



Intonational convergence in information-seeking yes-no questions: the case of Olivenza Portuguese and Olivenza Spanish

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Abstract

The present study investigates the realization of information-seeking yes-no questions in two contact varieties, Olivenza Portuguese and Olivenza Spanish, in comparison with Castilian Spanish. We aim to: (1) describe the use of prenuclear pitch accents and nuclear configurations and the durational properties of prenuclear, nuclear, and IP-final syllables in this sentence type; (2) compare the intonational and durational patterns of information-seeking yes-no questions in the contact varieties, Castilian Spanish, and Standard European Portuguese in order to find out which kind of influences the contact varieties show and how can the similarities and/or differences between Olivenza Portuguese, Olivenza Spanish, Castilian Spanish, and Standard European Portuguese in the light of language contact be explained. Our outcomes reveal that the contact varieties exhibit similar intonational and durational properties; they use a strong IP-final lengthening to mark information-seeking yes-no questions, in contrast to Castilian Spanish and Standard European Portuguese. The comparison between the contact varieties and the Standard varieties has shown that Olivenza Portuguese and Olivenza Spanish pattern with Castilian Spanish rather than with Standard European Portuguese concerning the tonal realization of this sentence type. The intonational systems of both contact varieties can be seen as the result of convergence and transfer processes.

Index Terms: intonation, language contact, information-seeking yes-no questions, final lengthening, Spanish, Portuguese

1. Introduction

The historical background of Olivenza, a small town located in the border area between Baja Extremadura (Spain) and Alto Alentejo (Portugal), helps to understand how the contact varieties spoken nowadays there emerged: Olivenza is said to have been part of the Kingdom of Castile and Leon between 1230 and 1297, before being incorporated into the Kingdom of Portugal in 1297. During the following five centuries, the territory of the current municipality of Olivenza belonged to Portugal (with a brief interruption between 1657 and 1668), before becoming part of Spain in 1801 [1, pp. 58, 2, pp. 48–49, 63–66, 3, pp. 27–30, 53–62, 73–76]. After the political change, the monolingual Portuguese speaking population of Olivenza had to learn the ‘new’ language of education, administration, and religion (i.e., Spanish), which became more dominant and gained more prestige as compared to Portuguese through the course of time. From the 1950’s on, Portuguese was no longer being acquired as a mother tongue [1, pp. 94–100, 4, 5, pp. 37–39]. Consequently, all speakers of

Olivenza Portuguese are nowadays older than 60 and bilingual.

The long-lasting situation of language contact is said to have left traces in both Olivenza Portuguese (OP) and Olivenza Spanish (OS) [1, 4, 6, 7, 8, 9, 10, 11]. Concerning the rhythmic properties of OP and OS, [10] and [11] have shown that both contact varieties pattern alike in exhibiting a strong IP-final lengthening effect in yes-no questions, but not in declaratives, thus using durational means to convey sentence modality. In contrast, this is not the case for neither Castilian Spanish (CS) nor Standard European Portuguese (SEP) [10, 11, 12, 13, 14]. In the present study, we analyze the intonational and durational properties of information-seeking yes-no questions in OP, OS, and CS to answer the following research questions: (1) Which prenuclear pitch accents and nuclear configurations are used? (2) Do prenuclear, nuclear, and IP-final syllables differ with respect to their durational properties in the three varieties? (3) Do the contact varieties use more than one nuclear configuration and if so, are all nuclear configurations used accompanied by the same lengthening effects? (4) Do the contact varieties pattern with CS or rather with SEP regarding the tonal realization of this sentence type? (5) How can the similarities and/or differences between the contact varieties (OS, OP) and the non-contact varieties (CS, SEP) be explained in the light of language contact? To answer the last two questions, we compare our results with the outcomes of recent comprehensive studies on SEP intonation [13, 14].

2. Methodology

2.1. Speakers

We analyzed data collected from a total of 15 subjects: five bilingual speakers of OP aged 68 to 76 (two ♂, three ♀), five monolingual speakers of OS aged 18 to 32 (two ♂, three ♀), and five monolingual speakers of CS aged 26 to 34 (three ♂, two ♀). Both the OP and OS speakers were born and raised in Olivenza, where they spent their whole life (with only brief interruptions). The CS speakers were born in different places in the Castilian dialect area (Madrid, Gijón, Valladolid), but raised in the Spanish capital and currently living there.

2.2. Material

The material comprises semi-spontaneous data elicited using a discourse completion task, consisting of a set of hypothetical every-day situations to which the subjects were asked to react verbally [15]. The information-seeking yes-no questions obtained from four situations were considered for the analysis. Their number amounts to 60 intonational phrases (IPs) in total (i.e., 20 IPs per variety).

2.3. Data segmentation and analysis

We used *Praat* (version 5.3, [16]) for data segmentation. All of the information-seeking yes-no questions elicited were segmented into syllables taking into account both the (re)syllabification rules of Spanish and Portuguese [17, pp. 56–89, 18, pp. 38–64, 19, pp. 49–50] and the subject's individual productions. In addition, a segmentation of the syllable nuclei of all syllables was made according to the phonetic criteria applied in [20]. The intonational analysis was carried out according to the AM model [21, 22] and the ToBI framework (cf. [12, 23, among others] for Spanish and [13, 14, among others] for Portuguese). We distinguished between prenuclear pitch accents (i.e., pitch accents associated with the stressed syllables preceding the nuclear syllable of the IP) and nuclear pitch accents (i.e., pitch accents associated with the last stressed syllable within the IP). The combination of the nuclear pitch accent and the following boundary tone is referred to as nuclear configuration.

The mean duration of prenuclear (*p*), nuclear (*n*), and IP-final syllables (*f*) was measured (for the durational analysis, the term *prenuclear syllables* is used to refer to all syllables except nuclear and phrase-final syllables). A distinction between nuclear syllables that belong to (pro)paroxytone words (abbreviated as *n*) and nuclear syllables that belong to oxytone words (abbreviated as *nf*) was made, since the accented and the pre-boundary syllables coincide in the latter and thus greater durational effects can be expected [24]. The percentage of different syllable types that occur in the material was calculated in order to determine if the syllable structure complexity plays a role for the durational differences between the varieties studied (the abbreviations *C*, *V*, and *Gl* refer to consonant, vowel, and glide, respectively). Finally, the mean duration of all syllable nuclei (being monophthongs or diphthongs) was measured. We distinguished between the following syllable nuclei: (1) nuclei that belong to prenuclear syllables (*vp*), (2) nuclei that belong to nuclear syllables (*vn* = nuclear syllables in (pro)paroxytones, *vnf* = nuclear syllables in oxytones), and (3) IP-final nuclei (*vf*). The durations of all syllables and nuclei were extracted using a *Praat* script.

3. Results

3.1. Intonational analysis

Prenuclear pitch accents were produced as L+H* or L+>H* in OP (cf. Figures 1, 2, and 3; stressed syllables are underlined, IP-final syllables are set in bold characters in all figure captions), as L*+H or L+>H* in OS (cf. Figures 4 and 5), and as L*+H in CS (cf. Figure 6).

Two different nuclear pitch accents were phonetically realized in the data analyzed for the three varieties: L* and H+L*. The occurrence of these two pitch accents was determined by the space available between the peak of the preceding prenuclear accent and the syllable with which the nuclear pitch accent was associated. H+L* surfaced if there was only one unstressed syllable intervening between the prenuclear and the nuclear accents and the peak of the prenuclear accent was located at the end of that syllable (cf. Figures 3 and 4). When there was enough segmental material between the syllables which carry the prenuclear and the nuclear accents, L* was realized in all three varieties. Taking into account the distribution of H+L* and L*, it can be concluded that, first, L* is the underlying nuclear pitch accent

in information-seeking yes-no questions in OP, OS, and CS and that, second, H+L* is a surface realization of /L*/.

The boundary tones used to express information-seeking yes-no questions were !HL%, L%, and H% in the contact varieties and H% in CS (cf. figures below). !HL% was phonetically realized as a compressed falling movement. For instance, the difference between the highest F0 point realized during the vowel [a] of the IP-final syllable [nas] in Figure 1 and the lowest one was 47 Hz: the F0 values in the beginning of the vowel onset, in the middle of the vowel, and at end of the vowel coda were 244 Hz, 210 Hz, and 197 Hz, respectively. A similar picture can be observed in Figure 4. The difference between the highest F0 point and the lowest one during the vowel [a] of the IP-final syllable(s) [d^oras] was 36 Hz: the F0 values in the beginning of the vowel onset, in the middle of the vowel, and at end of the vowel coda were 202 Hz, 172 Hz, and 166 Hz, respectively. It is worth mentioning that !HL% was always produced on strongly lengthened IP-final syllables. L% was also realized on considerably lengthened IP-final syllables in both contact varieties (cf. Figure 2 for OP). In Figure 2, the difference between the highest and the lowest F0 points during the diphthong [ja] of the IP-final syllable [njas] was only 9 Hz (the F0 values in the beginning of the diphthong, in the middle of the diphthong, and at end of the diphthong were 242 Hz, 239 Hz, and 233 Hz, respectively). We analyzed this final F0 movement as a phonetic realization of the underlying boundary tone /HL%/.

Regarding the rising boundary tone H% found in all three varieties, note that H% was also realized on strongly lengthened IP-final syllables in OP (cf. Figure 3), in contrast to OS and CS which did not show such a lengthening (cf. Figures 5 and 6).

Considering the results of the intonational analysis, we establish two underlying nuclear configurations for the contact varieties (i.e., /L* !HL%/ and /L* H%/) and only one for CS (i.e., /L* H%/). This will be further discussed in Section 4.

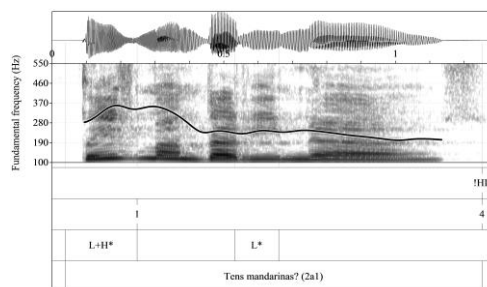


Figure 1: *Tens mandarinas?* (OP)

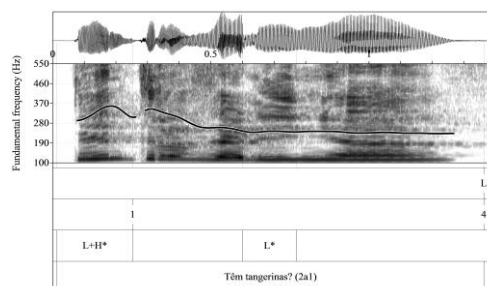


Figure 2: *Têm tangerinas?* (OP)

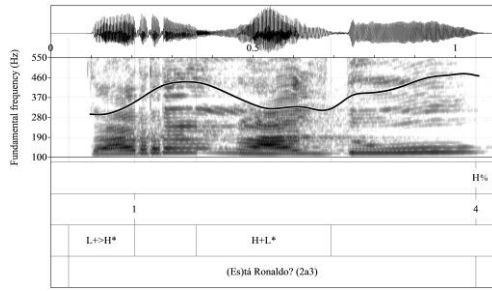


Figure 3: *(Es)tá Ronaldo?* (OP)

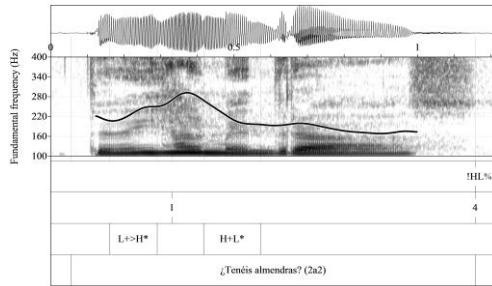


Figure 4: *¿Tenéis almendras?* (OS)

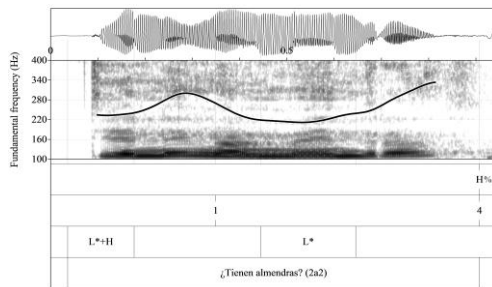


Figure 5: *¿Tienen almendras?* (OS)

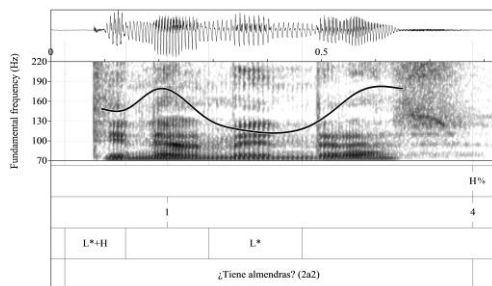


Figure 6: *¿Tiene almendras?* (CS)

3.2. Durational analysis

Table 1 presents the total numbers (given in brackets), the syllable structure types, and the durational properties of pre-nuclear (*p*), nuclear (*n* = nuclear syllables in (pro)paroxytones, *nf* = nuclear syllables in oxytones), and IP-final syllables (*f*) that occurred in the information-seeking yes-no questions analyzed for OP, OS, and CS. In all three varieties, the pre-nuclear syllables showed shorter durations than the nuclear ones, the nuclear syllables (*n*) displayed shorter durations than the IP-final ones, and the nuclear syllables in oxytones (*nf*) exhibited the longest durations. In

both contact varieties, IP-final syllables were longer than in the non-contact variety (OP: 437 ms, OS: 295 ms, CS: 243 ms); for *f* syllables, OS presented intermediate durational values situated between those for OP and CS. The durational properties of IP-final syllables in OP cannot be traced back to the syllable structure complexity, since 70% of the IP-final syllables were CV or VC syllables. As for OS and CS, the fact that the difference between the duration of the IP-final syllables in OS and CS was “only” 52 ms can be explained by referring to the syllable structure complexity: while 63% of the IP-final syllables were CV syllables in the OS data, 93% of the IP-final syllables were CVC or CGIV/CVGI syllables in the CS material.

Table 1. Syllable structure types and mean durations of pre-nuclear, nuclear, and IP-final syllables.

variety	position of σ (number)	σ type (%)								duration (ms)	
		CV	CVC	VC	CCV	CGIV/ CVGI	CGIVC/ CVGIC	GIV/ VGI	CCGIV		V
OP	<i>p</i> (65)	74	11		1.5	6			1.5	6	157
	<i>n</i> (20)	60	40								209
	<i>f</i> (20)	50	5	20		15	5			5	437
OS	<i>p</i> (77)	48	20	10	4	11.5				6.5	125
	<i>n</i> (19)	47	53								167
	<i>nf</i> (1)				100						345
CS	<i>f</i> (19)	63	37								295
	<i>p</i> (77)	47	16	6.5		22	1	1		6.5	113
	<i>n</i> (15)	67	33								134
CS	<i>nf</i> (5)						100				273
	<i>f</i> (15)	7	66			27					243

In Table 2, we offer the mean durations of the syllable nuclei (comprising both monophthongs and diphthongs) of pre-nuclear (*vp*), nuclear ($vn^{HL\%}$ / $vn^{H\%}$ = nuclear syllables in (pro)paroxytones, $vnf^{H\%}$ = nuclear syllables in oxytones), and IP-final syllables ($vf^{HL\%}$ and $vf^{H\%}$) that appeared in the information-seeking yes-no questions analyzed for OP, OS, and CS. We distinguished between nuclear and IP-final syllables on which the nuclear configurations /L* !HL%/ and /L* H%/ were realized: nuclei of nuclear and IP-final syllables on which /L* !HL%/ was produced were labeled with $vn^{HL\%}$ and $vf^{HL\%}$; nuclei of nuclear and IP-final syllables on which /L* H%/ was produced were labeled with $vn^{H\%}$, $vnf^{H\%}$, and $vf^{H\%}$, respectively. In all three varieties, the nuclei of pre-nuclear syllables (*vp*) displayed shorter durations than the nuclei of nuclear syllables ($vn^{HL\%}$ and $vn^{H\%}$) and the nuclei of nuclear syllables ($vn^{HL\%}$ and $vn^{H\%}$) exhibited shorter durations than the nuclei of IP-final syllables ($vf^{HL\%}$ and $vf^{H\%}$). Regarding the durational properties of the nuclei of IP-final syllables, it can be said that: First, the nuclei of IP-final syllables were considerably longer in OP (357 ms for $vf^{HL\%}$ and 268 ms for $vf^{H\%}$) and OS (240 ms for $vf^{HL\%}$ and 109 ms for $vf^{H\%}$) than in CS (91 ms for $vf^{H\%}$). Second, OS showed shorter durations for $vf^{HL\%}$ nuclei than OP (357 ms for OP vs. 240 ms for OS). Third, OS displayed intermediate durations for $vf^{H\%}$ nuclei situated between those for OP and CS (268 ms for OP vs. 109 ms for OS vs. 91 ms for CS). Note that these differences cannot be traced back to the occurrence of a larger number of diphthongs in one of the varieties studied: in the data analyzed for OP and CS, there were a similar number of

diphthongs. In contrast, no diphthongs occurred in the IP-final syllables in the OS material. It is worth adding that both contact varieties exhibited longer nuclei of IP-final syllables when the nuclear configuration /L* !HL%/ was taken into account (357 ms for OP and 240 ms for OS) as compared to the nuclei of IP-final syllables when the nuclear configuration /L* H%/ was considered (268 ms for OP and 109 ms for OS). However, the durational differences were greater for OS ($v_f^{HL\%} - v_f^{H\%} = 131$ ms) than for OP ($v_f^{HL\%} - v_f^{H\%} = 89$ ms). Moreover, it can be noted that OP displayed notably longer $v_f^{H\%}$ nuclei than CS (268 ms for OP vs. 91 ms for CS). In contrast, the differences between the mean durations of the $v_f^{H\%}$ nuclei for OS (109 ms) and CS (91 ms) were less great.

Table 2. Mean durations of syllable nuclei of prenuclear, nuclear, and IP-final syllables.

	OP (ms)	OS (ms)	CS (ms)
vp	80	59	48
vn ^{!HL%}	98	66	–
vn ^{H%}	88	69	51
vn _f ^{H%}	–	239	96
v _f ^{HL%}	357	240	–
v _f ^{H%}	268	109	91

4. Discussion

According to our results, OP and OS used two different prenuclear accents in information-seeking yes-no questions (L+>H* and L+H* for OP and L+>H* and L*+H for OS), in contrast to CS which displayed only L*+H. On the basis of the comparison of our outcomes with those of studies on SEP [13, 14, among others] in which prenuclear pitch accents are realized as H* or L*+H, it can be said that OS patterns with OP in exhibiting L+>H* and with CS and SEP in showing L*+H. Furthermore, while CS made use of only one nuclear configuration to express information-seeking yes-no questions in the material analyzed (L* H%), this was not the case for OP and OS. Two different underlying nuclear configurations (L* !HL%, L* H%) were established for the contact varieties. As for the nuclear configuration used to express this sentence type in SEP, [13] and [14] propose H+L* LH%. Considering this, it can be concluded that, first, OP and OS pattern together in displaying L* !HL% and thus differ from CS and SEP (which do not use this nuclear configuration), second, OP, OS, and CS share the same nuclear configuration (L* H%), and, third, OP and SEP do not show similarities concerning the tonal realization of this sentence type.

Regarding the durational properties of prenuclear, nuclear, and IP-final syllables, it can be said that OP and OS pattern together in considerably lengthening the IP-final syllables in information-seeking yes-no questions (the lengthening being stronger in OP; cf. Tables 1 and 2), in contrast to CS which does not exhibit such a durational marking. Taking into account the findings of [13], [14], [25], and [26], according to which the Portuguese varieties spoken in Lisbon (SEP), Baixo Alentejo (Castro Verde), and Alto Alentejo (Monforte) do not display similar lengthening effects as those attested in OP and OS, the following questions arise: (1) How can the presence of an IP-final lengthening used to convey sentence modality contrasts in the contact varieties studied be motivated? (2) How can the similarities and differences between OP, OS, CS, and SEP be explained in the light of language contact? To answer the first question, we refer to the work of [27], who

showed that the Asturian variety spoken in Mieres and the Spanish variety spoken in Don Benito (Extremadura) mark information-seeking yes-no questions by lengthening IP-final syllables. These similarities between the two varieties spoken in places located approximately 600 km away from each other were suggested to be the result of historical contact during the Reconquista and the subsequent repopulation of Extremadura by settlers coming from Northern Spain. Considering this and the observation that the IP-final lengthening was stronger in OP than in OS, we hypothesize that the lengthening is a property of OP that also resulted from historical language contact (e.g., during the Middle Ages) and not from the contact between Portuguese and Spanish after 1801 (i.e., when Olivenza was incorporated into Spain). This assumption is corroborated by [1, pp. 88f.] and [5, pp. 38] who distinguish between contact phenomena resulting from language contact during the Middle Ages in Olivenza and after the incorporation of Olivenza into Spain. If these suggestions are correct, the presence of /L* !HL%/ in the intonational system of current OS can be analyzed as the outcome of substratum transfer that occurred when the monolingual speakers of Portuguese learned Spanish as an L2 after 1801 (we use the term *substratum transfer* in accordance with [28, pp. 38]). Regarding L* H%, we suggest that this contour was adopted in OP via convergence with Spanish (*convergence* used along the lines of [29, pp. 63]). It can further be assumed that L* H% was adapted to the prosodic rules of OP after its integration in the intonational system of OP; evidence for this is provided by the fact that H%, similar to !HL%, is also realized on considerably lengthened IP-final syllables in current OP. The following assumptions can be made concerning the development of OS after 1801: In a first step, Spanish/Portuguese bilinguals used L* !HL% to express information-seeking yes-no questions (*substratum transfer*). In a next step, the Spanish spoken by the bilinguals and the variety spoken by the Spanish settlers who came to Olivenza after 1801 converged. The outcomes of this convergence and of the convergence between OP and Spanish mentioned above are mixed systems consisting of both the OP and the Spanish underlying nuclear configurations (i.e., L* !HL% and L* H%). The results of the durational analysis showing that the lengthening effects in /L* H%/ were notably stronger in OP than in OS and that OS exhibited a slightly longer duration of $v_f^{H\%}$ nuclei than CS suggest that there is an ongoing convergence between OS and the prestige variety spoken in the mass media (i.e., CS).

5. Conclusion

The present study described the intonational and durational patterns of information-seeking yes-no questions in OP, OS, and CS. We have shown that: First, both contact varieties make use of two underlying nuclear configurations (L* !HL% and L* H%), in contrast to CS which conveys this sentence type by means of L* H%. Second, OP and OS pattern alike in marking information-seeking yes-no questions by a strong lengthening of IP-final syllables (the lengthening being stronger in OP), again in contrast to CS which does not exhibit such a durational marking. Third, the lengthening effects are considerably stronger in OP than in OS when /L* H%/ was realized. These findings suggest that (1) the intonational system of current OP can be interpreted as the outcome of convergence processes between OP and Spanish and (2) the intonational system of current OS can be analyzed as the result of substratum transfer and convergence processes.

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