (β = -1.349, p < 0.0001) with gerunds and participles also obtaining significance (p < 0.05) and gerunds modifying nouns approaching significance (with p = 0.0719). (For sake of space, we do not conduct further comparisons of grammatical categories, i.e. to other reference levels, but see the Mexican American branch of the conditional inference tree analysis, Figure 7.4, for how grammatical categories group with one another.) Phonological predictors are not very evident, with only dorsal following consonants showing a tendency towards disfavoring [-ɪn] (as is typical when there is an effect for following dorsals, they favor the dorsal [-ɪŋ]; p = 0.0711). Word frequency obtains significance, with higher frequency words (the reference level) significantly

favoring [-ɪn] over lower frequency words in our data (p = 0.0011) and hapax legomena (p = 0.0065). We do not find statistical effects for word length, which is somewhat surprising given other recent studies of (ING) (Kendall 2013). We also do not find evidence for self-priming for [-ɪn]. (This could be a function of how we coded this category, which did not take into account the morphological status of the word, something Tamminga 2016 found to be important for self-priming of (ING).) For social factors, Mexican American females in our data disfavor [-ɪn] relative to males, a pattern in line with the majority of prior studies as well as the results above, which included Anglos. Surprisingly (but less so given the discussion in §7.2 and Figure 7.5), the youngest generation is least likely to use [-ɪn] (β = −1.374, p = 0.0258). As we commented above, it appears that the youngest generation is increasingly using [-in] in place of [-ɪn]. The data also suggest a tendency for higher education levels to disfavor [-ɪn], although this correlation does not reach significance.

As the most frequent form and the third option we consider among the three most common variants, it is not surprising that [-ɪŋ] shows effects that are complementary to both [-ɪn] and [-in]. Gerunds modifying nouns and other gerunds significantly favor [-ɪŋ] over other forms. The phonological patterns for [-ɪŋ] run largely counter to those for [-in], with all of the coded surrounding consonant places of articulation favoring [-ɪŋ]. It is surprising, and not entirely explicable, that certain tested contexts favor [-ɪŋ]. For instance, following coronal consonants are found to favor [-ɪŋ] here even though typically this environment promotes, through regressive assimilation, coronal nasal forms (we do note, though, that this is the least significant phonological environment effect, with p = 0.0319). As with [-in] but not [-ɪn], self-priming appears to be at work for [-ɪŋ], with speakers more likely (β = 0.382, p = 0.0027) to realize an [-ɪŋ] if their previous token was also [-ɪŋ]. In terms of social factors, we find an effect only for generation, which, in line with views of the data earlier, shows that the middle two generations significantly favor [-ɪŋ] over the oldest generation (Gen. 2: β = 1.495, p = 0.0034; Gen. 3: β = 1.556, p = 0.0036).

Overall, these outcomes demonstrate that (ING) is a complex, multi-faceted variable in MxAE. It has some patterns in common with the lects of other ethnic groups in American English while simultaneously showing unique patterns. Most importantly, (ING) is not a binary alternation in MxAE but must be considered as a larger set of variants in competition.

7.4 A Closer Look at Variable (ING) as Used by Four Speakers

Our analysis has so far focused on the quantitative patterns in (ING) in North Town, using the coded variable data for 42 speakers. In this section, we look more closely at the (ING) patterns for just four of these speakers, three Mexican Americans and one Anglo, for whom we have both comprehensive (ING) data and comprehensive speech timing data for all or most of their sociolinguistic interviews.

Kendall (2009, 2013), in a series of corpus sociophonetic investigations of speech timing across several American English varieties, included analyses of (ING) among residents of Petty Harbour, Newfoundland (Kendall 2009) and a group of adolescent African American women from Washington, DC (Kendall 2013) for whom he also had extensive speech timing data. His analyses showed that these speakers were statistically significantly more likely to produce [-ɪn] over [-ɪŋ] when they were speaking at especially fast articulation rates. Further, he argued that an aggregated speech timing measure, the slope lines fitted to turns-of-talk in a so-called Henderson graph (cf. Henderson et al. 1966; Kendall 2009: 210–14, 2013: 190–97; Thomas 2011: 186–87), could provide a quantitative measure of "hesitancy" over a speaker's turn.[4] He then showed that this measure was significantly predictive of (ING) use for his samples of speakers, with speakers realizing fewer [-ɪn] forms when more hesitant. We turn now to briefly consider whether these factors help to elucidate (ING) patterns in MxAE. With only four speakers, however, we do not seek to make statistical claims here but rather to look for patterns among the individual speakers which might be suggestive for future consideration.

The four speakers examined here include three Mexican Americans – speakers 010, 023JL, and 024, and one Anglo, 111LM. Demographic information and *N*s for the speakers' (ING) realizations are provided in Table 7.4. These individuals were selected because they do not show distributions of variants that are close to categorical for any one variant. Speaker 111LM, in line with the general patterns for Anglos, shows almost exclusive use of [-ɪŋ] and [-ɪn], with only one other realization (an instance of [-m̩] in a production of the word *something*). The three Mexican Americans also show realizations in line with their cohort groups; speakers 010 and 024, both generation 3 males, realize balanced proportions of [-in], [-ɪŋ], and [-ɪn] forms, while 023JL, a generation 4 female, realizes a slight majority of forms (53 percent) as [-in], with fewer [-ɪŋ] and [-ɪn] forms.

When we examine these speakers' (ING) productions with an interest in their speech timing patterns, certain differences emerge among the

Table 7.4 *Demographics and (ING) usage of speakers in the intensive analysis*

					(ING) use, *N*s (% in parentheses)				
Speaker	Ethn.	Sex	YOB	Gen	0	[-in]	[-ɪn]	[-ɪŋ]	-m
RCsr	MxAm	Male	1970	3	1 (0.5)	49 (26.2)	56 (29.9)	75 (40.1)	6 (3.2)
JL	MxAm	Female	1993	4	1 (1.7)	32 (53.3)	10 (16.7)	17 (28.3)	0 (0)
RL	MxAm	Male	1967	3	5 (5.1)	15 (15.3)	42 (42.9)	36 (36.7)	0 (0)
LM	Anglo	Female	1925	1	0 (0)	0 (0)	15 (27.8)	38 (70.4)	1 (1.9)

individuals that augment the suggestions noted earlier of larger differences between MxAE (ING) and Anglo (ING) patterns and of ongoing changes over time in MxAE (ING) patterns. Following Kendall (2013), we focus on two measures of speech timing, Henderson graph slopes, a measure of hesitancy at the unit of speaker turns-of-talk, and articulation rates, measured as the number of syllables spoken per second (excluding pauses) at the level of individual utterances. Henderson graph slopes reflect a smoothed measure of pause-to-talk time, with higher slopes representing more hesitant (pause-ful) speech. Articulation rates, a more straightforward measure, indicate the speed of articulation, with higher numbers representing faster speech. Both of these quantitative measures are examined here converted into tertiary categorical variables, based on each speaker's distribution. Measurements near the speaker's mean are coded as "norm," measurements more than one-half standard deviation below the mean are coded as "low," and measurements more than one-half standard deviation above the mean are coded as "high." "Low" Henderson graph slopes, then, are relatively less hesitant (~faster) talk for the speaker while "high" slopes are relatively more hesitant (~slower) talk. "Low" articulation rates, on the other hand, are relatively slower talk while "high" articulation rates are relatively fast talk.

Figure 7.7 displays the percentage use of the different (ING) forms for each of the speakers as a function of the Henderson graph slope measure. Speakers 010 and 024, the two generation 3 Mexican American males, do not exhibit visibly meaningful patterns. The younger female, speaker 023JL, however, shows some evidence of an increased use of [-in] and [-ɪŋ] and a decreased use of [-ɪn] with higher slopes, i.e. more hesitant speech. This pattern for [-ɪn] and [-ɪŋ] aligns with the findings of Kendall (2013) and his argument that Henderson graph slopes might act as a measure of paralinguistic cues to attention to speech (Labov 1966) and, concomitantly, that use of [-ɪŋ] should increase with more formal (and therefore more hesitant) speech and [-ɪn] should increase with less formal (and therefore less hesitant) speech. As Kendall (2009) suggests from his Henderson graph study of young Newfoundland English speakers' use of "traditional" Newfoundland dialect features, the fact that 023JL's [-in] use also increases with greater hesitancy could relate to its ongoing adoption by younger speakers because higher slopes might also arise as speakers actively use (i.e. perform) sociolinguistic features for social purposes. 111LM shows perhaps the clearest relationship between Henderson graph slopes and (ING) usage, but her patterns contradict those reported in Kendall (2013). 111LM exhibits fewer [-ɪn] forms and more [-ɪŋ] forms in her least

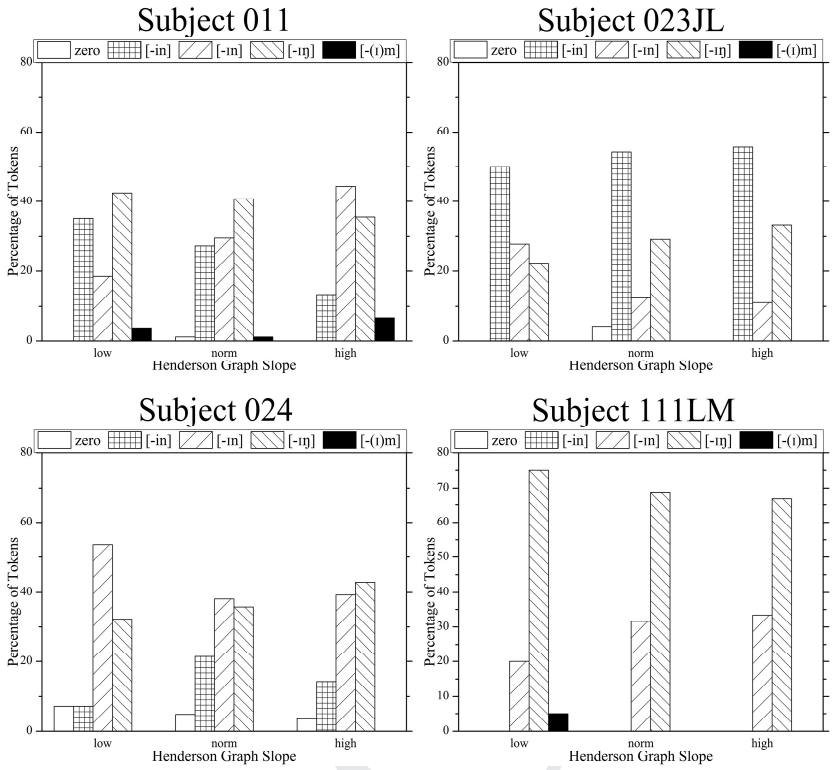

Figure 7.7 (ING) realizations as a function of Henderson graph slopes.

hesitant speech. This result runs contrary to an expectation that speakers use less [-ɪn] in more careful speech. Perhaps it, too, has a basis in the active adoption of a particular form (here [-ɪn]) as a social identity marker that arises in moments of conscious attention (again see Kendall 2009 for suggestions along these lines). However, the articulation rate results reported below may provide a simpler explanation for her (ING) pattern.

The Henderson graph observations just offered are necessarily speculative and can only be taken as suggestions based on visible (but admittedly small) trends in the data. When we turn to the articulation rate patterns, shown in Figure 7.8, however, we see stronger evidence suggesting overarching differences between the speech of the young Mexican American, 023JL, and the older Anglo, 111LM. As with the Henderson graphs, 010 and 024 show less patterned behavior, although for both speakers, [-in] use

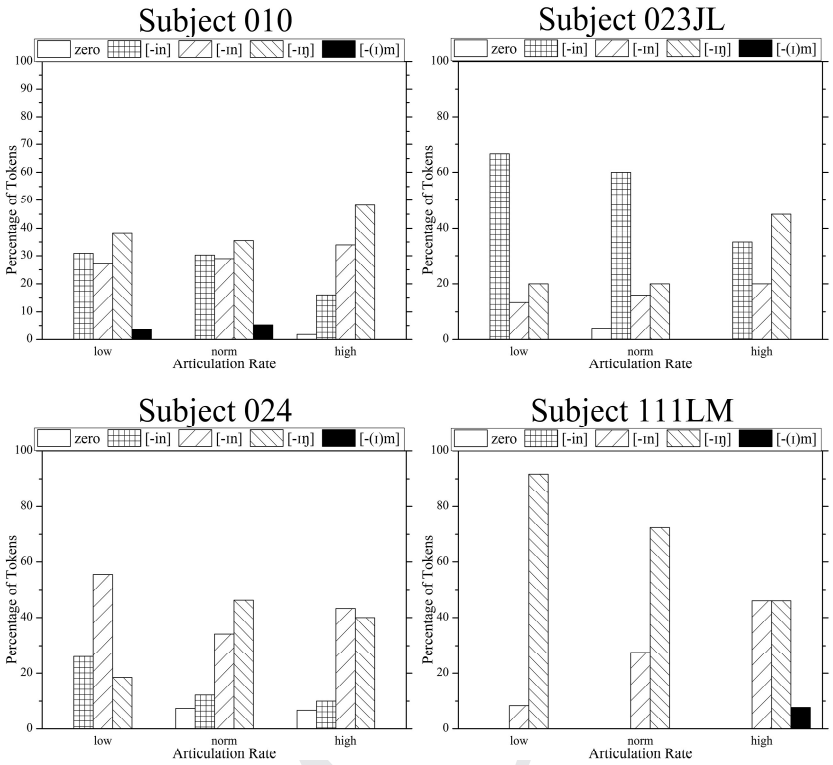

Figure 7.8 (ING) realizations as a function of articulation rates.

decreases and [-ɪŋ] use increases with faster articulation rates. 023JL exhibits this same pattern but in a more striking way. Her rate of [-in] goes from 67 percent in her slowest speech to 35 percent in her fastest speech while her [-ɪŋ] rates increase from 20 percent to 45 percent. 111LM, on the other hand, shows a striking but opposite pattern. For 111LM, [-ɪŋ] is strongly associated with slow speech (92 percent of her (ING)s in slow speech are realized as [-ɪŋ]), while [-ɪn] use increases as her articulation rate increases. It appears, then, that 111LM's pattern does follow the expected configuration in which [-ɪŋ] is associated with slower speech and [-ɪn] with faster speech, but for her, the pattern is manifested within utterances, not across utterances. Moreover, it would seem that whereas [-ɪŋ] is the slow speech variant for non-Latinos (not just for 111LM but for other speakers analyzed in Kendall 2009, 2013), [-in] fulfills that function, at least in part, in the variety of MxAE we have examined here.

While this brief analysis of these four individuals cannot offer conclusive outcomes, it nonetheless reinforces the view that North Town MxAE is not simply instantiating the intricate patterns found across Anglo varieties of English. Rather, as might be expected in a language shift situation, Mexican Americans appear not to have adopted the identical suite of internal constraints for variable (ING) found in the contact dialect. We see this, perhaps most importantly, through the use of [-in] and in the larger statistical analysis of the previous sections, but the overall lack of patterning with our speech timing features for speakers 010 and 024 and the differences between 023JL and the Anglo speaker, 111LM, corroborate the evidence reported in other chapters that MxAE and Anglo (ING) patterns do not converge in North Town. Future work will need to examine whether these patterns hold over a wider range of speakers and Latino communities and, furthermore, what else speech timing-based analyses can tell us about the nature of sociolinguistic variables.

7.5 Conclusion

This investigation of variable (ING) in North Town MxAE, and in the speech of Anglos from the same community, highlights major ethnolinguistic differences in the patterns for this foundational sociolinguistic variable. Mexican Americans in North Town, like their Anglo counterparts, treat word-final unstressed *–ing* as a variable feature of their speech, but they have certainly not adopted wholesale the Anglo patterns for the variable. Grammatical category effects on (ING) for the Mexican Americans show remnants of Anglo patterns, e.g. with [-ɪn] disfavored for nominal categories relative to [-ɪŋ], but these effects appear mitigated compared to typical findings for North American English varieties.

Further, the Mexican American community has adopted and appears to continue to be adopting a new variant, [-in]. [-in] is evident in the speech of all generations of Mexican Americans in North Town while remaining rare – in fact, nearly absent – in the speech of Anglos. [-in] is also little affected by grammatical category factors and, at least for the individuals examined in §7.4, appears to be used in slower, more hesitant speech.

This study, representing a rare quantitative analysis of [-in] in MxAE, leads to as many questions as answers. For instance, the [-in] variant is significant in another way besides its relationship with the independent variables we utilized in the statistical analyses. The widely dispersed reports of this form (besides our findings from southern Texas, Register 1977 from Arizona, García 1984 in Los Angeles, and Mendoza-Denton 2008 in

northern California) suggest that it may bear special importance for expressing Mexican American identity. The abrupt rise in its incidence between the third and fourth generations constitutes one of the few major speech differences between these two generations in North Town. It appears that [-in] may represent a case of diffusion of an outside feature into the community, although, unlike the features discussed in Chapter 5, [-in] would be a feature that has diffused specifically from Mexican American ethnolects elsewhere. Of course, [-in] has always occurred in North Town MxAE – it is only its level of occurrence that has changed. What has presumably diffused to North Town is not the feature itself, then, but the value attached to it. Its social value may be related to those of other widely dispersed markers of Mexican American identity, such as avoidance of BAN raising. Only investigation of the social meanings attached to [-in] and other such variants across the Mexican American diaspora can resolve the issue of whether these identity values are diffusing and how the values associated with different variants are interrelated.

Notes

1. Trends in the data show higher rates for [-in] among female speakers, which could also be an indicator of change-in-progress, as sociolinguistic studies commonly show a female lead in linguistic changes (e.g., Labov 1966, 1994: 67–72; see the discussion in Eckert 1989). However, statistical models with [-in] as the dependent variable (not included here) find a significant effect only for generation, not for sex (or ethnicity).
2. Trends in the data show higher rates for [-in] among female speakers, which could also be an indicator of change-in-progress, as sociolinguistic studies commonly show a female lead in linguistic changes (e.g., Labov 1966, 1994: 67–72; see the discussion in Eckert 1989), although statistical models for [-in] as the dependent variable (not included here) find a significant effect only for generation, not for sex (or ethnicity).
3. This measure of frequency was chosen over something based on a frequency list or large corpus. It is not clear that any existing frequency list, such as SUBTLEX-US (Brysbaert and New 2009), or a standard corpus such as the Corpus of Contemporary American English (Davies 2008–2018), would appropriately represent the word frequency characteristics of MxAE in North Town. We felt that the (ING) database was sufficiently large to support a measure of frequency based on the relative occurrences of the (ING) word forms within the dataset itself.
4. Put simply, a Henderson graph is a line graph in which utterances (actual talk) are plotted as horizontal lines spanning time intervals while pauses are plotted as vertical lines also spanning time intervals. These lines create a stair-shaped

plot that represents the relative talk- to pause-time of a speakers' or conversations' time course. Fitted lines can be used to capture the slope of the graph over speaker turns-at-talk, with steeper slope lines representing more hesitant talk (i.e. with a higher ratio of pause-to-talk time) and shallower slope lines representing less hesitant talk (with a lower ratio of pause-to-talk time). See the citations in the main text for example Henderson graphs and fuller discussion.