

Convergence and intonation: historical evidence from Buenos Aires Spanish*

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In this paper we present experimental evidence showing that Buenos Aires Spanish differs from other Spanish varieties in the realization of pre-nuclear pitch accents and in the final fall in broad focus declarative utterances. Whereas other Spanish varieties have been described consistently as showing late peak alignments, Buenos Aires Spanish displays early peak alignments. The alignment pattern found in Buenos Aires broad focus declarative utterances is not totally foreign to Spanish: it is attested in a quite different function, i.e. to signal contrastive focus. In addition, Buenos Aires Spanish also seems to differ from other Spanish varieties in the realization of the intonation contour in utterance-final intonational phrases, where a pronounced tendency for down-stepped peaks is observed. We argue that these patterns, which emerged at the turn of the twentieth century, and coincided with the peak of Italian immigration, are due to a combination of direct and indirect transfer from Italian. As a result, two intonational systems that were typologically similar before contact took place (Hualde, 2002) became more similar after contact, in what can be interpreted as a case of convergence.

Introduction

In her concluding remarks on Buenos Aires intonation, Vidal de Battini (1964, p. 144) states: “Ya es común que los extranjeros comenten como algo sabido, que Buenos Aires habla con entonación italiana” (“It is already common to hear foreigners commenting as a fact that Buenos Aires speaks with an Italian intonation”). Alonso and Henríquez Ureña (1928), whose comments are reproduced by Vidal de Battini, support this hypothesis, while Malmberg (1950) explicitly denies any substratum or adstratum explanation in the development of what he dubs “the Argentine descending intonation” (1950, p. 218). Kaisse (2001), working on the same structure, suggests that its emergence can only be accounted for by contact with Italian. The language-contact hypothesis has been discussed for many years, but research has not passed beyond the stage of the sporadic and usually brief note.

There are several reasons for this state of affairs. First, almost every author working on intonation (Bolinger, 1986; Quilis, 1987; Ladd, 1996, among others) has pointed out the intrinsic difficulties of the subject. Second, different theoretical frameworks, as well as multiple transcription conventions, have been in use, making it difficult to compare results. Third, detailed analyses of the fundamental frequency (F0) have only been possible, and, more importantly, have become widely available,

with recent software and theoretical developments. One of the most widely used frameworks is the autosegmental-metrical model of intonation (Pierrehumbert, 1980; Beckman and Pierrehumbert, 1986; Ladd, 1996, among others). Within this framework, several studies on Romance languages have been undertaken, which constitute a point of comparison for any cross-linguistic study.

Given the newness of the discipline, it is not surprising that the number of studies devoted to Buenos Aires Spanish is still rather small, but preliminary evidence of both auditory and instrumental studies seems to indicate that it is indeed different from other Spanish varieties previously analyzed, at least in the alignment of pre-nuclear¹ pitch accents (Sosa, 1999; Toledo, 2000; Colantoni and Gurlekian, 2002), and in the pronounced fall that affects final contours in statements (Malmberg, 1950; Fontanella de Weinberg, 1966, 1980; Kaisse, 2001). However, results obtained so far are either preliminary or based on small data sets. As a basis for our discussion, we will start by providing quantitative evidence based on the analysis of a reading corpus of broad focus declarative sentences. We will demonstrate that the peak is consistently aligned within the stressed syllable in pre-nuclear pitch accents, that a low tone is aligned within the stressed syllable in nuclear accents, and, finally,

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¹ Within autosegmental theory, nuclear accents are the last and most prominent of the intermediate phrase (Pierrehumbert, 1980; Beckman and Pierrehumbert, 1986). All the pitch accents located before the nucleus are considered pre-nuclear.

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that the scaling (Silverman and Pierrehumbert, 1990) of high tones in final intonational phrases is affected by a significantly higher lowering than tones in initial phrases. These differences, which seem realizational in nature (Ladd, 1996), deserve explanation, especially since historical evidence (Vidal de Battini, 1964) indicates that the characteristics that we now observe were not the intonational patterns in the nineteenth century. Then, Buenos Aires intonation did not differ substantially from Peninsular Spanish, probably most closely resembling Andalusian. Vidal de Battini (1964) suggests two hypotheses to explain the changes. She notices that early in the twentieth century two new intonations were replacing the old one: the *TONADA LUNFARDA* ‘Lunfardo intonation’ (see section “Convergence and intonation in Buenos Aires Spanish” below) and the *TONADA ITALIANA* ‘Italian intonation’.

Given the social circumstances in which the new structures emerge, the contact hypothesis deserves a closer look. It is necessary to explore the role that contact with a non-standard variety (i.e. Lunfardo), and contact with another language (i.e. Italian) could have played in the development of present Buenos Aires intonation. We will argue that linguistic and social factors suggest that the present patterns are the result of convergence (Thomason, 2001), motivated by a double source; direct contact with Italian and the influence of Italian in the development of Lunfardo. We acknowledge the fact that our present discussion refers to recent descriptions of Spanish and Italian, and is based upon a restricted set of phenomena. Unfortunately, we have no access to speech samples from the period, and the contact situation that originated this pattern has disappeared: Lunfardo has merged with Buenos Aires colloquial Spanish and Italian speakers shifted to Spanish mostly in the course of one generation, and probably due to the massive pressure of monolingual public education.

Our discussion will be structured as follows. First, we will review briefly the studies on contact-induced intonational changes; second, we will present the main findings on Spanish and Italian intonation; third, we will characterize pre-nuclear and nuclear pitch accents and intonational contours in Buenos Aires Spanish; and finally, we will analyze the role of the two alternative hypotheses to account for the change in Buenos Aires Spanish: (i) the (social) dialect expansion, and (ii) contact with Italian.

Intonation, contact and convergence

Thomason and Kaufman (1988, p. 9) observe that contact-induced changes can occur at all levels of the linguistic system, and that it is “the sociolinguistic history of the speakers, and not the structure of their language, that is the primary determinant of the linguistic outcome of language

contact” (ibid., p. 35). Surprisingly, very few comments on intonational changes are included in their study. One of the few exceptions is found in their analysis of borrowing and shift (ibid., p. 42). As part of that discussion, the authors quote Vildomec (1971), who is intrigued by the role played by intonation in substratum and adstratum theories. The author comments that, although substratum theory adherents indicate that intonation is one of the main features of the native language that persists in the target language, he observes that immigrants often incorporate prosodic features of the target language into their native language.

General remarks on the influence of substratum in the development of intonational systems can be found in the works of Alonso (1940), who attributes to the Araucan substratum the prosodic characteristics of Chilean Spanish, and Malmberg (1950), who considers that Paraguayan and Northeastern Argentine Spanish have been influenced by Guarani. Instrumental research on intonation and language contact is just beginning. The few recent studies undertaken within the autosegmental model and based on instrumental analyses support the hypothesis that contact-induced changes affect the intonational system. Moreover, they provide specific evidence that bilinguals develop different intonation systems than monolinguals. These studies involve languages in contact that belong to different families, such as Turkish and German (Queen, 2001) and Quechua and Spanish (O’Rourke, 2003), and cases of adstratum (Turkish in Germany) and substratum influence. In her study of the intonation of Turkish-German bilingual children, Queen (2001) observes that speakers have a characteristic German rise and a typical Turkish rise, which do not pattern with the pragmatic uses of either the German or Turkish rise, i.e. “bilinguals produce an intonation pattern that it is clearly the result of mixing formally distinct patterns found in Turkish and German” (p. 56). The author argues that, although these patterns are the consequence of language contact, they cannot be accounted for by Thomason and Kauffman’s (1988) interference based model, and proposes the term “fusion” to characterize the behavior observed.

O’Rourke (2003) finds preliminary evidence of a contact-induced change in the intonation patterns of Spanish-Quechua bilinguals. She analyzes peak alignment patterns in the speech of monolinguals (Spanish and Quechua), and observes that Spanish monolingual speakers have the same alignment patterns reported in the literature (i.e. late peak alignment in pre-nuclear accents), while Quechua speakers have early peak alignments. Bilingual speakers show a variety of pre-nuclear peak alignments, some of which have not been reported for monolingual Spanish in the same environment (see section “Spanish and Italian: an overview of intonation in statements” below), but are present in Quechua.

Both studies support with instrumental evidence previous claims about contact-induced changes in intonational patterns, and demonstrate that bilinguals develop different intonational systems than monolinguals of each of the languages in contact. O'Rourke's work is especially relevant to the present study because it deals with a change in peak alignment. The author observes in bilinguals a feature (i.e. early peak alignments) that is present in Quechua, but that it is also observed in other varieties of Spanish to signal contrastive focus (Face, 2001, 2002; Beckman, Díaz-Campos, Tevis McGory and Morgan, 2002, among others). In the case of Spanish-Italian contact, a similar change arose accompanied (at least) by a second change: a more pronounced down-stepping in declarative contours. Thus, what we observe is that two intonational systems that were typologically similar before contact took place (Hualde, 2002) became more similar after contact, in what can be interpreted as a case of convergence. We will define convergence in fairly broad terms as "a process through which two or more languages in contact change to become more like each other" (Thomason, 2001, p. 262), and we will assume, after Bullock and Gerfen (2004 – this volume) that the result of this process is that the two languages "have become uniform with respect to a property that was initially merely congruent" (p. 96).

Spanish and Italian: an overview of intonation in statements

Early descriptions of Spanish intonation focus on Peninsular varieties, mainly² on Madrid Spanish (Navarro Tomás, 1948; Canellada and Kuhlmann Madsen, 1987), and seek to determine the contour patterns associated with different sentence types. Some of these works are based on instrumental techniques, and constitute a valuable source for future comparisons, in spite of the use of different terminologies. With the development of the autosegmental model of intonation, more instrumental descriptions of Latin-American varieties (Prieto, Van Santen and Hirschberg, 1995; Prieto, 1998; Sosa, 1999; Willis, 2003) are available, and, as a result of this body of research, a possible inventory for pitch accents and boundary tones has been proposed (Beckman et al., 2002).

All the studies conducted so far (see Hualde, 2000 for a summary) conclude that the unmarked alignment pattern for Spanish pre-nuclear accents in broad focus declaratives consists of a rising movement that tends to reach its peak either late in the tonic syllable or, more frequently, in the post-tonic syllable (Sosa, 1991; Garrido, Llisterri, De la Mota and Rios, 1993; Prieto et al.,

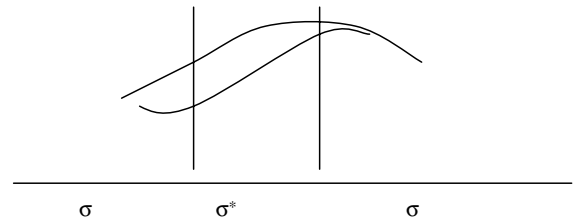


Figure 1. Schematization of the peak alignment pattern found in most varieties of Peninsular and Latin American Spanish, in pre-nuclear accents and broad focus declarative utterances.

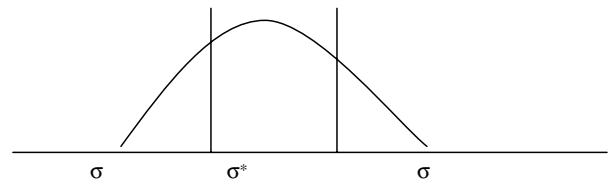


Figure 2. Schematization of the peak alignment pattern found in Buenos Aires Spanish and in Spanish in contact with Quechua, in pre-nuclear accents and broad focus declarative utterances.

1995; 1999; Hualde, 2000; 2002; Face, 2001, among others), as illustrated in Figure 1. A different alignment pattern, however, has been reported in preliminary works on Buenos Aires Spanish (Sosa, 1999; Toledo, 2000; Kaisse, 2001; Colantoni and Gurlekian, 2002),³ and studies on Spanish in contact with Quechua (O'Rourke, 2003). In these varieties, the pattern found is an early peak alignment, i.e. the fundamental frequency peak (F0) tends to be located within the stressed syllable, either towards its beginning or its center, as illustrated in Figure 2. It is important to point out that early peak alignments are not foreign to Spanish. They have been observed in other dialects in a different pragmatic environment, i.e. to convey contrastive focus (Face 2001, 2002; Beckman et al., 2002; Hualde, 2002).

Regarding nuclear accents in utterance final position, a wider variety of alignment patterns has been noted. Alignment of L tones has been reported for both Latin American (Puerto Rican and Cuban), and Peninsular varieties (Madrid and Seville; Sosa, 1999). However, alignment of H tones within the stressed syllable has also been observed, in Bogotá, México D. F. and Caracas (Sosa, 1999).

Contours of declarative sentences have been characterized as having a *TOBOGÁN* 'slide' pattern (Sosa, 1999, p. 119), consisting of a series of down-stepped accents (Navarro Tomás, 1948; Fant, 1984; Canellada and

² Quilis (1987) constitutes an exception to this generalization. The author compares Madrid, Mexican and Puerto Rican Spanish intonations.

³ Kaisse observes an early peak alignment followed by a fall within the stressed syllable in different environments, such as lists and words in declarative sentences that may receive narrow focus.

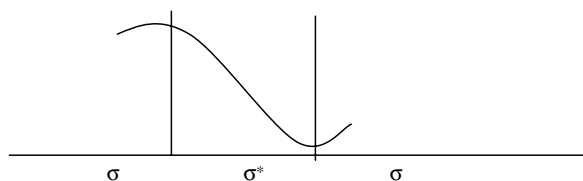


Figure 3. Schematization of the alignment pattern found in nuclear position in broad focus declaratives in Italian.

Kuhlmann Madsen, 1987; Sosa, 1991; 1999; Prieto et al., 1995, among others). According to several authors (Malmberg, 1950; Fontanella de Weinberg, 1966, 1980), Buenos Aires Spanish has a falling contour, which (i) affects even the first accent in the intonation group (peaks tend to be lower in final groups); (ii) involves a clear descent from pre-nuclear to nuclear accents and boundary tones; (iii) finishes in the lowest tonal value in the whole utterance. Among Romance languages, the Spanish and Italo-Romance varieties show the most similarities in prosody; they have similar stress systems; they tend to make frequent use of pitch accents (i.e. every lexical word tends to be associated with a pitch accent; Hualde, 2002, p. 2); and, finally, contours are characterized by a rise-fall pattern as opposed to the plateau observed in European Portuguese (Frota, 2002).

Given the linguistic diversity attested in the Italian peninsula (Lepschy and Lepscky, 1977), generalizations may be difficult. As researchers comment, results obtained for one variety may not hold for every Italian variety (Grice, 1995; D'Imperio, 2002). However, there is some consensus that one of the most distinctive characteristics involves peak alignment in broad focus declaratives. Ladd (1996, p. 128) reports that in nuclear position "the peak occurs early in the stressed syllable and the fall begins well before any following syllable" (see Figure 3). Grice (1995; cf. also D'Imperio, 2002) indicates that this falling contour in the nuclear syllable is common to all Italian varieties, including the one she analyzes, i.e. Palermo Italian. Differences have been observed in the magnitude of the fall. Canepari (1980) notes that the fall is even sharper in Catanian Italian than in other varieties; and D'Imperio (2002) also observes a deep fall that reaches the speaker's baseline in Neapolitan Italian.

There is less discussion regarding alignment of pre-nuclear accents. Whereas nuclear accents are bitonal, pre-nuclear accents have been consistently analyzed as H*, i.e. a peak associated with the stressed syllable (D'Imperio, 2002, p. 39). More detailed alignment information is not available, but the fact that pre-nuclear accents receive the same phonological analysis as narrow focus accents (Avesani, 1990; D'Imperio, 2002) suggests that they are significantly similar. Finally, regarding the analysis of the scaling of H tones, D'Imperio (2002) observes that the H target of the nuclear accent is noticeably lower than the

one found in a preceding target, although the phonological analysis of downstepping still remains an open question for Italian.

In the following sections, we will present quantitative evidence indicating that Buenos Aires Spanish differs from previously studied varieties in the alignment of peaks in pre-nuclear syllables and in the characteristics of the final contours, and we will explore two hypotheses to account for the motivations of these differences, i.e. indirect influence of Italian on a non-standard variety (Lunfardo), and direct transfer of Italian features.

Methodology

Our analysis is based on a corpus consisting of 741 short declarative sentences extracted mainly from Argentine newspapers (see Gurlekian, Rodríguez, Colantoni and Torres, 2001). Two professional announcers (a man and a woman) native to Buenos Aires read the sentences in several recording sessions. They received instructions to read the sentences as naturally as possible, assuming that each of them was an answer to questions such as "What happened?" (to ensure a broad focus interpretation). Speakers were prompted by a computer program to read each sentence, and sufficient time between each utterance was allowed to avoid a 'list' effect. Recording took place in a sound-proof chamber. All recordings were performed at 16 kHz and 16 bit. Sound files were manually labeled twice by four speech pathologists, with additional musical training, and the software used for labeling consisted of a modified version of Anagraf (Gurlekian, 1997).

The selection of professional announcers was guided by practical reasons: the database was created to develop a text-to-speech system, and voice quality and perfect diction were requested. However, and because of the product's eventual commercial application, professional sounding speech was avoided; speakers were instructed to speak as naturally as possible. Naturalness of speech was verified by the two authors, and some colleagues. Since our results will be compared with those obtained for Spanish and Italian, which are based on the analysis of non-professional speakers, it is important to highlight that we did not observe in our data some of the speech patterns, such as double accentuation or emphatic initial accents (Oakes, 2002), which are usually associated with professional speech.

The labeling model is based on ToBI (Beckman and Ayers Elam, 1993) and, thus, it incorporates the distinction between pitch accents, phrase accents and boundary tones. Two additional parameters have been added: a description of the shape of the accent, and the assignment of a prominence level to every label. The first parameter involves: (a) the direction of the F0 slope before and/or after the accent, and (b) the number of syllables through which the accent-movement takes place. In order to

Table 1. *Alignment patterns for pre-nuclear accents according to their relative position in the utterance.*

Position in the utterance	Peak aligned within the stressed syllable						Valley aligned within the stressed syllable						Total
	H*+L		L+H*		H*+H		L*+L		L*+H		H+L*		
	N	%	N	%	N	%	N	%	N	%	N	%	
First	419	91.68	9	1.97	14	3.06	11	2.41	0	0	4	0.88	457
Second	143	91.67	2	1.28	2	1.28	4	2.56	2	1.28	3	1.92	156
Third	26	74.29	1	2.86	5	14.29	1	2.86	2	5.71	0	0	35
Total	588	90.74	12	1.85	21	3.24	16	2.47	4	0.62	7	1.08	648

Table 2. *Alignment of L trailing tones in H*+L variants in pre-nuclear position.*

Position in the utterance	H*+L0		H*+L1		H*+L2		H*+L3		Total
	N	%	N	%	N	%	N	%	
First	28	6.68	196	46.78	131	31.26	64	15.27	419
Second	11	7.69	75	52.45	35	24.48	22	15.38	143
Third	0	0	15	57.69	6	23.08	5	19.23	26
Total	39	6.63	286	48.64	172	29.25	91	15.48	588

label pitch accents, prominent syllables⁴ are identified first. Next, the labeler decides whether prominence is led by rising, lowering of F0, or a combination of both movements. Once the decision is made, the head of the pitch accent is labeled (either H* or L*), and marks are inserted in association with the highest or lowest point in the F0 peak or valley. It is important to emphasize here that the meaning of the labels slightly differs from that used in Pierrehumbert (1980) and Beckman and Pierrehumbert (1986), where it is assumed that the starred tone occurs in the proximities of the syllable associated with the accent, but not necessarily within its time slot. Here a star (*) indicates that the peak or valley is indeed aligned within the stressed syllable. Since we are in an initial stage of the description of the variety, such precision is necessary in order to enable the association, in the future, of these marks with phonological categories.

The second addition to our model consists of the assignment of a prominence value to every tonal label. The use a semi-tone scale, instead of the Hertz scale, has been suggested to visualize pitch contours in speech (Traunmüller and Eriksson, 1995). The semitone scale, although adequate for predicting pitch distances, is not adequate for predicting equal perceptual prominences

(Nootheboom, 1999). According to Hermes and Van Gestel (1991), prominences of accent-leading pitch movements in different registers are equal when their excursion sizes are equal on the Equivalent Rectangular Bandwidth (ERB) scale (Patterson, 1976; Glasberg and Moore, 1990). Hermes and Rump (1994) supported this psychoacoustic scale for some critical high pitch relationships, and verified using synthetic speech that the effect of pitch excursion on prominence is very robust. Thus, we decided to adopt the ERB-scale in our model, and associate every tonal mark with a value on that scale. These labels provide information about scaling of pitch accents (down-stepped or up-stepped accents), and allow us to reconstruct intonational contours.

Alignment patterns in pre-nuclear pitch accents

The analysis in the present section is based on a subset of the data reported above. We focus in detail on the distribution of pre-nuclear accents in intonation groups⁵ found in utterance initial position.⁶

Pre-nuclear accents almost categorically consist (see Table 1) of a peak aligned within the stressed syllable (H*; see Figure 4). Although the alignment of the L tone varies (see Table 2), there is a strong preference for post-tonic

⁴ In the autosegmental model, prominence can be defined by two independent relations (Ladd, 1996, p. 59). First, prominence involves abstract strength relations between syllables or between words and phrases due to a hierarchical structure. Second, prominence is the consequence of concrete (psycho)acoustic stress relations between those units, due to loudness, duration, pitch and timbre changes (phonetic factor).

⁵ 'Intonation groups' is meant to be a broad category which includes both intonational phrases and intermediate phrases.

⁶ Most of the sentences of the database consist of two intonational phrases. We focus here on initial groups but the analysis is substantially similar for pre-nuclear accents in final groups. The relevant differences will be discussed in the following section. The number of pre-nuclear accents ranges from 0 (groups with only one nuclear accent) to 4.

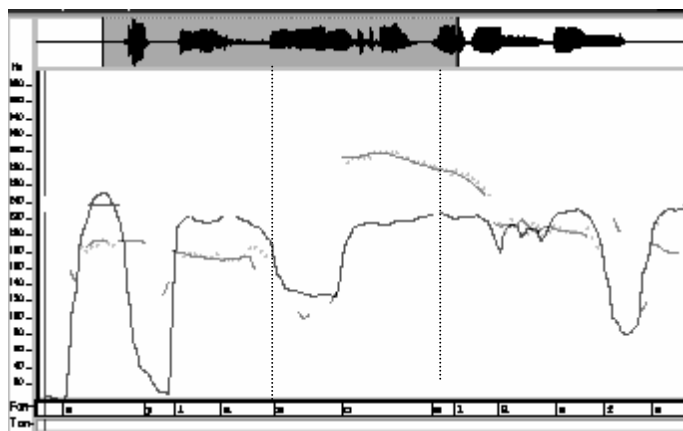


Figure 4. Early peak alignment in *aplazó* ‘she/he postponed’, extracted from the sentence *La justicia aplazó el referéndum en el ayuntamiento* ‘The court postponed the referendum in the city hall’. Vertical lines mark the stressed syllable; the grey line displays the F0 contour, while the darker line shows the intensity contour.

alignments (H^*+L1), i.e. there is a tendency against tonal compression (Ladd, 1996, p. 132). The alignment of the L target presents two additional alternatives: (i) a fall within the stressed syllable (H^*+L0), and (ii) an L tone aligned two (H^*+L2) or three (H^*+L3) syllables after the tonic syllable. The former option is the least common (6.63%), and it is present in shorter groups (groups containing four or more accents do not have bitonal accents in the first pre-nuclear position). The second most frequent realization (H^*+H) also has an H target within the stressed syllable, and its use increases in longer groups. A late alignment of the peak, i.e. the default pattern in other Spanish varieties, is observed in 1.8% of the accents ($L+H^*$). Finally, very few instances of a low tone as a head of the accent are labeled (less than 5%), and the most frequent pattern consists of a falling contour (L^*+L).

These results, which are consistent with previous findings (Sosa, 1999; Toledo, 2000; Kaisse, 2001), indicate that pre-nuclear accents in Buenos Aires Spanish broad focus statements display a dramatically different alignment pattern than the other Spanish varieties described so far, where the peak is preferably realized in the post-tonic syllable (Garrido et al., 1993; Prieto et al., 1995; Hualde, 2000; Face, 2001, among others). If we consider that the focal accent (De la Mota, 1997; Face 2001, among others) has become the default accent in Buenos Aires Spanish, it is possible to understand better Toledo’s findings (1989) in his study of the realization of focalized and non-focalized elements in Buenos Aires Spanish. After analyzing the role of 16 acoustic variables, including pitch peak, pitch obstruction and pitch range, he concludes that there are not consistent marks of focus in Buenos Aires Spanish. Toledo’s results may be attributed to the use of a different alignment pattern in Buenos Aires Spanish (i.e. early peak), which is precisely the pattern found in other Spanish varieties in contrastive focus, i.e.

the marks that should be available to signal focus already occur in the default pre-nuclear pitch accent.

Thus, the first change that we are analyzing involves the loss of the pragmatic meaning associated with early peak alignment. Before we discuss the possible motivations for this early peak alignment, we will analyze the second characteristic of Buenos Aires Spanish: the final fall, and the scaling of H tones in final contours.

Final contours

Final contours are characterized by a clear negative-slope pattern, in which the lowest point coincides with the final pitch accent, and subsequently with the final boundary tone (see Figure 5). The final pitch accent (see Figure 4) almost categorically consists of a fall. In only 1.3% of the instances a rise was observed. The head of the accent could either be a low tone (L^*+L) or a high tone (see Table 3). A crucial difference between nuclear and pre-nuclear accents is observed in the alignment of the L tone. While the preference in pre-nuclear accents was for post-tonic alignment, in nuclear accents, the L tone is aligned within the stressed syllable in 50% of the instances. In addition, and as we will show below, in the case of H^*+L the peak is considerably down-stepped.

In order to reconstruct the contours, we based our analysis on the ERB values that were marked for every tonal event, i.e. the initial and final boundary tones, and the pitch accents. We only discuss here findings for the most frequent pattern: an intonational group consisting of two pitch accents. Results (see Table 4 and Figures 6 and 7) clearly illustrate what has been described as a *TOBOGÁN* ‘slide’ pattern for Spanish statements (Sosa, 1999, p. 119). Both speakers display the same patterns, although the female speaker shows a higher degree of variability in the values associated with pitch accents. The contour begins

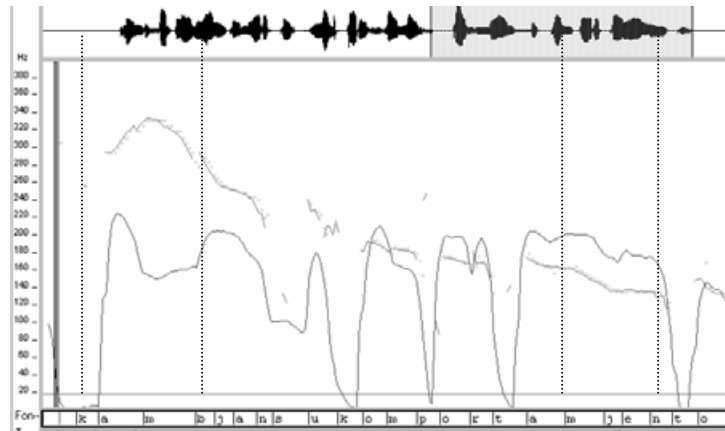


Figure 5. Final intonation contour extracted from the sentence *Cuando sopla viento norte, cambian su comportamiento* “When there is a northern wind, (people) change their behavior” (only the sequence in bold is illustrated in the figure). The sentence contains two pitch accents (stressed syllables are marked with vertical lines). The first one is a peak accent (H*+L), while the nuclear accent consists of a fall within the stressed syllable (L*+L). The grey line displays the F0 contour, while the darker line shows the intensity contour.

Table 3. *Alignment patterns in nuclear accents in utterance final intonational contours.*

Number of pitch accents preceding	H* + L		L* + L		Other		Total
	N	%	N	%	N	%	
1	56	42.75	55	41.98	8	6.11	131
2	155	32.70	303	63.92	2	0.42	474
3	129	36.65	203	57.67	2	0.57	352
4	22	22.68	72	74.23	0	0	97
5	9	29.03	20	64.52	2	6.45	31
Total	371	34.19	653	60.18	14	1.29	1085

Table 4. *Mean and standard deviation for ERB values in final groups.*

	Initial boundary		A1		A2		Final boundary	
	F	M	F	M	F	M	F	M
N	262	174	262	174	262	174	262	174
Mean	5.79	4.17	6.16	4.97	5.3	4.05	4.09	3.04
SD	0.75	0.43	0.75	0.72	0.48	0.44	0.34	0.21

with an initial boundary tone whose ERB value is lower than that of the first accent (A1), which is also the highest peak. From the first to the second accent (A2) there is a drop of approximately one ERB,⁷ and the same tendency is observed from the second accent to the final boundary tone. Mean ERB-values in this position are the lowest in the phrase, and differ with the initial boundary tone in at least one ERB.

⁷ Differences of half ERB are perceptually significant.

Contour patterns in initial and final groups (see Figure 7) display a common tendency to contain down-stepped accents. In both cases, the differences between tonal events are perceptually significant, although the magnitude of this down-step is larger in final groups, where the accents are one ERB apart, as opposed to half an ERB in initial groups. The first accent in initial groups is more than one ERB higher than the initial boundary tone, while in final groups that difference is below one ERB. Contours differ, however, in the shape of the final boundary tone. The fall in final groups continues into

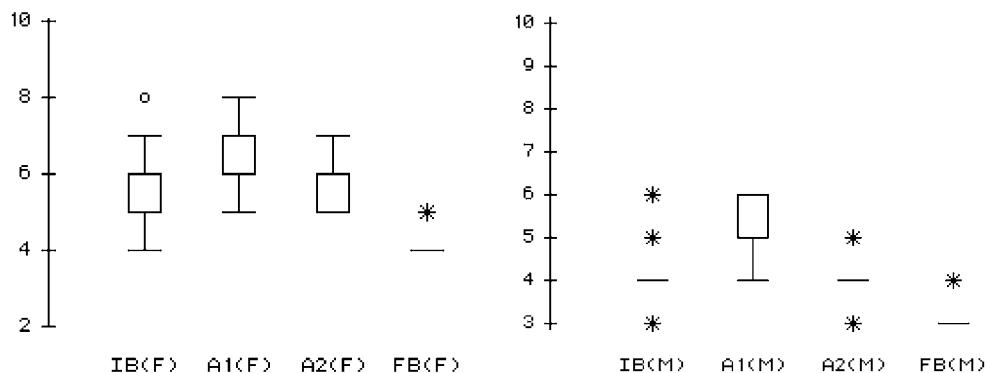


Figure 6. Boxplots of ERB-values for initial boundary tones (IB), pitch accents (A1, A2) and final boundary tones (FB) for intonation groups in final position containing two accents. Left: ERB-values for the female speaker; right: ERB-values for the male speaker.

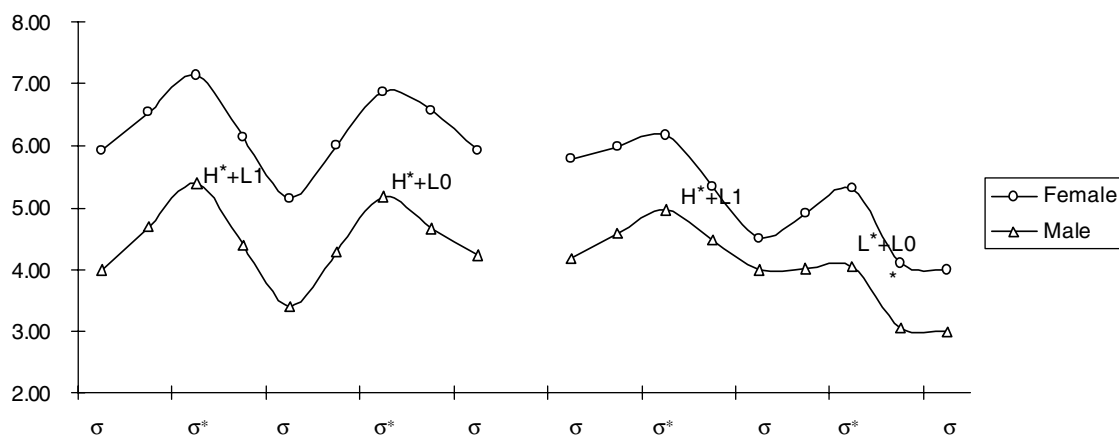


Figure 7. Stylized contour of a Buenos Aires Spanish statement, for utterances containing two intonational phrases with two pitch accents each. F0 values are expressed in ERBs. The values computed for the valleys do not represent actual data.

the final boundary tone, which coincides with the lowest point in the utterance (and probably with the speaker’s baseline). In initial groups, the fall is suspended, and the final boundary tone has identical values to the initial one.

As in other Spanish varieties (Navarro Tomás, 1948; Fant, 1984; Canellada and Kuhlmann Madsen, 1987; Prieto et al., 1995; Sosa, 1999, among others), down-stepped accents are associated with broad focus declaratives. Prieto et al. (1995, p. 458) observe that in Mexican Spanish all the accents are down-stepped, but that there is “an extra amount of lowering for accents close to the end of the utterance”. Results reported here for groups consisting of two accents plus observations based on the analysis of longer utterances suggest that every accent in the intonational phrase is affected by a more pronounced lowering, when compared to the accents in initial intonational phrases. As mentioned above, similar findings have been reported for Italian varieties in general, and for Neapolitan (D’Imperio, 2002), in particular, a

variety spoken by one of the largest Italian groups that settled in Buenos Aires.

It is still necessary to gather more evidence in order to determine whether the down-step that affects every accent in final intonational contours is a phonetic effect or, as has been argued by Ladd (1996, p. 92), a phonological effect. Other factors not explored here, such as syllable duration, may also contribute to the perception of this long fall. Buenos Aires declarative contours can then be characterized as a series of peaks associated with stressed syllables, and a clear fall that affects the realization of all the accents in the intonational domain.

Convergence and intonation in Buenos Aires Spanish

The dialect contact hypothesis

Lunfardo can be characterized as a slang that originated among criminals (Pinto, 1971), and was widely spoken

by lower classes (Teruggi, 1978). According to Teruggi (1978, p. 15), its emergence can be dated to the second half of the nineteenth century. This non-standard dialect became associated with the popular stereotype of the *compadrito*, a young male, usually unemployed who spent his days with his friends and lovers, and who would often be involved in street fights. Tango lyrics (the first tango lyric is from 1917) and singers popularized the *compadrito* and the social dialect spoken by him. Popular literature, theater in particular, also contributed to its diffusion (Teruggi, 1978). As a consequence, Lunfardo rapidly gained prestige, especially among young men (Vidal de Battini, 1964), and penetrated the speech of middle and upper classes.

The linguistic bases of Lunfardo are in colloquial Spanish and it developed through contributions of the immigrant groups that settled in the *orillas*, the southern and marginal neighborhoods of Buenos Aires (Gobello, 1997; Teruggi, 1978). In those same neighborhoods (La Boca, Barracas or San Telmo; cf. Teruggi, 1978; Gobello, 1997), Italians constituted almost 30% of the population in 1855 (Devoto, 1994) and 44% in 1895 (Baily, 1999), and the influence of Italian varieties is attested in the high number of lexical borrowings (Gobello, 1997; Lipski, 1994).

As a consequence of the extension of Lunfardo to middle and upper class speech, a new intonation pattern was observed in standard Buenos Aires Spanish. Vidal de Battini (1964) dubs it the *TONADA LUNFARDA* 'Lunfardo intonation'. This new intonation is characterized by a pronounced final lowering and the realization of tonal accents in short descending scales. Translated into autosegmental terms, Lunfardo had a falling contour (HL) associated with the stressed syllable, and a phrase contour consisting of a series of down-stepped accents. Vidal de Battini does not explain, however, how this pattern arose in Lunfardo. Based on the information available, we will argue that it is the consequence of multiple and complementary causes. First, it could be attributed to contact with Italian. As we mentioned, the pronounced final lowering is present in every Italian dialect studied so far. It is plausible to assume that in a community with the aforementioned characteristic there were both active and passive bilinguals. In addition, monolingual Spanish speakers probably imitated the speech of Italian immigrants, and, as Thomason and Kaufman (1988, p. 49) point out, change can be introduced through frequent imitation. Secondly, as Malmberg (1950, p. 218) argues,⁸ the development of the final lowering could also be internally motivated, i.e. it may be due to the extension of an emphatic contour:

Il me semble évident que cette intonation descendante argentine est le développement d'un type qui existe en espagnol péninsulaire. La mélodie peut tomber aussi en castillan, seulement beaucoup moins. [...] Stirling note pourtant un chute du ton à l'intérieur d'une syllabe musicalment haute à laquelle il arrive de se trouver à la finale absolue [...]. Cette chute aurait surtout un caractère emphatique [...]. Je vois dans cette intonation emphatique l'origine de la mélodie descendante argentine.

The emphatic contour could have extended, then, as part of a general strategy (from which lexical productivity was the most obvious example, cf., Teruggi, 1978) used by Lunfardo speakers to create the language of the group and differentiate themselves from speakers of standard Spanish. Thus, the most likely hypothesis is that language-contact and the need to promote and maintain the language of the group acted together as motivators for the change. It is unlikely, however, that contact with Lunfardo was the sole motivation for the development of the pronounced final lowering that is observed in modern Buenos Aires Spanish intonation. Contact with different varieties of Italian, where this pattern is also observed, must have also played a role.

The language contact hypothesis

Demographic factors play a key role in any contact situation (Weinreich, 1963; Thomason and Kaufman, 1988; Trudgill, 1989; Thomason, 2001, among others), since it has been observed that face-to-face interaction is an important precondition for accommodation to take place, and then for changes to occur (Trudgill, 1989). A large number of speakers increases the probability that those interactions will take place. Figures speak for themselves in the case of Spanish-Italian contact. From 1855 until 1946 Argentina received a total of 2.9 million Italian immigrants (Vidal de Battini, 1964; cf. also Baily, 1999). An important fact to keep in mind is that Italians were not a homogenous group. They came from Northern, Central and Southern Italy, where different varieties are spoken (Lepschy and Lepschy, 1977), and had a limited knowledge of standard Italian (Blengino, 1987). The highest proportion of newcomers was from Piedmont, Calabria, Sicily, Lombardy and Campania (Baily, 1999, p. 62), in that order, although the relative ranking shifted over the 40-year-period reported by the author. Approximately 37% of them remained in the city of Buenos Aires, 59% went to one of the four central provinces (Buenos Aires, Cordoba, Santa Fe and Enter Rios), while the remaining 4% settled in the rest of the country (Baily, 1999, p. 59).

The impact of immigration on Buenos Aires was higher than anywhere else in the country. The city grew in less than a century from a small town, with a population of 91,395 in 1855, to a large city, with 2,415,142 inhabitants in 1936 (Baily, 1999, p. 59). Those Italian immigrants who stayed in Buenos Aires established residence in the

⁸ Malmberg does not refer explicitly to Lunfardo but to Buenos Aires intonation, in general.

southern neighborhoods, where they constituted around 40% of the population (Baily, 1999, pp. 123–124). There is no precise information about the origins of those Italians who stayed in Buenos Aires, but some data can be inferred from records of land-ownership and the presence of cultural associations. For example, while immigrants from Piedmont were mostly rural laborers and tended to settle in the new colonies of southern Cordoba and Santa Fe, most Calabrians, Sicilians and Neapolitans stayed in Buenos Aires (Baily, 1999). Neapolitans must have been (or must have been considered) a numerous group, since the word *tano*, which is an apocopated form of *napolitano* ‘Neapolitan’, became a general term for anyone of Italian origin (Haensch and Werner, 2000, p. 570).

Three facts suggest that a high proportion of the population was bilingual: (i) there was a high concentration of Italian population in certain areas of the city; (ii) marriage tended to occur within the community (Baily, 1999, p. 151; cf. also Devoto, 1994), and (iii) new immigrants arrived continuously for almost a century. Passive bilingualism was probably very high. Blengino (1987, p. 129) quotes the sayings of L. Mansilla, a politician and writer, who denied the need to translate a new Italian author into Spanish, given the fact that everybody in Argentina understood Italian. The Italian influence was so pervasive that some prominent politicians were even concerned that Spanish was going to disappear (Blengino, 1987, p. 128). Italian has indeed permeated the lexicon of Buenos Aires Spanish (Vidal de Battini, 1964; Blengino, 1987), and nothing precludes the possibility of a contact-induced change in intonation. Alonso and Henríquez Ureña (1928) and Vidal de Battini (1964, p. 144) offer the only direct testimony for the presence of an Italian intonation in Buenos Aires Spanish. They indicate that it had extended from popular classes to educated speakers, and mention two specific characteristics: (i) its *tono agudo* (high register), and (ii) a plateau, probably a rising contour in statements.

We can conclude, then, that, in contrast with Lunfardo, the Italian intonation had a preference for high tones and non-falling contours. However, the exact interpretation of the two characteristics leaves room for speculation, since the authors do not provide any additional information. Regarding the *tono agudo*, it could be interpreted as either a change in the overall register or as a preference for peak accents. We will focus on the latter hypothesis, since comparative studies that would support the former still need to be undertaken. Vidal de Battini (1964) argues that Buenos Aires nineteenth-century intonation was essentially similar to Peninsular varieties. In those varieties, peaks are not typically realized within the stressed syllable. On the other hand, Italian varieties have been consistently analyzed as having peak accents in pre-nuclear position. Thus, it is possible to hypothesize that these differences in peak alignment, probably

accompanied by a change in pitch register, motivated this overall perception of *tono agudo*. We can suppose that the high number of bilinguals started to incorporate Italian intonational structures in their speech, as is observed in other contact situations now (Queen, 2001; O’Rourke, 2003). Those structures eventually penetrated also the speech of monolinguals, helped by the fact that they were already present in Spanish, although in a different context.

An explanation for the rising or plateau contours is more problematic, since it has not been mentioned in any of the descriptions of different Italian varieties. As a matter of fact, the pattern is exactly the opposite, i.e. a clear final lowering. It could be argued that rising contours have not been described yet, but, as speakers of the dialects, we have not observed them in modern Buenos Aires Spanish. Assuming that the description is accurate, it could have been a pattern that eventually disappeared from the dialect.

The development of Buenos Aires Spanish intonation: evidence for convergence

Linguistic and social factors support the hypothesis that modern Buenos Aires intonation is the result of convergence. Among the former we should include (i) the typological similarities between the language and varieties in contact, in particular the similarities in the prosodic system (Frota, 2002; Hualde, 2002, among others); and (ii) the fact that the structures under study existed in Spanish (although associated with different pragmatic uses), and in several of the Italian varieties. Within the social factors, it is important to mention (i) the existence of a large proportion of Italian-born population in the city of Buenos Aires, which constituted between 20% and 32% of the population, depending on the year (Baily, 1999, p. 59); (ii) the even higher concentration of that population in certain areas of the city; (iii) the endogamic marriage patterns (Devoto, 1994; Baily, 1999); (iv) the existence of a social bilingualism, as a consequence of the factors listed above; and (v) the development of a new popular variety that gained prestige in upper classes, which may also have been heavily influenced by contact with Italian.

One of the structures affected by convergence involves peak alignment in pre-nuclear broad focus declaratives. As a result of the process, Buenos Aires intonation would have changed from a variety with late peak alignment to a variety with early peak alignment. Thus, early peak alignment was dissociated from its pragmatic meanings (focus marker, emphasis) to become the default pattern in declaratives. The other structure affected concerns the realization of nuclear accents and the scaling of H tones in final contours. Nuclear accents consist of a clear fall, and are preceded by down-stepped pitch accents. The explanation of this change is more problematic, since variation in the realization of nuclear accents is observed

across Spanish varieties (Sosa, 1999; Hualde, 2000). It is possible to hypothesize that contact with Italian fixed one of the possibilities (preference for a fall vs. a small rise within the stressed syllable), although it is clear that Spanish has a tendency towards final lowering in declaratives. It may be the case that this tendency in Spanish is not as consistent as in Italian, where there is agreement that it appears in every dialect described so far. It is also possible that factors that we have not analyzed, such as vowel duration, or variables that we cannot compare (since they have not been measured for all the varieties under consideration), such as the (perceptual) differences in pitch between the preceding peak and the final fall, are actually closer to those present in Italian.

One fact still forces us to be cautious. Most research on Italian intonation focuses on Central and Southern varieties, but among the newcomers there was a high proportion of Northern Italians. Northern Italian may not differ from other Italian varieties in the use of these features. It is also possible that a process of KOINEIZATION took place, as in other similar situations (Haugen, 1969; Kerswill, 1994, among others), and Northern Italian speakers adopted the intonational patterns of other groups. In order to reach definitive conclusions, two pieces of information are needed: (i) detailed descriptions of Northern Italian varieties; and (ii) a study of the speech of Northern Italian immigrants who have been in contact with Central and Southern Italian varieties. Unfortunately, given the decreasing rate of bilingualism in the Argentine-Italian population, it may be difficult to undertake this latter study.

Conclusions

We showed here that Buenos Aires Spanish differs from other Spanish varieties in the realization of pre-nuclear pitch accents and in the final fall in broad focus declarative utterances. Whereas other Spanish varieties have been described consistently as showing late peak alignments, Buenos Aires Spanish displays early peak alignments. The alignment pattern found in Buenos Aires broad focus declarative utterances is not totally foreign to Spanish: it is attested in a quite different function, i.e. to signal contrastive focus. In addition, Buenos Aires Spanish also seems to differ from other Spanish varieties in the realization of the intonation contour in utterance-final intonational phrases, where a pronounced tendency for down-stepped peaks is observed.

These patterns are relatively new, and their appearance around the turn of the twentieth century coincides with the peak period of Italian immigration. Historic evidence strongly suggests that Buenos Aires Spanish intonation had the same alignment pattern as the other Spanish varieties, and, as far as scholars can tell, early peak alignment was found in the same pragmatic environment,

as it is observed now in other Spanish and Romance varieties. Thus, the present results and the comparison with findings for other Spanish varieties and for Italian varieties, as well as demographic data, suggest that the development of Buenos Aires intonation is due to a combination of direct and indirect transfer from Italian. Italian varieties were directly in contact with Spanish, and also indirectly, through the Italian influence in the development of Lunfardo. The existence of a large bilingual community, exposure to and probably imitation of Italian by monolingual Spanish speakers, and finally, the social prestige of Lunfardo among young men are sociolinguistic factors that favored the adoption of intonational patterns found in Italian.

Our conclusions, however, are limited by the analysis of one sentence type and two speakers. Moreover, the present study is constrained by the challenges of most diachronic studies. Reconstructing morpho-syntactic and segmental patterns has been challenging, but fruitful. The reconstruction of intonational patterns is still very far behind. As Hualde (2003) points out, very little is known about the development of Romance intonations, and the only way to learn more is through systematic studies of multiple varieties. It is expected that by extending our knowledge of Romance intonation, in general, we would eventually come to more solid evidence on the development of intonation in specific varieties, such as Buenos Aires Spanish.

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