

Peak Alignment in Semi-spontaneous Bilingual Chipilo Spanish

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1. Introduction

This paper examines pre-nuclear F_0 peak alignment in semi-spontaneous Chipilo Spanish, an understudied contact variety of Spanish in Mexico. Numerous studies have shown variability across Spanish dialects with respect to F_0 peak alignment in stressed syllables in broad focus declaratives (Sosa 1999; McGory & Díaz-Campos 2002; among others). Many varieties of Spanish display a pre-nuclear $L+\>H^*$ pattern, with the peak falling in the post-tonic syllable (Face 2003; O'Rourke 2004; McGory & Díaz-Campos 2002; Hualde 2005; see de-la-Mota, Butragüeno & Prieto 2010 specifically for Mexico City, and Willis 2005 for Puebla, Mexico). In addition to monolingual varieties of Spanish, peak alignment has been studied in a number of contact varieties, including Spanish in contact with English (Alvord 2006), Quechua (O'Rourke 2005), Basque (Elordieta 2003), and the former language contact situation in Buenos Aires with Italian (Colantoni & Gurlekian 2004; Colantoni 2011). Unlike most monolingual varieties of Spanish, some contact varieties show a pre-nuclear $L+H^*$ pattern, where the peak occurs in the tonic syllable (Elordieta 2003 for Basque Spanish; O'Rourke 2004, 2005 for Cuzco Spanish; Colantoni 2011, Colantoni & Gurlekian 2004 for Buenos Aires Spanish). Importantly, the $L+H^*$ pattern does exist in non-contact varieties, but is most often associated with narrow/contrastive focus or emphatic speech (Face 2001). The current paper aims to contribute to this line of research by reporting on peak alignment patterns in a variety of Mexican Spanish in contact with Veneto, a northern Italian language, in the small bilingual community of Chipilo, in the state of Puebla, Mexico. Chipilo presents a unique context for language contact research given that Veneto, an immigrant language, has been in contact with Spanish for 130 years and is the first language of many people of Italian descent in the community, thereby creating a context of sustained bilingualism and intense language contact. Spanish is the language of education, the church, and official government business, while Veneto is the primary language in the home and is used between Veneto speakers in most domains. Along with their distinct ancestry, Chipileños generally stand out as having a different "accent" and many bilingual Chipileños note that outsiders frequently attribute a unique accent to them. Given that early peak alignment and a falling contour are reported for all Italian varieties (Ladd 1996; Grice 1995), it is possible that this "accent" may be in part a result of differing peak alignment patterns in bilingual Chipilo Spanish as a result of contact with Veneto. Our research questions for this paper are as follows: Does bilingual Chipilo Spanish differ from monolingual Spanish with respect to pre-nuclear peak alignment? Will speakers demonstrate early peak alignment as is reported for Italian varieties? Does Chipilo Veneto indeed demonstrate early peak alignment? And, is there a difference between Spanish dominant and Veneto dominant bilinguals or across age groups? The paper is

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organized as follows. Section 2 provides a background on peak alignment in contact varieties of Spanish. Section 3 briefly describes the socio-historical background and language contact situation in Chipilo. Section 4 discusses the research questions and methodology used in this study. Section 5 presents the results and section 6 discusses the findings as they relate to language use in Chipilo.

2. Peak alignment in Spanish

Much of the work done on peak alignment in Spanish has centered on broad focus declaratives. With respect to pre-nuclear stressed syllables in Spanish declaratives, the F_0 rises through the tonic syllable with the peak occurring either late in the tonic syllable or in the post-tonic syllable (Navarro Tomás 1944; Sosa 1999; Hualde 2002; Face 2001, among others). With respect to the final, or nuclear, stressed syllable in a Spanish declarative utterance, research has shown that the F_0 rises within the stressed syllable and the peak occurs in the tonic syllable rather than in the post-tonic syllable, thus creating a distinction between final, or nuclear, F_0 rises and non-final, or pre-nuclear, F_0 rises. Given that Face (1999) finds nuclear F_0 peaks aligned with the stressed syllable 98% of the time, the present study will focus only on pre-nuclear pitch accents, where most dialect variation has been found in previous research.

Importantly, the present paper focuses on (semi-)spontaneous speech as opposed to lab speech (Face 2003). The study of peak alignment in lab speech (see Colantoni & Gurlekian 2004; Alvord 2010a b, among others) allows the researcher to control for factors that can have an effect on peak alignment, including utterance length, voiceless segments, syllable type and tonal crowding (see below), among other factors. The study of naturalistic speech, while not allowing for as many factors to be controlled, may offer a more realistic picture of patterns that exist in everyday speech, where utterances differ greatly in their complexity, length and use of a wider variety of phones. For example, Face (2003) finds that early peak alignment occurs in almost 25% of utterances in spontaneous speech, compared with laboratory speech, where early alignment in broad focus declaratives is rare (see also Colantoni 2011 for the use of spontaneous speech to study intonation).

The study of peak alignment in contact varieties of Spanish has also garnered much interest. Intonational patterns have been studied in Spanish in contact with English (Alvord 2010a b), German (Lleó, Rakow, & Kehoe 2004), Basque (Elordieta 2003), Quechua (O'Rourke 2004, 2005), and in Buenos Aires, where Spanish was formerly in intense contact with Italian (Colantoni 2011; Colantoni & Gurlekian 2004). These studies have demonstrated that language contact can have an effect on pre-nuclear peak alignment. A higher rate of early peaks was found in Spanish speakers in frequent contact with Quechua (O'Rourke 2004), in Basque-Spanish (Elordieta 2003) and in Buenos Aires Spanish (Colantoni 2011; Colantoni & Gurlekian 2004). Particularly relevant to the current study is the case of Buenos Aires Spanish where Colantoni & Gurlekian (2004) and Colantoni (2011) argue that early peak alignment is due to transfer from Italian. Recall that an early peak and falling contour are reported for all Italian varieties (Ladd 1996; Grice 1995). Early peaks were not found, however, in the case of Miami Cuban Spanish (Alvord 2010a). Alvord notes that with broad focus declaratives, Miami Cuban Spanish follows intonation patterns consistent with other non-contact varieties. Colantoni (2011) also did not find early peaks in Northeastern Argentine Spanish in contact with Guarani. Colantoni (2011) further states that a higher rate of early peak alignment in contact varieties appears to be a result of language contact and the transfer of intonational patterns from the contact language to Spanish.

This paper expands on this line of research by examining Spanish in contact with Veneto, a Northern Italian language. The study of the Veneto-Spanish bilingual community of Chipilo presents a unique case for research on language contact and intonation for several reasons. First, it is an understudied variety of contact Spanish in a situation of sustained bilingualism. Furthermore, the study of Chipilo, where Spanish and Veneto are both used on a daily basis by most bilinguals, can shed light on the former Italian-Spanish contact situation in Buenos Aires. Given that Chipilo Spanish has also been in prolonged contact with an Italian variety (Veneto), it may evidence early peaks as well.

3. Language contact and Chipilo

Veneto and Spanish have been in contact in Mexico since 1882. In the late nineteenth century, the Mexican government sought to encourage economic and population growth through the recruitment of

European immigrants, particularly farmers and agricultural workers who could convert the many unused lands into productive resources. Initially, the government considered the recruitment of Spanish farmers, however, this idea was quickly dismissed due to the “sentimiento antiespañol de los criollos” (Zilli Manica 1981:13) as well as the recent expulsion of the Spanish from Mexico in 1827. The French were also likely candidates with a colony having been previously established in Jicaltepec, Veracruz in 1857. The French intervention in 1862, however, made further colonization impossible (Zilli Manica 1981). Mexico therefore looked to Italy where potential colonists were anxious to find alternatives to the difficult economic times facing them. Sartor and Ursini (1983) note several reasons for the emigration from Italy, including the flooding of the Piave river, plagues, and a feeling of detachment from Italian nationality given that the Veneto region had only recently left the Austrian Empire and become part of Italy. However, the main reason for the massive exodus was a struggling economy coupled with a growing population. Local Chipileño historian Zago notes that “la crisis radical del sistema agrario italiano que, junto con la elevada tasa del crecimiento poblacional, provocó el empobrecimiento de la clase campesina hasta llegar a extremos insostenibles” (2007:30).

In total, seven Italian colonies were established in Mexico between 1881 and 1882, of which Chipilo was the last. Chipilo was founded in October of 1882 by a homogeneous group of approximately 560 Italian immigrants on the vacant haciendas of Chipiloc and Tenamxtla, outside of the city of Puebla. The majority of the group came from the Veneto region of Northern Italy, specifically Segusino and nearby towns, and most spoke a variety of Veneto. The initial homogeneity of the families living in Chipilo and the relative isolation from urban areas prevented rapid language shift and for many years, the immigrants lived and married amongst themselves (Zago 2007). Today, it is estimated that approximately 3,000 people speak Veneto in Chipilo, and, despite the increasing dominance of the city of Puebla, most people of Italian descent speak Veneto on a daily basis as the regular means of communication. Everyone is bilingual in Spanish and Spanish is the language of the church and of education; however, Veneto remains the preferred language of the home and with family. Romani (1992) found that 99.2% of the population was bilingual, with very few monolingual Spanish speakers and no monolingual Veneto speakers. At the time of her study, which was conducted in 1984, the population of Chipilo was in its 5th generation and Veneto was the first language of the majority of the children of Italian descent. In more recent work, the first author found that Veneto remains the primary home language in many households and that positive attitudes towards the use of Veneto within the community continue to contribute to the maintenance of Veneto within the community (Barnes 2010). Interestingly, strong positive attitudes were also observed for younger generations, and, in some cases, the younger speakers appear to identify more with the Chipileño culture and language than older speakers. This will be discussed further in Section 6.

As noted, Chipilo presents a case of intense language contact between Veneto and Spanish. Little work has been done on the linguistic outcomes of this contact, and the intonational patterns in bilingual Chipilo Spanish or bilingual Veneto have not been previously studied (but see Bergmann 2005 on Veneto in Italy). MacKay (1992) mentions several effects of Spanish influence on Veneto, particularly in the neutralization of phonemic contrasts. Previous work by the first author also found Veneto influence on bilingual Chipilo Spanish, at the lexical, phonological, and syntactic levels (Barnes 2009). Given the intense contact between the two languages and the presence of early peaks in many Italian varieties (Ladd 1996; Grice 1995), it is therefore possible that peak alignment in bilingual Chipilo Spanish will also display effects of language contact.

4. Methodology

In order to address the research questions outlined above, data was collected from 8 bilingual Veneto-Spanish speakers. As shown in Table 1, all speakers claim Veneto as their L1 and most of the speakers express Veneto as their preferred language. Six women and two men participated in the study. They can be divided into two age groups: a younger group between the ages of 24 and 29 and an older group between the ages of 57 and 74. Age was included due to the fact that the younger generations have increasing educational and employment opportunities in the nearby city of Puebla and therefore may speak Spanish more regularly than older speakers. At the same time, previous research has indicated that many younger speakers express a heightened sense of Chipilo identity vis-a-vis older speakers (Barnes 2010). All speakers note Veneto as their L1 and, with the exception of speaker M-74, the majority of the speakers included in this study list Veneto as their preferred or most

frequently used language. Only two participants speak Spanish on a regular or semi-regular basis: M-74 was married to a non-Chipileña and speaks Spanish both with his adult children and grandchildren as well as the employees who work in his business on a daily basis. When asked about his use of Veneto, he responded that he speaks “poquitas palabras todos los días”. Speaker F-57 lived in Puebla for over 20 years and continues to travel frequently between the two cities. She speaks Veneto with her friends and family in Chipilo and Spanish with her friends and family in Puebla. The remaining six participants speak Veneto with family and friends and Spanish is reserved for trips to surrounding cities or for outsiders who come into the community. Table 1 provides a summary of the participants.

Speaker Code	Gender	Age	L1	Language preference
F-24	F	24	Veneto	Veneto
F-25	F	25	Veneto	Veneto
M-26	M	26	Veneto	Veneto
F-29	F	29	Veneto	Veneto
F-57	F	57	Veneto	Veneto/Spanish
F-63	F	63	Veneto	Veneto
F-70	F	70	Veneto	Veneto
M-74	M	74	Veneto	Spanish

Table 1. Speaker background.

Most studies of peak alignment have focused on lab-based experiments (Face 2003). It is important to note that for this study we used naturalistic data as opposed to lab speech. The use of lab speech allows the investigator to control for a variety of factors that can affect F_0 such as tonal crowding, voiceless segments, and type of focus. At the same time, there have been calls for the use of spontaneous, natural speech in studies of intonation (Face 2003). In the present study, participants were asked to narrate a story using a Frog Story picture book (Mayer 1974) in which there are no words. Participants told the story once in Veneto and once in Spanish based on the pictures in the book. In between each narration, participants were asked about their language background, language use, and daily life in the community. For the analysis, only declaratives from the Frog Story narration were used. For each speaker, we measured 100 pre-nuclear stressed syllables for peak alignment, giving a total of 800 tokens (8 speakers X 100 tokens). In addition to the Spanish data, we measured 100 pre-nuclear stressed syllables in the Veneto data from two speakers to serve as a comparison, giving a total of 200 tokens (2 speakers X 100 tokens). These two speakers were selected based on Veneto dominance. Given that there are no monolingual speakers of Veneto, Veneto data was taken from participant F-29 who speaks Veneto with much higher frequency than Spanish and from participant F-57 who speaks both languages on a daily basis and who lived outside of the community for over 20 years where she predominantly spoke Spanish.

Following O’Rourke (2004), the duration of the stressed syllable and the distance from the peak to the end of the stressed syllable were measured in Praat (Boersma & Weenink 2012). The right boundary of the stressed syllable was considered the zero line; if the peak occurred to the left of this line (i.e. within the stressed syllable), it received a negative value and was considered early; if the peak occurred to the right of the zero line, the measurement was positive and the peak was considered late (i.e. in the post-tonic) syllable. A Praat script was used to extract the measurements to a spreadsheet (Kendall 2009), and data was analyzed quantitatively using R (R Development Core Team) and Rbrul (Johnson 2012). A sample measurement is shown in Figure 1.

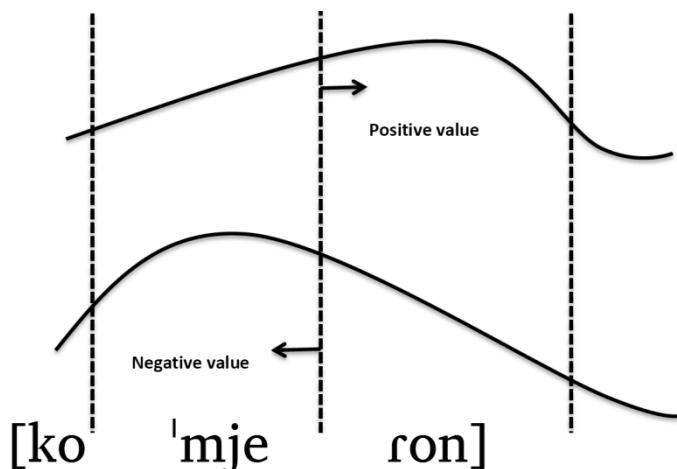


Figure 1. Example of peak measurement. Adapted from O'Rourke (2004: 327).

Two sample pitch tracks of Chipilo Spanish and Veneto are seen in Figures 2 and 3, respectively. In Figure 2, peaks were measured for *cliente* “client”, *estaba* “was”, *festejando* “celebrating”, and *algo* “something”, with clear early peaks visible in *cliente*, *estaba* and *festejando*. The peak in *esposa* “wife”, as the final tonic syllable in the phrase (nuclear peak), was not measured. In Figure 3, only *rana* “frog” was measured, since the remaining syllables are either atonic (comprised of determiners or subject clitics), or nuclear (*saltá* “jumped”). Another feature of note visible in Figures 2 and 3 is the existence of a quick fall from the peak, where the F_0 contour rises and peaks in the tonic syllable, and then quickly falls off, with a low tone also associated with the stressed syllable, or very soon after it. This pattern can be seen clearly in *cliente* “client” and *rana* “frog” in Figures 2 and 3 below, and has also been reported for Buenos Aires Spanish (Colantoni & Gurlekian 2004), as well as for Veneto speakers outside of Mexico (Bergmann 2005). Since the focus of the current study is the alignment of the H tone, this quick fall is not systematically studied in the present data, and is reserved for future research.

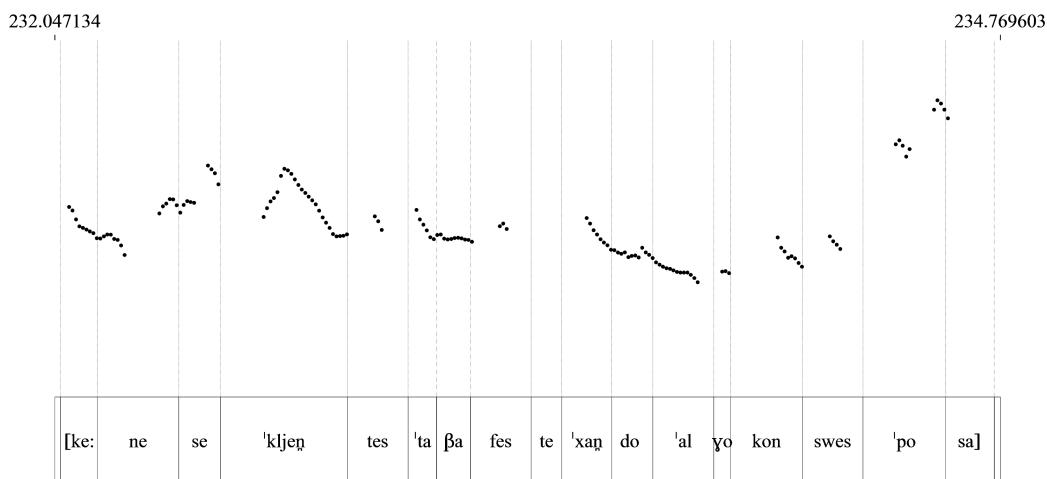


Figure 2. Intonation contour of Chipilo Spanish, speaker F-25

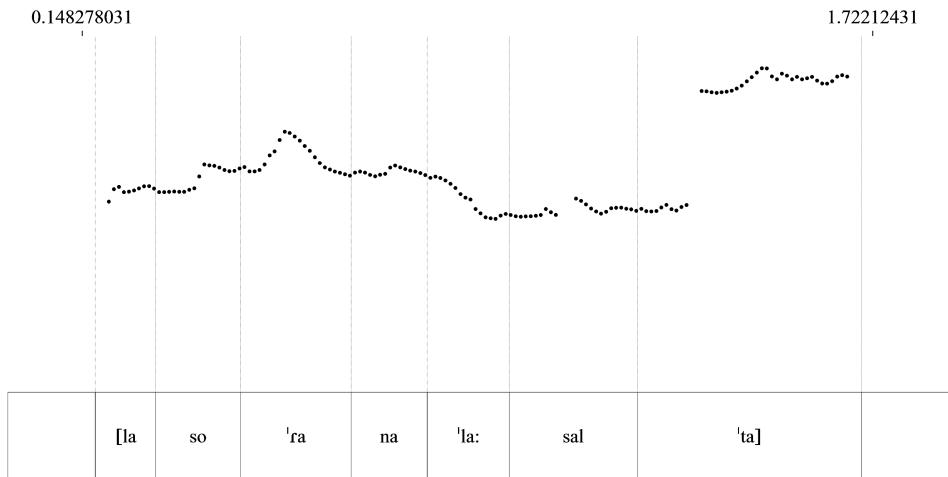


Figure 3. Intonation contour of Chipilo Veneto, speaker F-29 “La so rana l’a saltá” “His frog jumped”

5. Results

Results indicate that speakers show early peak alignment, ranging from 34% (speaker F-70) to 70% (speaker F-24b), with an average of 53%, consistent with a hypothesis of contact language influence. In comparison with other studies, Face (2002: 123) reports 25% early peaks in spontaneous Castilian Spanish and Rao (2005) found an average of 36% early peaks for Central Mexican Spanish in semi-spontaneous discourse. In spontaneous Buenos Aires Spanish, Colantoni (2011: p. 195) found between 80%-100% early peaks. Chipilo Spanish therefore shows a higher rate of early peaks than the Spanish and Mexican varieties but does not display as many early peaks as Buenos Aires Spanish. This is interesting given that Chipilo presents a current case of sustained language contact and bilingualism whereas Buenos Aires is a former area of language contact. Furthermore, the overall rate of 53% early peaks is also similar to the rate of early peaks found in these speakers’ bilingual Veneto (60%), as seen in Figure 4.

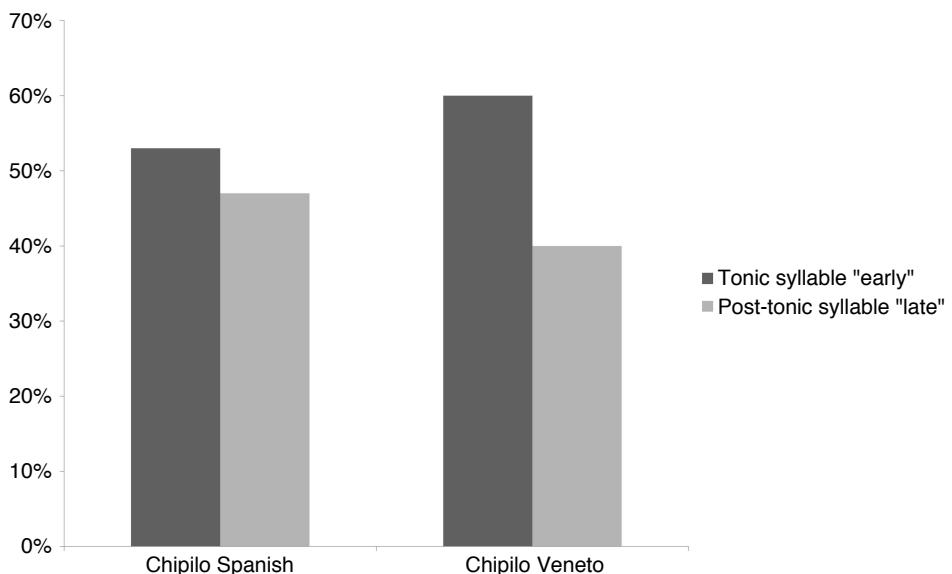


Figure 4: Pre-nuclear peak alignment; comparison of Chipilo Spanish and Chipilo Veneto

Figure 5 below presents the percentage of pre-nuclear peaks in the stressed syllable (“early”) for each speaker. Recall that two speakers were also analyzed in Veneto, as an initial point of comparison for the Chipilo Spanish data. The first of these speakers, F-29, produced an almost identical percentage of early peaks in both Spanish and Veneto - 56% vs. 58%. The second speaker, F-57, also produced a similar rate of early peaks in Veneto (61%) and Spanish (64%). Recall that these speakers were chosen due to their varying uses of Veneto. Speaker F-29 uses Veneto in most of her daily interaction with family and friends. Speaker F-57 resided in Puebla for over 20 years and her business requires her to travel to and from the major city regularly, thereby increasing the opportunities for her to speak Spanish. This will be further discussed in section 6.

Another trend that can be seen in Figure 6 is that, generally speaking, younger speakers produced higher rates of early peaks, with an average early peak rate of 59.5% for younger speakers, vs. 46% for older speakers, a result which is significant ($X^2 = 9.6579$, $df = 1$, $p\text{-value} = 0.001885$).

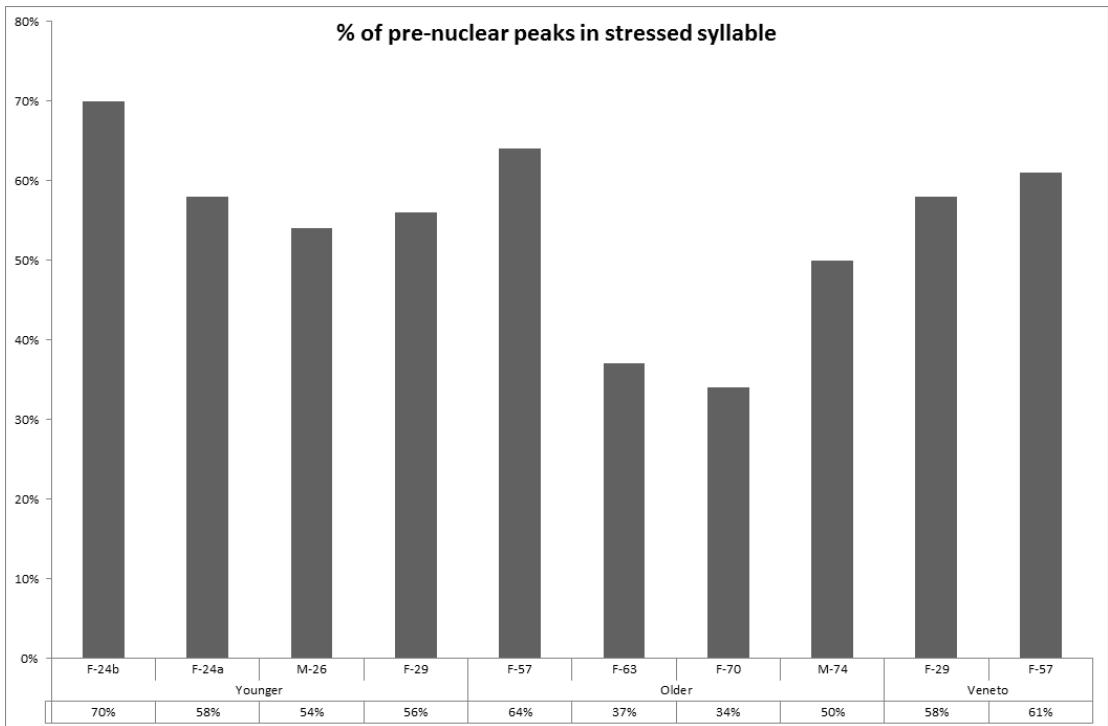


Figure 5: Peaks in the stressed syllable for all speakers; the two bars on the far right represent Chipilo Veneto for two speakers as a point of comparison

Although a chi-square test shows age group to be a significant factor, the result appears to be primarily due to the behavior of two speakers in particular, F-63 and F-70, who produced much lower rates of early peaks than the other speakers (37% and 34% respectively). Interestingly, the two speakers that reported using more Spanish (F-57 and M-74) display alignment patterns similar to other speakers that reported more Veneto use, and much greater rates than F-63 and F-70, who report using primarily Veneto. Thus, at least for the limited data set analyzed here, language use does not appear to be a determining factor in peak alignment. This will be addressed further in the discussion.

In order to determine if the observed pattern is due to real differences in group behavior, or instead is dependent on individual speaker variation, a series of multivariate analyses were conducted on the data using Rbrul (Johnson 2012), a front-end for varbrul-type regression analyses in R (R Development Core Team). Two types of analyses were performed; first, a mixed-effects model that includes speaker as a random variable; and second, a fixed-effects model that only examines group behavior independent of individual speaker variation. The results from the mixed-effects model appear in table 2.

Factor Group	Coefficient	Tokens	% Early Peaks	p-value
Gender				
Women	0.01	593	53%	0.95
Men	-0.01	200	52%	
Age				
Younger	0.266	393	59.5%	0.08
Older	-0.266	400	46%	
Syllable type				
Open	0.202	612	56%	0.02
Closed	-0.202	181	45%	
Intervening syllables				
2	0.128	286	55%	0.73
1	0.063	199	53%	
3+	-0.007	257	51%	
0	-0.184	51	49%	
Speaker (random) Std. Dev. 0.326				
Deviance = 1064.826 df = 8 Grand mean = 0.528				

Table 2: Rbrul one-level mixed-effects analysis (speaker as random factor) - Spanish data only; *p-value for Age in fixed effects model = 0.000305.

In the mixed-effects model, speaker was selected as the only significant social variable, indicating that none of the other social variables (gender or age) rise above the level of individual variation in the present data (see Johnson 2009). This is not surprising for gender, since there are only two male speakers in the data, and as seen in Figure 2, they display essentially the same pre-nuclear peak alignment pattern as most of the women in the study. Age, however, approaches significance ($p = 0.08$) in the mixed-effects model, and in the fixed-effects model (without speaker as a factor), age is highly significant ($p = 0.000305$). So while the age difference observed in Figure 5 is primarily driven by speakers F-63 and F-70, the Rbrul analyses indicate that age may be an important factor in peak alignment, and should be examined further with a larger speaker pool.

Regarding linguistic factors, most laboratory studies on intonation strictly control for factors that can affect peak alignment, since their inclusion may produce results that do not reflect the true pattern of peak alignment in a given variety, but instead may be conditioned by purely phonetic factors. While such factors cannot be controlled for in naturalistic speech, they can be coded and accounted for as part of the data analysis. For example, closed syllables are frequently excluded from laboratory speech. As seen in Table 2, syllable type is a significant factor in determining peak alignment for these speakers, with more early peaks produced in open syllables. The mean peak alignment values also differed, with -8.84ms for closed syllables, vs. -21.58ms for open syllables. This is the opposite effect of syllable structure of what has been reported for some other varieties of Spanish (cf. Prieto & Torreira 2006 for Peninsular Spanish), and may possibly be due to differences between lab and natural speech. The effect of syllable type will be further addressed below. Another possibility in naturalistic speech that is avoided in laboratory speech is that the observed pattern of early peaks is due in large part to the phenomenon of tonal crowding, whereby a minimum distance is maintained between peaks, artificially producing early peaks as a following tonic syllable “pushes” a preceding peak back (see Alvord 2010a for further discussion). In other words, what appear to be early peaks in spontaneous data may in reality be the result of tonal crowding, rather than representing true differences in intonational patterns. In a variety that does not have early peaks as part of its intonational pattern, such as Miami Cuban Spanish (Alvord 2010a), the expected result is for earlier peaks with fewer intervening syllables. This is what Alvord (2010a: 19) finds for Miami Cuban Spanish; the only negative measurement (i.e. early peaks) occurs with zero intervening syllables - that is, two consecutive stressed syllables. As seen in

Table 2, however, there is no clear pattern for peak alignment based on the number of intervening atonic syllables in Chipilo Spanish, and the number of intervening atonic syllables is not a significant predictor of peak alignment. In fact, tokens with zero intervening syllables demonstrated the only late mean alignment (+4.74ms; compared with -20.6ms for 1 intervening syllable, -23.68ms for 2 intervening syllables, and -16.24ms for 3 or more intervening syllables), the opposite pattern from that found in Miami Cuban Spanish (Alvord 2006). The observed early peak alignment, then, does not appear to be solely the effect of phonetic factors conditioned by the task, and instead may represent true intonational differences in Chipilo Spanish, at least for some speakers.

Finally, in addition to analyzing pre-nuclear peak alignment as a binary variable (early vs. late) as above, we also examined it as a continuous measurement, as seen in Figure 6, which includes all tokens, and Figure 7, which includes a more conservative analysis with only open syllables and [+voice] segments. In the charts, “0” marks the right boundary of the stressed syllable, from which the measurement was taken. Values below 0 represent early peaks. In each of the boxplots, the dark lines indicate the median peak alignment value in ms for that speaker; the box represents the middle 50% of the tokens (inter-quartile range). The measurements are also included for speakers F-29 and F-57 in Veneto (V29 and V57) (Figure 6).

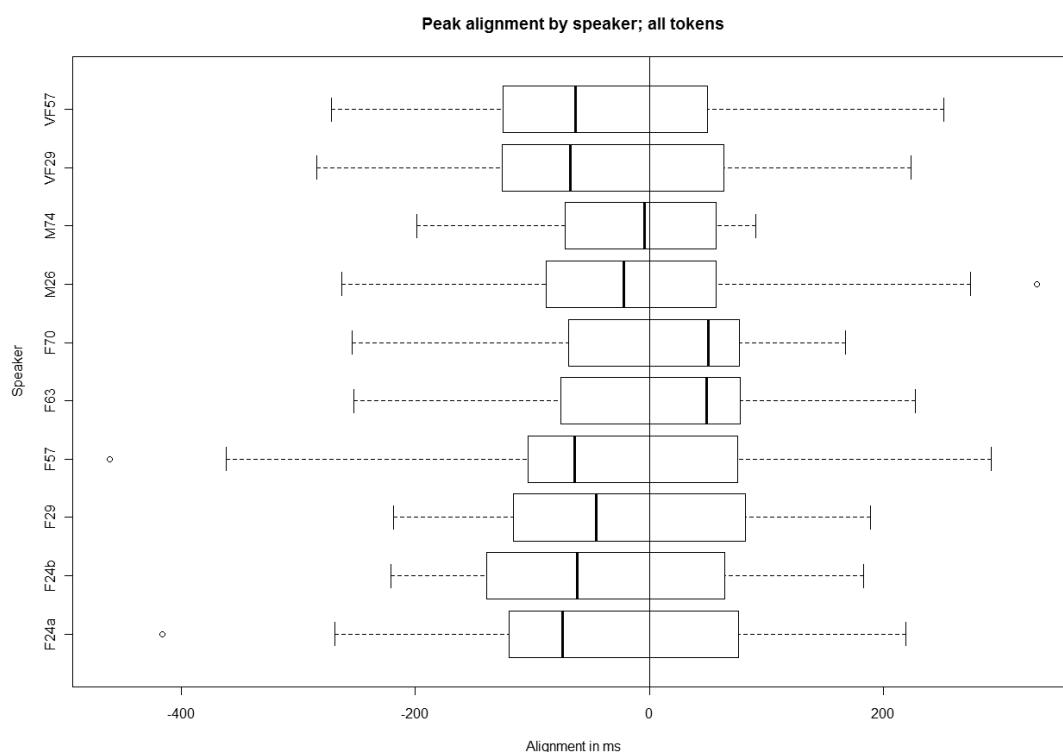


Figure 6. Peak alignment as a continuous measurement by speaker (all tokens).

When all tokens are considered, all speakers with the exception of two (F-63 and F-70) display median peak alignment values below 0, with a range from -74 ms for speaker F-24a to 50.5 ms for speaker F-70. The overall median value for all speakers (Spanish only) is -21.6 ms. With speakers F-63 and F-70 removed, the median alignment value (Spanish only) is -45.25 ms, closer to the median value for the two speakers in Veneto (-65.5ms). The mean (average) values paint a similar picture, with a range from -44.5ms for speaker F-24b to 11.8ms for speaker F-70. Importantly, the mean values indicate that even the two speakers with more late peaks (F-63 and F-70) still produce a large number of peaks in or near the end of the stressed syllable.

As noted previously, in laboratory studies generally only open syllables (see O’Rourke 2005), as well as sequences with no voiceless segments (which can interrupt or artificially raise F_0 values) are analyzed. While naturalistic speech is not equivalent to lab speech (and is not intended to be), in order to provide better comparisons with laboratory studies, a second analysis was conducted, with tokens

comprised of only open syllables with no voiceless segments (e.g. *rana*, ‘frog’) (n = 255, between 25 and 43 tokens per speaker). The results of this second analysis are seen in Figure 7, which presents some similarities and contrasts with the results in Figure 6 above. The overall rate of early peaks in these tokens is 50%, slightly less than the rate found for all tokens. Second, we can observe that all of the women, with the exception of F-63, continue to display median alignment values near or below 0 (from -92ms for F-24a, to +2ms for F-29). Speakers F-63 and F-70 continue to show a preference for late peak alignment. The biggest difference is for the two men in the study, which now also show increased late alignment (although still producing 40% early peaks overall). Thus, when only open syllables and sequences with only [+voice] segments are considered, the speakers are divided into two clear groups (younger women + F-57, and older women + men).

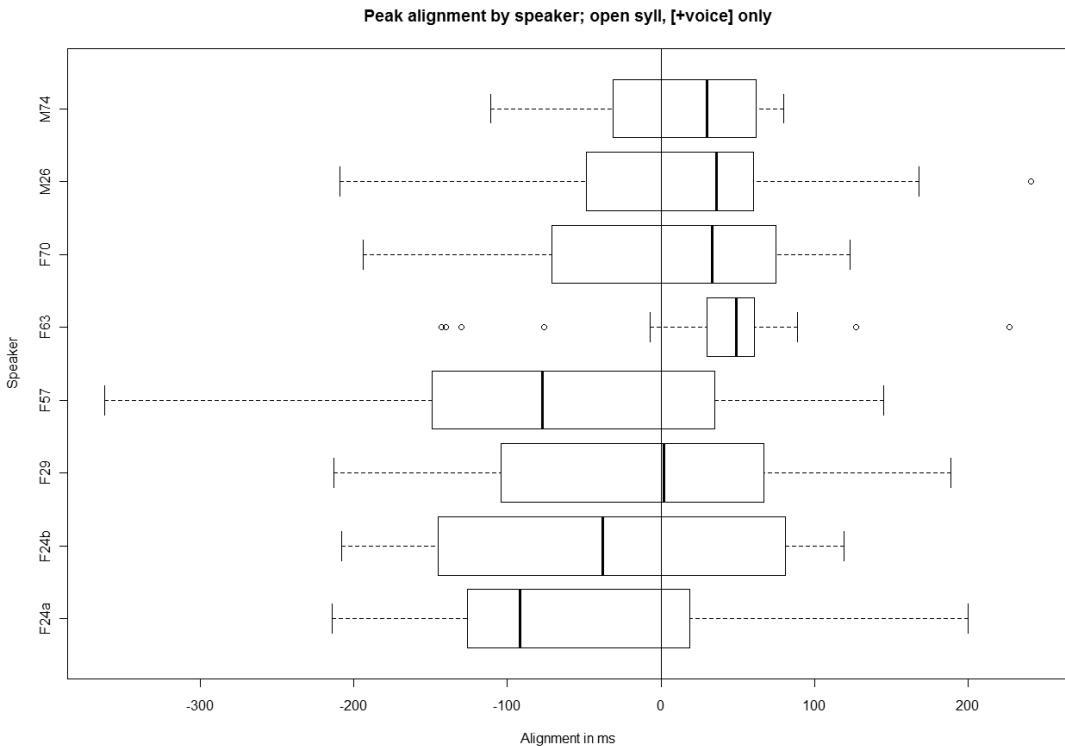


Figure 7. Peak alignment as a continuous measurement by speaker; open syllables and [+voice] segments only; Spanish data only.

This difference can be seen clearly in Figure 8, which compares gender with age group for open syllables, [+voice] segments only. Further analysis reveals that the differences between older and younger speakers is only significant for women ($p = 0.02$; compared to $p = 0.78$ for men), and that, not surprisingly, the differences between men and women is only significant for the younger speakers ($p = 0.03$; compared to $p = 0.91$ for older speakers). While the present sample only includes two men, and so gender differences should be viewed cautiously, the role of young women in particular in Chipilo early peak alignment deserves further exploration.

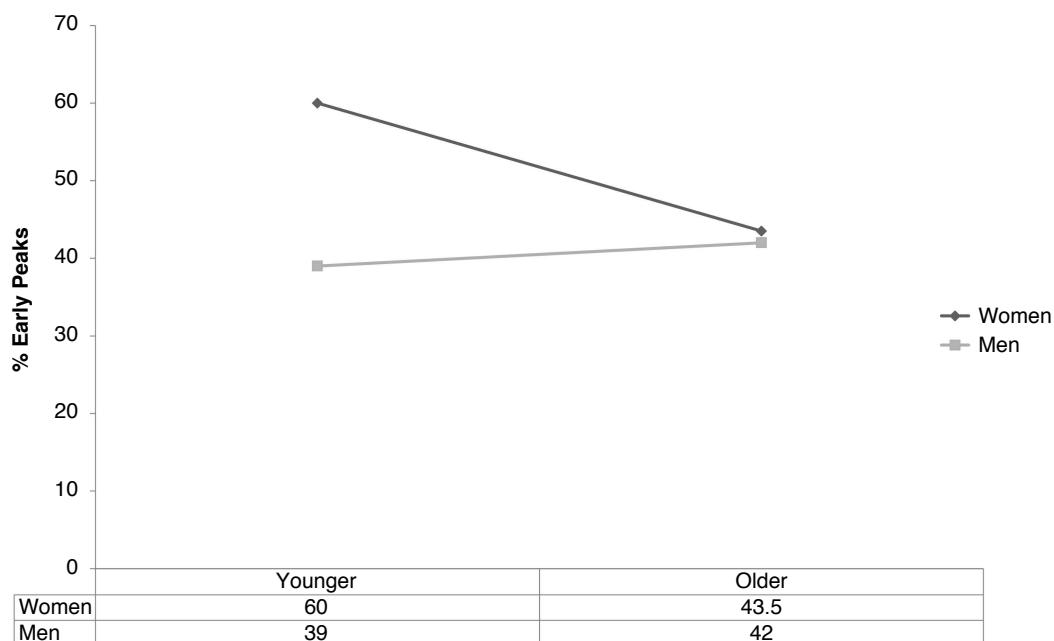


Figure 8. Comparison of gender and age; % early peak alignment; open syllables and [+voice] segments only; Spanish data only.

6. Discussion and conclusions

This paper found that bilingual Chipilo Spanish does indeed display early peak alignment with an average rate of 53% (50% in the more conservative analysis, with only open syllables and [+voice] segments). Compared with other studies using naturalistic data, we see that the rate of early peaks in Chipilo Spanish is in some cases much higher than that found in many non-contact varieties (25% in Castilian Spanish (Face 2003); average of 36% in Central Mexican Spanish (Rao 2005)), but not as high as that found for spontaneous Buenos Aires Spanish (between 80-100% early peaks) (Colantoni 2011). Given these results, the contact hypothesis certainly deserves further exploration. Given that Chipilo Veneto, like other Italian varieties, also demonstrates early peak alignment at similar rates (average 60%) as confirmed in Figure 4 above, it is possible that the early peaks observed in bilingual Chipilo Spanish are, in part, the result of contact between the two languages. If one assumes that monolingual Veneto may have had a higher rate of early peaks, perhaps more in line with Buenos Aires Spanish, then both Chipilo Spanish and Chipilo Veneto may show evidence of convergence in their intonational systems (cf. Simonet 2011, Colantoni & Gurlekian 2004), a possibility that should be explored further in future research.

As noted above and seen in Figure 5, increased use of Spanish at the expense of Veneto does not appear to be a strong factor in predicting peak alignment patterns, at least with the limited data set examined here. To be sure, a more balanced pool of Spanish-dominant and Veneto-dominant speakers should be examined.

The age difference observed in Figure 5, with younger (female) speakers generally producing more early peaks than older speakers, approached significance in the mixed-effects model with speaker as a random factor, and was highly significant in a fixed effects model. Thus while the result is likely due to individual speaker variation in the present data, the fact that age approaches significance in a mixed model suggests that this trend deserves more attention in a larger study. Interestingly, it is the younger speakers (particularly women) that seem to show a more traditional Chipilo accent, in that they produced more (or at least as many) early peaks as older speakers. At the very least, there does not appear to be a drop-off in early peak alignment among younger speakers. In many contexts of language maintenance or language shift, it is frequently the younger generations that shift towards the majority language. In the case of Chipilo, there are many employment and educational opportunities in the nearby city of Puebla, thereby providing more contexts for the use of Spanish. However, the

present study shows that younger speakers are not changing their intonation to match that of Central Mexican Spanish (with a preference for L+>H* in prenuclear position – de-la-Mota et al. 2010), a fact which may be related to questions of identity. Previous research by the first author has shown that many in the younger generations consider themselves Chipileño more than Mexican, whereas older generations express a stronger sense of Mexican identity (Barnes 2010). In spite of increasing employment and education opportunities in Puebla, the younger generation may be enhancing their “Italianness” as a way to distinguish themselves from the mainstream Mexican culture. The sentiments expressed in examples (1) through (4) stem from a larger pool of sociolinguistic interviews conducted with Chipileños in the community (see Barnes 2009). In example (1), an older speaker expresses that she is Mexican more than she is Italian. Compare this with the younger speakers in (2) and (3) who identify more with the Italian and Veneto aspect of their culture. In (4), a woman displays the dual, or even triple identity, that characterizes many in Chipilo: the combination of being Mexican, Italian, and ultimately of being Chipileño. This dual identity was noted by Sartor and Ursini (1984) and continues to be relevant today.

- (1) “yo me considero mexicana... más que italiana. Yo soy chipileña pero soy mexicana. Porque yo, Italia, no conozco nadie de Italia, no conozco Italia, mi hija, entonces ¿dónde nació? Yo nació en México” (female, age 60)
- (2) “Italiano nacido en México, ¿no? Porque no soy ni de acá ni de allá porque nació en México y tengo cultura mexicana pero creo que tengo más cultura véneta entonces” (male, age 24)
- (3) “...la ideología chipileña es muy diferente a la mexicana. Me explico. Es más a la italiana se parece mucho más... (male, age 23)
- (4) “Yo soy mexicana. Orgullosísima de ser chipileña pero cien por ciento mexicana. Yo creo que el ser chipileño es como un, otra identidad, o sea, no sé cómo te diré, igual y me estoy contradiciendo ahorita pero no sé, ser de Chipilo es como otra identidad. Ni eres italiano ni eres mexicano, o sea, eres de Chipilo. Eres chipileño yo creo que más bien, no sé, yo creo que, no sé, pues soy chipileña más que mexicana yo creo que chipileña, digo, me preguntan mi nacionalidad y siempre digo que soy mexicana pero de corazón chipileña” (female, age 33)

While the speaker in (4) identifies herself as Mexican, the focus changes as she begins to distinguish herself from being Mexican and even Italian. Identification as “Mexican” is frequently used to refer to nationality or place of birth, and not always as the way one self-identifies. As seen in (2) and (3), these younger speakers distinguish Mexican and Chipileño culture and claim that Chipileño culture is more similar to Italian culture. As noted by the speaker in (4), however, a new identity appears to have emerged - that of being Chipileño. The identification as a Chipileño, rather than as a Mexican or an Italian, may be due in part to the increased contact with Italy that the community has had in recent years. After the immigrants arrived in Mexico in 1882, contact with the homeland was minimal. However, in 1982, Chipilo celebrated its centennial by establishing a *hermandad* with Segusino, one of the towns of origin, which brought many Veneto-speaking Italians to Chipilo for the first time. Since then, there have been annual excursions and home-stays between the two communities. In more recent years, contact has also been established with other Veneto speaking communities around the world, particularly in Brazil and Australia. The continuing relationship with Italy, and with these other Veneto speakers, has provided further reinforcement of not only language maintenance in Chipilo but also of a unique Chipileño identity. The fact that younger speakers exhibit a higher amount of early peak alignment, or at least are not abandoning the Chipilo accent, may be a reflection of their sense of identity¹. This is also the case for F-57, who patterns similar to younger speakers in spite of her

¹ Holguín Mendoza (2011) demonstrates how intonation, among other factors, can be used to construct group identity.

personal and professional connections outside of the community, as noted previously. This may be due to her active participation in various Chipileño committees and organizations that have since sparked a strong sense of Chipileño identity. She has also participated in several excursions to Italy and continues to volunteer at local events and activities sponsored by the community. Therefore, for this speaker as well as for the younger speakers, the maintenance of a distinct way of speaking, one which may be identifiable as ‘sounding Italian’, has allowed them to further distinguish themselves from the mainstream Mexican culture, particularly at a time when employment and educational opportunities in Puebla are more accessible than they were for older generations. In the present case, this ethnolinguistic identity may be reflected in the peak alignment of these speakers.

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