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Phonetic Variation and Speaker Agency: Mexicana Identity in a North Carolina Middle School

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1 Introduction

The epistemology of sociolinguistics, if such a thing can be said to exist in the singular, is largely predicated on the assumption that, as Ben Rampton (1999) writes, “language study is centrally concerned with systematicity in grammar and coherence in discourse…” and, further, “that people learn to talk grammatically and coherently from extensive early experience of living in families and fairly stable local social networks.” The profound centrality and generativity of this orientation within sociolinguistics cannot be overstated. Indeed, the very articulation of sociolinguistics as a discipline—with its own specialized mode of inquiry, methodologies, and body of established knowledge—is made possible by the production and reproduction of this scientific orientation to regularity, stability, and systematicity. Nevertheless, sociolinguists have begun to attend more vigorously to the empirical and theoretical possibilities foreclosed by the field’s reproduction of its traditional ways of knowing. Thus, the current moment in sociolinguistics allows us to examine, think through, and theorize the meaning of discursive incoherence, phonetic inconsistency, and linguistic idiosyncrasy in ways that at once attend to and operate somewhat outside of the dominant principles.

This moment, it seems, has its genealogical roots in a theory of social practice, theorized principally by Penelope Eckert. Much of the work made possible by this genealogy is situated within a framework of stylistic variation that raises questions about agency, intentionality, and consciousness and poses challenges to traditional sociolinguistic methods. Recent studies in sociophonetics, for instance, have elucidated the relationship between phonetic variation and salient, locally-defined social meaning, showing that even subtle acoustic modifications—changes in F1 and F2 dimensions, variation in segmental duration, and suprasegmental manipulation, for example—can be correlated with meaningful partitions in a given social environment. Thus, zeitgeist sociophonetics shows us that individual speakers may employ, expunge, amplify, or attenuate fine-grained phonetic variables to situate them-

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selves, or to reflect their situation, within desired social groups (Zhang 2005, Eckert 2000, Mendoza-Denton 1997).

Underpinned by a similar view—that language is something speakers do, enact, or perform (perform as in performativity, as thought by J.L. Austin and elaborated by Judith Butler)—work on audience design, particularly Gile’s Speech Accommodation Theory, Rampton’s Crossing, and Bell’s Audience Design, make possible a framework in which speakers make use of language to position themselves vis-à-vis an external interlocutor or audience. Work in this area has tended to take one of two views. In the first, traced to Labov’s attention to speech model and Bell’s original iteration of the Audience Design model, speakers engage in style-shifting as a response to changes in formality or, in the second view, that speakers style-shift proactively in an effort to make intelligible particular aspects of self.

What binds these views together—stylistic variation, style-shifting, attention to speech, speech accommodation, performance registers, and others—is a certain degree of ephemerality. That is, speakers can engage linguistic resources exogenous to their typical repertoire, but these engagements are considered temporary diversions from what they would normally or expectedly do with language if not in a situation of accommodation, performance, enactment, etc. Thus, implicit in our conceptions of shifting, performing, and crossing is that defining feature of variationism leveraged by Rampton: “that people learn to talk...from extensive early experience of living in families and fairly stable local social networks.” But what can be said of sociolinguistic reinvention? That is, what happens when a speaker shifts but doesn’t switch back? What happens when one set of linguistic resources replaces wholesale a previous set of resources? How does reinvention operate within currently available theoretical frameworks and are these frameworks even viable for non-English speaking adolescent immigrants who may lack the “fairly stable local social networks” from which dialects are supposedly acquired? Finally, what can be apprehended from situations of sociolinguistic reinvention about the agentive dimension of language?

Clearly, theoretically rich answers to these questions cannot be fully elaborated in the space provided here and, thus, I conceive of this space as one that performs the asking of a certain set of reorienting questions. I begin by describing the subject of the study, Maria, and the changes in her life that I contend both reflect and produce her linguistic reinvention. After describing the results for each of the variables, I briefly show how two sociolinguistic constructs—dialect and style—fail to adequately account for these changes and I conclude by proposing a turn to theoretical possibilities that exist beyond the disciplinary boundaries of sociolinguistics.
2 Background: ‘Maria’

The data examined here come from a three year case study of a speaker, “Maria,” (a pseudonym) a now 14 year-old Mexican American woman who immigrated to Raleigh, North Carolina from Mexico City in 2000 at the age of 8. She came to Raleigh to live with her parents from whom she had been separated for over two years, a situation that is increasingly common throughout the South East. At the time of my first interview with Maria in January, 2003 she was ten years old, had lived in North Carolina for about two years, living in an insular Spanish-speaking Mexican American community, and was attending a predominantly white, English-speaking elementary school in a nearby suburb of Raleigh. Despite living in a Mexican American community, Maria was only one of two Latino students in her class, and one of only a handful of Latino students in her entire school. Today, Maria is 14 years old and lives in a new ethnically mixed community comprised predominantly of working class African Americans, whites, and Latino immigrants, mainly of Mexican and Central American origin. In contrast to her all-white suburban elementary school, Maria’s current middle school is approximately 50% African American, 30% Latino, and 20% white and ethnic other. When I was introduced to Maria and her family, I began my research by collecting traditional sociolinguistic interviews in Spanish and English, which I’ve continued to do until the present, but as I became more integrated into the local community, the research began to take a more ethnographic turn. Thus, I was able to attend quinceañeras, bautizos, school plays, and holiday fiestas, some of which were recorded or filmed.

At the time of the first data collection in 2003, Maria had by-and-large acquired the English of her classroom cohort from the suburban elementary school—mainly white children whose parents had moved to central North Carolina from northern Midland, Western, and New England states. This is not a variety of English commonly associated with the South and as such, is very much associated with the suburb of Maria’s school, which itself is understood as non-Southern. In December 2005, about three years after conducting the first interview with Maria, I was invited to attend a party thrown by Maria’s parents to celebrate the purchase of their first home in the United States. There, I noticed that Maria had acquired, not only a new urban, hip-hop style of dress and a new hairstyle, but also what seemed to be an entirely new ‘dialect.’ For the first time since meeting Maria, she sounded, impressionistically, more, rather than less, Latina and for the first time in my presence, she referred to herself as Mexican. It was this literal embodiment of difference and the attendant metamorphosis in language that are the genesis of the current project.
3 Data and Methods

The data used in this study come from the two time periods described above: my first interview with Maria from January 2003, which will be referred to as “T1,” and an interview conducted about three years later in December, 2005, which will be called “T2.” Though data were collected in English and Spanish, only the English is analyzed for the current portion of the project. For this preliminary analysis, I focus on three segmental phonetic variables and one suprasegmental variable. The segmental variables are pre-voiced /u/ and two allophones of /æ/, one in the pre-nasal context and one in the non-pre-nasal context. The suprasegmental variable is prosodic rhythm, or prosodic timing. These variables were selected because of their salience in Latino or Chicano English and because of their distinctive pronunciations in Latino and non-Latino dialects of English in the United States. In Thomas, Carter, and Cogshall (2006), for instance, we showed that Mexican Americans in Raleigh, North Carolina and South Texas resisted the pre-nasal /æ/-raising that is now characteristic of most varieties of North American English. And while there are exceptions (most notably Fought 1999), it is commonly assumed that speakers of ethnic varieties do not participate in regional sound changes such as /u/-fronting. And finally, Fought and Fought (2003) and Thomas and Carter (2006) have shown to varying degrees that, with respect to prosodic rhythm, Latino varieties are more syllable-timed than African American and Anglo American varieties, which show more stress-timing.

For both allophones of /æ/, 15-25 tokens were excised from the interview data for both time periods, T1 and T2. No more than two tokens of the same lexical item were included in order to minimize the potential effects of lexicalization. Duration was measured for each token and F1, F2, and F3 measurements were taken at the midpoint of each vowel using PRAAT. In order to test significance, one-tailed T-tests were conducted on both formants for both allophones for both sets of data (T1 and T2) using the SPSS package. For diphthongal tokens of /u/, measurements were taken at the midpoint and 30ms in from the onset and 30ms in from the offset of the glide. Pre-nasal tokens and pre-/r, l, g/ were categorically excluded from analysis due to well-documented coarticulatory effects. The limited number of tokens of /u/ from both time periods did not allow for statistical analysis. For the purposes of comparison, these vowels are plotted alongside other vowels for which statistical analysis was not conducted. In the vowel plots that are to appear, the mean F1 and F2 values are presented for each variable in each time period. Despite obvious changes in Maria’s vocal tract length over the three-year period (since she grew taller), I decided that it was not
necessary to normalize the vowel data since vowel quality is independent of pitch (which is more affected by tube length). In other words, the difference in vowel quality between two productions of “and” representative of T1 and T2—one with a raised and fronted production of /æ/, the other with a backed, lowered production of /æ/—could not be explained by vocal tract length differences alone.

Similar to Thomas and Carter (2006) and Fought and Fought (2003), prosodic rhythm was quantified in the current study using the Pairwise Variability Index (PVI) first introduced by Low and Grabe (1995) and later by Low, Grabe and Nolan (2000). This method measures the degree of stress- or syllable-timing by comparing the duration of syllable pairs while controlling for speaking rate. The equation for calculating rhythm with PVI is shown below:

$$\frac{[\text{syllable } a - \text{syllable } b]}{\frac{a + b}{2}}$$

The absolute value of the difference in duration of two adjacent syllables is divided by the mean duration of those syllables. The original PVI method used by Low and Grabe, which used laboratory speech, had to be adapted for the current project given the use of field data. Low and Grabe made syllable-to-syllable measurements and were able to include consonant heads and codas because of high recording quality. However, the use of field data in this study—which made determinations about the onset of certain consonants and the assignment of intervocalic consonants to a given syllable difficult to make—necessitated the measurement of only vocalic nuclei except in the case of coda liquids, /l, r/ which were considered as glides. Syllables in pre-pausal feet were also excluded from analysis due to the effects of pre-pausal lengthening, where pauses were perceptible breaks of 100ms or more. At least 175 measurements were taken for both time periods and mean PVI values will be reported. Here again, t-tests were conducted to determine significant difference in Maria’s rhythm production between the two time periods.

4 Vowel Results

Table 1 below shows the results for the productions of pre-nasal /æ/ in both time periods, T1 and T2. The table provides the total number of tokens considered (N), the mean for each formant in Hertz, the standard deviations, and the t-statistic and the p-values for each formant, F1 and F2, in each time period, T1 and T2. As the data provided in the table indicate, Maria’s produ-
tion of pre-nasal /æ/ was lowered in the acoustic space between T1 and T2, as her F1 production moved from 683 Hz to 904 Hz. The t-test shows that this difference is significant. Maria’s production of pre-nasal allophone of /æ/ also moved back along the horizontal dimension of the vowel space, as her F2 production moved from 2680 Hz to 2130 Hz between T1 and T2, respectively. This difference is also significant.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>t-stat / p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1, pre-nasal- [æ] (T1)</td>
<td>15</td>
<td>683.7 Hz</td>
<td>57.32</td>
<td></td>
</tr>
<tr>
<td>F1, pre-nasal- [æ] (T2)</td>
<td>15</td>
<td>904.0 Hz</td>
<td>74.17</td>
<td></td>
</tr>
<tr>
<td>F2, pre-nasal- [æ] (T1)</td>
<td>15</td>
<td>2681.9 Hz</td>
<td>118.11</td>
<td></td>
</tr>
<tr>
<td>F2, pre-nasal- [æ] (T2)</td>
<td>15</td>
<td>2130.9 Hz</td>
<td>107.24</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Statistics for pre-nasal /æ/ in two time periods

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>t-stat / p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1, non-pre-nasal- [æ] (T1)</td>
<td>15</td>
<td>941.5 Hz</td>
<td>167.2</td>
<td></td>
</tr>
<tr>
<td>F1, non-pre-nasal- [æ] (T2)</td>
<td>24</td>
<td>924.42 Hz</td>
<td>72.4</td>
<td></td>
</tr>
<tr>
<td>F2, non-pre-nasal- [æ] (T1)</td>
<td>15</td>
<td>2251.1 Hz</td>
<td>128.01</td>
<td></td>
</tr>
<tr>
<td>F2, non-pre-nasal- [æ] (T2)</td>
<td>24</td>
<td>1952.3 Hz</td>
<td>104.31</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Statistics for non-pre-nasal /æ/ in two time periods

Table 2 shows the results for Maria’s production of the non-pre-nasal /æ/ allophone. Maria’s F1 production in T1 was 941 Hz and 925 Hz during T2, not showing significant modification over time. However, F2 was significant with a p-value of less than .001, as the mean F2 moved back from 2250 Hz to 1950 Hz. This data is made clear on the vowel plots that follow. Figure one depicts Maria’s vocalic production during T1. The vowel plot shows that at the time of the first data collection with Maria, her vocalic inventory includes a definite split between pre-nasal and non-pre-nasal productions of /æ/, as is common in most non-Latino varieties of North American
English. The pre-nasal allophone is raised to within 100 Hz of the mid-high vowels along the F1 dimension and is more or less congruent with them on the F2 dimension. /u/ is indicated on this plot with the arrow, indicating its backgliding quality. Note the high, front position of the nucleus.

The vowel plot in Figure 2 depicts Maria’s vocalic production during T2. A juxtaposition of the two plots shows some reorganization of the vowel space. First, /u/ has monophthongized, losing its backgliding diphthongal quality, and has moved to the back of the vowel space, though this claim must remain somewhat tentative provided that the low token count precluded statistic analysis. The tables presented above indicated that both pre-nasal and non-pre-nasal ash moved toward the back of the vowel space along the F2 dimension. The vowel plot in Figure 2 makes visible this modification, particularly in the case of the pre-nasal allophone, which has moved back almost to non-pre-nasal space, nearly obliterating the allophonic split.

Figure 1: A vowel plot of Maria’s vowel production in T1
Prosodic rhythm has traditionally been thought of dichotomously—languages have been considered either stress-timed (such as Germanic languages, including English) or syllable-timed (such as Romance language, including Spanish). Work in the 1980s and 1990s by comparative linguists and phonologists began to show that prosodic rhythm was less categorical than previously assumed and that languages should be considered to be “more” or “less” syllable-timed or “more” or “less” stress-timed. In our work on prosody in Southern dialects of American English, Erik Thomas and I have shown that the gradient nature of prosodic rhythm is borne out in dialect variation in addition to cross-linguistically and in our study of the development of prosodic rhythm in the history of African American English, we’ve argued that more attention should be paid to suprasegmental variables within sociolinguistics.

Similar to Fought and Fought (2003), our data on speech rhythm, examined using the PVI formula described above, shows that speakers of Latino
English (both native and non-native speakers) are more syllable-timed than African Americans and European Americans in the same community. In Figure 3, taken from Thomas and Carter (2006), lower PVI scores indicate more syllable timing and higher scores indicate more stress-timing. The cluster of stars in the lower right represents Spanish prosodic rhythm; each point corresponds to the rhythm production of one speaker. The figure shows an almost clear split between the rhythm production of Latinos in Raleigh and Texas and that of non-Latino North Carolinians.

![Figure 3: Rhythm production, various dialects](image)

Table 3 shows the Pairwise Variability Index results for Maria in both time periods. The table provides the total number of pairwise measurements (N), mean PVI score, standard deviation, and p-value for Maria’s rhythm production. In T1, her mean PVI score was .435 and was .4562 during T2. While she did become slightly more stress-timed, the difference was not statistically significant, with a p-value of .56. Figure 4 positions Maria’s individual mean productions from both time periods against the group means for North Carolina African Americans and European Americans, other speakers of Latino English from North Carolina, and Spanish speakers. The graph shows that her production of rhythm matches up with the other Latinos in both time periods. Thus, while Maria acquired new productions at the seg-

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**Table 3**

<table>
<thead>
<tr>
<th>Year of Birth</th>
<th>NC African Americans</th>
<th>NC Anglos</th>
<th>Raleigh Mexican Americans</th>
<th>Pearsall Mexican Americans</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>1880 - 1900</td>
<td>0.15</td>
<td>0.20</td>
<td>0.25</td>
<td>0.30</td>
<td>0.35</td>
</tr>
<tr>
<td>1920 - 1940</td>
<td>0.30</td>
<td>0.35</td>
<td>0.40</td>
<td>0.45</td>
<td>0.50</td>
</tr>
<tr>
<td>1960 - 1980</td>
<td>0.55</td>
<td>0.60</td>
<td>0.65</td>
<td>0.70</td>
<td>0.75</td>
</tr>
</tbody>
</table>
mental level, her system of prosodic rhythm was not modified at a statistically significant level.

<table>
<thead>
<tr>
<th>PVI Period</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>t stat / p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVI T1</td>
<td>176</td>
<td>0.4350</td>
<td>0.3262</td>
<td></td>
</tr>
<tr>
<td>PVI T2</td>
<td>211</td>
<td>0.4562</td>
<td>0.3273</td>
<td>t stat = 0.586</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>p = 0.56</td>
</tr>
</tbody>
</table>

Table 3: PVI Results from T1 and T2

Table 4: PVI Results from T1 and T2

6 Discussion: Empiricism and Cultural Theory

What can be apprehended from these data and what theoretical interventions do Maria’s case make possible? I would like to begin the answer to this question by reading the data through two very general theoretical paradigms available currently within sociolinguistics: dialectology and style. The aim is not to dismiss either mode of analysis wholesale but rather to bring to light that neither framework is sufficient—or sufficiently nuanced—to account for the case presented here.

Taken without the ethnographic data, a prima facie examination of the linguistic data might lead us to believe that Maria has “acquired a new dia-
lect.” The terms of this logic seem to work: Maria is a non-native speaker with new linguistic inputs and her new linguistic outputs reflect nothing more than the acquisition of new dialect norms. The change in Maria’s language, then, could be thought in terms of variation in second language acquisition. But to claim that Maria speaks (or has newly acquired) Latino or Chicano English—that is, to render her normative, demographic category matching up congruently to dialect category—is to miss, obfuscate, or erase the facts of Maria’s linguistic history.

Thus, harnessing our understanding of Maria’s case, on the one hand, to dialectology only limits the analytic possibilities. Rather than a person who “speaks Latino English,” Maria was first a monolingual speaker of Spanish, then a variety of English associated with white suburbanites, and then Spanish-influenced English. Therefore, Maria has certainly accomplished something with language, but to suggest, on the other hand, that what she is doing is all about style is also to scale back the analytic possibilities. Maria’s new linguistic self is present all the time—on camera and off, at quinceañeras, in sociolinguistic interviews, with her siblings and with her friends. But does all of this not constitute dialect, Latino English, for example? It is worth making explicit that if data were only available from T2, there would be no problem—Maria would be a speaker of Chicano, Latino, or Mexican American English. The explanation would be rooted in dialectology. If, on the other hand, Maria seemed to exhibit certain features in certain moments and not in others, the explanation may be rooted in a framework of stylistic variation. The case study presented here seems to leverage both frameworks and, correspondingly, I would like to propose that these constructs—dialect and style—be theorized as co-constitutive and imbricated rather than oppositional or mutually exclusive.

If Maria’s case can be explained neither in terms of dialect acquisition nor stylistic variation alone, how can her linguistic metamorphosis be explained? In addition to thinking about the confluence of dialect and style, I’d like to propose a framework that takes seriously the agentic dimension of language. I situate this framework within the structure/agency debates taking place across the social sciences and humanistic disciplines, especially in feminist, queer, critical, and cultural theories.

As Maria and her friends have described to me, the social milieu of their North Carolina middle school is carved up into racialized social groups. At one pole of the social spectrum are the “nerds” who are categorically white regardless of academic achievement, and on the other end of the spectrum are various gangs who are categorically African American and Latino. In between are the “Latino nerds,” the “average” Latinos, and the “average” African Americans. Maria’s presentation of self, including language,
sarily underwent a process of racialization in ways that match up with the already racialized social milieu of her new middle school, thus the abandoning of an old semiotic system for a new one.

In theorizing regulatory systems, Judith Butler claims agency comes in “recognizing norms”. In *Undoing Gender*, Butler (2004) writes, “if I have any agency, it is opened up by the fact that I am constituted by a social world I never chose. That my agency is riven with paradox does not mean it is impossible. It means only that paradox is the condition of its possibility.” The paradox of the agentive, the condition of agency’s possibility, is the inexorable tension between socially-mediated survival, on the one hand, and individual assertions of volition on the other. For Butler and other Poststructuralist theorists, agency is about exercising choice within determinantal limits. The agentive, then, does not pre-exist or operate outside of social context or ideology; indeed, the social and the ideological produce the possibility of volition.

Thus, Maria’s engagement in what I’m calling “wholesale agentive accommodation” can be seen as a negotiation between socially-mediated survival and volitional action. The corporeal and linguistic manifestations of Maria’s reinvention are the result of the simultaneous and paradoxical acknowledgement and resistance to the racial, gender, and language ideologies acting upon her in a new social context. The agentive component in Maria’s action, then, is her recognition of a new bundle of social and linguistic norms. In vitiating her suburban persona, a persona that likely would have been culturally unintelligible, undesirable, or infelicitous in her new school for a dark-skinned, immigrant, Latina, Maria rendered herself legible—and unassailable from peer critique—within the already pre-determined limits of her new environment.

**References**


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