Prosody in Spanish-Portuguese Contact

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To my grandparents

Elenka Petkova and Yordan Petkov

Abstract

The contact varieties Olivenza Portuguese and Olivenza Spanish, spoken in the border area between Extremadura (Spain) and Alto Alentejo (Portugal), have long been disregarded in research on both intonation and speech rhythm. The present work aims to fill this gap by investigating the intonation and the speech rhythm of Olivenza Portuguese spoken by bilingual speakers and of Olivenza Spanish spoken by monolingual speakers and by offering a detailed description of the intonational and rhythmic patterns of these two contact varieties. Such a description contributes, first, to a better knowledge of the varieties spoken in the Romance space, second, to a documentation of a dying variety, namely Olivenza Portuguese, and third, to a better understanding of how prosodic systems in language contact situations change.

To achieve the goals presented above, semi-spontaneous speech recorded from ten bilingual speakers of Olivenza Portuguese and ten monolingual speakers of Olivenza Spanish was examined. The material analyzed with respect to both intonation and speech rhythm includes neutral and biased declaratives, neutral and biased yes-no questions, neutral and biased wh-questions, echo questions, and imperatives. The intonational analysis, carried out within the Autosegmental-Metrical model and the ToBI framework (cf. Pierrehumbert 1980; Beckman & Pierrehumbert 1986; Silverman et al. 1992; Ladd 1996, 2008; Beckman et al. 2005, among many others), provides a description of the phonetic realization and the phonological representation of pitch accents and boundary tones. The rhythmic analysis is based on the calculation of the following rhythm metrics: %V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI (cf. Ramus et al. 1999; Grabe & Low 2002; Dellwo & Wagner 2003; Ferragne & Pellegrino 2004; Dellwo 2006; White & Mattys 2007a; Kinoshita & Sheppard 2011, among others).

According to the findings of this study, Olivenza Portuguese and Olivenza Spanish show similarities concerning, first, the prosodic phrasing and the durational properties of neutral SVO declarative sentences, second, the tonal realization of numerous sentence types (e.g., neutral SVO declarative sentences, contrastive focus statements, exclamative statements, information-seeking yes-no questions, exclamative yes-no questions with counterexpectational meaning, confirmation-seeking yes-no questions, information-seeking wh-questions, exclamative wh-questions, imperative wh-questions, echo yes-no questions, echo wh-questions, and commands), and third, the rhythmic properties of declaratives, interrogatives, and imperatives.

The discussion of the results of the present work in the light of language contact allowed the assumptions that, first, the prosody of the current variety of Olivenza Portuguese can be interpreted as the outcome of wholesale convergence between the (Olivenza) Portuguese and the Spanish prosodic systems, and second, the prosody of the current variety of Olivenza Spanish can be interpreted as the outcome of both substratum transfer and convergence processes. Furthermore, it can be suggested that all kinds of prosodic features can result from transfer and/or convergence. Finally, on the basis of the assumptions made concerning the change of the intonational system of Olivenza Portuguese, the following hierarchy was proposed (the symbol '>' means 'more sensitive to change than'): *Prenuclear accents* > *Focus markers* > *Nuclear configurations* > *Prosodic phrasing* > *IP-final lengthening used to convey sentence modality contrasts*.

Keywords: Olivenza Portuguese, Olivenza Spanish, contact varieties, intonation, speech rhythm, prosodic variation and change

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Thank you, Olivenza! ¡Un pueblo que enamora!

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List of Abbreviations and Symbols

AM	Autosegmental-Metrical
AP	Accentual Phrase
BI	Break Index / Break Indices
c / C	Consonantal
C	Clitic Group
cast. sp. = CAST SPA	Castilian Spanish
CnPVI	Normalized Pairwise Variability Index for the durational variability of consonantal intervals
CR	Continuation rise
CrPVI	Raw Pairwise Variability Index for the durational variability of consonantal intervals
ΔC	Standard deviation of the duration of consonantal intervals
ΔV	Standard deviation of the duration of vocalic intervals
DO	Direct Object
DP	Determiner Phrase
F0	Fundamental frequency
Ft = Σ	Foot / Feet
Gl = G	Glide
IO	Indirect Object
ip	intermediate phrase
IP (IPh or *I*)	Intonation(al) Phrase
IP^{max}	External Intonational Phrase of a Compound IP
L1	First language
L2	Second language
lps	lapsus
n	normalized
oli. port. = OLI PORT	Olivenza Portuguese
oli. sp. = OLI SPA	Olivenza Spanish
OO	Branching object
PB	Prosodic Boundary
port.	Portuguese
PP	Prepositional Phrase

PPh = PhP = ϕ	Phonological Phrase
pro	Null subject that occurs in the subject position of a finite clause
PVI	Pairwise Variability Index
PWd = PW = ω	Prosodic Word
r	raw
s	Second
SLA	Second language acquisition
SLH	Strict Layer Hypothesis
sp.	Spanish
SP	Sustained pitch
Sp_ToBI	Spanish ToBI labeling system
SS	Branching subject
stand. eu. port.	Standard European Portuguese
SVO	Subject Verb Object
Syl = σ	Syllable
TIGRE	Time and Intensity Grid REpresentation
ToBI	Tone and Break Indices
v / V	Vocalic
VarcoC / VarcoΔC	Normalized version of ΔC
VarcoV / VarcoΔV	Normalized version of ΔV
VnPVI	Normalized Pairwise Variability Index for the durational variability of vocalic intervals
VP	Verb Phrase
%V	Proportion of vocalic material
Utt = *U*	Utterance

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CHAPTER 1

Introduction

The current varieties of Olivenza Portuguese and Olivenza Spanish, spoken in Olivenza (Extremadura, Spain)[1], provide remarkable examples of a long-standing Spanish/Portuguese language contact. The historical background helps to understand how these two varieties emerged: The territory of the current town of Olivenza is said to have been under the rule of the Kingdom of Castile and Leon between 1230 and 1297, before becoming part of the Kingdom of Portugal in 1297, to which it belonged up to 1801 (with a brief interruption between 1657 and 1668). After the so-called War of the Oranges (sp. *Guerra de las Naranjas*), Olivenza was incorporated into Spain in 1801, to which it still belongs today (Matias 1984: 58; Vallecillo Teodoro 1999: 48-49, 63-67; Torres Gallego 2007: 27-30, 53-62, 73-76). As a consequence of the incorporation of Olivenza into Spain in 1801, the monolingual Portuguese-speaking population had to learn Spanish and to use it in different domains of daily life (e.g., school, church, administration) (Vallecillo Teodoro 1999: 66-67, 305-307). Over the course of time, Spanish became the dominant language and both varieties, i.e., Spanish and Portuguese, gained different social statuses: while Spanish has been seen as the language of education and high social prestige, Olivenza Portuguese has turned into a vernacular used in familiar environments and only in oral form[2]. Due to the lower social prestige of Olivenza Portuguese hand in hand with its limited use in daily life, the Portuguese/Spanish bilingual parents ceased to speak (Olivenza) Portuguese with their children starting in the mid-20th century. In other words, Olivenza Portuguese was no longer being acquired as a mother tongue from the 1950s on in Olivenza (Matias 1984: 94-100, 2001; Carrasco González 1997; Ossenkop 2013: 37-39). Consequently, all speakers of this variety nowadays are bilingual and older than 60. The results of the long-lasting contact between Portuguese and Spanish in Olivenza are said to be mutual influences detected in different domains such as phonet-

[1] Olivenza is a small town located in the border area between Baja Extremadura (Spain) and Alto Alentejo (Portugal).

[2] Shortly after the incorporation of Olivenza into Spain, Portuguese was replaced by Spanish in school (both as a teaching medium and a subject) (Vallecillo Teodoro 1999: 66-67, 305-307). Matias (1984: 96-97) writes the following about the use of Portuguese in Olivenza in the 1970s: “Pelo que repeita ao português, não existe qualquer escola que o ensine [...]. As pessoas das classes média e inferior lêem com dificultade textos portugueses. Para elas, a língua portuguesa é, essencialmente, veículo da palavra-falada, não dispondo, por isso, de qualquer suporte escrito que contribua para o seu prestígio.”

ics/phonology, morphosyntax, lexicon, etc. (Matias 1984, 2001; Sánchez Fernández 1997, 2000, 2006; Carrasco González 1997, 2006, among others). However, the prosodic properties of these two contact varieties have not yet been examined; there are only some impressionistic descriptions of the intonation of both Olivenza Portuguese and Olivenza Spanish (cf. Sánchez Fernández 1997, 2006, 2000), but no studies on their rhythmic properties[3]. The present study attempts to fill this research gap by investigating and describing the intonation and the speech rhythm of Olivenza Portuguese spoken by bilingual speakers and Olivenza Spanish spoken by monolingual speakers. The major goal of this work is thus to offer a detailed description of both the intonational and the rhythmic patterns of these two contact varieties. In addition to this, the following research questions will be addressed:

1. How similar are the prosodic systems of Olivenza Portuguese spoken by bilinguals and Olivenza Spanish spoken by monolinguals?
2. What are the prosodic differences and similarities between Olivenza Portuguese and Standard European Portuguese?
3. What are the prosodic differences and similarities between Olivenza Spanish and Castilian Spanish?
4. How can the prosodic similarities and/or differences between the Olivenza Portuguese and the Olivenza Spanish prosodic systems be explained in terms of language contact?
5. How does prosodic change work?
6. Which kinds of prosodic features are usually transferred? Which kinds of prosodic features are more sensitive to convergence?

The prosodic analysis of both contact varieties is based on semi-spontaneous speech only[4]; the data were elicited using a discourse completion task (Prieto & Roseano 2010). The intonational analysis of Olivenza Portuguese and Olivenza Spanish, carried out within the Autosegmental-Metrical model and the ToBI framework (cf. Pierrehumbert 1980; Beckman & Pierrehumbert 1986; Silverman et al. 1992; Ladd 1996, 2008; Beckman et al. 2005, among others), includes a

[3] Preliminary results of the present work were presented at the following conferences, workshops, and colloquiums: *Phonetics and Phonology in Iberia 2013* (PaPI 2013), Lisbon, June 2013; *Phonetics, Phonology and Language Contact* (PPLC 2013), Paris, August 2013; *XXXIII. Romanistentag*, Würzburg, September 2013; *Prosodie romanischer Sprachen*, Osnabrück, May 2014; *Romanistische Linguistik*, Hamburg, June 2014; *Laboratory Approaches to Romance Phonology VII* (LARP7), Aix-en-Provence, September 2014; *Phonetics and Phonology in Europe 2015* (PaPE 2015), Cambridge, June 2015; *18th International Congress of Phonetic Sciences*, Glasgow, August 2015; *Speech Prosody 8*, Boston, May-June 2016.

[4] As mentioned above, Olivenza Portuguese speakers are not accustomed to using Portuguese in its written form. Semi-spontaneous material is analyzed instead of spontaneous data, since the former can be controlled to a certain degree and this in turn enables a better comparison between the Olivenza Portuguese and the Olivenza Spanish data.

description of the phonetic realization and the phonological representation of pitch accents and boundary tones in the following sentence types: **neutral statements** (neutral SVO declarative sentences), **biased statements** (contrastive focus statements, exclamative statements, and contradiction statements), **neutral (yes-no) questions** (information-seeking yes-no questions, neutral disjunctive questions, and neutral interrogative enumerations), **biased yes-no questions** (exclamative yes-no questions with counterexpectational meaning and confirmation-seeking yes-no questions), **neutral wh-questions** (information-seeking wh-questions, information-seeking wh-questions with a peripheral element, and neutral enumerations (i.e., successive information-seeking wh-questions)), **biased wh-questions** (exclamative wh-questions and imperative wh-questions), **echo questions** (echo yes-no questions, echo wh-questions, and exclamative echo yes-no questions with counterexpectational meaning), and **imperatives** (commands and requests). The neutral SVO declarative sentences are also analyzed with respect to both their prosodic phrasing and durational properties (i.e., duration of prenuclear[5], nuclear, and phrase-final syllables) in order to find out if the ip boundaries and the IP boundaries are far apart in prosodic strength in the contact varieties studied. The rhythmic analysis aims to describe the rhythmic properties of the contact varieties and Castilian Spanish (the latter is used as a control group). A variety of sentence types is examined for the three varieties under consideration (i.e., Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish): **neutral** and **biased statements**, **neutral** and **biased yes-no questions**, **neutral** and **biased wh-questions**, **echo questions**, and **imperatives** (**commands** and **requests**). The following rhythm metrics are calculated for the aforementioned sentences: %V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI (cf. Ramus et al. 1999; Grabe & Low 2002; Dellwo & Wagner 2003; Ferragne & Pellegrino 2004; Dellwo 2006; White & Mattys 2007a; Kinoshita & Sheppard 2011, among others).

The main findings of this work reveal that Olivenza Portuguese and Olivenza Spanish share numerous prosodic features and display few prosodic differences. In the following, I give a summary of the prosodic similarities and differences which both contact varieties show.

<u>Similarities between the prosodic systems of Olivenza Portuguese and Olivenza Spanish</u>:

- Both the prosodic phrasing patterns (SVO) and (S)(VO) are attested in the neutral SVO declarative sentences analyzed for Olivenza Portuguese and Olivenza Spanish ((SVO) being the most common in Olivenza Portuguese and (S)(VO) in Olivenza Spanish).

[5] The term *prenuclear syllables* is used in the durational analysis to refer to all syllables which are not nuclear or phrase-final syllables.

- The nuclear configurations of inner ips L+H* H- and L+H* !H- occur with a similar frequency in the neutral SVO declarative sentences in both varieties (L+H* H- being the most frequent one in both varieties).
- The underlying nuclear configuration of inner ips, which is assumed to express incompleteness of the discourse, is L+H* H- in the neutral SVO declarative sentences analyzed for both varieties.
- The ip boundaries and the IP boundaries in the neutral SVO declarative sentences seem not to be far apart in prosodic strength in both Olivenza Portuguese and Olivenza Spanish.
- The presence of pauses after inner ips in the neutral SVO declarative sentences leads to a stronger ip-final lengthening in both varieties.
- The L+>H* pitch accent has been established as an underlying prenuclear accent in statements in both varieties.
- The H+L* prenuclear accent has been analyzed as a phonetic realization of the underlying L+>H* prenuclear accent in statements in both varieties.
- There is quite low tonal density in different sentence types in both varieties (the deaccentuation of phrase-internal prosodic words being more frequent in Olivenza Spanish than in Olivenza Portuguese).
- The nuclear accents H+L* and L* (attested in numerous nuclear configurations of IPs) are used to signal neutral/broad focus readings in both varieties.
- The L+(¡)H* nuclear accent (attested in numerous nuclear configurations of IPs) is used to signal focus/emphasis in both varieties.
- The underlying L* nuclear accent is phonetically realized as L* or H+L* in information-seeking yes-no questions in both varieties.
- The underlying !HL% boundary tone is phonetically realized as L% in information-seeking yes-no questions and as !H% in exclamative yes-no questions (with counterexpectational meaning) and exclamative echo yes-no questions (with counterexpectational meaning) in both varieties.
- The underlying H+L* L% nuclear configuration is phonetically realized as L* L% in information-seeking wh-questions in both varieties.
- The following underlying nuclear configurations of IPs have been established for both varieties:
  - L* L% for neutral SVO declarative sentences
  - L+H* L% for contrastive focus statements
  - L+¡H* L% for exclamative statements

  - L* !HL% and L* H% for information-seeking yes-no questions
  - H+L* L% for neutral disjunctive questions
  - H+L* L% for neutral interrogative enumerations
  - L+H* !HL% for exclamative yes-no questions (with counterexpectational meaning)
  - L+H* H% for confirmation-seeking yes-no questions
  - H+L* L% and L* H% for information-seeking wh-questions
  - L+¡H* L% for exclamative wh-questions
  - H+L* L% and L* H% for imperative wh-questions
  - L+H* !HL% for exclamative echo yes-no questions (with counterexpectational meaning)
  - H+L* L% and L+H* L% for commands

– In both varieties, speakers make use of the nuclear configurations of yes-no questions to mark echo yes-no questions.

– In both varieties, speakers make use of the nuclear configurations of wh-questions and yes-no questions to mark echo wh-questions.

– A phonological IP-final lengthening is used to mark interrogativity and thus to convey sentence modality contrasts in both varieties (use of a strong IP-final lengthening in yes-no questions and wh-questions, in contrast to statements).

– Vowel reduction is present in both varieties.

– Both varieties show similar rhythmic properties (first, Olivenza Portuguese and Olivenza Spanish display a higher proportion of vocalic material and a greater durational variability of vocalic intervals for interrogatives than Castilian Spanish, and second, Olivenza Portuguese and Olivenza Spanish exhibit a similar durational variability of consonantal intervals across sentence types).

– The contact varieties and Castilian Spanish show far more similar rhythmic properties for declaratives and imperatives than for interrogatives.

<u>Differences between the prosodic systems of Olivenza Portuguese and Olivenza Spanish</u>:

– The L+H* prenuclear accent is used in Olivenza Portuguese.

– The L*+H prenuclear accent is used in Olivenza Spanish.

– There is a preference for the nuclear configuration of inner ips L+H* H- in neutral disjunctive questions and neutral interrogative enumerations in Olivenza Spanish.

– H+L* L% has been established as an underlying nuclear configuration of IPs for the neutral SVO declarative sentences in Olivenza Portuguese.

- L+H* L% has been established as the underlying nuclear configuration of IPs for the contradiction statements in Olivenza Portuguese.
- L+H* HL% has been established as the underlying nuclear configuration of IPs for the contradiction statements in Olivenza Spanish.
- L* L% has been established as an underlying nuclear configuration of IPs for the neutral disjunctive questions in Olivenza Spanish.
- L+¡H* L% has been established as an underlying nuclear configuration of IPs for the exclamative yes-no questions (with counterexpectational meaning) in Olivenza Spanish.
- L+H* H% has been established as an underlying nuclear configuration of IPs for the exclamative echo yes-no questions (with counterexpectational meaning) in Olivenza Spanish.
- L+H* HL% has been established as the underlying nuclear configuration of IPs for the requests in Olivenza Portuguese.
- L* HL% has been established as the underlying nuclear configuration of IPs for the requests in Olivenza Spanish.

The prosodic similarities between the two contact varieties allow the following assumptions: First, the prosody of current Olivenza Portuguese can be seen as the outcome of the wholesale[6] convergence between the prosodic systems of (Olivenza) Portuguese and Spanish. Second, the prosody of current Olivenza Spanish can be seen as the outcome of both substratum transfer and convergence processes. On the basis of the results of the prosodic analysis of Olivenza Portuguese and Olivenza Spanish, the comparison between the contact varieties, Castilian Spanish, and Standard European Portuguese, and the summary of studies on prosodic transfer and/or convergence provided in Chapter 3, it can be assumed that all kinds of prosodic features can be the outcome of transfer and/or convergence processes in a language contact situation. However, the change in the intonational system of Olivenza Portuguese described in Chapter 6 suggests that some prosodic features or patterns are more prone to prosodic change than others. Thus, the following hierarchy can be proposed (the symbol '>' means 'more sensitive to change than'): *Prenuclear accents* > *Focus markers* > *Nuclear configurations* > *Prosodic phrasing* > *IP-final lengthening used to convey sentence modality contrasts.*

In what follows, I depict the structure of the present work: In Chapter 2, I provide a brief description of the geographic location and the historical background of Olivenza. In addition, I

[6] The term *wholesale convergence* is used along the lines of Matras (2009: 232).

summarize the findings of previous studies on the language contact between Portuguese and Spanish in Olivenza.

Chapter 3 is devoted, first, to the presentation of the theoretical background of this work and second, to the description of the suprasegmental properties of the two standard varieties to which Olivenza Portuguese and Olivenza Spanish are compared in Chapter 6 (i.e., Castilian Spanish (Madrid) and Standard European Portuguese (Lisbon)): Section 3.1.1 presents the frameworks applied for the intonational analysis of Olivenza Portuguese and Olivenza Spanish (i.e., the Autosegmental-Metrical (AM) model and the ToBI annotation system). In Section 3.1.2, the inventory of pitch accents and boundary tones established within the AM model and the ToBI framework for Castilian Spanish and Standard European Portuguese are outlined and a description of the intonational tunes of various sentence types is given. Sections 3.2.1 and 3.2.2 depict the hierarchical organization of prosodic constituents and the prosodic phrasing patterns of Castilian Spanish and Standard European Portuguese. In Section 3.3.1, I offer a summary of previous research on speech rhythm and introduce the rhythm metrics used for the rhythmic discrimination of the contact varieties under investigation and the control variety Castilian Spanish, before describing the rhythmic properties of Castilian Spanish and Standard European Portuguese in Section 3.3.2. Subsequently, Section 3.4 summarizes the results of numerous studies on language contact and presents the phenomena to which I refer when interpreting the results of the prosodic analysis of Olivenza Portuguese and Olivenza Spanish in terms of language contact in Chapter 6.

Chapter 4 introduces the methodology applied in the present work. First, an overview of the background data for all subjects is given. Then, both the material analyzed with respect to intonation and speech rhythm and the criteria adopted for its segmentation and analysis are specified.

Chapter 5 is devoted to the presentation of the results of both the intonational analysis of Olivenza Portuguese and Olivenza Spanish and the rhythmic analysis of Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish[7]. The intonational analysis of each of the sentence types mentioned above includes the description of the phonetic realization of pitch accents and boundary tones (cf. Section 5.1) and their phonological representations (cf. Section 5.2). The sentence types analyzed with respect to their prosodic phrasing are: the neutral SVO declarative sentences, the neutral disjunctive questions, and the neutral interrogative enumerations. In addition, the durational properties of the prenuclear[8], nuclear, and phrase-final syllables occurring in the neutral

[7] As mentioned above, Castilian Spanish serves as a control group for the rhythmic analysis.
[8] Cf. footnote 5.

SVO declarative sentences are depicted. As for the rhythmic analysis (cf. Section 5.3), the rhythmic properties of Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish are defined on the basis of the analysis of neutral and biased statements, neutral and biased yes-no questions, neutral and biased wh-questions, echo questions, and imperatives (including both commands and requests).

The research questions formulated above are addressed and answered in Chapter 6: First, I summarize the similarities and differences between the prosodic systems of Olivenza Portuguese and Olivenza Spanish in Section 6.1. Then, I depict the prosodic distance between Olivenza Portuguese and Standard European Portuguese and between Olivenza Spanish and Castilian Spanish in Section 6.2. In a next step, I compare the intonational and the rhythmic properties of Olivenza Portuguese and Olivenza Spanish with those of Castilian Spanish and Standard European Portuguese in order to find out which prosodic features have presumably been subject to transfer and/or convergence during the long-standing contact between Portuguese and Spanish in Olivenza (cf. Section 6.3). In Section 6.4 and Section 6.5, I try to give an answer to the research questions 5 (*How does prosodic change work?*) and 6 (*Which kinds of prosodic features are usually transferred? Which kinds of prosodic features are more sensitive to convergence?*).

Finally, Chapter 7 summarizes the main findings of the present study, offers some concluding remarks, and provides open questions which remain for further research.

CHAPTER 2

Olivenza: Historical background and language contact

This chapter offers a brief description of the geographic location and the historical background of Olivenza. In addition, previous research on the language contact between Portuguese and Spanish in Olivenza is presented.

2.1 Geographic location and historical background

Olivenza (port. Olivença) is a small town located in the border area between Baja Extremadura (Spain) and Alto Alentejo (Portugal) with a population of 11,506 (cf. Figure 2.1 and Figure 2.2). The town of Olivenza belongs to the region of Olivenza (sp. *comarca de Olivenza*) and is situated 22 km from Badajoz and 10 km from the Portuguese border (i.e., from the Guadiana River). Besides the town of Olivenza, the municipality of Olivenza (sp. *municipio de Olivenza*) includes six villages: San Francisco, San Rafael, San Benito de la Contienda, Santo Domingo de Guzmán, San Jorge de Alor, and Villarreal[9].

There are different hypotheses concerning the founding of Olivenza: while some historians assume that it was founded by Portuguese Templars or by Templars of the Kingdom of Leon between 1229 and 1245, others claim that its origin is Mozarabic (cf. Vallecillo Teodoro 1999: 47-48). According to historical references, the territory of the current town of Olivenza was under the rule of the Kingdom of Castile and Leon between 1230 and 1297. It is documented that Olivenza became part of the Kingdom of Portugal in 1297, to which it belonged up to 1801[10]. After the so called War of the Oranges (sp. *Guerra de las Naranjas*)[11], Olivenza was incorpo-

[9] The source of this information is the official website of the city hall of Olivenza (sp. *Ayuntamiento de Olivenza*): http://www.ayuntamientodeolivenza.com/olivenza/termino-municipal-de-olivenza-y-pedanias/ (Retrieved: 11/27/2015).

[10] It is worth mentioning that first, the Kingdom of Portugal and the Kingdom of Spain were ruled by the Spanish Habsburgs between 1580 and 1640 (Torres Gallego 2007: 48-52), and second, Olivenza was under Spanish rule between 1657 and 1668 (i.e., during the Portuguese Restoration War (1640-1668)) (cf. Matias 1984: 58; Torres Gallego 2007: 53-62).

[11] The fact that Portugal and Spain were allies of two different political powers at the end of the 18th century and at the beginning of the 19th century (Portugal was an ally of Great Britain and Spain of France) led to a brief military conflict between them in 1801: Spain declared war on Portugal on February 27th, 1801, and invaded it with the assistance of France briefly after. On May 20th, Olivença was occupied by the Spanish troops under the command of Manuel de Godoy, the Spanish minister at that time. Since Portugal lost this war, known as the War

rated into Spain in 1801, to which it still belongs today (Vallecillo Teodoro 1999: 48-49, 63-67; Torres Gallego 2007: 27-30, 69-76).

Figure 2.1. Political map of Portugal and Spain (including the administrative division of Spain and partially of Portugal)[12]

Figure 2.2. Map of Spain (including the geographic location of Olivenza)[13]

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of the Oranges, it was obligated to sign the Treaty of Badajoz. One of the tenets of this treaty was that Portugal had to cede Olivença to Spain (Vallecillo Teodoro 1999: 63-69; Torres Gallego 2007: 69-76).

[12] This map was downloaded from www.mygeo.info: http://www.mygeo.info/landkarten/spanien/spanien_politisch.gif (Retrieved: 11/27/2015).

The incorporation of Olivenza into Spain in 1801 had a variety of consequences for its population:

> Los primeros siete años que vivió Olivenza como parte del Estado español, vienen marcados por el intento, por parte de la administración hispana, de romper bruscamente con un largo pasado, lleno de tradiciones, usos, formas de gobierno, vida y educación dispares a los de España, provocando fuertes reacciones entre la población, como la originada el veinte de febrero de mil ochocientos cinco, cuando se pretende suprimir la escuela portuguesa y que exista sólo la española. (Vallecillo Teodoro 1999: 66)

According to this quotation and the data provided by Vallecillo Teodoro (1999), the main aims of the new Spanish administration were, first, to break away from the Portuguese past (e.g., traditions, customs, government, education, etc.), and second, to impose the use of the Spanish language over that of the mother tongue of Olivenza's population (i.e., Portuguese). For instance, the first attempt to prohibit the Portuguese school and the instruction of the Portuguese language as a subject in the public school was made in 1805. The private schools in which Portuguese was still used as a teaching medium at that time were closed in 1813. Moreover, individual and private lessons in Portuguese were subject to fines. In 1805, the city hall of Olivenza ceased to use the Portuguese language for communication purposes (i.e., all documents have been written in Spanish since then) (Vallecillo Teodoro 1999: 66-67, 305-306). Regarding Olivenza's population, few Olivenza citizens emigrated and few Spaniards came to Olivenza in the first years after the incorporation of Olivenza into Spain. However, this situation changed some years later: many Olivenza citizens migrated to Portugal for political, economical, and social reasons. Numerous farms in the municipality of Olivenza, which were properties of Portuguese living in Portugal, were sold to Spaniards (predominantly coming from Northern Spain, e.g., La Rioja, Logroño) or to other Portuguese coming from Portugal who moved to Olivenza after 1801. It is documented that various well-situated families from Northern Spain, Extremadura, and Portugal came to Olivenza in the middle of the 19th century (Vallecillo Teodoro 1999: 66-67, 115-116, 121-122).

Based on the historical evidence reported, both languages, Portuguese and Spanish, have been in active contact in Olivenza for the last 215 years. In the next section, I present the studies on this Spanish-Portuguese contact which not only describe these two varieties, but also try to determine the influences of each of the two languages on the other.

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[13] This map was downloaded from www.mygeo.info:
http://www.mygeo.info/landkarten/spanien/spanien_cia_2005.gif (Retrieved: 11/27/2015).

2.2 Language contact between Portuguese and Spanish in Olivenza

Olivenza Portuguese has been classified as *sub-dialecto alentejano* or *alto-alentejano* (i.e., Alentejo Portuguese or Alto Alentejo Portuguese) (Vasconcellos 1890-1892; Matias 1984: 85, 2001; Carrasco González 2001; Ossenkop 2013: 37).

According to Vasconcellos[14] (1890-1892: 347-349), the population of the town of Olivenza was already bilingual at the end of the 19th century (cf. also Matias 2001; Carrasco González 2006; Ossenkop 2013: 37). Interestingly, the author points out that first, few influences from Spanish were attested in the Portuguese variety spoken in Olivenza at that time (e.g., *yeísmo*[15]), and second, the families in which both parents were Portuguese descendants usually spoke Portuguese and not Spanish with their children (cf. also Matias 2001; Carrasco González 2006). Sequeira & Júnior (1924: 248) confirm Vasconcellos's descriptions (1890-1892) that the inhabitants of the town of Olivenza were proficient in both Portuguese and Spanish (adding that this predominantly concerned the upper class) and indicate that Spanish was considered a foreign language in the villages belonging to the municipality of Olivenza (cf. also Matias 2001; Carrasco González 2006). In her study carried out at the beginning of the 1970s[16], Matias (1984) shows that the oppositions 'bilingual town vs. monolingual villages' and 'bilingual upper class vs. monolingual lower class' depicted in Sequeira & Júnior (1924) were no longer existent in the municipality of Olivenza at the time of the data collection for her work (cf. also Carrasco González 2006). The results presented in Matias (1984: 365-371) reveal that Olivenza Portuguese exhibits influences from Spanish in different domains (phonetics/phonology, morphology, syntax, lexicon). Furthermore, Matias (1984: 95) reports that the Portuguese variety spoken in the municipality of Olivenza was no longer being acquired as a mother tongue from the 1950's on (cf. also Sánchez Fernández 1997; Carrasco González 1997; Ossenkop 2013: 39). The main reasons why the Portuguese-speaking parents ceased to speak (Olivenza) Portuguese with their children are: 1) the use of only Spanish in schools and universities (educational reasons); 2) the fact that a high proficiency in Spanish was seen a prerequisite for social prestige and economic prosperity (socio-economic reasons) (Matias 1984: 97). The loss of Olivenza Portuguese can be attributed to its lower social prestige: "Nas classes média e inferior, o idioma espanhol é considerado mais

[14] The name of this author can be found written as *Vasconcelos* (cf. Matias 2001; Carrasco González 2006, among others) or *Vasconcellos* (cf. Cruz 2013: 142; Ossenkop 2013: 37-39, among others).

[15] *Yeísmo* is the loss of the phonemic contrast between /ʎ/ and /ʝ/ in Spanish (NGRAE 2011: 214). Matias (1984: 153-156, 367; 2001) and Sánchez Fernández (2006) use this term to refer to the realization of the Portuguese phoneme /ʎ/ as [ʝ] or [ʒ] in Olivenza Portuguese (e.g., stand. eu. port. *fi**lh**a* [ˈfi.**ʎ**ɐ] 'daughter' → oli. port. [ˈfi.**ʝ**ɐ] or [ˈfi.**ʒ**ɐ]).

[16] This study is a dissertation defended in 1974 and published in 1984.

bonito que a língua portuguesa. Esta, que designam por «chaporreo», «fala portuguesa», «fala celêrada», não tem grande prestígio linguístico em face da língua de civilização – o castelhano" Matias (1984: 96). Matias (2001) claims that the low social prestige of Olivenza Portuguese can be traced back to the fact that first, it is not used in administration, church, education, etc., but rather only in a familiar environment, and second, its speakers usually do not write or read in this language, but rather in Spanish. According to the results of the sociolinguistic interviews recorded by Matias (2001: 167), 95% of the interviewees in Olivenza considered the Portuguese variety spoken in Olivenza to be "*antigo, incorrecto, sem utilidade*" 'archaic, incorrect, useless', in contrast to Spanish, which was described as "*bonito, moderno, importante, útil*" 'nice, modern, important, useful'. Thus, considering the information presented in this section, Olivenza Portuguese can be classified as a dying variety (cf. Matias 2001; Carrasco González 2006; Ossenkop 2013: 39). The factors reflecting the loss of Olivenza Portuguese are the following: first, there are no monolingual Portuguese speakers in Olivenza; second, Olivenza Portuguese is spoken only by the older generation and almost only in familiar environments; third, bilingual speakers often change from Portuguese to Spanish in conversations initially started in Portuguese; and fourth, Olivenza Portuguese shows influences of Spanish in different linguistic domains (Matias 2001). Regarding the number of speakers, Carrasco Conzález (2007) points out that the advanced bilingualism, the strong influence of the Spanish variety, the Spanish monolingualism among the younger generation, and the emigration and immigration processes between 1950 and 1980 all contributed to the decreasing number of Portuguese speakers in Olivenza.

In what follows, I present some phonetic and phonological[17] properties of Olivenza Portuguese described in Matias (1984, 2001) and Sánchez Fernández (2006). Similar to some Spanish varieties spoken in Extremadura, Olivenza Portuguese shows the following phenomena:

- aspiration and/or elision of syllable-final /s/ (Matias 1984: 369; Matias 2001; Sánchez Fernández 2006)
- *yeísmo*[18] and *rehilamiento*[19] (Matias 1984: 367, 369; Matias 2001; Sánchez Fernández 2006)
- elision of word-final /ɾ/ (e.g., <amô> [ɐ.ˈmo] instead of <amor> [ɐ.ˈmoɾ] 'love') (Matias 1984: 369; Matias 2001)

[17] Matias (1984, 2001) and Sánchez Fernández (2006) also offer a description of some morphosyntactic and lexical properties of Olivenza Portuguese. However, since the present work investigates the prosodic system of Olivenza Portuguese, I will only outline the findings of these previous works which concern the Olivenza Portuguese phonology.

[18] Cf. footnote 15.

[19] As mentioned in footnote 15, the Portuguese phoneme /ʎ/ can be realized as [ʒ] in Olivenza Portuguese (e.g., oli. port. ***filha*** 'daughter' [ˈfi.ʒɐ]) (Matias 2001).

– elision of intervocalic <-d-> /d/ (e.g., <arao> [ɐ.ˈɾa.u] instead of <ara**d**o> [ɐ.ˈɾa.du] ‘plowed’) (Matias 2001)

Furthermore, /x/ and /t͡ʃ/ are attested in Olivenza Portuguese in lexical borrowings from Spanish such as ***j**efe* [x] ‘boss’ or *co**ch**e* [t͡ʃ] ‘car’ (Matias 1984: 369; Matias 2001). Both realizations of /v/ as [b] and of /b/ as [v] can be found in Olivenza Portuguese (Matias 1984: 369; Matias 2001). In addition, the opposition between /s/ and /z/ is said to be disappearing in Olivenza Portuguese (Sánchez Fernández 2006). Similar to the Portuguese varieties spoken in Alentejo, Olivenza Portuguese shows the following phenomena:

– <ou> is usually realized as the diphthong [oj] in Olivenza Portuguese (e.g., ***ou**ro* [ˈo.ɾu] ‘gold’ in Standard European Portuguese vs. ***oi**ro* [ˈoj.ɾu] ‘gold’ in Olivenza Portuguese) (Sánchez Fernández 2006)
– the diphthong <ei> (i.e., [ɐj]) is usually produced as [eː] in Olivenza Portuguese (e.g., *ald**ei**a* ‘village’: [ał.ˈdɐj.ɐ] in Standard European Portuguese vs. [al.ˈdeː.ɐ] / [ał.ˈdeː.ɐ] in Olivenza Portuguese) (Sánchez Fernández 2006)
– Olivenza Portuguese displays a word-final vowel epenthesis called *paragoge* (i.e., an [i] is usually inserted at the end of oxytones which end in an /ɾ/ or /l/) (Sánchez Fernández 2006)

Sánchez Fernández (2006: 73) offers an impressionistic description of the intonational properties of the contact varieties spoken in Olivenza, pointing out that the intonations of both Olivenza Portuguese and Olivenza Spanish are more exclamative than those of other varieties spoken in Extremadura: “A entoacão oliventina, quer em espanhol, quer em português, é ainda mais exclamativa e de tom mais elevado do que a estremenha em geral.” He adds that Olivenza Portuguese and Olivenza Spanish speakers define their own intonation as a falling one, in particular concerning the realization of interrogatives: “Há uma consciência de «queda, deixar-se cair» ou de «cantar», da qual o falante entende ser própria e característica da região, sendo mais acusada na cidade de Olivença do que nas aldeias. Adverte-se mais nas orações interrogativas do que nas enunciativas, sobretudo nas parciais” (Sánchez Fernández 2006: 73).

Olivenza Spanish has been classified as *español meridional* or *español extremeño leonés meridional* (i.e., Southern Peninsular Spanish (spoken in Extremadura))[20] (Sánchez Fernández 1997; Carrasco González 2006).

The few studies which have described Olivenza Spanish have claimed that this Spanish variety is influenced by the Portuguese variety spoken in Olivenza (Matias 1984: 85, 370-371;

[20] It is worth mentioning that the varieties spoken in Extremadura are considered “*hablas de tránsito*” ‘varieties of transition’, since they show properties typical of the surrounding varieties (Leonese, Castilian, Andalusian, and Portuguese) (Zamora Vicente 1967: 332-336; Montero Curiel 2006; Ariza Viguera 2008).

Sánchez Fernández 1997, 2000; González Salgado 2003; Montero Curiel 2006: 19, among others). In what follows, I summarize some phonetic and phonological[21] properties of Olivenza Spanish presented in Sánchez Fernández (1997, 2000), Matias (1984: 370-371), and González Salgado (2003). Both the phenomena *seseo*[22] and the phonemic contrast between /s/ and /θ/ are attested in Olivenza Spanish: according to Sánchez Fernández (1997), while the older generation (e.g., bilingual speakers and speakers with lower educational attainment) does not distinguish between the phonemes /s/ and /θ/ and produces only [s], younger monolingual speakers show the phonemic contrast between /s/ and /θ/ (cf. also Matias 1984: 371). Furthermore, aspiration and/or elision of syllable-final /s/ are also common in Olivenza Spanish (Sánchez Fernández 1997; González Salgado 2003). In addition, both the processes *yeísmo* and *rehilamiento*[23] are attested in Olivenza Spanish (Sánchez Fernández 1997, 2000; González Salgado 2003). It is worth mentioning that elision of both word-final /ɾ/ and /d/ can be found in Olivenza Spanish (González Salgado 2003). Interestingly, González Salgado (2003) points out that the Spanish variety spoken in Olivenza shows a non-systematic vowel reduction of word-final /o/ due to the contact with Portuguese. Matias (1984: 371) also claims that the Spanish variety spoken in the municipality of Olivenza exhibits a non-systematic vowel reduction resulting from the Portuguese influence. However, she indicates that this reduction concerns unstressed vowels in general (the word-final unstressed vowels being more affected than non-final ones)[24]. Regarding the intonational properties of Olivenza Spanish, Sánchez Fernández (1997, 2000) offers the same description presented on the previous page for Olivenza Portuguese intonation.

[21] Similar to Olivenza Portuguese, I will only outline the phonological properties of Olivenza Spanish described in the aforementioned studies.

[22] *Seseo* is the loss of the phonemic contrast between /s/ and /θ/ in some Spanish varieties. In varieties which show *seseo*, only /s/ is part of the phonemic inventory, whereas /θ/ ([θ]) is not existent (NGRAE 2011: 168).

[23] The phonemic contrast between /ʎ/ and /ɟ/ is lost in Olivenza Spanish. The graphemes <ll> and <y> appearing in the syllable onset can be produced as [ɟ] or [ʒ] in this variety.

[24] Matias (1984: 370-371) interprets the following phonological properties attested in the Spanish spoken in the town of Olivenza and the villages San Benito de la Contienda and Villarreal as the results of transfer from Portuguese: non-systematic vowel reduction of unstressed vowels, nasalization of vowels and elision of the respective nasal consonant responsible for the nasalization, realization of /b/ as [v], realization of /s/ as [z], [ʒ], or [ʃ], and realization of /θ/ as [s]. However, the Portuguese influences are said to be stronger, first, in the Spanish spoken by the older generation than in the Spanish spoken by the younger generation, and second, in the Spanish spoken in San Benito de la Contienda and Villarreal than in the Spanish spoken in the town of Olivenza (Matias 1984: 370).

CHAPTER 3

Theoretical background and description of Castilian Spanish and Standard European Portuguese intonation and speech rhythm

Section 3.1.1 offers a description of the two frameworks applied for the intonational analysis of Olivenza Portuguese and Olivenza Spanish: the Autosegmental-Metrical model (AM model) and the ToBI annotation system. In Section 3.1.2, I first introduce the inventory of pitch accents and boundary tones established within the AM model and the ToBI framework for Castilian Spanish and Standard European Portuguese, before depicting the intonational realization of various sentence types in these two varieties. In Section 3.2.1 and Section 3.2.2, I present the hierarchical organization of prosodic constituents and the prosodic phrasing patterns of Castilian Spanish and Standard European Portuguese. Section 3.3.1 gives an overview of previous studies on speech rhythm and provides the reader with the rhythm metrics used for the rhythmic discrimination of the two contact varieties under investigation and the control variety Castilian Spanish. The rhythmic properties of Castilian Spanish and Standard European Portuguese are subsequently described in Section 3.3.2. Section 3.4 is devoted to the presentation of terms and phenomena to which I refer in Chapter 6 when discussing the results of the prosodic analysis of Olivenza Portuguese and Olivenza Spanish in terms of language contact (e.g., borrowing, transfer, convergence, language attrition, etc.). In addition, I also summarize the findings of numerous studies on transfer and convergence of suprasegmental features in this section in order to show the variety of prosodic patterns which can be affected in a language contact situation.

3.1 Intonation

3.1.1 Models of intonation and annotation systems

The term *intonation* can be defined as follows: “Intonation […] refers to the use of *suprasegmental* phonetic features to convey ‘postlexical’ or *sentence-level* pragmatic meanings in a *linguistically structured* way” (Ladd 2008: 4). The suprasegmental features mentioned in this definition refer to fundamental frequency (F0), intensity, and duration. Regarding the postlexical or sentence-level pragmatic meanings of intonation, it is said that intonation is used to convey meanings, such as information structure (e.g., the difference between neutral and contrastive focus) and sentence type (e.g., the difference between declaratives, interrogatives, and imperatives) which apply to minor/major phrases and utterances (Ladd 2008: 6). As for the linguistic interpretation of intonation, intonational features are assumed to be organized "in terms of categorically distinct entities […] and relations" (Ladd 2008: 6). Taking into account the definition of intonation adopted here, it can be suggested that studies on intonation have to concentrate on the concrete phonetic realization first before establishing an inventory of contrastive entities and defining the relation between prosodic units relevant for the intonational description of the languages under consideration.

Some of the fundamental questions regarding the analysis of intonation that arise are: First, how can we describe the intonation of a certain language, i.e., using a phonetic or a phonological approach? Second, which kinds of prosodic units should be taken into account in order to offer a universal model of intonation? Third, how do languages differ with respect to their intonational properties? As a result of the boom in research on intonation in recent years, different models and methodologies for the analysis of intonation have been proposed. Some of them are restricted to the phonetic level while others attempt to provide a phonological representation based on the phonetic implementation. To the former belong for instance studies within the AMPER project (Atlas Multimédia Prosodique de L'Espace Roman) originated by Michel Contini and Antonio Romano at the Centre de Dialectologie de Grenoble (Université Stendhal de Grenoble) (Contini 2005; Fernández Planas 2005; Romano et al. 2005; Congosto Martín 2011; Romano et al. 2011; Martínez Celdrán et al. 2011; Moutinho et al. 2011, among many others). Regarding the latter group, there are numerous phonological approaches such as O'Connor and Arnold's model of intonation (O'Connor & Arnold 1961, 1973), the level-based model of Trager & Smith (1951, 1956), which dates back to the ideas of Pike (1945) and Wells (1945), the IPO model (Cohen & 't Hart 1967; 't Hart & Collier 1975; de Pijper 1983), the Kiel intonation model (Kohler 1991, 1997), the model of intonation developed by Hirst, Di Cristo, and Espesser at the Laboratoire Parole et Langage (Aix-en-Provence) (Hirst & Di Cristo 1998; Hirst et al. 2000), and the Autosegmental-Metrical model (AM model) (Pierrehumbert 1980; Beckman & Pierrehumbert 1986; Pierrehumbert & Beckman 1988), among others.

Similar to the alphabetic system IPA (International Phonetic Alphabet) used for phonetic transcriptions of sounds (IPA 1999), different transcription or annotation systems of intonation have been proposed in recent years. These include the labeling system ToBI (Tones and Break Indices) based on the AM model (Silverman et al. 1992; Beckman et al. 2005, among others), the transcription system INTSINT (INternational Transcription System of INTonation) (Hirst et al. 2000), and the International Prosodic Alphabet (IPrA) presented at the *Workshop on developing an International Prosodic Alphabet (IPrA) within the AM framework* organized by Sun-Ah Jun, José Ignacio Hualde, and Pilar Prieto during the *18th International Congress of Phonetic Sciences* (ICPhS 2015)[25].

Considering the variety of models of intonation and annotation systems mentioned above, the question that arises here is: which model and labeling system are the “right” ones? The intonational analysis of the two contact varieties under investigation in the present work is carried out within the AM model and the ToBI framework. The main reasons for this choice are the following: First, both the AM model and the ToBI framework can be characterized as adequate tools for establishing an inventory of contrastive entities and defining the relation between prosodic units relevant for the intonational description of the languages studied. Second, the ToBI labeling proposed for Spanish and Portuguese (Estebas-Vilaplana & Prieto 2010; Frota 2014; Frota et al. 2015; Hualde & Prieto 2015, among others), as will be shown in Chapter 5, can be used to describe the F0 contour phonetically and phonologically, similar to the IPA, the symbols of which are used in both transcriptions of physically realized phones and representations of the corresponding phonemes. Third, the AM model and the ToBI annotation system are two of the most applied frameworks nowadays (Hualde 2003; Jun et al. 2015, among others). The fact that a large number of languages, among them Castilian Spanish and Standard European Portuguese (the two varieties to which I compare Olivenza Portuguese and Olivenza Spanish in Chapter 6), and a variety of sentence types (Estebas-Vilaplana & Prieto 2010; Cruz 2013; Frota 2014; Frota et al. 2015; Hualde & Prieto 2015, among many others) have been analyzed within these two approaches enables a cross-linguistic comparison. In the next sections, I introduce the AM model and the ToBI annotation system[26].

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[25] Both the ToBI labeling system and the IPrA are based on the AM model and are thus quite similar. The most important difference between these two annotation systems consists in the fact that a specific ToBI system is developed for each language (or variety), whereas IPrA attempts to offer a cross-linguistic annotation of intonation. This means that ToBI can be defined as a language specific labeling system, while IPrA can be considered a sort of IPA for prosody (cf. Jun et al. 2015 (http://www.linguistics.ucla.edu/ipra_workshop/index.html; Retrieved: 12/22/2015)). However, IPrA is a very new proposal and has not yet been applied to any language.

[26] Cf. Prieto (2003) for a detailed description of the majority of the models of intonation mentioned above and the transcription system INTSINT.

3.1.1.1 *Autosegmental-Metrical model*

The Autosegmental-Metrical model (AM model)[27] was developed by Pierrehumbert (1980) for the intonational description of English. It is worth mentioning that some of its fundamental ideas go back to the work of Leben (1973, 1976), Goldsmith (1976), Liberman (1975), and Bruce (1977) (cf. Hualde 2003; Ladd 2008: 43; Beckman & Venditti 2010; Arvaniti 2011, among others). The basic assumption of the AM model is that the intonational contour of a sentence is the result of the phonetic interpolation between tonal units which are phonologically specified and associated with certain syllables and edges (Hualde 2003). The main goal of the model is not to provide a description or transcription of the tonal movements of the F0 contour, but rather to offer a representation of "the linguistically significant parts of the melody" (Arvaniti 2011: 769).

The AM approach distinguishes between segmental and tonal tiers. It is assumed that tunes can be represented as strings of pitch accents and edge tones[28] (i.e., phrase accents and boundary tones) which associate with the segmental level. The following association rules are adopted by Pierrehumbert (1980: 19-29): First, pitch accents are aligned with stressed syllables. Second, phrase accents associate with the segmental material which follows the last pitch accent within the intonation phrase (IP). Last, boundary tones are associated with the end and in some languages, such as English, also with the beginning of the IP (cf. also Hualde 2003; Gussenhoven 2004: 123 f.; Ladd 2008: 87f.; Arvaniti 2011). The tonal units (i.e., pitch accents, phrase accents, and boundary tones) are described using the tones *H* (high) and *L* (low) in Pierrehumbert's original analysis of English intonation (1980). She suggests two monotonal and five bitonal pitch accents for English as shown in Figure 3.1 (Pierrehumbert 1980: 29). Monotonal pitch accents are always starred (i.e., they are marked by a star, e.g., L* or H*). In bitonal pitch accents, there are two tones: a stronger one and a weaker one (the weaker can be a leading (preceding) or a trailing (following) tone); the stronger tone is marked with the star, while the weaker tone is indicated by a raised hyphen (e.g., L*+H⁻)[29]. Regarding the tone association rules, it should be added that the star is used to indicate that the tone which bears it is aligned with the stressed syllable. For instance, the pitch accent L* represents a low tone associated with the stressed syllable. In bitonal pitch accents, starred tones associate with the stressed syllables, whereas leading and trailing tones align before or

[27] The term *Autosegmental-Metrical* was actually coined by Ladd (1996) (cf. Gussenhoven 2004: 123).
[28] *Edge tone* is a term used by Ladd (2008: 100) to refer to both phrase accents and boundary tones.
[29] In subsequent work based on Pierrehumbert's proposal (1980), the hyphen is omitted in pitch accents and retained in phrase accents (e.g., ToBI) (cf. Ladd 2008: 88).

after the starred pitch accent (Pierrehumbert 1980: 25-26; cf. also Gussenhoven 2004: 128; Ladd 2008: 87-100; Arvaniti 2011).

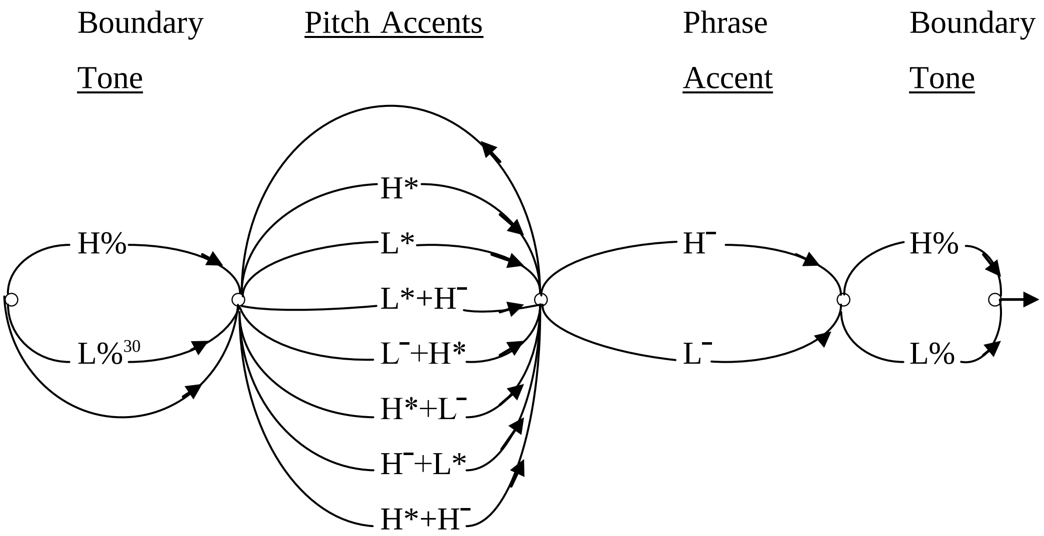

Figure 3.1. Finite-state grammar to generate tunes of English intonation (adopted from Pierrehumbert 1980: 29)

Regarding the pitch accents of English presented in Pierrehumbert (1980), the following can be mentioned: H*, L*, and L*+H¯ are said to have "a fairly straightforward phonetic description – H* is a local peak, L* is a local valley, and L*+H a rise from a low accented syllable" (Ladd 2008: 92). The difference between the pitch accents L¯+H* and H* seems to be very problematical, especially when they are realized on phrase-initial stressed syllables, since both accents may present a local rise within the accented syllable (cf. Ladd 2008: 96-97 for a more detailed discussion). H*+L¯ is used to indicate a peak located in the accented syllable followed by a fall. H¯+L* is a falling tonal movement from a higher unaccented syllable to a lower accented syllable (Ladd 2008: 99-100). It can be added that the pitch accent H*+H¯, proposed by Pierrehumbert (1980: 29) to represent a high pitch accent followed by a sustained high F0 contour which precedes a subsequent high pitch accent, is eliminated by Beckman & Pierrehumbert (1986) (cf. Ladd 2008: 92, 208f. for a detailed discussion).

According to Pierrehumbert's intonational analysis of English (1980: 10), the strongest stress, called the nuclear stress, is the most important in an IP. The nuclear pitch accent is the last pitch accent realized within an IP. The pitch accents produced before the nuclear pitch accent are referred to as prenuclear pitch accents (Pierrehumbert 1980: 37-40; Ladd 2008: 89-

[30] The initial boundary tone (L%) has been excluded from the analysis of English in subsequent work (cf. Silverman et al. 1992).

90). As for the tonal realization of nuclear and prenuclear pitch accents, Pierrehumbert (1980: 93) proposes the same inventory for both the prenuclear and the nuclear position.

As mentioned above, Pierrehumbert (1980: 22f.) makes a distinction between phrase accents (annotated with a "-") and boundary tones (annotated with a "%"; cf. Figure 3.1). The phrase accent is realized between the nuclear pitch accent and the boundary tone, which in turn is aligned with the end of the IP. As shown in Figure 3.1, both phrase accents and boundary tones are monotonal in English, in contrast to pitch accents, which can be bitonal or monotonal (Pierrehumbert 1980: 28). Pierrehumbert (1980: 390-401) offers 22 possible combinations of nuclear pitch accents, phrase accents, and boundary tones for English.

Pierrehumbert's original analysis of English intonation (1980) was revised in Beckman & Pierrehumbert (1986); the most important difference between the AM model of intonation presented in Pierrehumbert (1980) and that in Beckman & Pierrehumbert (1986) consists in the fact that Beckman & Pierrehumbert (1986: 288) suggest reanalyzing "the phrase-accent plus boundary-tone configuration" and introduce two levels of phrasing: the intermediate phrase (ip) and the intonation phrase (IP). It is thus suggested that an IP may consist of a single ip or of more than one ip. In addition, phrase accents and boundary tones are analyzed as terminal tones for ips[31] and IPs, respectively (Beckman & Pierrehumbert 1986). In the following, Figure 3.2 illustrates the association of pitch accents and terminal tones according to the AM model proposed for the analysis of English intonation: The pitch accents (T*[32]) associate with the stressed syllables ($\underline{\sigma}$) of the ip/IP. It can be differentiated between prenuclear pitch accents and nuclear pitch accents (as mentioned above, the nuclear pitch accent is assumed to be the last pitch accent of the IP; according to the revised AM model (Beckman & Pierrehumbert 1986), the nuclear accent is then the last pitch accent of the ip). The phrase accents and the boundary tones associate with the edges of ips (T-) and IPs (T%)[33]. Each ip, a final one or a non-final one, can be defined by the presence of a nuclear pitch accent and a

[31] Besides the tonal marking at the end of the intermediate phrase (i.e., the phrase accent), there are also other cues indicating the presence of (inner) intermediate phrases such as pauses or phrase-final lengthening (Beckman & Pierrehumbert 1986; Pierrehumbert & Hirschberg 1990; Beckman et al. 2005, among others). It is worth mentioning that the term *boundary tone* is used to refer to phrase accents in some descriptions: "In the Beckman and Pierrehumbert model, there are two levels of intonational phrasing, the intermediate phrase and the full intonation phrase. Each of these has a boundary tone, either L or H, although the timing behavior of these tones is rather different. The intermediate phrase boundary tone tends to spread over the entire region from the nuclear accent to the end of the phrase, whereas the intonational boundary tone is more localized right at the phrasal edge" (Pierrehumbert 2000: 21). However, as will be shown below (cf. Section 3.1.1.2 and Table 3.1), the MAE_ToBI adopts the terminology presented in Beckman & Pierrehumbert (1986): the term *phrase accent* is used to refer to terminal tones of intermediate phrases and the term *boundary tone* is used to refer to terminal tones of intonational phrases.

[32] "T" is a placeholder for different pitch accents (e.g., monotonal or bitonal ones) and terminal tones.

[33] As mentioned above, in some languages, like English, an initial boundary tone has been assumed. This boundary tone associates with the beginning of the IP.

phrase accent[34] and each IP can thus be defined by the presence of (a) nuclear pitch accent(s) and (a) phrase accent(s), which are the nuclear pitch accent(s) and the phrase accent(s) of the ip/ips of which this IP consists, and a boundary tone (Beckman & Pierrehumbert 1986; Beckman 1996; Pierrehumbert 2000; Gussenhoven 2004: 130-141; Ladd 2008: 87-107; Frota 2012, among others). Considering this, it can be said that IPs consisting of one ip end in a T* T- T% sequence, where T* is the nuclear pitch accent of the ip, T- is the phrase accent of the ip, and T% is the boundary tone of the IP; if one or more content words are realized before the nuclear accent of the ip, prenuclear pitch accents are also produced within this ip. In contrast, if an IP consists of two (or more) ips as shown in Figure 3.2, each of these ips comprises a nuclear pitch accent (T*) and a phrase accent (T-); the end of the IP is tonally marked by a boundary tone (T%).

Since the AM model has been applied to many other languages, some differences can be found with respect to both levels of phrasing relevant for tonal marking (e.g., the presence or absence of the intermediate phrase; cf. Sosa 1999; Estebas-Vilaplana & Prieto 2008, 2010; Hualde & Prieto 2015 for Spanish; Frota 2000; Cruz 2013; Frota 2014; Frota et al. 2015 for Portuguese; Prieto et al. 2009; Benet et al. 2011; Prieto 2014 for Catalan, among many others) and the description of final contours. As for final contours of inner or IP-internal phrases, in Catalan, Italian, Portuguese, and Spanish, the combination of the nuclear pitch accent and the boundary tone of an IP-internal phrase is referred to as a nuclear contour (or nuclear configuration) (Frota et al. 2007). Regarding final contours of IPs, the combination of a nuclear pitch accent, a phrase accent, and a boundary tone (cf. Grice et al. 2005 for German) or of a nuclear pitch accent and a boundary tone is also referred to as a nuclear contour (or nuclear configuration) (cf. Estebas-Vilaplana & Prieto 2008, 2010; Hualde & Prieto 2015 for Spanish; Cruz 2013; Frota 2014; Frota et al. 2015 for Portuguese; Prieto et al. 2009; Benet et al. 2011; Prieto 2014 for Catalan, among many others).

[34] According to Beckman (1996: 34), "[...] every intermediate phrase must have at least one (nuclear) pitch accent [...]." The nuclear pitch accent can thus be seen as the head of the ip (Terken & Hermes 2000).

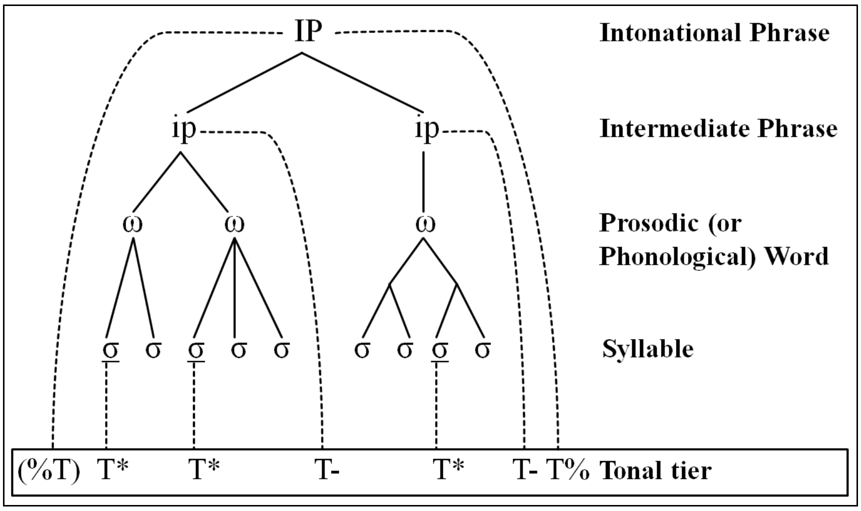

Figure 3.2. Tonal association (adopted from Pešková et al. 2011: 80)

Regarding meaning within the AM model, Pierrehumbert & Hirschberg (1990) propose a compositional theory of the meaning of F0 contours. They claim that speakers use the intonational contours of utterances to express different kinds of relationships. This will be illustrated by means of a fictive utterance A which is produced with a certain intonational contour: first, the relationship between the propositional content of the utterance A and previous/subsequent utterances is assumed to be conveyed by the intonational contour of utterance A, and second, the relationship between the propositional content of the utterance A and "beliefs H[35] believes to be mutually held" is assumed to be conveyed by the intonational contour of utterance A (Pierrehumbert & Hirschberg 1990: 308). Furthermore, the authors suggest that: (1) relationships specified by the lexical items with which pitch accents associate, predicates, modifiers, and information about the status of discourse referents are conveyed by pitch accents; (2) information about the degree of relatedness of one ip to the preceding and following ips is conveyed by phrase accents (i.e., information about the propositional content of the respective ip which shows if this ip forms part of an IP with another ip(s) or not); (3) information about "the directionality of interpretation for the current intonational phrase – whether it is «forward-looking» or not" is conveyed by boundary tones (Pierrehumbert & Hirschberg 1990: 308). In addition, Pierrehumbert & Hirschberg (1990) assume that first, each phrase accent has scope over the ip with whose edge it associates, and second, boundary tones contribute to the interpretation of the whole IP. For instance, in an IP which consists of one ip, the domain of the boundary tone and the phrase accent is the same. In contrast, in an IP con-

[35] *H* means hearer. As for the term *mutual belief,* Pierrehumbert & Hirschberg (1990: 285) "understand the *mutual beliefs* of a discourse to be those beliefs that conversational participants come to believe to be shared among them as a direct result of the conversational interaction."

sisting of more than one ip, the domain of each phrase accent is only the ip to whose edge it is associated, whereas the domain of the boundary tone is the whole IP. Considering this, it can be said that first, pitch accents, phrase accents, and boundary tones can be seen as tonal morphemes which have their own pragmatic meaning, and second, the pragmatic meaning of each IP can be defined on the basis of the meanings of the pitch accents, phrase accents, and boundary tones realized within the respective domains of this IP (Arvaniti 2011). Consequently, the meaning of an IP can be seen as "compositional" and depending "on contributions from all tones" (Arvaniti 2011: 772). However, there are also views according to which the nuclear pitch accents play a crucial role in the meaning, in contrast to the prenuclear pitch accents, which do not seem to contribute to information structure and thus to meaning (cf. Ladd 2008: 147-156 and Arvaniti 2011 for a more detailed discussion on meaning within the AM framework).

Further important terms that should be defined in this section are *declination*, *downstep*, and *upstep*. Declination is "a gradual downdrift and narrowing of the pitch range, which occurs within the body of the intonation phrase" (Pierrehumbert 1980: 116). Declination is said to be both a phonetic effect and a universal effect[36] (Connell 2002). Ladd (2008: 76) points out that "Pierrehumbert (1980) advanced the hypothesis that much of declination can be accounted for as the result of downstep [...] − the stepwise lowering of pitch (or of the tonal space) at specific pitch accents." He illustrates the difference between gradual declination and downstep by reference to the tonal space diagrams plotted in Figure 3.3 (Ladd 2008: 76): the overall downward trend of the F0 contour depicted in Figure 3.3 can be described as the consequence of gradual declination (cf. upper panel) or downstep at specific points in the IP (cf. the lower panel).

[36] The universality concerns the realization of declaratives; declination is often suspended in questions and other non-declaratives (Connell 2002; Gussenhoven 2004: 100).

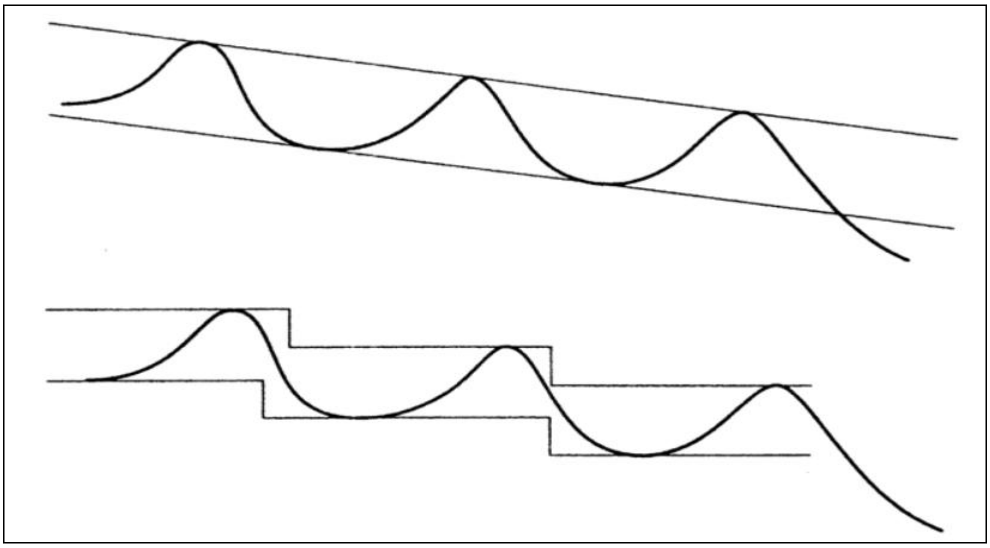

Figure 3.3. Gradual declination (upper panel) vs. downstep (lower panel) (adopted from Ladd 2008: 76)

Pierrehumbert (1980: 150) suggests that the downstep[37] in English is triggered by tonal sequences such as H … L … H… (i.e., H+L H and H L+H*) in which a bitonal pitch accent is involved. This analysis is reexamined by Beckman & Pierrehumbert (1986: 280), who propose that catathesis (i.e., downstep) in English "is triggered by the bitonal pitch accents themselves and not by the alternation H L H"[38]. Cross-linguistically, it can be differentiated between two types of downstep: an automatic and a non-automatic one. The first one consists in the lowering of the second high tone in HLH sequences, and the second one in the lowering of the second high tone in HH sequences. In both cases, it is assumed that the lowering is due to the influence of a low tone: an intervening one such as L in HLH sequences, or either an underlying floating one or a historically lost one in HH sequences (cf. Connell 2002 and Gussenhoven 2004: 100-103). In work within the AM framework, downstepped pitch accents or boundary tones are marked with an exclamation mark (i.e., $^{!}$ or !; e.g., $^{!}$H* or !H*) (cf. Silverman et al. 1992; Beckman et al. 2002, among many others).

According to Pierrehumbert (1980: 74), "the result of downstep and upstep is that a H can be lower than a L earlier in the phrase, and a L can be higher than H earlier in the phrase." She assumes that the upstep and the downstep are rules that readjust "the phonetic value of a tone in a particular context" (Pierrehumbert 1980: 90). It is suggested that these two tonal

[37] Both Pierrehumbert (1980) and Beckman & Pierrehumbert (1986) use the terms *downstep* and *catathesis* to refer to the same phenomenon.

[38] According to an alternative proposal made by Ladd (1983), downsteps are phonological features which can independently be selected. Thus, they can be seen as distinctive phonological features [± downstep] that can specify, but do not have to specify, any pitch accents in any tonal sequence. That means that any accent can be specified with this feature and consequently marked with an exclamation mark /$^{!}$/: e.g., H* for a high pitch accent vs. $^{!}$H* for a downstepped high pitch accent (cf. Beckman & Pierrehumbert 1986 and Ladd 2008: 97-100 for a more detailed description).

rules apply only within the phrase (Pierrehumbert 1980: 181). In English, the raise of a target that corresponds to either a low tone (i.e., L) or a high tone (i.e., H) after a high phrase accent (i.e., H¯) is referred to as upstep (Pierrehumbert 1980: 141, 333). Thus, one of the main differences between downstep and upstep in English consists in the fact that a downstep rule applies iteratively to bitonal pitch accents, while an upstep rule applies to boundary tones (Pierrehumbert 1980: 183-184). In contrast, Hualde (2002) assumes that upstep in Spanish affects not only the boundary tone following the phrase accent H¯, as proposed for English, but also the preceding pitch accents. Thus, the domain of upstep in Spanish is suggested to be co-extensive with the ip and not only restricted to its final edge (Beckman et al. 2002). In work within the AM framework, upstepped pitch accents and boundary tones are usually indicated by a reverse exclamation mark (i.e., ¡; e.g., ¡H*) (cf. Beckman et al. 2002; Prieto & Roseano 2010, among many others).

3.1.1.2 *ToBI*

ToBI (Tones and Break Indices) is a prosodic labeling system originally developed for English (Silverman et al. 1992). The ToBI annotation comprises a number of tiers which contain labels representing different prosodic or segmental information such as: (i) a *tonal tier*, where the pitch accents and terminal tones (at the end of both intermediate and intonational phrases) are transcribed applying the AM model; (ii) a *break index tier*, which reflects the grouping of words and phrases into which the utterance analyzed is separated[39]; (iii) a *miscellaneous tier*, which includes an annotation of events such as hesitations, laughs, disfluencies, breaths, false starts, pauses, etc. (Silverman et al. 1992).

Since the ToBI annotation system has subsequently been adapted for the intonational description of many other languages, the term *ToBI* is nowadays used to refer to a general approach for the development of prosodic labeling systems (Beckman et al. 2005). For instance, Beckman et al. (2005) developed the MAE_ToBI (Mainstream American English ToBI). Figure 3.4 illustrates the annotation of the utterance *Okay... They have a couple flights* according to the MAE_ToBI labeling. As seen in the MAE_ToBI xlabel windows, there are

[39] Silverman et al. (1992) adopt the system of break indices proposed in Price et al. (1991) with some modifications. The system of break indices of Price et al. (1991) originally comprised a seven-point scale: “0 – boundary within a clitic group, 1 – normal word boundary, 2 – boundary marking a minor grouping of words, 3 – intermediate phrase boundary, 4 – intonational phrase boundary, 5 – boundary marking a grouping of intonational phrases, and 6 – sentence boundary” (Price et al. 1991: 2962). However, Silverman et al. (1992) merge the boundary indices 4, 5, and 6 into a single category (indicated by 4) which marks the utterance boundary. In addition, the levels 0 and 1 are defined as follows: 0 – “definite phonetic evidence of cliticization” and 1 – “normal inter-word boundary” (Silverman et al. 1992: 869).

four tiers: the uppermost one is the ***tonal tier*** including the transcription of the intonation contour based on the AM framework; the tier below the tonal tier is the ***word tier*** including the orthographic transcription; the tier below the word tier is the ***break index tier*** including the break indices that indicate the degree of boundary strength; the lowest one is the ***miscellaneous tier*** including labels for events such as coughs, disfluencies, hesitations, etc. or information which the transcribers would like to share.

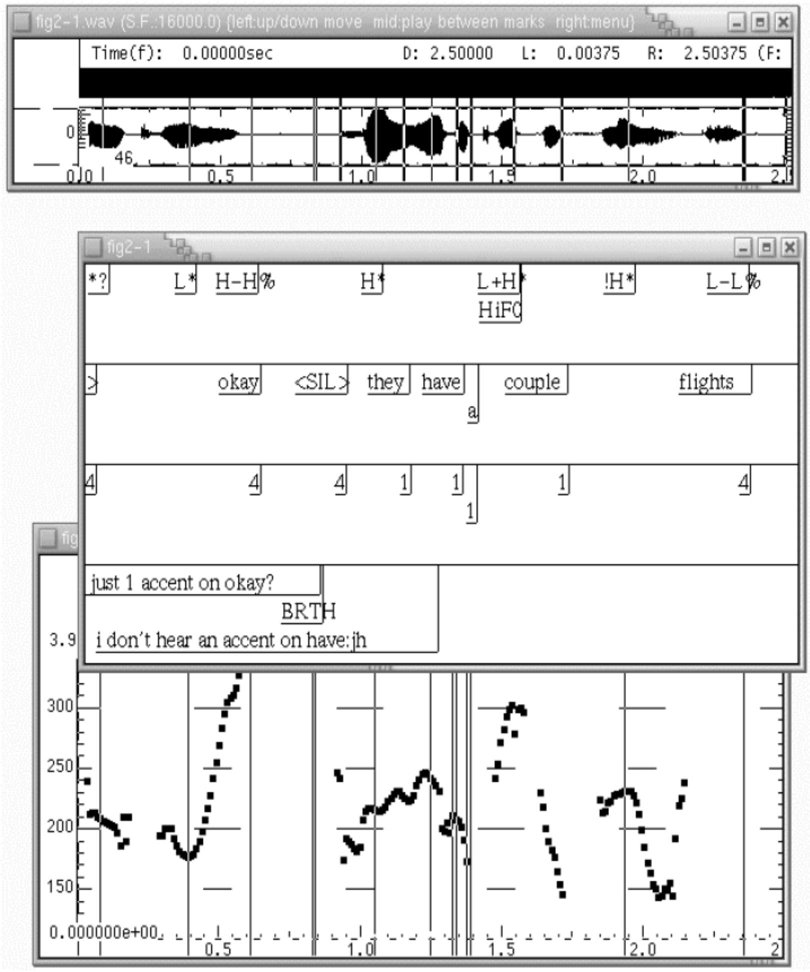

Figure 3.4. Audio waveform, F0 contour, and MAE_ToBI xlabel windows for utterance *Okay... They have a couple flights*. (adopted from Beckman et al. 2005: 20)[40]

Regarding the transcription of pitch accents, phrase accents, and boundary tones, as mentioned above, the tonal annotation within the ToBI framework is based on the AM model (cf. Table 3.1 for the inventory of pitch accents, phrase accents, and boundary tones established for Mainstream American English). In addition, it is worth mentioning that if a tonal event

[40] The abbreviation 'SIL' (or '#') marks "word beginnings which are not coterminous with the end of the preceding word" (Beckman et al. 2005: 27).

cannot be defined, “?” and “X” are used by Beckman et al. (2005) to express uncertainty about both the presence or absence of a tonal morpheme (e.g., ?*, -?, and %?) and the tone type (e.g., X*?, X-?, and X%?), respectively.

Table 3.1. Inventory of MAE_ToBI Tone-tier labels (adopted from Beckman et al. 2005: 23)

Basic tones:
phrase accents: H- (!H-), L- (obligatorily placed at every BI=3 and higher) **boundary tones:** H%, L% (obligatory at every 4); %H (marginal, at beginnings of some intonational phrases after pause) **pitch accents:** L*, H* (!H*), L+H* (L+!H*), L*+H (L*+!H), H+!H*
Other labels:
downstep: e.g. !H*, L+!H*, !H- (the ! diacritic marks the beginning of compressed pitch range) **uncertainty:** *?, -?, %? (uncertainty about occurrence); X*?, X-?, X%? (about tone type) **phonetic events transcribed in careful labelling:** < (delayed peak); HiF0 (maximum F0 associated with H of an accent within an intermediate phrase)

Table 3.2 offers the inventory of break indices proposed by Beckman et al. (2005) and the diacritics used in their prosodic annotation:

Table 3.2. Inventory of MAE_ToBI Break-Indices tier labels (adopted from Beckman et al. 2005: 23)

Basic break index values:
0 (very close inter-word juncture) **1** (ordinary phrase-internal word end) **3** (intermediate phrase end, with phrase accent) **4** (intonational phrase end, with boundary tone)
Diacritics:
- (uncertainty): e.g. 4- (intermediate between 3 and 4) **p** (perceived hesitation): 1p for ‘cutoff’, 2p and 3p for ‘prolongation’
Tones-breaks mismatch:
2 (perceived 1 with unexpected tonal marker, or lengthening, etc., suitable for break index 3 or 4 without the phrase accent and/or boundary tone)

3.1.2 Intonation of Castilian Spanish and Standard European Portuguese

Castilian Spanish and Standard European Portuguese display numerous similarities and differences at the same time regarding both their stress patterns and intonational systems. Some of them are the following:

1) Stress: Both languages exhibit free stress which can occur on one of the last three syllables, although penultimate stress is the most frequent one (cf. NGRAE 2011: 358f.; Gabriel et al. 2013: 154-155; Hualde 2014: 224-258, among others for Castilian Spanish and Frota 2000: 41-42; Mateus & d'Andrade 2000: 109-117; Vigário 2003: 64-67, among others for Standard European Portuguese). However, stress assignment of non-verbs is said to depend on syllable weight in Castilian Spanish and on morphological constituency in Standard European Portuguese: In Castilian Spanish, the ultimate syllable usually[41] bears the stress in nouns, adjectives, and adverbs if it is heavy, otherwise the penultimate is generally stressed (Hualde 2005: 222-228; Kubarth 2009: 180; Gabriel et al. 2013: 155-156). In Standard European Portuguese, stress usually[42] falls on the syllable which contains the last vowel of the stem in non-verbs (Mateus & d'Andrade 2000: 109-113; Mateus et al. 2003: 1050-1052; Correia 2009: 21). Regarding the stress location in verbs, both Castilian Spanish and Standard European Portuguese pattern alike in accenting the penultimate[43] or ultimate syllable of verbs in the present tense (indicative and subjunctive), imperative, and gerund[44] or the syllable which contains the theme vowel or the tense/mood marker in past tenses, future, and conditional (cf. Hualde 2005: 228-233; Kubarth 2009: 183-185; Gabriel et al. 2013: 158-160 for Castilian Spanish and Mateus & d'Andrade 2000: 113-117; Mateus et al. 2003: 1053-1054; Correia 2009: 22-23 for Standard European Portuguese).

2) Language type concerning intonation: In line with the terminology used in Gussenhoven (2004: 12), Castilian Spanish and Standard European Portuguese can be classified as belonging to the intonation-only languages, since both varieties are languages without lexical tone.

3) Tone bearing units: According to studies on Castilian Spanish and Standard European Portuguese within the AM model, both pitch accents and edge tones are used to describe the intonational properties of these two varieties. It can briefly be mentioned that pitch accents associate with the stressed syllables within the IP; they can be prenuclear ones or nuclear ones (the nuclear pitch accent is realized on the last prosodic word of a phrase in neutral contexts in Castilian Spanish and Standard European Portuguese; the prenuclear pitch accents are those pitch accents which precede the nuclear pitch accent in a phrase; Frota et al. 2007; Estebas-Vilaplana & Prieto 2010; Frota 2014; Hualde & Prieto 2015; Frota et al. 2015, among others).

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[41] Cf. Hualde (2005: 223-228), Kubarth (2009: 180-182), and NGRAE (2011: 376-378) for exceptional cases.

[42] Cf. Mateus et al. (2003: 1051-1052) for exceptional cases.

[43] In the present tense (indicative and subjunctive), penultimate syllables usually bear the stress, except in 2.P.Pl., where the ultimate syllable is the stressed one (cf. sp. *vosotros* 'you' canTÁIS 'sing' and port. *vós* 'you' canTAIS 'sing'). Another example for ultimate stress is the imperative 2.P.Pl. in Spanish (sp. *coMED* 'eat') (Mateus et al. 2003: 1053-1054; Hualde 2005: 229).

[44] Infinitives and inflected infinitives (the latter appear in Portuguese only) also belong to this group (Mateus et al. 2003: 1053-1054; Hualde 2005: 229).

Regarding edge tones, it is argued that the phrase accent can be dispensed with; it is assumed that the boundary tone is the only prosodic category needed to represent the tonal movements at the right edge of intonational phrases in both Iberian Standard varieties (cf. Estebas-Vilaplana & Prieto 2008, 2010 for Castilian Spanish and Frota 2014 for Standard European Portuguese). Furthermore, it should be added that two types of edge tones are suggested for Castilian Spanish: boundary tones that associate with the end of intermediate phrases and boundary tones that associate with the end of intonational phrases[45] (cf. Estebas-Vilaplana & Prieto 2008, 2010; Hualde & Prieto 2015, among others). Such an analysis differs from the analysis of English intonation presented in Pierrehumbert (1980), Beckman & Pierrehumbert (1986), and Beckman et al. (2005) in that there are no phrase accents which mark the end of intermediate phrases, but rather boundary tones. Note that only the edges of intonational phrases are said to be tonally marked in Standard European Portuguese (Frota 2000: 208-212; Cruz 2013: 5, 24-25; Frota 2014; Frota et al. 2015, among others): “In EP, there is no evidence for phrase accents, nor for another prosodic phrase, besides the intonational phrase, whose edges are tonally marked” (Frota 2014: 16).

4) Tonal density: Castilian Spanish and Standard European Portuguese are characterized by different distributions and realizations of pitch accents and boundary tones. In Castilian Spanish, pitch accent density is higher than in Standard European Portuguese; almost every prosodic word occurring in neutral contexts is said to usually be pitch-accented in Castilian Spanish (Hualde 2007; Ortega-Llevaria & Prieto 2010). However, recent studies have shown that pitch-deaccenting is frequent in parenthetical and reportative clauses in Barcelona Spanish (Ortega-Llebaria & Prieto 2007, 2010), in declaratives in Castilian Spanish (Face 2003) and in Barcelona Spanish (Rao 2008, 2009), and in wh-questions in European Spanish[46] (Torreira et al. 2014). Hualde & Prieto (2015: 389) indicate that pitch accent density seems to depend on speaking style in Spanish: “In careful speech, such as reading, speaking to an audience, or giving instructions, every content word will tend to carry a pitch-accent […]. […] the few studies of more casual speech that have been undertaken have noticed that about 30% of content words fail to show evidence of tonal prominence. In even more casual styles, such as conversations between friends, the rate of de-accentuation is likely to be much higher.” Regarding Standard European Portuguese, the first and the last prosodic word of the IP carry a tone, while the IP-internal prosodic

[45] Some studies on Spanish intonation assume only one level of prosodic constituency for Spanish, namely the IP (e.g., Sosa 1999: 93-95), while others assume two: the ip and the IP (Nibert 1999, 2000; Hualde 2002; Esteblas-Vilaplana & Prieto 2008, 2010; Hualde & Prieto 2015, among many others).
[46] Torreira et al. (2014) do not specify which variety is meant when using the term ‘European Spanish’.

words are usually deaccented across sentence types[47] (Vigário & Frota 2003; Frota 2014; Frota et al. 2015, among others).

3.1.2.1 *Inventory of pitch accents and boundary tones*

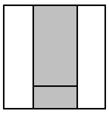
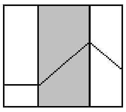
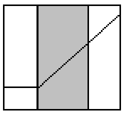
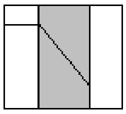
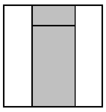
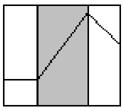
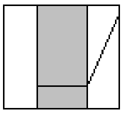
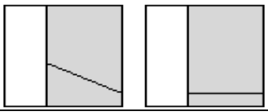
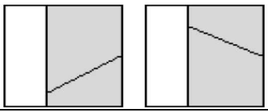
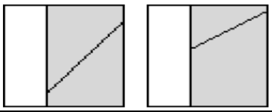
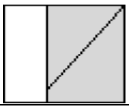
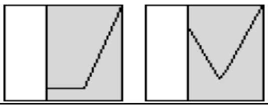
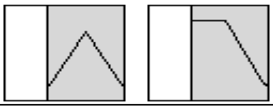
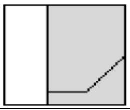
The AM approach and the ToBI system of prosodic annotation have been applied for the intonational analysis of numerous Spanish varieties in the past few years (cf. Sosa 1991, 1999, 2003; Face 2002a, b, c; Beckman et al. 2002; Hualde 2002; Ramírez Verdugo 2005; Estebas-Vilaplana 2006, 2009; Face & Prieto 2007; Estebas-Vilaplana & Prieto 2008, 2010; Prieto et al. 2010; Hualde & Prieto 2015, among others for Castilian Spanish; cf. Gabriel et al. 2010 for Argentinian Spanish, López-Bobo & Cuevas-Alonso 2010 for Cantabrian Spanish, Cabrera Abreu & Vizcaíno Ortega 2010 for Canarian Spanish, Willis 2010 for Dominican Spanish, Armstrong 2010 for Puerto Rican Spanish, Astruc et al. 2010 for Venezuelan Andean Spanish, O'Rourke 2010 for Ecuadorian Andean Spanish, Ortiz et al. 2010 for Chilean Spanish, and de-la-Mota et al. 2010 for Mexican Spanish, among others).

Table 3.3 presents the inventory of pitch accents and boundary tones proposed for Castilian Spanish by Estebas-Vilaplana & Prieto (2010: 19-21) within the AM model and the ToBI framework and offers a schematic representation of their phonetic realization. As can be seen, the Castilian variety shows two monotonal pitch accents (L* and H*), five bitonal pitch accents (L+H*, L+¡H*, L+>H*, L*+H, and H+L*), three monotonal boundary tones (L- %, M- %, and H- %), and four bitonal boundary tones (HH- %, LH- %, HL- %, and LM- %). Concerning the inventory of boundary tones of ips and IPs[48], Estebas-Vilaplana & Prieto (2010: 20) claim that "in principle, the same inventory of boundary tones can appear both at the end of a major phrase (intonational phrase) and at the end of a minor phrase (intermediate phrase)." According to the findings of Estebas-Vilaplana & Prieto (2010), the pitch accents H*, L+>H*, and L*+H are commonly attested in prenuclear position and the pitch accents L*, L+H*, L+¡H*, (¡)H*, and H+L* are found in nuclear position. The use of both pitch accents and boundary tones and their combination will be presented in the next section.

[47] The percentage of IP-internal prosodic words which bear a pitch accent amounts to 17% for statements, to 29% for yes-no questions, and to 10% for wh-questions (Frota et al. 2015).

[48] Boundary tones of ips and IPs are marked with a hyphen (-) and with a percent (%) in Table 3.3, respectively. The prosodic phrasing properties of both Castilian Spanish and Standard European Portuguese will be presented in Section 3.2.2.

Table 3.3. Inventory of pitch accents and boundary tones in Castilian Spanish (adopted from Estebas-Vilaplana & Prieto 2010: 19-21)

Pitch accents[49]			
L* 	L+H* 	L+>H* 	H+L* 
H* 	L+¡H* 	L*+H 	
Boundary tones			
L- L% 	M- M% 	H- H% 	
HH- HH% 	LH- LH% 	HL- HL% 	LM- LM% 

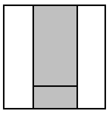
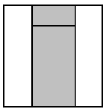
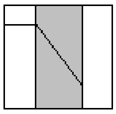
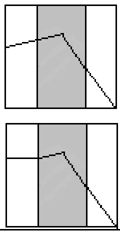
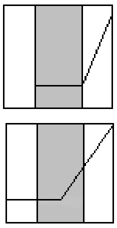
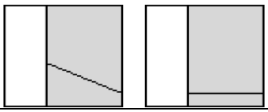
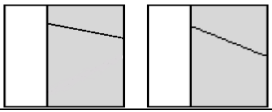
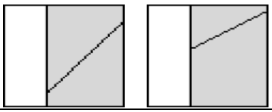
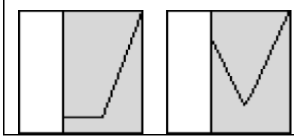
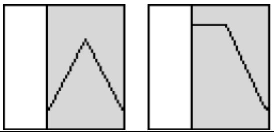
Similar to (Castilian) Spanish, numerous studies have applied the autosegmental and metrical framework to describe the (Standard) European Portuguese intonation (cf. Viana 1987; Frota 1993; Falé 1995; Vigário 1995, 1997; Grϕnnum & Viana 1999; Frota 2002a, b, 2003, 2012, 2014; Vigário & Frota 2003; Frota & Vigário 2007; Viana & Frota 2007; Fernandes 2007; Falé & Faria 2007; Frota & Cruz 2012; Cruz 2013; Frota et al. 2015, among others).

Subsequently, Table 3.4 shows the inventory of pitch accents and boundary tones proposed for Standard European Portuguese by Frota (2014) within the AM model and provides a schematic representation of their phonetic realization. The tone inventory of Standard European Portuguese thus comprises two monotonal pitch accents (L* and H*), three bitonal pitch accents (L*+H, H*+L, and H+L*)[50], three monotonal boundary tones (L%, !H%, and H%), and two bitonal boundary tones (LH% and HL%)[51]. According to Frota (2014), the pitch accents H* and L*+H can be found in prenuclear position (they usually associate with the first stressed syllable within the IP). Apart from this, all five pitch accents (i.e., L*, H*[52], L*+H, H+L*, and H*+L)

[49] Regarding pitch accents, the gray parts represent metrically strong syllables; the white parts illustrate the unstressed syllables before and after the accented syllable. As for boundary tones, the gray parts represent the segmental material on which the boundary tone is realized; the white parts illustrate the preceding syllable(s).
[50] Although (L)+H* is attested in vocatives, it is assumed that the low prefix is not obligatory and that (L)+H* is a surface realization of the underlying pitch accent H* (Frota 2014). For this reason, (L)+H* is not included in the inventory of pitch accents in Table 3.4.
[51] As mentioned above, only IP edges are said to be tonally marked in Standard European Portuguese (cf. Section 3.2.2 for a description of the prosodic phrasing properties of Standard European Portuguese).
[52] According to the description of the Standard European Portuguese intonation presented in Frota (2014), the occurrence of H* is limited to the nuclear position of vocatives.

can occur in nuclear position (Frota 2014; Frota et al. 2015). The use of both pitch accents and boundary tones and their combination will be shown in the next section.

Table 3.4. Inventory of pitch accents and boundary tones in Standard European Portuguese (Frota 2014)

Pitch accents		
L* 	H* 	H+L* 
H*+L 	L*+H 	
Boundary tones		
L% 	!H% 	H% 
LH% 	HL% 	

3.1.2.2 *Intonational tunes in Castilian Spanish and Standard European Portuguese*

In what follows, Table 3.5 presents both the prenuclear pitch accents and the nuclear configurations[53] attested in numerous sentence types in Castilian Spanish (Estebas-Vilaplana & Prieto 2010). The sentence types described in Table 3.5 are the following: broad focus statements, continuations, biased statements (narrow focus statements, narrow focus contradiction statements, and exclamative statements), neutral (or information-seeking) yes-no questions, disjunctive questions, biased yes-no questions (echo yes-no questions, counterexpectational echo yes-no questions, and confirmation-seeking yes-no questions), neutral (or information-seeking) wh-questions, biased wh-questions (echo wh-questions and imperative wh-questions), and imperatives (commands and requests). Table 3.6 shows the prenuclear pitch accents and the nuclear configurations described for Standard European Portuguese on the basis of the analysis of the following sentence types (Frota 2014): broad focus statements, narrow focus statements, continuations, infor-

[53] The terms *nuclear configuration* and *nuclear contour* are used to refer to the combination of the nuclear pitch accent and the subsequent boundary tone in both Castilian Spanish and Standard European Portuguese (Estebas-Vilaplana & Prieto 2010; Frota 2014; Frota et al. 2015).

mation-seeking yes-no questions, echo yes-no questions, confirmation-seeking yes-no questions, focused (and counterexpectational) yes-no questions, information-seeking wh-questions, and imperatives (commands and requests).

Table 3.5. Intonational tunes in Castilian Spanish (Estebas-Vilaplana & Prieto 2010)

Sentence type	Prenuclear accents[54]	Nuclear configurations[55]
Broad focus statements	L+>H*[56]	L* L%[57]
Continuations		L+H* H-[58] L+H* HH-
Narrow focus statements		L+H* L% L* HL%
Narrow focus contradiction statements	L+>H*	L* HL%
Exclamative statements		L+H* L%[59]
Information-seeking yes-no questions	L*+H	L* HH%[60]
Disjunctive questions	L+>H*	L+H* HH- L* L%
Echo yes-no questions	L+>H*	L+¡H* L%
Counterexpectational echo yes-no questions	H*	L+H* LH% L+H* HH%
Confirmation-seeking yes-no questions	L*+H	H+L* L% L* H%
Information-seeking wh-questions	H*	L* L% L* HH%[61]
Echo wh-questions	L+>H*	(L+)¡H* L%[62]
Counterexpectational echo wh-questions	H*	L+H* HH%[63]
Imperative wh-questions	L+>H*	H+L* L%
Imperatives: Commands		L+H* M%[64]
Imperatives: Requests		L* HL%

[54] The realization of prenuclear pitch accents is described only for some sentence types in Estebas-Vilaplana & Prieto (2010).
[55] For some sentence types (e.g., narrow focus statements), two different nuclear configurations are proposed in Estebas-Vilaplana & Prieto (2010).
[56] Hualde & Prieto (2015) use the label L+<H* instead of L+>H*. In the present work, I follow Estebas-Vilaplana & Prieto (2010) in labeling delayed peaks with L+>H*.
[57] L+H* L% is also found as a nuclear configuration of broad focus statements in Peninsular Spanish (in the varieties spoken in Bilbao, Alicante, Jaen, Pamploma, and Madrid) (Robles-Puente 2011). However, it is suggested that L+H* perhaps indicates more emphasis on the prosodic word on which it is realized, since it has been shown that L+H* is used to express narrow focus (and emphasis) in Castilian Spanish (Hualde & Prieto 2015).
[58] The difference between H- and HH- can be observed when comparing declaratives and disjunctive questions: *Quieres mandari***nas**$_{\text{(H-)}}$ *y limones*. 'You would like tangerines and lemons.' vs. ¿*Quieres mandari***nas**$_{\text{(HH-)}}$ *o limones*? 'Would you like tangerines or lemons?' (Estebas-Vilaplana & Prieto 2010).
[59] Exclamative statements can also be produced with the nuclear contour L+¡H* L% in Castilian Spanish (Estebas-Vilaplana & Prieto 2010).
[60] Hualde & Prieto (2015) propose the nuclear contour L* H% instead of L* HH% for this sentence type.
[61] Estebas-Vilaplana & Prieto (2010: 35) indicate that the rising contour (L* HH%) "expresses a nuance of interest and greater speaker involvement in the speech act."
[62] ¡H is the nuclear pitch accent attested in the data examined by Estebas-Vilaplana & Prieto (2010). However, they analyze ¡H as a truncated version of L+¡H*.
[63] The nuclear pitch accent can also be an upstepped one (i.e., L+¡H*) in this sentence type (Estebas-Vilaplana & Prieto 2010).
[64] According to the results of Robles-Puente (2011), L+!H* L% is most commonly found in commands in the Spanish varieties spoken in Bilbao, Alicante, Jaen, Pamploma, and Madrid.

Table 3.6. Intonational tunes in Standard European Portuguese (Frota 2014 and Frota et al. 2015[65])

Sentence type	Prenuclear position	Nuclear configurations
Broad focus statements[66]	H*[67] L*+H %H H (H)	H+L* L%
Continuations		L*+H H%
Narrow focus statements	(H)	H*+L L% H*+L … !H+L* L%[68]
Information-seeking yes-no questions	(H)	H+L* LH%
Echo yes-no questions		L* LH%
Confirmation-seeking yes-no questions	(H)	H+L* LH%
Focused yes-no questions / Counterexpectational yes-no questions	(H)	L*+H HL%[69] L*+H LH%
Information-seeking wh-questions	(H)	H+L* L%[70]
Imperatives: Commands	(H)	H*+L L%[71] H*+L … L* L% L*+H … L* L%
Imperatives: Requests	H* %H	L* L%[72]

As can be seen in Table 3.5 and Table 3.6, Castilian Spanish and Standard European Portuguese display numerous differences concerning the realization of the sentence types presented. In addi-

[65] The tunes of echo yes-no questions, confirmation-seeking yes-no questions, and counterexpectational yes-no questions are presented only in Frota et al. (2015). The remaining sentence types are discussed in both studies (i.e., Frota 2014 and Frota et al. 2015).

[66] The following terms are synonymously used in different works: *broad focus statements* and *neutral declaratives*; *narrow focus statements, contrastive focus statements*, and *focused declaratives*; *information-seeking yes-no questions/wh-questions* and *neutral yes-no questions/wh-questions*.

[67] The realization of prenuclear tones (initial peaks) will be described below.

[68] *H*+L … !H+L* L%* represents a tonal sentence in which the focused constituent bearing the focus accent H*+L appears early in the IP. In these cases, H*+L is followed by a (reduced) post-nuclear accent H+L* and a low boundary tone L% (Frota 2014).

[69] The focused word in focused yes-no questions (also called counterexpectational yes-no questions in Frota et al. 2015) bears the pitch accent L*+H. Depending on the position of the focused element, different boundary tones can be realized: if the focus constituent is IP-final, the boundary tone HL% is realized; if the focus element appears in a non-IP-final position, the boundary tone LH% is produced (Frota 2014).

[70] A final rise after the fall is possible (i.e., H+L* H%) if additional politeness is added to the question (Frota 2002b; Frota 2014).

[71] As seen above, H*+L and L*+H are the pitch accents used to signal focus in declaratives and yes-no questions, respectively. Both pitch accents are found in commands. They can be realized as ‘early’ focus (i.e., the focused element appears in a non-IP-final position) or as ‘late’ focus (i.e., the focused constituent occurs in the IP-final position). In the first case, both focus accents are possible (cf. H*+L … L* L% and L*+H … L* L%). In the second, only H*+L can be realized (cf. H*+L L%) (Frota 2014).

[72] In multiword requests, the pitch accent H* is realized in the prenuclear position in the data examined by Frota (2014), in contrast to one word requests, in which an initial boundary tone %H surfaces (Frota 2014).

tion, the pitch accent density is a further important difference between these two varieties. As mentioned above, IP-internal prosodic words are usually pitch-deaccented in Standard European Portuguese, in contrast to Castilian Spanish. However, instances of deaccentuation can also be attested in some contexts in Castilian Spanish: whereas every content word normally carries a pitch accent in careful speech in Castilian Spanish, this is not the case for casual styles, where deaccentuation can take place (cf. Hualde & Prieto 2015 and the references cited on p. 30 for Castilian Spanish and Vigário & Frota 2003; Frota 2014; Frota et al. 2015 for Standard European Portuguese). As for Standard European Portuguese, neutral sentences are usually characterized by the presence of two main tonal units: an initial peak realized on the first prosodic word and a nuclear configuration realized on the last prosodic word within the IP. According to Frota (2003, 2014: 17), there are three possible realizations of the initial peak: 1) It can be produced as a pitch accent associated with the first stressed syllable (i.e., H* or L*+H). 2) It can surface as an initial boundary tone (%H). 3) It can be represented by a "phrase initial H tone with a secondary association to the first PW[73]". In order to show that these four tonal patterns (H*, L*+H, %H, and H) can all occur at the left edge of a certain sentence type, (H) is introduced instead of listing every single option in Table 3.6. Regarding Castilian Spanish, the pitch accents which are commonly realized in broad focus statements and information-seeking yes-no questions are L+>H* and L*+H, respectively (cf. Estebas-Vilaplana & Prieto 2008, 2010; Gabriel & Kireva 2014a). As shown in Table 3.5, H* can also be found in prenuclear position in some sentence types.

As for the realization of nuclear pitch accents and boundary tones, Castilian Spanish and Standard European Portuguese clearly differ from each other in exhibiting different nuclear configurations for the sentence types presented in Table 3.5 and Table 3.6 (e.g., L* L% for Castilian Spanish vs. H+L* L% for Standard European Portuguese for broad focus statements; L+H* L% for Castilian Spanish vs. H*+L L% for Standard European Portuguese for narrow focus statements; L* HH% for Castilian Spanish vs. H+L* LH% for Standard European Portuguese for information-seeking yes-no questions; L* L% for Castilian Spanish vs. H+L* L% for Standard European Portuguese for information-seeking wh-questions; L+H* M% for Castilian Spanish vs. H*+L L% for Standard European Portuguese for commands; L* HL% for Castilian Spanish vs. L* L% for Standard European Portuguese for requests).

Figure 3.5 and Figure 3.6 illustrate some of the intonational differences between Castilian Spanish and Standard European Portuguese described above (e.g., realization of prenuclear pitch accents and nuclear configurations).

[73] PW is an abbreviation for *prosodic word*.

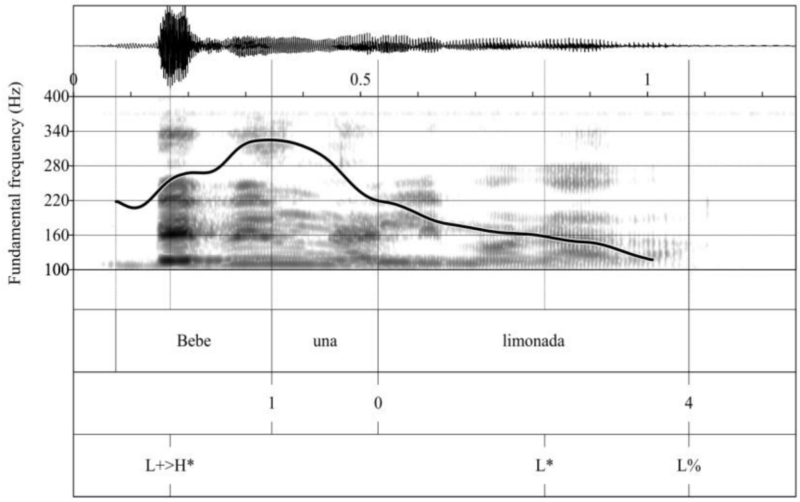


Figure 3.5. Tonal realization of the neutral statement *Bebe una limonada*.[74] 'She is drinking lemonade.' produced in Castilian Spanish: prenuclear pitch accent → L+>H*; nuclear pitch accent → L*; boundary tone → L% (figure adopted from Estebas-Vilaplana & Prieto 2010: 24)

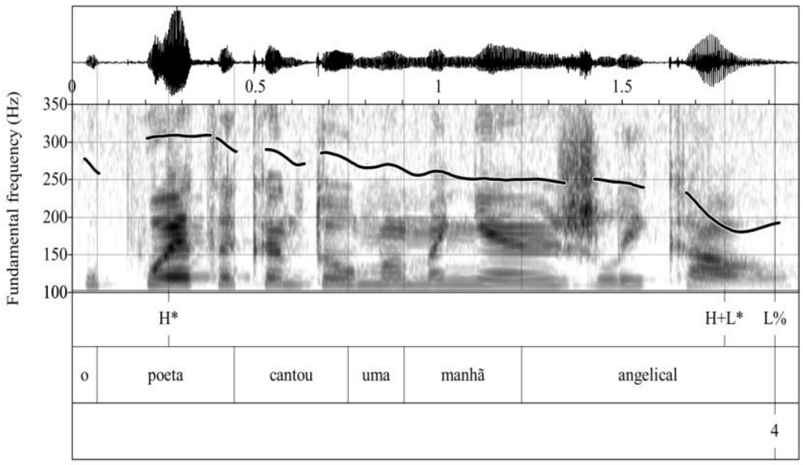


Figure 3.6. Tonal realization of the neutral statement *O poeta cantou uma manhã angelical*.[75] 'The poet sang an angelical morning.' produced in Standard European Portuguese: prenuclear pitch accent → H*; nuclear pitch accent → H+L*; boundary tone → L% (figure adopted from Frota 2014: 17)

Regarding pragmatic meanings, Frota et al. (2015: 282) claim that "the intonational marking of sentence type and pragmatic meanings can be conveyed by both pitch accents [...] and boundary tones [...]" in Portuguese. The following can thus be suggested for the intonational marking in Standard European Portuguese (Frota et al. 2015): First, the difference between all-new statements and narrow/contrastive focus statements is conveyed by means of pitch accents, rather than by boundary tones. While the same boundary tone appears in both broad focus and narrow

[74] Stressed syllables are underlined.
[75] Cf. footnote 74.

focus statements (i.e., L%), two different nuclear pitch accents occur in these two sentence types (i.e., H+L* in broad focus statements and H*+L in narrow focus statements). Second, the distinction between statements and yes-no questions is conveyed by means of boundary tones. Whereas H+L* is the nuclear pitch accent attested in both broad focus statements and information-seeking yes-no questions, L% is used to express declarative intonation and LH% is used to express yes-no question intonation. Third, the difference between neutral (or information-seeking) yes-no questions and focused yes-no questions is conveyed by pitch accents when the focused constituent appears in a non-IP-final position (i.e., by the nuclear pitch accent L*+H) or by the whole nuclear configuration when the focused constituent appears in IP-final position (i.e., by the nuclear configuration L*+H HL%). Fourth, requests are expressed by means of nuclear pitch accents (i.e., by the nuclear pitch accent L*). Fifth, vocatives are expressed by means of nuclear configurations (i.e., by the nuclear configuration (L+)H* !H% established for greeting calls and by the nuclear configuration (L+)H* L% proposed for insisting calls; cf. also Frota 2014). Sixth, there is no particular intonational marking for commands and wh-questions. As shown in Table 3.6, the nuclear pitch accents used in commands are the pitch accents conveying focus in declaratives and yes-no questions. Regarding wh-questions, both broad focus statements and neutral (or information-seeking) wh-questions display the same nuclear configuration (i.e., H+L* L%). Finally, it is worth mentioning that the different sentence types show the same tonal marking concerning the realization of prenuclear tones (cf. Table 3.6). In contrast, this seems not to be the case for Castilian Spanish, where prenuclear pitch accents are usually produced as L+>H* in declaratives and as L*+H in yes-no questions (Estebas-Vilaplana & Prieto 2010; Gabriel & Kireva 2014a). Considering the intonational marking of the different sentence types presented in Table 3.5, it can be said that similar to (Standard) European Portuguese, pragmatic meanings and the intonational marking of sentence type can be expressed by means of both pitch accents and boundary tones in Castilian Spanish. For instance, the distinction between broad focus statements and narrow/contrastive focus statements seems to be conveyed by means of pitch accents (cf. <u>L*</u> L% for broad focus statements vs. <u>L+H*</u> L% for narrow/contrastive focus statements) and by means of boundary tones (cf. L* <u>L%</u> for broad focus statements vs. L* <u>HL%</u> for narrow/contrastive focus statements). In addition, the difference between statements and yes-no questions appears to be expressed by boundary tones (cf. L* <u>L%</u> for broad focus statements vs. L* <u>HH%</u> for information-seeking yes-no questions), by upsteps (cf. <u>L+H*</u> L% for narrow/contrastive focus statements vs. <u>L+¡H*</u> L% for echo yes-no questions), and by pitch accents (<u>L*</u> L% for broad focus statements vs. <u>H+L*</u> L% for confirmation-seeking yes-no questions). Furthermore, it can be suggested that the distinction between neutral (or information-seeking) yes-no questions and focused yes-no questions is conveyed by pitch accents (cf. L* HH% for information-seeking yes-no questions vs. L+H* HH% for counterexpectational echo yes-no questions) and by nuclear configurations (cf. L* HH% for information-seeking yes-no questions vs. L+H* LH% for counterexpectational echo yes-no questions). As for requests and vocatives, it should be mentioned that first, narrow focus statements and requests show the same nuclear configuration (i.e., L* HL%), and second, commands and vocatives exhibit the same nuclear configuration (i.e., L+H* M%). Similar to Standard European Portuguese, there seems to be no particular intonational marking for information-seeking wh-questions in Castilian Spanish if the nuclear contour L* L% is taken into account (note that this nuclear configuration is also found to express broad focus statements).

3.2 Prosodic structure and phrasing

3.2.1 Prosodic structure

An additional issue which should be taken into account when describing intonation is the prosodic hierarchy or prosodic constituent structure. The following questions need to be clarified: How are prosodic constituents hierarchically organized? Which of them serve as domains for which kind of phonological rules?

It is well known that prosodic structure, i.e., boundaries between prosodic phrases, often does not coincide with syntactic structure, i.e., boundaries between syntactic phrases (Ladd 2008: 290; Nespor & Vogel 1986: 2). In recent years, many studies have tried to determine the syntax-phonology relation in order to establish an inventory of universal prosodic constituents and to find out which kinds of phonological rules apply within the different prosodic levels proposed (Selkirk 1984, 1986, 1996; Nespor & Vogel 1986: 6; Truckenbrodt 1999). According to Selkirk (1986: 384), the prosodic structure has the following properties: (i) the prosodic structure consists of different types of prosodic (phonological) categories (e.g., utterance (Utt), intonational phrase (IPh), phonological phrase (PPh), prosodic word (PWd), foot (Ft), and syllable (Syl) (cf. Figure 3.7)[76]); (ii) "the sentence is exhaustively parsed into a sequence" of these categories; (iii) the prosodic categories follow the order presented in (i) and

[76] Nespor & Vogel (1986: 11) include one prosodic constituent more in the prosodic structure: the clitic group. Thus, they assume that the prosodic hierarchy comprises seven units: phonological utterance (*U*), intonational phrase (*I*), phonological phrase (ϕ), clitic group (*C*), phonological word (ω), foot (Σ), and syllable (σ).

"are strictly organized into layers according to" the Strict Layer Hypothesis[77] (SLH; Selkirk 1984: 26, 1996; Nespor & Vogel 1986: 7-17, 121-129); (iv) the hierarchical order of "prosodic categories forms a well-formed bracketing."

(____) Utt
(____________________________) (________________) IPh
(________) (__________________) (________________) PPh
(________) (_____) (____________) (__________) (_____) PWd
(__) (_____) (_____) (__) (________) (______) (__) (_____) Ft
(__) (__) (__) (__) (__) (__) (__) (__) (__) (__) (__) (__) (__) (__) Syl

Figure 3.7. Prosodic hierarchy (adopted from Selkirk 1986: 384)

Besides the so-called rule-based[78] approach established by Selkirk (1984, 1986, 1996) and Nespor & Vogel (1986, 2007), two further views of the prosodic hierarchy are found in the literature: the intonation-based (Beckman & Pierrehumbert 1986; Pierrehumbert & Beckman 1988) and the prominence-based (Beckman & Edwards 1990, 1994) approaches (cf. Frota 2012 for a detailed description). As can be seen in Table 3.7, the rule-based approach patterns with the intonation-based approach presented in Section 3.1.1.1 in assuming similar prosodic grouping. Nevertheless, the goals of both models are different (i.e., establishing the phonological rules and the domains in which they apply vs. intonational description). In contrast, the prominence-based approach distinguishes levels of prominence instead of segmental domains (cf. Frota 2012).

[77] According to the SLH, first, no lower category dominates a higher category in the prosodic structure (e.g., no syllable dominates a foot), second, any higher category must dominate the next lower category (e.g., a prosodic word must dominate a foot), third, no category immediately dominates a lower category located two levels below (e.g., no prosodic word immediately dominates a syllable), and fourth, no category immediately dominates a category of the same level (e.g., no foot dominates a foot) (Selkirk 1996: 192). Recent studies have shown that the third condition (e.g., exhaustivity) and the fourth condition (i.e., non-recursivity) are too restrictive and should be re-analyzed (cf. Ladd 1996: 237-251; Ladd 2008: 290-309; Frota 2012, among others).

[78] Frota (2012) uses the term *rule-based* to refer to the theory of prosodic phonology developed by Selkirk (1984, 1986, 1996) and Nespor & Vogel (1986, 2007).

Table 3.7. Prosodic constituents according to the rule-based, intonation-based, and prominence-based approaches (adopted from Frota 2012: 257)

Rule-based approach	**Intonation-based approach**	**Prominence-based approach**
Intonational Phrase	Intonational Phrase	Nuclear accent
Phonological Phrase / Major Phrase[79]	Intermediate Phrase	
Clitic Group / Minor Phrase / Prosodic Word Group	Accentual Phrase[80]	Accent
Prosodic Word	Prosodic Word	Stress
Foot	Foot	Full vowel
Syllable	Syllable	Syllable
Mora[81]	Mora	

The question about the universality of the above-mentioned prosodic constituents deserves special attention. Nespor & Vogel (1986: 11) claim that all languages pattern together in presenting the same number of prosodic constituents (i.e., the same number of prosodic domains, which are "defined in terms of mapping rules representing the interface between phonology and other components of the grammar"). Although Nespor & Vogel (1986: 11-12) add that empirical evidence is needed to confirm this suggestion, they point out that even if no rules that make reference to a certain prosodic domain X^i are found in a given language, that does not mean that X^i is not present in that language. Moreover, they assume that if no rules make reference to the domain X^i in the language under investigation, X^i could be important for the overall phonological pattern of this language.

3.2.2 Prosodic phrasing in Castilian Spanish and Standard European Portuguese

The phrasing properties of both varieties under consideration have been described in recent studies[82] (Nibert 2000; Elordieta et al. 2003; Vigário & Frota 2003; D'Imperio et al. 2005; Elordieta et al. 2005; Prieto 2006; Frota et al. 2007; Frota & Vigário 2007, among others). In what follows, I briefly outline some of their results.

The typical prosodic phrasing pattern of neutral SVO declarative sentences consisting of non-branching subjects and objects is (S)(VO) in Castilian Spanish (Elordieta et al. 2003;

[79] The Major and Minor Phrases were introduced by Selkirk & Tateishi (1988).
[80] The Accentual Phrase is presented in Beckman & Pierrehumbert (1986).
[81] The mora is used in Pierrehumbert & Beckman's analysis of Japanese (1988).
[82] Some of these studies were realized within the *Intonational Phrasing of Romance* project, which investigates the phrasing patterns of European Portuguese, Peninsular Spanish, Central Catalan, and Italian (Armstrong & Cruz 2014). Note that the variety of Castilian Spanish to which I am referring in the current work and the variety Peninsular Spanish investigated in these studies is the same variety.

D'Imperio et al. 2005; Elordieta et al. 2005) and (SVO) in Standard European Portuguese (Elordieta et al. 2003; D'Imperio et al. 2005; Elordieta et al. 2005; Frota & Vigário 2007). Thus, the non-branching subject is usually separated by a prosodic break from the verb phrase in Castilian Spanish (i.e., $((S)(VO))_{IP}$), in contrast to Standard European Portuguese (i.e., $(SVO)_{IP}$). When syntactically branching objects are taken into account, there are no consistent results in the literature for Castilian Spanish: while Elordieta et al. (2003) and D'Imperio et al. (2005) argue that (S)(VO) is the most frequent pattern when double-branching objects are analyzed, Prieto (2006) shows that (SV)(O) is the most common grouping when the sentence comprises a short subject and a long object consisting of three prosodic words. In contrast to Castilian Spanish, Standard European Portuguese displays the (SVO) pattern with branching and double-branching objects (Elordieta et al. 2003; D'Imperio et al. 2005; Elordieta et al. 2005). The only condition in which Standard European Portuguese usually exhibits the (S)(VO) phrasing pattern is when (double-)branching subjects are considered (the subject has to be more than eight syllables long) (Elordieta et al. 2005; Frota 2014). Table 3.8 presents the phrasing patterns of read neutral SVO declaratives in Castilian Spanish and Standard European Portuguese.

Table 3.8. Intonational phrasing in Castilian Spanish and Standard European Portuguese (adopted from Elordieta et al. 2005: 117-118)

Condition	Castilian Spanish		Standard European Portuguese	
Non-branching Subjects and Objects	(S)(VO)	(S)(VO)/(SVO)[83]	(S)(VO)	(SVO)
Short Subjects[84]	79.5%	20.5%	0.0%	100.0%
Long Subjects	79.0%	21.0%	4.0%	96.0%
Non-branching Subjects and short branching Objects	(S)(VO)	(S)(VO)/(SVO)	(S)(VO)	(SVO)
Short Subjects	96.0%	4.0%	0.0%	100.0%
Long Subjects	96.0%	4.0%	4.0%	96.0%
Branching Subjects and non-branching Objects	(S)(VO)	Others	(S)(VO)	(SVO)
Short Subjects	100.0%	0.0%	0.0%	100.0%
Long Subjects	100.0%	0.0%	39.5%	60.5%
Double-branching Subjects and Objects	(S)(VO)	Others	(S)(VO)	(SVO)
Short Subjects	100.0%	0.0%	67.0%	33.0%
Long Subjects	100.0%	0.0%	94.5%	5.5%

[83] The group (S)(VO)/(SVO) consists of sentences which have not been unambiguously defined as (SVO) or (S)(VO).

[84] The terms *short* and *long* concern the constituent length: short constituents consist of three syllables and long constituents of five syllables.

Castilian Spanish and Standard European Portuguese also differ with respect to the boundary cues used to mark IP-internal prosodic boundaries (e.g., the boundary between the subject and the verb phrase in the (S)(VO) pattern). Table 3.9, adopted from Frota et al. (2007), shows the frequency of boundary cues for both languages: First, Castilian Spanish (CAST SPA) and Standard European Portuguese (SEP) seem to prefer a continuation rise[85] to mark IP-internal boundaries as compared to sustained pitch[86]. Second, high boundary tones (H) are used to mark the end of IP-internal phrases instead of low tones (L) in both varieties. Third, pitch reset appears to apply more frequently in Castilian Spanish (in 76% of the cases) than in Standard European Portuguese. Fourth, the F0 rarely drops to the speaker's base level at the boundary in both varieties (cf. Drop BL). Fifth, pre-boundary (PB) lengthening is more frequent in Castilian Spanish than in Standard European Portuguese[87]. Finally, 28.2% of the IP-internal boundaries were accompanied by a pause in Castilian Spanish, in contrast to Standard European Portuguese, in which pauses were attested in only 5%.

Table 3.9. Frequency of boundary cues in Castilian Spanish and Standard European Portuguese (adopted from Frota et al. 2007: 135)

	Continuation Rise	Sustained Pitch	Boundary tone H	Boundary tone L	Pitch Reset	Drop BL	PB Lengthening	Pause
CAST SPA	88.4%	11.2%	99.3%	0.7%	76.0%	0.7%	40.2%	28.2%
SEP	95.0%	0.0%	95.0%	4.0%	25.0%	4.0%	15.0%	5.0%

The majority of the above-mentioned pioneer studies on phrasing in Peninsular Spanish[88] (e.g., Elordieta et al. 2003; D'Imperio et al. 2005; Elordieta et al. 2005) do not specify the phonological nature of the break between (S) and (VO) (i.e., the level of phrasing: ips or IPs). However, recent work adopts the view that these constituents are grouped into intermediate phrases (e.g., Hualde 2003; Prieto & Roseano 2010: 1-15; Hualde & Prieto 2015, among many others): $((S)_{ip}(VO)_{ip})_{IP}$. As pointed out on the website of Sp_ToBI, the most important argument in favor of two levels of prosodic constituency relevant for tonal marking in Spanish is a perceptual one:

[85] A continuation rise (CR) is "a rise from/on the last stressed syllable into the boundary syllable" (Frota et al. 2007: 134). Within the AM model and the ToBI framework, CR is labeled with H- in Spanish (cf. L+H* <u>H-</u>; Estebas-Vilaplana & Prieto 2010; Gabriel et al. 2011, among others) and with H% in Standard European Portuguese (cf. L*+H <u>H%</u>; Frota 2014, among others).

[86] A sustained pitch (SP) is "a rise on the last stressed syllable followed by a high plateau up to the boundary" (Frota et al. 2007: 134). Within the AM model and the ToBI framework, SP is marked with !H- in Spanish (cf. L+H* <u>!H-</u>; Gabriel et al. 2011, among others) and with !H% in Standard European Portuguese (cf. (L+)H* <u>!H%</u>; Frota 2014, among others).

[87] Frota et al. (2007) point out that the database used is not appropriate to measure lengthening. Thus, the results on pre-boundary lengthening should be treated with caution.

[88] Cf. footnote 82.

"In Spanish prosodic transcriptions, transcribers clearly distinguish between two levels of degree of perceived disjuncture. The end of the weaker disjuncture corresponds to a level 3 break index in the ToBI system, while the strong disjuncture corresponds to a level 4 break index" (http://prosodia.upf.edu/sp_tobi/en/labeling_system/prosodic_phrasing/BI3_vs_BI4.html). This automatically means that the same phrases (e.g., vocatives, phrases which form disjunctive questions, etc.) can be analyzed as either ips or IPs depending on the degree of perceived disjuncture (cf. the website of Sp_ToBI and Prieto & Roseano 2010 for examples). As for Standard European Portuguese, it is proposed that this variety has "only one level of prosodic constituency relevant for intonational structure: the intonation phrase" (Frota et al. 2015: 243). This means that only IP boundaries bear a boundary tone, in contrast to boundaries of phonological phrases. It is assumed that intonational phrases with the phrasing pattern (S)(VO) are compound IPs in Standard European Portuguese: $((S)_{IP}(VO)_{IP})_{IP}$. Such an utterance is analyzed as a compound IP^{max}, which consists of two other intonational phrases (IPs): $((S)_{IP}(VO)_{IP})_{IP}{}^{max}$ (cf. Frota 2000: 70-77; Cruz 2013: 25-29; Frota 2014). Both IPs grouped into the compound IP behave similarly: they bear a nuclear pitch accent and a boundary tone at the right edge. However, there are also some differences between the inner IPs and the outer IPs such as: (i) the degree of final lengthening (IP-final phrases (or outer IPs) show a stronger lengthening than IP-internal phrases (inner IPs)); (ii) magnitude of pitch range; (iii) pause distribution (Frota 2000: 209; Cruz 2013: 25; Frota 2014). Otherwise put, "the difference in realization between the inner and outer edges of compound IPs is a gradient one, expressed by the phonetic strength of the same types of cues, and not by a difference in the type of cues that signal the two phrases" (Frota 2014: 12).

3.3 Speech rhythm

3.3.1 Approaches to rhythm and rhythm metrics

Abercrombie (1967: 96) proposes the following definition of the term *speech rhythm*: "Rhythm, in speech as in other human activities, arises out of the periodic recurrence of some sort of movement, producing an expectation that the regularity of succession will continue." Considering this, it could be concluded that the task of the research on speech rhythm is to find out which kind of *movements* that *periodically recur* should be taken into account in order to depict the rhythmic properties of the languages of the world.

According to "the first English prosodist of modern times" (Couper-Kuhlen 1993: 6), Joshua Steele (1775: 87f.), the syllable weight is crucial for the English rhythm. He suggested

“[...] that heavy and light […] are the most essential governing powers of rhythmus in both poetry and prose” (Steele 1775: 87). Many decades later, Jones (1918, 1964: 237) pointed out that intervals between stressed syllables tend to be of equal duration in English (Couper-Kuhlen 1993: 7; Dufter 2003: 7). However, the first to establish a rhythmic typology was Lloyd James (Ramus et al. 1999; Dufter 2003: 169; Arvaniti 2012a). He distinguished between two different types of speech rhythm and introduced the dichotomy of ‘morse code rhythm’ vs. ‘machine-gun rhythm’, according to which languages such as English show ‘morse code rhythm’ and languages such as French exhibit ‘machine-gun rhythm’ (Lloyd James 1940: 25). Subsequently, Pike (1945: 34-35) and Abercrombie (1967: 97) adopted the proposal of Lloyd James (1940) to divide the languages of the world into two rhythm groups and thus introduced the terms ‘stress-timed languages’ vs. ‘syllable-timed languages’. Languages belonging to the first class, such as English, Russian, Arabic, etc., were said to display intervals of the same duration between each stressed syllable (i.e., stress-delimited feet of equal duration). Languages of the second rhythm class, among them Spanish, French, Telugu, and Yoruba, were said to show syllables of equal duration (Pike 1945: 34-35; Abercrombie 1967: 97). According to this view, Pike (1945: 34-35) and Abercrombie (1967: 97) established the so-called isochrony hypothesis, which classifies the languages of the world as being either stress-timed or syllable-timed[89] (cf. Figure 3.8).

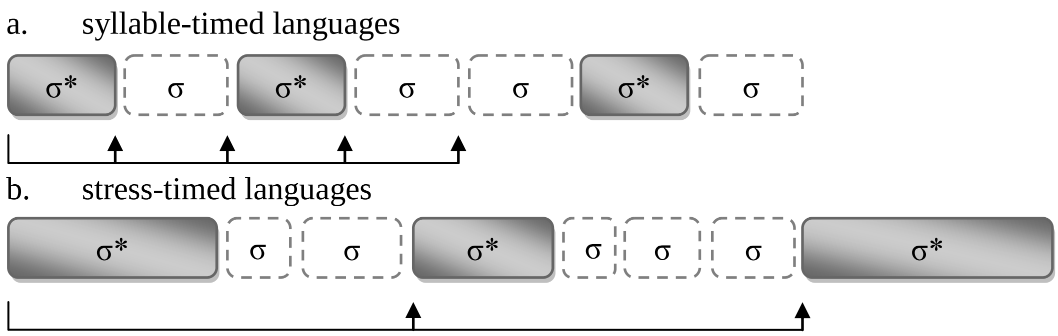


Figure 3.8. Schematic representation of the isochrony hypothesis

However, no empirical evidence has been provided for the isochrony hypothesis. For instance, studies on languages considered to be *stress-timed*, e.g., English, Dutch, German, Russian, and Arabic (Classe 1939: 85f; Bolinger 1965; Lea 1974; Lehiste 1977; Roach 1982; Kohler 1982; Dauer 1983; den Os 1988; Bertrán 1999, among others), *syllable-timed*, e.g.,

[89] Additionally to the two rhythm classes mentioned above, a third rhythm group was proposed: the so-called mora-timed languages. In these languages (e.g., Japanese), all morae tend to be of equal duration (cf. Bloch 1950; Han 1962; Ladefoged 1975: 224; Port et al. 1987, among others).

Spanish, French, Italian, Telugu, and Yoruba (Pointon 1980; Wenk & Wioland 1982; Roach 1982; Borzone de Manrique & Signorini 1983; Dauer 1983; Hoequist 1983; den Os 1988; Bertrán 1999, among others), and *mora-timed*, e.g., Japanese (Beckman 1982; Hoequist 1983; Warner & Arai 2001, among others) have shown the following: first, the durations of interstress intervals depend on the number of syllables they consist of[90] in stress-timed languages, second, syllables are not of equal duration in syllable-timed languages, and third, the mora durations in Japanese are not constant and depend on both the segmental complexity and the position of the respective morae (cf. Beckman 1992; Grabe & Low 2002; Couper-Kuhlen 1993: 10-14; Nespor et al. 2011; Arvaniti 2012a, among others).

Since research on speech rhythm has failed to find support for the isochrony hypothesis in production, it is suggested that isochrony can primarily be seen as a perceptual phenomenon (Lehiste 1977; Couper-Kuhlen 1993: 14-36). However, perceptual studies trying to group the languages of the world into the aforementioned three classes (i.e., stress-timed, syllable-timed, and mora-timed) have yielded mixed results (Miller 1984; Scott et al. 1985; Ramus et al. 2003; Arvaniti 2012b; Mairano & Romano 2012, among others).

Given that studies on both production and perception have not been able to provide evidence for the isochrony hypothesis, it has subsequently been claimed that speech rhythm can be interpreted as the result of the segmental and prosodic properties of the languages under investigation (Dasher & Bolinger 1982; Dauer 1983, 1987; Auer 1993). In what follows, I briefly present one of these approaches: Dauer (1987: 448) analyzed accent[91] "as a basis of rhythmic grouping." She offered eight categories which can be used first, to describe and define the salience of accent in a variety, and second, to determine the rhythm patterns of that variety. Table 3.10 outlines these eight categories (duration, syllable structure, quantity, intonation, tone, vowel quality, consonant quality, and function of accent) and shows the values (plus, zero, and minus) which can be assigned to the languages under investigation. The procedure is the following: Each language obtains a certain score and can be compared to other varieties. A language which exhibits a considerable amount of plus values is considered to have "strong stress" and thus to be more "stress-timed" than languages which display fewer plus values. Such an approach allows the languages studied to be sorted along a rhythmic continuum according to their phonetic and phonological properties (i.e., their rhythm score) (Dauer 1983, 1987).

[90] Kohler (1982) has shown that the duration of stress-delimited feet in German depends not only on the number of component segments, but also on the segmental complexity of the previous stress-delimited foot.

[91] Dauer (1987: 448) uses the term *accent* to refer to a "phonological feature which when realized promotes the perception of one particular syllable (or mora) in relation to others."

Table 3.10. Components of language rhythm (Dauer 1987: 448-449[92])

Components	**Values (+, 0, –)**
1. Length **Duration**	+ Accented[93] syllables are longer. **0** Accented syllables are slightly longer. **–** Same duration of accented and unaccented syllables; or no accent at all.
Syllable structure	+ Both heavy and light syllables are present (heavy syllables tend to be accented); there is a variety of syllable structures. **–** Limited number of syllable types; accent and syllable weight are independent; phonological processes such as final cluster simplification, epenthesis, or liaison are possible.
Quantity	+ Quantity distinctions are only permitted in accented syllables. **0** Quantity distinctions occur predominantly in accented syllables. **–** Quantity distinctions are permitted in both accented and unaccented syllables.
2. Pitch **Intonation**	+ Accented syllables are turning points in the F0; pitch correlates with accent. **–** Intonation and accent are independent; a negative correlation of pitch and accent is possible.
Tone	+ Only accented syllables bear a tone. **0** Accented syllables bear a tone; tones are neutralized or subject to numerous changes (sandhi rules) in unaccented syllables. **–** All syllables can bear a tone, regardless of accent.
3. Quality **Vowels**	+ The maximal vowel system exists in accented syllables; vowels in unaccented syllables tend to be reduced or centralized. **0** The number of vowels occurring in unaccented syllables is smaller; unaccented vowels are not necessarily centralized; devoicing or raising occur only with unaccented vowels. **–** All vowels may occur in both accented and unaccented syllables; if elision or devoicing is possible, they affect accented and unaccented vowels equally and are determined by phonetic environment rather than accent.
Consonants	+ Consonants are more precisely articulated in accented syllables. **–** All consonants have the same articulation regardless of accent.
4. Function of accent	+ Accent can occur in different positions in a word (accent is 'free'); moving the accent could result in a new word with a different meaning. **0** Accent can occur only in one position in a word (accent is 'fixed'); moving the accent or

[92] The criteria presented below are slightly abridged.
[93] *Accented* is the term used by Dauer (1987) to refer to syllables which bear stress.

	adding an accent could result in the formation of a new word boundary. – There is no word-level phonological accent; moving the accent (e.g., for stylistic reasons) does not result in a change in meaning or the establishment of new word boundaries.

Mehler et al. (1996) and Nazzi et al. (1998) advanced the research on speech rhythm. According to the results of their studies, young infants are able to distinguish language classes by relying on their prosodic properties and more especially on their rhythm patterns. Moreover, these works suggested that the most important factor for the discrimination between languages is the vowel (cf. Mehler et al. 1996). In order to account for this, Mehler et al. (1996: 113-115) claimed that newborns use a "gridlike representation of the vocalic nuclei" in the acoustic signal (called ***T****ime and* ***I****ntensity* ***G****rid* ***RE****presentation* (TIGRE)) to decode the rhythmic information and thus to distinguish between languages.

On the basis of the findings of the studies of Mehler et al. (1996) and Nazzi et al. (1998), Ramus et al. (1999) assumed that the temporal alternation of vocalic and intervocalic (i.e., consonantal) intervals defines the rhythm patterns of each language and is responsible for the perception of that language as being stress-timed, syllable-timed, or mora-timed. In other words, vocalic and consonantal sequences were seen as alternating rhythmic units instead of syllables, interstress intervals, and morae. In order to discriminate languages according to the durations of their vocalic and consonantal intervals, Ramus et al. (1999) proposed the following rhythm metrics: **%V** (proportion of vocalic material in the speech signal), **ΔV** (standard deviation of the duration of vocalic intervals), and **ΔC** (standard deviation of the duration of consonantal intervals). It has been shown that languages traditionally classified as being stress-timed display a higher durational variability of vocalic and consonantal intervals (i.e., greater values for ΔV and ΔC) and lower scores for %V than languages traditionally classified as being syllable-timed (Ramus et al. 1999). These findings can be traced back to two of the eight criteria introduced by Dauer (1987): syllable structure and vowel quality (i.e., the presence or absence of vowel reduction). Languages which have a variety of syllable structures, such as the stress-timed languages, automatically are likely to display high durational variability of consonantal intervals since there is an alternation of single consonants followed by consonant clusters. In contrast, syllable-timed languages usually have a more limited number of syllable types and thus exhibit a rather low durational variability of consonantal intervals. As for vowel reduction, this phonological factor may contribute to lower %V and higher ΔV scores if it is accompanied by durational reduction. Note that Ramus et al.

(1999) suggested that contrastive vowel length, vowel lengthening in specific contexts, and long vowels can also influence the %V and ΔV values.

Since it was shown that ΔV and ΔC are sensitive to speech rate, Dellwo & Wagner (2003), Ferragne & Pellegrino (2004), Dellwo (2006), and White & Mattys (2007a) proposed to normalizing these measurements and introduced the variation coefficients **VarcoΔV** and **VarcoΔC** (henceforth **VarcoV** and **VarcoC**). Consequently, it can be said that VarcoV and VarcoC are the speech rate normalized versions of ΔV and ΔC, which also calculate the durational variability of vocalic and consonantal intervals, but take into account the speech rate.

Another rhythm metric which should be mentioned here is the Pair-wise Variability Index (**PVI**) proposed by Grabe & Low (2002). The PVI also computes the durational variability of vocalic and consonantal intervals, but in pairs of successive intervals, instead of over the whole speech signal as the aforementioned measurements do (ΔV/ΔC and VarcoV/VarcoC). Grabe & Low (2002) applied the PVI in its normalized form for vocalic intervals (**VnPVI**[94]) and in its 'raw' or non-normalized version for consonantal intervals (**CrPVI**) since they assumed that vocalic intervals can be affected by speech rate, in contrast to consonantal intervals. However, the normalized PVI for consonantal intervals (i.e., **CnPVI**) has also been used in different studies (cf. Kinoshita & Sheppard 2011; Benet et al. 2012).

Besides the metrics presented above, there are also other rhythm measures such as: the standard deviation of normalized percentages for both vocalic and consonantal intervals (**Δ%V** and **Δ%C**) (Frota & Vigário 2001), the Variability Index of average syllable duration (**VI**) (Deterding 2001), the ratio of vowel duration to consonant duration (**Vdur/Cdur**) (Barry & Russo 2003), the PVI of consonant+vowel groups (**PVI-CV**) (Barry et al. 2003), the vocalic PVI calculated using median values (**med rpviv / med npviv**) (Ferragne & Pellegrino 2004), the consonantal PVI calculated using median values (**med rpvic / med npvic**) (Ferragne & Pellegrino 2004), the vocalic PVI calculated using mean values (**mean rpviv / mean npviv**) (Ferragne & Pellegrino 2004), the consonantal PVI calculated using mean values (**mean rpvic / mean npvic**) (Ferragne & Pellegrino 2004), the Yet Another Rhythm Determination, which calculates the variability of syllable durations (**YARD**) (Wagner & Dellwo 2004), the Control/Compensation Index which is a modified version of the PVI that takes into account the number of segments composing the vocalic and consonantal intervals (**CCI (V)**

[94] Different abbreviations for the PVI can be found in the literature: vocalic nPVI and intervocalic rPVI (Grabe & Low 2002), rPVI-V (vocalic non-normalized PVI), nPVI-V or nPVIv (vocalic normalized PVI), rPVI-C (consonantal non-normalized PVI), nPVIc (consonantal normalized PVI), etc. (cf. Kinoshita & Sheppard 2011; Arvaniti 2012a; Prieto et al. 2012, among others). I follow *Correlatore* (Mairano & Romano 2010) in using VnPVI, CrPVI, and CnPVI in the present study.

and **CCI (C)**) (Bertinetto & Bertini 2008), the PVI for the duration of syllables and feet (**nSPVI** and **nFPVI**) (Asu & Nolan 2005; Nolan & Asu 2009), among others.

Since there is a considerable number of rhythm measures used for the rhythmic description of a large number of languages, many studies have tried to find out which of them are the most reliable ones. For instance, it has been suggested that %V, VarcoV, and VnPVI are able to distinguish between languages (Ramus et al. 1999; Grabe & Low 2002; White & Mattys 2007a, b; Dellwo 2010; Loukina et al. 2011; Prieto et al. 2012; Horton & Arvaniti 2013; Gabriel & Kireva 2014a; Kireva & Gabriel 2015, among others)[95], in contrast to consonantal measures[96], which are not successful at discriminating between and within languages (White & Mattys 2007a, b; Loukina et al. 2011; Prieto et al. 2012, among others). However, it has been shown that the rhythm measures presented above are sensitive to different factors such as syllable structure (e.g., complex vs. simple syllable structures), the presence or absence of vowel reduction accompanied by durational reduction, the presence or absence of contrastive vowel length, the presence or absence of vowel lengthening in specific contexts, data types, inter-speaker variation, and different speaking styles (Ramus et al. 1999; Giordano & D'Anna 2010; Arvaniti 2012a; Prieto et al. 2012, among others).

Concerning the question of whether the languages of the world are divided into different rhythm classes (stress-timed, syllable-timed, mora-timed) or are organized along a rhythmic continuum, the following can be said: On the one hand, the fact that there are, first, languages which have not been clearly classified as belonging to one of the rhythm groups presented above (e.g., Greek and Korean) (Horton & Arvaniti 2013), and second, languages which are said to have a mixed rhythm, e.g., Bulgarian (Dimitrova 1998) and Standard European Portuguese (Frota & Vigário 2001; Cruz 2013), speaks in favor of a continuum. On the other hand, the perceptual studies carried out by Mehler et al. (1996) and Nazzi et al. (1998) provide evidence for the division of languages into rhythm classes. Considering all this, it can be concluded that the question about the rhythmic organization of the languages of the world remains unanswered for now.

For the rhythmic analysis of both the contact varieties Olivenza Portuguese and Olivenza Spanish and the control variety Castilian Spanish, six rhythm metrics are calculated: **%V** (Ramus et al. 1999), **VarcoV** (Ferragne & Pellegrino 2004; White & Mattys 2007a), **VarcoC**

[95] Note that not all of the studies cited suggest that each of these three metrics (%V, VarcoV, and VnPVI) is a robust measure to discriminate between languages. Some of them claim that one of these metrics is able to divide languages into different rhythm groups, others two or three.

[96] Some studies provide evidence against the assumption that consonantal metrics are not successful at discriminating between and within languages. For instance, Dellwo (2010: 98) showed that CnPVI (i.e., the normalized rPVI for consonantal intervals) is a very successful metric at distinguishing between rhythm classes across different speech rates. Horton & Arvaniti (2013) found that rPVI-C (i.e., CrPVI) and ΔC offer a robust classification of the languages investigated in their study.

(Dellwo & Wagner 2003), **VnPVI** (Grabe & Low 2002), **CrPVI** (Grabe & Low 2002), and **CnPVI** (Kinoshita & Sheppard 2011). The selection of these rhythm metrics can be motivated as follows: First, as mentioned above, various studies have claimed that %V, VarcoV, and VnPVI are able to discriminate across languages (Ramus et al. 1999; Grabe & Low 2002; White & Mattys 2007a, b; Dellwo 2010; Loukina et al. 2011; Prieto et al. 2012; Horton & Arvaniti 2013; Gabriel & Kireva 2014a; Kireva & Gabriel 2015, among others). Second, ΔV and ΔC (i.e., the standard deviation of the duration of vocalic and consonantal intervals) are not considered in the present study, since several authors have shown that these measures are sensitive to speech rate (Barry et al. 2003; Dellwo & Wagner 2003; Dellwo 2006, among others). Due to this, VarcoC and VarcoV (i.e., the normalized versions of ΔV and ΔC) are computed (Dellwo & Wagner 2003; Ferragne & Pellegrino 2004; Dellwo 2006; White & Mattys 2007a, b). Finally, although it has been suggested that the vocalic measures capture the rhythmic differences between languages better than the consonantal ones (cf. references on p. 50), values for CrPVI, VarcoC, and CnPVI are calculated for Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish in order to examine if the varieties under investigation differ with respect to their consonantal variability.

3.3.2 Rhythm patterns of Castilian Spanish and Standard European Portuguese

(Castilian) Spanish is described as belonging to the syllable-timed languages. It has been shown that Castilian Spanish exhibits a rather high proportion of vocalic material (%V) and a rather low durational variability of both vocalic (ΔV, VarcoV, and VnPVI) and consonantal (ΔC, VarcoC, CrPVI, and CnPVI) intervals as compared to stress-timed languages. In other words, Castilian Spanish displays higher %V values and lower ΔV, VarcoV, VnPVI, ΔC, VarcoC, CrPVI, and CnPVI scores than stress-timed languages (Ramus et al. 1999; Grabe & Low 2002; White & Mattys 2007a, b; Benet et al. 2012; Prieto et al. 2012; Gabriel & Kireva 2014a, b; Kireva & Gabriel 2015, among others).

Regarding (Standard) European Portuguese, some scholars claim that it is a stress-timed language due to the occurrence of both vowel reduction and vowel deletion (Parkinson 1988). However, others provide evidence that Standard European Portuguese has a mixed rhythm: According to the results of these studies, this Portuguese variety exhibits a high proportion of vocalic material (%V) similar to those varieties belonging to the syllable-timed class, such as Castilian Spanish. On the other hand, it presents a greater durational variability of both vocalic (ΔV) and consonantal intervals (ΔC), pattering with stress-timed languages such as Dutch and English. Thus, Standard European Portuguese shows high %V scores, which place it in the syllable-timed dimension, and high ΔV and ΔC values, which situate it in the stress-timed dimension (Frota & Vigário 2001; Vigário et al. 2003; Cruz & Frota 2013; Cruz 2013: 95-101).

Since it has been shown that the rhythm measures are sensitive to vowel reduction, vowel deletion, and syllable structure (Ramus et al. 1999; Arvaniti 2012a; Prieto et al. 2012; Gabriel & Kireva 2014b, among many others), I briefly depict the syllable structure of both varieties under consideration and refer to the vowel reduction and vowel deletion in Standard European Portuguese. As seen in Table 3.11, Castilian Spanish and Standard European Portuguese display similar basic syllable types. However, they differ considerably when the syllable types resulting from vowel deletion in Standard European Portuguese are taken into account (cf. Table 3.12). The presence of such phonetic consonant clusters explains the greater durational variability of consonantal intervals for Standard European Portuguese (i.e., its high ΔC values). As for Castilian Spanish, its low (or lower) durational variability of consonantal intervals can be traced back to the fact that it does not exhibit such consonant clusters.

Table 3.11. Basic syllable types[97] in (Castilian)[98] Spanish and Standard European Portuguese (cf. Colina 2009: 11 for (Castilian) Spanish and Mateus & d'Andrade 2000: 39-54, Emiliano 2009, and Azevedo 2005: 50 for Standard European Portuguese)

Castilian Spanish		Standard European Portuguese	
V	**a**.la [a] 'wing'	V	**é** [ɛ] 's/he is'
CV	a.**la** [la] 'wing'	CV	**lá** [la] 'there'
CVC	**pan** [pan] 'bread'	CVC	**paz** [paʃ] 'peace'
CVGl[99]	**soy** [sɔj]/[soj][100] 'I am'	CVGl	**pai** [paj] 'father'
VC	**un** [un] 'one'	VC	**ir**.mã [iɾ] 'sister'
VGl	**hay** [aj] 'there is'	VGl	**oi**.to [oj] 'eight'
CCV	**flo**.tar [flo] 'to float'	CCV	**pren**.dem [pɾẽ] 'they fasten'
CCVC	**tren** [tɾen] 'train'	CCVC	**três** [tɾeʃ] 'three'
CCVGl	**plei**.te.ar [plɛj]/[plej][101] 'to litigate'	CCVGl	**frei** [fɾɐj] 'friar'
VCC	**ins**.truir [ins] 'to instruct'	VCC	**abs**.tra.ir [ɐbʃ] 'to abstract'
VGlC	**aus**.tral [aws] 'austral'	VGlC	**aus**.cul.tar [awʃ] 'to auscultate'
CVCC	**pers**.pec.ti.va [pɛɾs]/[peɾs][102] 'perspective'	CVCC	**pers**.pe.ti.va [pɨɾʃ] 'perspective'
CVGlC	**caus**.ti.co [kaws] 'caustic'	CVGlC	**deus** [dewʃ] 'god'
CCVGlC	**claus**.tro [klaws] 'cloister'	CCVGlC	**freis** [fɾɐjʃ] 'friars'
CCVCC	**trans**.por.te [trans] 'transportation'		

[97] The syllables transcribed phonetically correspond to the syllables underlined and presented in bold in the orthographic transcription.
[98] Colina (2009) offers an inventory of basic syllable types for *Spanish*, pointing out that this inventory is the same for most varieties of Spanish.
[99] Syllable types such as GlV, CGlV, CCGlV, CGlVC, etc. are also possible in both varieties (cf. Mateus & d'Andrade 2000; Hualde 2014).
[100] According to Navarro Tomás et al. (1970: 46-47, 48-50), /e/ and /o/ are usually realized as [ɛ] and [ɔ] in many Spanish varieties when they appear, first, before and after an [r] (e.g., *guerra* ['gɛ.ra] 'war' and *gorra* ['gɔ.ra] 'cap'), second, before an [x] (e.g., *teja* ['tɛ.xa] 'tile' and *hoja* ['ɔ.xa] 'leaf'), and third, in falling diphthongs with the palatal glide [j] (e.g., *soy* [sɔj] 'I am' and *seis* ['sɛjs] 'six'). Furthermore, /o/ is said to usually be produced as [ɔ] in closed syllables (e.g., *favor* [fa.'βɔɾ] 'favor'), and /e/ is also said to usually be produced as [ɛ] in closed syllables whose coda is not an /m/, /n/, /s/, /d/, or /θ/ (e.g., *verde* ['bɛɾ.ðe] 'green'). However, Martínez-Celdrán & Fernández Planas (2007: 183-188) did not find acoustic evidence for the opening of /e/ and /o/ in such contexts, but rather only articulatory evidence.
[101] Cf. footnote 100.
[102] Cf. footnote 100.

Table 3.12. Phonetic consonant clusters resulting from vowel deletion in Standard European Portuguese (Mateus & d'Andrade 2000: 43-44)

CCVC	**estar** [ʃtaɾ] 'to be'
CCCV	**esdru**xula [ʒdɾu] 'dactyl'
CCCVC	**telefone** [tlfɔn] 'telephone'
CCCCVC	**despegar** [dʃpgaɾ] 'to unstick'
CCCCCVC	**despregar** [dʃpɾgaɾ] 'to unfasten'
CCCCCCVC	**desprevenir** [dʃpɾvniɾ] 'to fail to provide'

Furthermore, it should be mentioned that Standard European Portuguese has both vowel reduction and vowel centralization (/i/-centralization and /e/-centralization), in contrast to Castilian Spanish (Mateus & d'Andrade 2000; Vigário 2003: 67-82 for Standard European Portuguese and Ortega-Llebaria & Prieto 2010; Prieto et al. 2012 for Castilian Spanish). The presence of vowel reduction correlating with durational reduction in Standard European Portuguese is reflected in its great durational variability of vocalic intervals (i.e., its high ΔV scores). The absence of the same or similar phonological properties in Castilian Spanish correlates with its low variability of vocalic intervals (i.e., its low ΔV, VarcoV, and VnPVI values).

Vigário et al. (2003) show that the distribution of the most frequent syllables in (Standard) European Portuguese is similar to that of Spanish (cf. Table 3.13) and assume that this empirical evidence may explain the high %V scores for Standard European Portuguese, which place it in the syllable-timed dimension. However, as mentioned above (cf. p. 48-49), besides the distribution of syllable types, there are other phonological and phonetic properties which should be considered in interpreting the values obtained from the rhythmic analysis (e.g., the presence/absence of long vowels, contrastive vowel length, vowel lengthening in different contexts, etc.) (Ramus et al. 1999; Prieto et al. 2012; Gabriel & Kireva 2014a; Kireva & Gabriel 2015, among others).

Table 3.13. Distribution of syllable types in Castilian Spanish and Standard European Portuguese (adopted from Vigário et al. 2003: 811)

Syllable types	Castilian Spanish		Standard European Portuguese	
Most frequent (%)	CV	58%	CV	65%
	CVC	22%	CVC	16%
	CCV	6%	V	11%
	V	6%	CCV	5%
			VC	3%
Closed syllables (%)	30%		19%	
CC(C) (%)	--		6%	

3.4 Language contact

3.4.1 Language contact: Key terms and approaches

Thomason & Kaufman (1988: 1) begin their book *Language contact, creolization, and genetic linguistics* with the following two quotations: "Es gibt keine Mischsprache" (Müller 1871-1872: 86) 'There is no mixed language' and "Es gibt keine völlig ungemischte Sprache" (Schuchardt 1884: 5) 'There is no entirely unmixed language'. In the course of the last one hundred and forty years (i.e., since the publication of Müller's and Schuchardt's works), it has been shown that language contact often induces language change (Hickey 2010: 7). For instance, one of the central assumptions of Thomason & Kaufman (1988: 3) is that "foreign interference in grammar as well in lexicon is likely to have occurred in the histories of most languages". Talking about interference, it should be mentioned that different frameworks apply this term with distinct meanings. While Weinreich (1974: 1) defines **interference** phenomena as "those instances of deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language, i.e. as a result of language contact", Müller et al. (2011: 18) propose the following definition for interference: "Die Interferenz wird in der Literatur als ein Performanzphänomen bezeichnet und oft von der Entlehnung („borrowing") abgegrenzt, welche als Kompetenzphänomen beschrieben wird. Als Konsequenz ergibt sich, dass die Interferenz eher individueller Natur ist, die Entlehnung dagegen als kollektiv, also eine Sprachgemeinschaft oder eine Gruppe innerhalb einer Sprachgemeinschaft betreffend, charakterisiert wird. Der Systematik und Stabilität der Entlehnung steht die Variabilität der Interferenz gegenüber."[103] Other scholars denominate the influence of the native language (L1) on a target language (e.g., L2) *interference* (Winford 2003: 209). Thomason & Kaufman (1988) pattern with Weinreich (1974) in using the term *interference* to refer to influences from one language to another. However, in contrast to Weinreich (1974), they distinguish between two basic types of interference: *borrowing* and *substratum interference*[104].

[103] Translation: In the literature, interference is described as a performance phenomenon and it is often treated separately from borrowing which is in turn considered a competence phenomenon. Consequently, interference can be seen as a process occurring in the individual, while borrowing can be interpreted as a process occurring in the speech community (or in a group of the speech community). Borrowing is defined as a systematic and a stable process, in contrast to interference.

[104] In the literature, the terms *borrowing transfer* and *borrowing* as well as *substratum transfer* and *substratum interference* are used synonymously (cf. Odlin 1989: 12).

Borrowing (or **borrowing transfer**) is defined as "the incorporation of foreign elements into the speaker's native language"[105] (Thomason & Kaufman 1988: 21). In a borrowing situation, the native language of the borrowing-language speaker group is maintained but shows changes due to the transfer of elements from the source language (i.e., the L2) (Thomason & Kaufman 1988: 37). Furthermore, it is suggested that the first foreign items integrated into the borrowing language are words (i.e., the lexicon is the first domain affected by borrowing (transfer)). The following factors determine the borrowing situation: first, "[…] cultural pressure from source language speakers on the borrowing-language speaker group" (Thomason & Kaufman 1988: 37), reflected for instance in a larger number of source language speakers, a higher prestige of the source language, and more political power of the source language speaker group (Odlin 1989: 13), and second, the degree of bilingualism (i.e., more extensive or less extensive). Depending on these factors, both lexical and structural borrowing (e.g., borrowing of phonological, morphological, syntactic elements) can take place (Thomason & Kaufman 1988: 37). To the general question "What can be adopted by one language from another?" Thomason (2001: 61) answers: "The short answer is, anything." In what follows, the borrowing scale[106] proposed by Thomason & Kaufman (1988: 74-76) is presented in Table 3.14.

Table 3.14. Borrowing scale (adopted from Thomason & Kaufman 1988: 74-76[107])

	Lexicon	Structure
Casual contact: lexical borrowing only	Content words. First, non-basic vocabulary and then basic vocabulary.	–
Slightly more intense contact: slight structural borrowing	Function words: conjunctions and various adverbial particles.	Phonology: appearance of new phonemes with new phones (only in loanwords). Syntax: borrowings probably restricted to new functions (or functional restrictions) and new ordering that cause little or no typological disruption.
More intense contact: slightly more structural borrowing	Function words: adpositions (prepositions and postpositions), affixes, pronouns, low numerals.	Phonology: probably phonemicization of previously allophonic alternations (even in native vocabulary); borrowed prosodic and syllable structure features (such as stress rules and the addition of syllable-final consonants (in loanwords only)). Syntax: no complete change.

[105] Some authors use the term *borrowing* to refer to the incorporation of phonetic elements only and *replication* to refer to structural borrowing or grammatical calquing (cf. Heine & Kuteva 2010: 86-87). In the present work, I follow Thomason & Kaufman (1988) and Odlin (1989) in using *borrowing* for both kinds of incorporation (phonetic and structural).
[106] Cf. Matras (2009: 155-162) for borrowing hierarchies proposed by different authors.
[107] The descriptions of the different contact situations in Table 3.14 are slightly shortened as compared to those presented in Thomason & Kaufman (1988: 74-76).

Strong cultural pressure: moderate structural borrowing		Phonology: introduction of new distinctive features in contrastive sets (represented in native vocabulary); loss of some contrasts; new syllable structure constraints (also in native vocabulary); a few natural allophonic and automatic morphophonemic rules (such as palatalization or final obstruent devoicing). Syntax: fairly extensive word order changes as well as other syntactic changes that cause little categorical alteration. Morphology: borrowed inflectional affixes and categories (e.g., new cases).
Very strong cultural pressure: heavy structural borrowing		Phonology: added morphophonemic rules; phonetic changes (i.e., subphonemic changes in habits of articulation, including allophonic alternations); loss of phonemic contrasts and of morphophonemic rules. Morphology and Syntax: changes in word structure rules (e.g., adding prefixes in a language that was exclusively suffixing or a change from flexional towards agglutinative morphology); categorical as well as more extensive ordering changes in morphosyntax (e.g., development of ergative morphosyntax); added concord rules, including bound pronominal elements.

Besides borrowing, restructuring can also be found in language contact situations in which the native language is changed by the influence of a foreign language (e.g., L2): "[…] **restructuring** refers to the re-analysis of L1 items on the basis of the rules or the scope of corresponding L2 items. In contrast to borrowing, no new elements are integrated into the system, but existing ones gain different values" (Schmid 2011: 26-27; boldface added). Figure 3.9a and Figure 3.9b illustrate the difference between borrowing and restructuring.

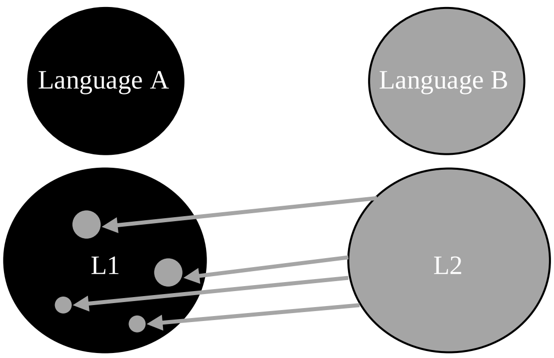


Figure 3.9a. A schematic representation of borrowing (adopted from Schmid 2011: 27)

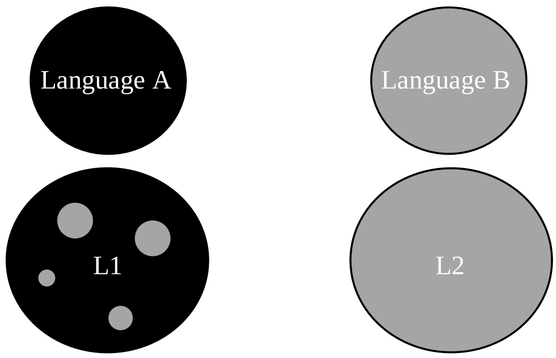


Figure 3.9b. A schematic representation of restructuring (adopted from Schmid 2011: 27)

Structural borrowing is possible in different language contact situations. For instance, Appel & Muysken (1987: 154-158) offer five scenarios in which grammatical features can potentially be borrowed: 1) through convergence; 2) through cultural influence and lexical borrowing; 3) through second-language learning; 4) through relexification; and 5) through imitation of prestige patterns.

Convergence can be defined as follows: “two languages can be said to have converged structurally when previous differences in grammar between them are reduced or eliminated either because one adopts structural features from the other as a replacement for its own, or because both adopt an identical compromise between their conflicting structures” (Winford 2003: 63). When two or more varieties coexist in the same geographical area for a long period of time and are thus spoken by the same group of speakers, these varieties may converge (Appel & Muysken 1987: 154). According to Appel & Muysken (1987: 154), the phonetic level is one of the most affected linguistic domains in such cases. They claim that first, the sound systems of the respective languages in contact become more and more similar over the course of time, and second, a clear influence in one direction often cannot be determined. However, other levels such as for example the lexical, the morphological, the syntactic, the semantic, or the pragmatic ones can also be affected by convergence (cf. Matras 2009: 243-265, 2010: 68-76 and references therein).

The opposite concept to convergence is divergence: “convergence and **divergence** can be said to be types of relational diachronic language change – as opposed to diachronic stability – in which two or more given languages become structurally more similar or dissimilar” (Höder 2014: 41; boldface added). Both processes can take place in the same variety “sequentially, intertwined or even simultaneously, where the latter implies that other features diverge (or remain stable), while some linguistic features converge towards another variety” (Kühl & Braunmüller 2014: 14).

A further phenomenon which should be mentioned is the shift in ‘entrenchment’. “**Entrenchment** is the degree to which you ‘know’ a linguistic element (be it a word, an expression or a syntactic pattern), determined in large part by the frequency with which you use it” (Backus 2004: 179; boldface added). In cases of borrowing (transfer) for instance, the newly formed idiolect may contain two structures or features that express the same thing (i.e., one structure or feature corresponding to the native language and one to the foreign language (L2) from which elements were borrowed). This means that the native structure or feature is competing with the one from the L2 in the respective idiolect. Backus (2004: 179) indicates that the degree of entrenchment of such competing structures or features may change “with fluctuation in usage.” In contrast to the native structure or feature, the one adopted from the L2 “receives its degree of entrenchment from two sources: its use […] in the native language, and its use […] in the other language.” In addition, Backus (2004: 179) claims that both the incorporation of foreign elements (i.e., L2 elements) into the L1 and the fluctuation in language choice (i.e., “the encroachment of the L2 in domains previously reserved for L1”) affect language change.

Substratum interference (or **substratum transfer**) “is a subtype of interference that results from imperfect group learning during a process of language shift” (Thomason & Kaufman 1988: 38). In a substratum interference (substratum transfer) situation, a speaker’s community, when shifting to a target language that they are acquiring as an L2, fails to learn it perfectly and transfers elements from their L1 to the target language (i.e., to the L2). It can be the case that the “errors” made by the shifting speakers (i.e., the elements transferred from the L1 of the shifting speakers) are integrated into the target language if the original speakers of the target language “imitate” them (i.e., incorporate them into the system of the target language) (Thomason & Kaufman 1988: 39). It is observed that substratum interference (substratum transfer) does not begin at the lexical level as borrowing (transfer) does, but rather at the phonetic/phonological, syntactic, and sometimes morphological levels. However, influences of L1 on L2 can be attested in all linguistic domains as shown in Figure 3.10 (Odlin 1989: 23; Matras 2009: 72-74; Schmid 2011: 4, among many others)[108].

[108] A difference should be made between early consecutive bilingual speakers and adult learners. Moreover, the type of acquisition (e.g., L2 acquisition without instruction vs. L2 acquisition in school) and the age of learning should also be taken into account when defining the degree and the type of transfer (Matras 2009: 68, 72-74; Mennen 2015).
In addition, it should be mentioned that the influences of L1 on L2 in second language acquisition (SLA) and their results can be treated in different theoretical approaches depending on the goals of the respective studies (Muysken 2013): for instance, the *Full Transfer/Full Access Model* addresses the question of which features can be transferred from the L1 to the L2 variety in initial stages of SLA (Schwartz & Sprouse 1996); the *Transfer to Somewhere Principle* (Andersen 1983) and the *Alternation Hypothesis* (Jansen et al. 1982) “favor transfer only in relation to patterns in the L2” and “require matching strategies on the part of the learner” (Myusken 2013: 722); other models try to define the role of UG (Universal Grammar) in SLA (White 1989, 2003).

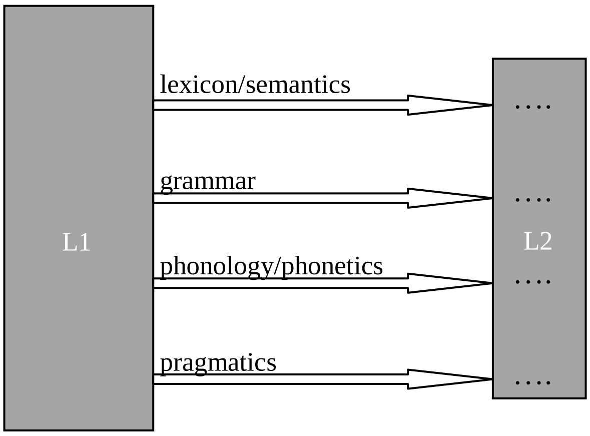


Figure 3.10. L1 influence on L2 in second language acquisition[109] (adopted from Schmid 2011: 4)

Odlin (1989: 27) expands Thomason & Kaufman's definition of substratum interference[110] (1988) as follows: "Transfer is the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired." He offers the following classification of outcomes of cross-linguistic similarities and differences (Odlin 1989: 36-41): 1) positive transfer; 2) negative transfer (A. underproduction; B. overproduction; C. production errors; D. misinterpretation); and 3) differing lengths of acquisition.

A further concept frequently used in SLA research is *interlanguage* (Selinker 1972). **Interlanguage** "refers to points on the learning continuum" and is considered "an incomplete or deficient version of the target language" in traditional approaches[111] (Matras 2009: 74). Since interlanguage generally implies a learning continuum, it could be expected that the end point of this process would be the achievement of full proficiency in the target language. However, this is often not the case: Many L2 learners, predominantly older speakers or speakers with limited contact to the target language, never achieve full proficiency in the L2 variety (Appel & Muysken 1987: 92; Matras 2009: 75). It can be said that "they get stuck in one of the intermediate stages" (Appel & Muysken 1987: 92). The next concept which should be mentioned at this point is *fossilization*: The term **fossilization** is proposed to "capture the phenomenon of a permanent adoption (regardless of age or amount of instruction) of idiosyncratic interlanguage features in a learner's L2" (Matras 2009: 75). It can concern all features of the interlanguage (i.e., any feature

[109] The term *grammar* is used to refer to syntax and morphology here.
[110] As pointed out in footnote 104, Odlin (1989) uses the term *substratum transfer* or only *transfer* to refer to Thomason & Kaufman's *substratum interference* (1988).
[111] In contrast, scholars such as Myers-Scotton & Jake (2000) offer an alternative view, defining *interlanguage* "as a 'composite matrix language' that is a combination of three systems: the learner's previously acquired languages, a variety of the target language, and the developing learner variety" (Matras 2009: 74).

(e.g., phonetic, phonological, morphological, syntactic, semantic, pragmatic) could become fossilized). "When the interlanguage of many learners fossilizes at the same point for a certain structure, a new variety of the target language can develop" (Appel & Muysken 1987: 92).

The coexistence of two or more languages in the same geographic area (e.g., majority language(s) vs. minority language(s)) may lead to: first, the **maintenance** of all languages spoken in the respective area, second, the **shift** to one of the languages involved, and third, the **loss** of at least one of these languages (Appel & Muysken 1987; Thomason & Kaufman 1988; Winford 2003; Matras 2009, among many others). The following factors which influence the maintenance of the languages spoken in a bilingual (or in a multilingual) environment have been proposed: status, demographics, and institutional support (Giles et al. 1977; Appel & Muysken 1987: 33-38). Regarding the status, four subcategories can be distinguished: economic status, social status, sociohistorical status, and language status (Appel & Muysken 1987: 33-35). The fact that speakers of the minority language often have lower economic status as compared to speakers of the majority language in the same society may lead to the stigmatization of the minority language, which in turn promotes the shift towards the majority language and consequently the loss of the minority language. Nevertheless, studies have shown that economic changes caused by modernization, industrialization, and urbanization may affect language maintenance both positively and negatively (Appel & Muysken 1987: 33-34). Social status is closely related to economic status; the speaker group which has the lower social status tends to shift to the language of the speakers with a higher social status (Appel & Muysken 1987: 34). Sociohistorical status may have a positive or a negative impact on language maintenance; for instance, if the speakers of the minority language had to struggle for their independence, rights, or ethnic identity in the past, younger generations may be inspired by this and feel motivated to maintain the traditions of their ethnic group (Appel & Muysken 1987: 34). The language status within the bilingual (or multilingual) community is a crucial factor for the maintenance of the minority language; while high language status of the minority language leads to its maintenance, low language status of the minority language benefits the shift to the language with a higher status. The language status of the minority language often depends on the presence or lack of its standardization (including graphization and codification via dictionaries, grammars, etc.) and/or modernization (including expansion of lexicon, development of new styles and forms of discourse) (Appel & Muysken 1987: 34, 50-55). Demographic factors, such as the number of speakers of the minority language and their geographical distribution, may contribute to the maintenance of the minority language or to the shift towards the majority language. A decrease in the number of speakers of the minority language often goes hand in hand with a decrease in the 'usefulness' of that language, which in turn may lead to a shift towards the majority language. A decrease in the number of speakers of a given language can be traced back to the following two factors: inter-ethnic marriages and emigration. In addition, it should be mentioned that minority languages generally tend to be preserved longer in rural speaker communities as compared to urban speaker communities (perhaps due to the absence of social pressure to use the majority language) (Appel & Muysken 1987: 35-37). Finally, institutional support factors may considerably influence the language maintenance/shift; the use of the minority language in government or administrative service, education, religion, and mass media stimulates its maintenance and thus prevents its loss (Appel & Muysken 1987: 37-38).

The gradual shift from a minority language to a majority language in bilingual (or multi-lingual) environments usually promotes the abandonment of the minority language or the "group's ancestral language" and leads to "increasing attrition and eventually the obsolescence and death" of the minority language or the group's ancestral language (Winford 2003: 256). "The term **language attrition** […] refers to the (total or partial) forgetting of a language by a healthy speaker" (Schmid 2011: 3; boldface added). Figure 3.11 illustrates language loss in both communities and individuals.

language loss

by communities
language shift
language death

by individuals
pathological: *aphasia*
in healthy speakers: *language attrition*

Figure 3.11. The terminology of language loss (adopted from Schmid 2011: 3)

Language attrition usually occurs in individuals who belong to minority or subordinate groups resulting from emigration processes (Schmid 2011: 11-12), colonization or "the formation of larger national polities that relegate some groups to subordinate status" (Winford 2003: 257).

Winford (2003: 258-259) presents five stages in which language attrition occurs[112]: In the first stage, all speakers of the ancestral language are monolingual. In the second stage, the speakers of the ancestral language become bilingual with the ancestral language as a predominant language. It is worth mentioning that the ancestral language is spoken in different domains. Moreover, it is "used in most kinds of in-group interaction", whereas the L2 is "used for wider inter-group communication" (Winford 2003: 258). In the third stage, although a continuing bilingual-

[112] It goes without saying that these stages may overlap (Winford 2003: 258).

ism can be found, more and more speakers of the ancestral language shift to the L2 and adopt it as their primary vernacular. According to Winford (2003: 258), different degrees of diglossia can be observed in both the second and the third stage, which are usually characterized by the presence of code-switching. The gradual disappearance of the diglossia going hand in hand with the increasing intrusion of the L2 in different domains of the ancestral language "signals the beginning of complete shift" (Winford 2003: 258). The fourth stage is the period in which the speakers of the respective community show limited production and knowledge of the ancestral language. The fifth stage consists of the complete replacement of the ancestral language by the L2.

L2 influences on the ancestral language can often be attested during the different stages described above. It is said that all linguistic domains can be affected by language attrition as shown in Figure 3.12 (Schmid 2011: 5, 38-68).

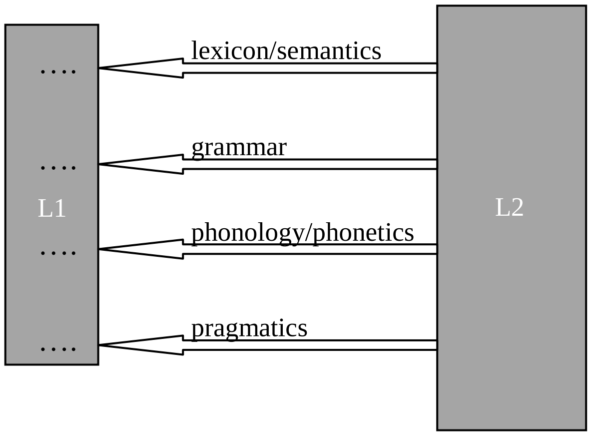


Figure 3.12. L2 influence on L1 in attrition[113] (adopted from Schmid 2011: 5)

3.4.2 Language contact: Phonological transfer and convergence

According to Matras (2009: 222), any phonological level can be affected by replication[114]: "the articulation of individual phones or phonemes within words, length and gemination, stress and tone, prosody and intonation." He claims that there are no phonemes that are more prone to being borrowed than others. In addition, he suggests that prosody is more susceptible to change than segmental phonology in contact situations (Matras 2009: 231). Moreover, Matras (2009: 232) points out that a "tendency towards wholesale convergence" is attested for prosody, in contrast to other areas of phonology, where borrowings and convergent tendencies are also found but to a lesser extent. Matras (2009: 233) provides two factors which try to explain "the high susceptibility of prosody to contact." The first of them is related to the function of prosody in languages; the

[113] Cf. footnote 109.
[114] Matras (2009: 146, 222) uses the term *replication* to refer to *borrowing*.

fact that prosody (especially intonation) is used to convey different pragmatic meanings and to express emotions at the utterance level "rather than at the word level […] allows speakers to mentally disconnect prosody more easily from the matter or shape of words associated with a particular language, making it prone to change and modifications in contact situations" (Matras 2009: 233). The second factor contributing to the volatility of prosody is a neurophysiological one. Matras (2009: 233) refers to neurophysiological studies which have shown that prosody can be separated from "other aspects of speech production" and concludes that this is perhaps the reason why prosody is "more difficult to control" in borrowing situations.

Regarding substratum transfer (imperfect learning in the course of SLA), the difference between the L1 and the L2 systems concerning the phonemic inventory and the production of the corresponding allophones often leads to production errors in the L2 speech (Odlin 1989: 115). According to Odlin (1989: 115-117), the production errors made by L2 learners can be divided into the following four groups: 1) phonemic errors; 2) phonetic errors; 3) allophonic errors; and 4) distributional errors. Furthermore, Odlin (1989: 117) points out that L1 influences "are also frequently evident in suprasegmental contrasts involving stress, tone, rhythm, and other factors." He presents the findings of various studies on the production of suprasegmentals in L2 speech showing that first, stress assignment rules of the L1 can be applied in the L2, and second, typological differences and similarities between the L1 and the L2 (e.g., tone languages vs. intonation languages; the use of rising intonation to mark questions vs. the use of non-rising intonation to mark questions; rhythmic differences and similarities) may facilitate the acquisition of the L2 or make it more difficult[115].

3.4.3 Transfer and convergence of prosodic features (case studies)

3.4.3.1 *Intonation*

In Table 3.15, I present a few studies on intonation in language contact in order to show the diversity of intonational features which can be interpreted as the results of borrowing (borrowing transfer), substratum interference (substratum transfer), convergence, or attrition.

[115] Cf. Mennen & de Leeuw (2014), Mennen (2015), and references therein for current case studies on L1 transfer of both segmental and suprasegmental features.

Table 3.15. Intonation in language contact (case studies)[116]

Varieties	Description of contact situation[117]	Outcomes of language contact	References
Porteño Spanish	Migration-induced contact between Spanish and Italian in Buenos Aires due to massive Italian immigration between the 1860's and the beginning of the 20th century; Porteño Spanish intonation has been interpreted as (i) an outcome of the convergence of the prosodic systems of Spanish and Italian or (ii) a result of transfer from Italian that occurred when Italian immigrants learned Spanish as L2.	Prosodic features which Porteño shares with different Italian varieties: (i) realization of prenuclear pitch accents (L+H*); (ii) realization of nuclear pitch accents in broad focus statements (H+L*); (iii) use of a tritonal pitch accent to mark emphasis and focus (L+H*+L); (iv) realization of final contours in information-seeking yes-no questions; (v) use of both CR and SP to mark inner ips in neutral SVO declaratives. Prosodic features which Porteño shares with Peninsular Spanish: (i) realization of nuclear pitch accents in broad focus statements (L*); (ii) use of the prosodic phrasing pattern (S)(VO) in neutral SVO declaratives.	Colantoni & Gurlekian (2004); McMahon (2004); Gabriel (2006, 2007); Gabriel et al. (2010); Gabriel et. al. (2011); Feldhausen et al. (2011); Gabriel & Kireva (2012, 2014a); Pešková et al. (2012)
Occitan and Southern French	Occitan and French in long-standing contact in Southern France; the intonation of Occitan is interpreted as a result of prosodic interference from French as well as an outcome of first language attrition; the intonation of Southern French is interpreted as a result of transfer from Occitan that occurred when the Occitan-speaking population learned French as L2; furthermore, the Southern variety of French seems to be undergoing a gradual convergence with Northern French.	Prosodic features which Occitan and Southern French share: (i) similar to Northern French, the AP (Accentual Phrase) is the basic prosodic unit for accentuation and phrasing in both contact varieties Occitan and Southern French; its adaptation in Occitan may be seen as a consequence of the contact between Occitan and French; however, there are some differences concerning the realization of APs in the contact varieties Occitan and Southern French and in Northern French; (ii) both Occitan and the variety of Southern French spoken in Lacaune show the same nuclear configuration for statements of the obvious (H*L L%); interestingly, the nuclear configurations for statements of the obvious in the variety of Southern French spoken in Toulouse are H* !H%, H*L!H%, and H*L L% (it is worth	Meisenburg (2011); Sichel-Bazin et al. (2012a, b, 2015)

[116] The pitch accents and boundary tones presented in Table 3.15 (e.g., L+H* or HL% for Porteño) are compatible with the annotation conditions proposed within the ToBI framework.

[117] The assumptions made concerning the emergence of, the development of, or the change in these contact varieties (e.g., if they are seen as an outcome of transfer, convergence, attrition, etc.) are those offered by the respective authors of the studies (cf. column *References*). The terms used here are also those originally used by the authors of these works.

		mentioning that the social use of Occitan ceased much earlier in Toulouse than in Lacaune); (iii) rising contours in wh-questions are less frequent in Occitan and the variety of Southern French spoken in Lacaune than in both the variety of Southern French spoken in Toulouse and Northern French (i.e., a more extensive contact between Occitan and French has led to a lesser use of rising contours in French wh-questions). The following observations speak in favor of a gradual convergence of Southern French with Northern French: (i) one of the nuclear configurations for statements of the obvious attested in the variety of Southern French spoken in Toulouse is the same one used in Northern French (i.e., H* !H%); (ii) the realization of yes-no questions in Southern and Northern French is similar; (iii) the variety of Southern French spoken in Toulouse patterns with Northern French in displaying more rising contours in wh-questions than Occitan and the variety of Southern French spoken in Lacaune.	
Algherese Catalan, Logudorese Sardinian, and Sardinian regional variety of Italian	Language contact between Sardinian, Catalan, and Italian in Alghero; current Algherese Catalan is interpreted as a result of (i) transfer from Logudorese Sardinian that occurred when L1 speakers of Logudorese Sardinian immigrated to Alghero and learned the Catalan variety spoken there as L2 (imperfect learning) and (ii) subsequent convergence between the Catalan spoken by the descendants of the Sardinian immigrants and the Catalan spoken by the speakers of Catalan who lived in Alghero	Prosodic features which Algherese Catalan, Logudorese Sardinian, and the Sardinian regional variety of Italian share: (i) the three contact varieties show the same prenuclear pitch accents and nuclear configurations for broad focus SVO declaratives; the following two tonal sequences are found: 1. L+H* L+H* H+L* L%; 2. H*+L L+H* H+L* L%; (ii) the three varieties display the same nuclear configurations for information-seeking yes-no questions; the following contours are found: 1. ¡H+L* L%; 2. H*+L L%.	Roseano et al. (2015)

	before the massive Sardinian immigration; the Sardinian regional variety of Italian is also interpreted as a result of transfer from Sardinian that occurred when Sardinians learned Italian as L2 (imperfect learning).		
Cuzco Spanish	Language contact between Spanish and Quechua in Cuzco; the Spanish variety spoken in Cuzco is said to be influenced by the contact language Quechua; the Quechua-Spanish contact is suggested to have led to prosodic convergence.	Prosodic features which Cuzco Spanish and Cuzco Quechua share: (i) peak alignment of prenuclear pitch accents in broad focus statements; prenuclear peaks are aligned within the stressed syllable in Cuzco Quechua; prenuclear peaks are aligned within the stressed syllable, the post-tonic syllable, or in between in Cuzco Spanish; (ii) the observation that the contrast between peak alignment (early vs. late) is not used to distinguish between broad and contrastive focus in Cuzco Spanish is attributed to the contact with Quechua.	O'Rourke (2004, 2005); Muntendam (2012); van Rijswijk & Muntendam (2012)
Spanish and Catalan spoken in Majorca	Language contact between Spanish and Catalan in Majorca; both the Spanish variety spoken by Catalan-dominant bilingual speakers and the Spanish variety spoken by Spanish-dominant bilingual speakers are said to be influenced by Catalan (i.e., asymmetric[118] convergence between Catalan and Spanish).	Prosodic features which the variety of Majorca Spanish spoken by Catalan-dominant bilingual speakers and Majorca Catalan share: utterance-final pitch accents are realized as concave-falling contours in declaratives. Prosodic features which the variety of Majorca Spanish spoken by Spanish-dominant bilingual speakers and Majorca Catalan share: utterance-final pitch accents are realized as straight-falling contours in declaratives by younger females. Prosodic features which the variety of Majorca Catalan spoken by Spanish-dominant bilingual speakers and the variety of Majorca Spanish spoken by Spanish-dominant bilingual speakers share: utterance-final pitch accents are realized as convex-falling contours in declaratives (predominantly by male speak-	Simonet (2011)

[118] The convergence is defined as asymmetric, "since it causes Spanish to 'become more like' Catalan, [...] but leaves Catalan fundamentally unaffected" concerning the intonational features analyzed (Simonet 2011: 180).

		ers).	
L2 Greek produced by Dutch natives	Second language acquisition (L1 transfer): L2 Greek speakers with many years of experience with the L2 (12-35 years); age at which they start official instruction: between 18 and 25.	The L2 speakers use L1 features in the L2 speech such as peak alignment of prenuclear pitch accents; the L2 learners align the peaks much earlier in both L1 Dutch and L2 Greek than the L1 native Greek speakers (i.e., transfer of alignment patterns).	Mennen (2004)
L2 French produced by Mexican Spanish natives	Second language acquisition (L1 transfer): L2 French speakers positioned at A2 and B1 levels; age at which they start official instruction: after 17.	The L2 speakers seem to show influences from their L1 in the L2 speech (yes-no questions) such as: (i) use of rising final contours; (ii) tonal marking of phrase-internal prosodic words[119].	Santiago & Delais-Roussarie (2012, 2015)
L2 Castilian Spanish produced by Italian natives	Second language acquisition (L1 transfer): L2 Spanish speakers who had been living in Madrid for 1-2 years at the time of data collection (Italians born in Borgomanero, Genoa, Ferrara, Frosinone, Maddaloni, and Catanzaro); L2 level of Spanish: middle-advanced or advanced; official instruction at school or at university.	The L2 speakers use L1 features in the L2 speech (yes-no questions) such as: (i) prenuclear pitch accents (e.g., L+H*); (ii) nuclear configurations (e.g., H+L* LH% and H+L* L%); (iii) a tritonal pitch accent assumed to convey emphasis/focus (i.e., L+H*+L).	Gabriel & Kireva (2014a)
Mexican Spanish spoken by early bilinguals	Language attrition (L2 influence): Mexican Spanish speakers who moved to Los Angeles (L.A.), California, in their childhood and were raised there (i.e., Mexican Spanish/English early bilinguals); mean age of arrival: 3.3; mean age at the time of data collection: 34.3; their L1 is Spanish; a gradual loss of Spanish in favor of English is observed.	Declaratives realized in both L1 Mexican Spanish spoken by the early bilinguals and L2 Spanish spoken by English monolinguals show similar prenuclear and nuclear pitch accents. Declaratives realized in both L2 English spoken by the early bilinguals and L1 English spoken by monolinguals show similar prenuclear and nuclear pitch accents. The Mexican Spanish/English early bilinguals exhibit a small number of Spanish intonational patterns in both the Spanish and the English data analyzed; the Spanish variety spoken by	Robles-Puente (2014)

[119] In French, the right edge of prosodic words (or accentual phrases) is said to usually be indicated by the presence of a pitch accent. In contrast to French and similar to (Mexican) Spanish, the right edges of prosodic words are not often marked by a rising pitch accent in the L2 French data produced by the Mexican Spanish natives (Santiago & Delais-Roussarie 2015). For this reason, Santiago & Delais-Roussarie (2015) suggest that the L2 learners of French apply the tonal marking rules of their L1 in the L2 speech.

		the Mexican Spanish/English early bilinguals is interpreted as an instance of L1 attrition.	

As shown in Table 3.15, varieties said to be the result of historical contact (i.e., the outcome of substratum transfer and/or convergence) may pattern with their contact language(s) in exhibiting the same prenuclear pitch accents (e.g., Porteño Spanish, Algherese Catalan, Cuzco Spanish), the same focus/emphasis marker (e.g., Porteño Spanish), the same nuclear pitch accents (e.g., Porteño Spanish, Occitan, Southern French, Algherese Catalan, Logudorese Sardinian, the Sardinian regional variety of Italian, Majorca Spanish), and/or the same nuclear configurations (e.g., Porteño Spanish, Occitan, Southern French, Algherese Catalan, Logudorese Sardinian, the Sardinian regional variety of Italian). In addition, both the use of prosodic cues such as CR and SP (cf. Porteño Spanish) and the manner applied to signal focus (cf. Cuzco Spanish) can also be affected in a language contact situation. Furthermore, accentuation rules and phrasing patterns can also be adopted from the contact language (cf. Occitan).

As for L1 transfer attested in contemporary L2 varieties, the following has been shown: The peak alignment of prenuclear pitch accents produced in L2 varieties can be influenced by the first language (cf. L2 Greek produced by Dutch natives). Moreover, prenuclear pitch accents, nuclear pitch accents, and boundary tones can also be transferred from the L1 (cf. L2 Spanish produced by Italian natives). The L1 can influence the use of final contours and the tonal marking of prosodic units such as the prosodic word in L2 speech (cf. L2 French produced by Mexican Spanish natives).

Considering the case of the Mexican Spanish/English early bilinguals, it can be summed up that L1 attrition may affect the realization of both prenuclear and nuclear pitch accents.

3.4.3.2 *Speech rhythm*

In the following, the findings of various studies investigating speech rhythm in contact situations are presented (cf. Table 3.16).

Table 3.16. Speech rhythm in language contact (case studies)

Varieties	Description of contact situation[120]	Comparison between the following varieties	Outcomes of language contact	References
Porteño Spanish	Migration-induced contact between Spanish and Italian in Buenos Aires due to massive Italian immigration between the 1860s and the beginning of the 20th century; Porteño Spanish speech rhythm has been interpreted as a result of transfer from Italian that occurred when Italian immigrants learned Spanish as L2.	Porteño Spanish spoken by monolingual speakers, Italian spoken by monolingual speakers, L2 Castilian Spanish produced by Italian natives, and Castilian Spanish spoken by monolingual speakers.	Italian, Porteño, and L2 Castilian Spanish display similar rhythm patterns exhibiting a higher proportion of vocalic material (%V) and a greater variability of vocalic intervals (VarcoV and VnPVI) than Castilian Spanish, which shows lower %V, VarcoV, and VnPVI scores[121]; in addition, it is shown that the lengthening of open stressed and pre-boundary syllables attested in Italian is transferred to both the contact variety Porteño and the learner variety L2 Castilian Spanish.	Gabriel & Kireva (2012, 2014a); Benet et al. (2012); Kireva & Gabriel (2015)
Cuzco Spanish	Cf. Table 3.15 for Cuzco Spanish.	Cuzco Spanish spoken by monolinguals, Cuzco Spanish spoken by Quechua/Spanish bilinguals, and Lima Spanish spoken by speakers without knowledge of Quechua.	The variety of Cuzco Spanish spoken by monolinguals and the variety of Cuzco Spanish spoken by bilinguals show similar rhythm patterns; both varieties exhibit a lower proportion of vocalic material (%V), a lower variability of vocalic intervals (ΔV, VarcoV, VnPVI), and a higher variability of consonantal intervals (ΔC, VarcoC, and CrPVI) than Lima Spanish.	O'Rourke (2008a, b)
Sofia Judeo-Spanish	Long-standing language contact between Judeo-Spanish and Bulgarian in Sofia (Bulgaria); Judeo-	Judeo-Spanish spoken by Judeo-Spanish/Bulgarian bilinguals, Bulgarian spoken by Judeo-Spanish/Bulgarian bilin-	Judeo-Spanish and Bulgarian spoken by the bilinguals show almost the same variability of vocalic (VarcoV, VnPVI) and consonantal (VarcoC, CrPVI,	Gabriel & Kireva (2014b); Gabriel et al. (2014); Fi-

[120] Cf. footnote 117.
[121] Cf. Section 3.3.1 for a detailed description of the rhythm metrics presented in Table 3.16.

	Spanish is said to have largely converged toward Bulgarian on the phonological level.	guals, Bulgarian spoken by monolinguals, and Castilian Spanish spoken by monolinguals.	CnPVI) intervals; moreover, the scores for VarcoV and VnPVI for Judeo-Spanish and Bulgarian spoken by the bilin-guals are situated between those for Castilian Spanish and Bulgarian spoken by the mon-olinguals; this is interpreted as an effect of vowel reduction (or vowel raising) transferred from the dominant language Bulgarian to the contact varie-ty Judeo-Spanish (vowel re-duction or raising is absent in Castilian Spanish).	scher et al. (2014)
L2 Span-ish pro-duced by English natives and L2 English produced by Span-ish natives	Second language acquisition (L1 trans-fer): L2 English and L2 Spanish speakers fluent in the L2 but with a discernible non-native accent; no ex-tended exposure to the L2 during early child-hood.	L1 Spanish, L2 Spanish produced by English natives, L1 English, and L2 English produced by Spanish natives.	The variety of L2 Spanish produced by English natives and the variety of L2 English produced by Spanish natives show intermediate scores for the variability of vocalic inter-vals (VarcoV and VnPVI) situated between those for L1 Spanish and L1 English; re-garding the proportion of vocalic material, while the variety of L2 English pro-duced by Spanish natives displays intermediate %V values between the ones for L1 Spanish and L1 English, the variety of L2 Spanish produced by English natives exhibits higher %V scores than those for L1 Spanish. The intermediate scores for the L2 varieties are attributed to the fact that both L1 varieties belong to different rhythm classes (i.e., English to the	White & Mattys (2007a)

			stress-timed languages and Spanish to the syllable-timed languages).	
L2 Dutch produced by English natives and L2 English produced by Dutch natives	Second language acquisition (L1 transfer): L2 Dutch and L2 English speakers fluent in the L2 but with a discernible non-native accent; the Dutch speakers had contact with English through the media in childhood, but started formal instruction after 11.	L1 Dutch, L2 Dutch produced by English natives, L1 English, and L2 English produced by Dutch natives.	L2 Dutch produced by English natives, L2 English produced by Dutch natives, L1 English, and L1 Dutch pattern alike in exhibiting quite similar %V, ΔV, VarcoV, and VarcoC values. The similarities between the four varieties are attributed to the fact that both English and Dutch belong to the same rhythm group (i.e., stress-timed languages).	White & Mattys (2007a)
L2 Castilian Spanish produced by Italian natives	Second language acquisition (L1 transfer): L2 Spanish speakers who had been living in Madrid for 1-2 years at the time of data collection (Italians born in Borgomanero, Genoa, Ferrara, Frosinone, Maddaloni, and Catanzaro); L2 level of Spanish: middle-advanced or advanced; official instruction at school or at university.	Porteño Spanish spoken by monolingual speakers, Italian spoken by monolingual speakers, L2 Castilian Spanish produced by Italian natives, and Castilian Spanish spoken by monolingual speakers.	Italian, Porteño, and L2 Castilian Spanish display similar rhythm patterns exhibiting a higher proportion of vocalic material (%V) and a greater variability of vocalic intervals (VarcoV and VnPVI) than Castilian Spanish, which shows lower %V, VarcoV, and VnPVI scores; additionally, it is shown that the lengthening of open stressed and pre-boundary syllables attested in Italian is transferred to both the contact variety Porteño and the learner variety L2 Spanish.	Gabriel & Kireva (2012, 2014a); Benet et al. (2012); Kireva & Gabriel (2015)
L2 English produced by Beijing Mandarin natives and L2 English	Second language acquisition (L1 transfer): L2 English speakers with two different proficiency levels (B1 and C1); the L2 English speakers from China had	L1 English, L1 Beijing Mandarin, L1 German, L2 English produced by Beijing Mandarin natives (two groups: B1 and C1 levels), and L2 English produced by German natives (two groups: B1	The variety of L2 English produced by Beijing Mandarin natives shows intermediate %V, VarcoV, and VnPVI scores situated between those for L1 Beijing Mandarin and L1 English; regarding the variety of L2 English pro-	Li & Post (2014)

produced by German natives	never lived in an English-speaking country; the L2 English speakers from Germany had been in the United Kingdom for less than a month at the time of data collection.	and C1 levels).	duced by German natives, intermediate scores between the ones for L1 German and L1 English are found for %V; in addition, it has been shown that the L2 speakers with the higher proficiency (i.e., the speakers with the C1 level here) perform more target-like as compared to the L2 speakers with the lower language proficiency (i.e., B1 here)[122].	
Mexican Spanish and English spoken by early and late bilinguals	Language attrition (L2 influence) and second language acquisition (L1 transfer): (i) Mexican Spanish speakers who moved to Los Angeles (L.A.), California, in their childhood and were raised there (i.e., Mexican Spanish/English early bilinguals); mean age of arrival: 3.3; mean age at the time of data collection: 34.3; their L1 is Spanish; a gradual loss of Spanish in favor of English is observed; (ii) Mexican Spanish speakers who moved to L.A. when they were adults (i.e., Mexican Spanish/English late bilinguals); mean age of arrival: 21.7; mean age	English (L.A.) spoken by monolinguals, L2 Spanish spoken by English monolinguals, Mexican Spanish spoken by monolinguals, L2 English spoken by Mexican Spanish monolinguals, Mexican Spanish and English (L.A.) spoken by the early bilinguals, and Mexican Spanish and English (L.A.) spoken by the late bilinguals.	The variety of English spoken by monolinguals and the variety of English spoken by the early bilinguals show almost equal VnPVI values, which are notably higher than those for both the variety of English spoken by the late bilinguals and the variety of L2 English spoken by Mexican Spanish monolinguals. The variety of L2 Spanish spoken by English monolinguals and the variety of Mexican Spanish spoken by the early bilinguals exhibit similar VnPVI scores, which are considerably higher than those for both the variety of Mexican Spanish spoken by the late bilinguals and the variety of Mexican Spanish spoken by monolinguals. It can be assumed that first, transfer from L1 is attested in the English produced by the	Robles-Puente (2014)

[122] Similar results are reported by Ordin & Polyanskaya (2015). They show that advanced L2 speakers perform more target-like than beginners and intermediate learners.

	at the time of data collection: 43.7; their L1 is Spanish; the use of English is described as general.		late bilinguals, in the L2 English produced by the monolingual Mexican Spanish speakers, and in the L2 Spanish produced by the monolingual English speakers, and second, the Spanish spoken by the early bilinguals is interpreted as an instance of L1 attrition.	

According to the results of the studies presented in Table 3.16, varieties said to be the outcome of historical contact (i.e., the result of substratum transfer and/or convergence of two prosodic systems) may display similar rhythm patterns to those of the respective contact language. For instance, Porteño Spanish exhibits similar rhythmic properties to those of Italian concerning the proportion of vocalic material (%V) and the variability of vocalic intervals (VarcoV and VnPVI) on the one hand and considerably differs from Castilian Spanish on the other. Furthermore, a variety may largely converge toward the variety with which it coexists in the same geographic area. Judeo-Spanish seems to be such an example: It patterns with the variety of Bulgarian spoken by the bilingual Judeo-Spanish/Bulgarian speakers in showing the same variability of both vocalic (VarcoV and VnPVI) and consonantal (VarcoC, CrPVI, and CnPVI) intervals. Moreover, both varieties spoken by the bilingual Judeo-Spanish/Bulgarian speakers (i.e., Judeo-Spanish and Bulgarian) display intermediate rhythmic values for VarcoV and VnPVI situated between those for Castilian Spanish and the variety of Bulgarian spoken by monolingual speakers. As seen for Porteño Spanish, Judeo-Spanish, and the variety of Bulgarian spoken by the bilingual Judeo-Spanish/Bulgarian speakers, contact varieties may be characterized by a distinct rhythm as compared to those of other varieties of the same language. This picture does not change when Cuzco Spanish is taken into account: the variety of Cuzco Spanish spoken by monolinguals and the variety of Cuzco Spanish spoken by Spanish/Quechua bilinguals exhibit similar rhythmic values on the one hand and differ from Lima Spanish on the other.

Regarding contemporary L2 varieties, if the learner's L1 and L2 belong to the same rhythm class (e.g., syllable-timed languages such as Spanish and Italian or stress-timed languages such as English, German, and Dutch), two different scenarios can be found: First, L2 speakers may show similar rhythm patterns for both their L1 and their L2, which differ from those of the target language at the same time (e.g., the L2 Castilian Spanish produced by Italian natives patterns with Italian in exhibiting a higher proportion of vocalic material (%V) and a greater variability of vocalic intervals (VarcoV and VnPVI) than the target language Castilian Spanish). Second, L2 learners may perform similarly in their L1 and L2 productions, displaying, however, rhythmic scores for their L1 and their L2 comparable to those of the target language. As seen above, the L2 Dutch produced by English natives, L1 Dutch, the L2 English produced by Dutch natives, and L1 English display a quite similar proportion of vocalic material (%V) and a similar variability of both vocalic (ΔV and VarcoV) and consonantal (VarcoC) intervals. In contrast, if the learner's L1 and L2 belong to different rhythm groups (e.g., syllable-timed vs. stress-timed languages such as Spanish vs. English or Mandarin vs. English), the scores obtained for the L2 speech tend to be situated in between the ones for the respective L1 and the target language (cf. the L2 English spoken by Spanish natives, the L2 Spanish spoken by English natives, and the L2 English spoken by Beijing Mandarin natives).

Considering first, the findings of the study of Robles-Puente (2014) showing that despite an extended exposure to English, the late bilinguals produce English like the monolingual Mexican Spanish speakers with little exposure to English, and second, the results of the work of Li & Post (2014) and Ordin & Polyanskaya (2015) suggesting that L2 learners improve their rhythm patterns in the L2 with the progress of the SLA, it can be assumed that 'natural' exposure to the L2 and formal instruction may lead to different results. It should also be mentioned that factors such as the amount of input of the L2, the use of the L2 in daily life, and the attitude of the L2 speakers towards the L2 variety may play a crucial role in the proficiency level which an L2 speaker can reach.

Finally, the results provided by Robles-Puente (2014) showing that the L2 Spanish spoken by monolingual English speakers and the L1 Mexican Spanish spoken by the early bilinguals exhibit similar rhythmic properties indicate that the speech rhythm of L1 varieties may undergo attrition.

CHAPTER 4

Methodology

This chapter introduces the methods adopted in the current study. Section 4.1 gives an overview of the background data for all speakers who were recorded and whose data were considered for the intonational analysis and/or the rhythmic analysis. In Section 4.2, I present the material analyzed with respect to intonation and speech rhythm. Finally, Section 4.3 outlines the criteria for the segmentation and the analysis of the data.

4.1 Speakers

I analyzed data recorded from a total of 25 subjects: ten bilingual speakers of Olivenza Portuguese (seven females and three males), ten monolingual speakers of Olivenza Spanish (five females and five males), and five monolingual speakers of Castilian Spanish (two females and three males). In the group of the bilingual subjects, both simultaneous Portuguese/Spanish bilinguals (two females and two males) and consecutive bilinguals (fives females and one male) with Portuguese as the first language (L1) are included. The age of onset of acquisition of Spanish varies between 7 and 12.

Table 4.1 summarizes the background information for the speakers' number, sex, age range, mean age, place of birth, and place of residence.

Table 4.1. Background data for the Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish speakers

	Total number	Sex	Age range	M_{age}	Place of birth	Place of residence
Olivenza Portuguese	10	7 females 3 males	63-78	73.1 years	Olivenza	Olivenza
Olivenza Spanish	10	5 females 5 males	18-35	25.1 years	Olivenza	Olivenza
Castilian Spanish	5	2 females 3 males	26-34	29.2 years	Madrid, Gijón, and Valladolid	Madrid

Since the goal of the present work is to investigate and describe the intonational and rhythmic patterns of both contact varieties, Olivenza Portuguese and Olivenza Spanish, and the Castilian Spanish data exclusively serve as a control group for the rhythmic analysis, the number of speakers for each variety spoken in Olivenza is twice as high as the number of speakers analyzed for Castilian Spanish.

The age differences between the Olivenza Portuguese speakers and the Olivenza Spanish speakers can be explained by the fact that there are no Olivenza Portuguese speakers younger than 60 nowadays (cf. Chapter 2).

Regarding the place of birth and the place of residence, all Olivenza Portuguese and Olivenza Spanish speakers were born and raised in Olivenza and have lived there throughout their lives (with some brief interruptions). The same holds for their parents[123]. As for the Castilian Spanish speakers, three of them were born and raised in Madrid and the two others were born in Gijón and Valladolid, but were raised in Madrid from the ages of 1 and 3, respectively. Their parents come predominantly from the Castilian Spanish area (four from Madrid, two from Gijón, one from Palencia, one from Burgos, one from Valladolid, and one from Galicia).

Concerning language use, it is worth mentioning that Olivenza Portuguese cannot exclusively be used as a vernacular in a family environment (e.g., in conversations with younger relatives) or in daily life nowadays in Olivenza, since Olivenza Portuguese was no longer being acquired as a mother tongue from about 1950 on and thus only speakers older than 60 have a command of this variety. For this reason, the bilingual informants usually speak Portuguese only when they converse with their bilingual relatives or meet neighbors (or friends) who are also bilingual. Besides Spanish and Portuguese, the bilingual speakers have no proficiency in other languages.

The monolingual Olivenza Spanish informants have learned English and Portuguese as a first and a second foreign language at school, respectively[124]. However, their level of L2 English was self-assessed as basic. As for their language proficiency in Portuguese, some of the speakers assessed themselves as basic users (self-assessments: A1 or A2 level[125]) and others as independent users (self-assessments: B1 or B2 level).

All monolingual Castilian Spanish speakers have received some official language instruction, either at school or at university, and have acquired at least two and up to four foreign lan-

[123] The parents of both the Olivenza Portuguese and the Olivenza Spanish subjects were born and raised in Olivenza with one exception: the father of one of the Olivenza Spanish speakers was born and raised in Elvas (Alentejo, Portugal), but has been living in Olivenza for many years.
[124] One of the speakers also had L2 language skills in French (besides English and Portuguese).
[125] The levels presented here were developed by the Common European Framework of Reference for Languages.

guages (e.g., German, English, Portuguese, French, Italian, and Chinese). The majority of the informants indicated that they were independent or proficient users of English and/or German (self-assessments: B2 or C1 level). Their level of the remaining languages was self-assessed as basic.

Regarding the level of education, the monolingual speakers (both the Olivenza Spanish and the Castilian Spanish subjects) differ from the bilingual ones. While all monolinguals have either completed a university degree or a high school education or were still students at the time of data collection, the bilinguals have predominantly only had a very brief school education (due to Spain's and Olivenza's political situation[126] at that time and/or due to social and financial factors)[127].

4.2 Material and procedure

The collection of the Castilian Spanish material took place in September 2011, in Madrid[128]. I recorded the speakers of Olivenza Spanish and Olivenza Portuguese in July 2012 and in April 2013 in Olivenza, respectively. The Castilian Spanish corpus and the Olivenza Portuguese/Olivenza Spanish corpus were recorded with a Marantz recorder (PMD671) and a head-worn condenser microphone (AKG C 520) in a quiet room.

In what follows, I present the material analyzed with respect to intonation and speech rhythm. For both the intonational analysis and the rhythmic analysis, the data recorded for the three varieties under consideration (Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish[129]) consist of semi-spontaneous speech only. The material was elicited using a modified[130] version of the intonation survey proposed in Prieto & Roseano (2010). The questionnaire comprises a set of hypothetical every-day situations which were read to the subjects. After every sit-

[126] According to the statements of the bilingual informants made in spontaneous interviews, both the Spanish Civil War and the Second World War played a crucial role in their school education. The majority of them were forced to quit school and to begin working in order to support their families. Cf. Torres Gallego (2007: 96-104) for a description of the social consequences of both wars in Olivenza. In addition, it should be mentioned that the teaching medium was only Spanish. Moreover, Portuguese was not even available as a school subject at that time (Matias 1984: 96-97; Vallecillo Teodoro 1999: 304-309).

[127] I consider both the monolingual and the bilingual speakers to have the same or similar social status despite their educational differences.

[128] The Castilian Spanish data are part of a corpus used for a rhythmic comparison of Castilian Spanish, Porteño Spanish, L2 Spanish produced by Italian natives, and Italian. The recordings were funded by my supervisor, Prof. Dr. Christoph Gabriel (University of Hamburg at the time of data collection), and made by Dr. Ariadna Benet (University of Hamburg at the time of data collection). I would like to express my deep gratitude to both of them.

[129] As mentioned above, the Castilian Spanish data are analyzed with respect to speech rhythm only.

[130] The modifications concern the vocabulary used to describe the situations, the insertion of some new situations for Olivenza Portuguese and Olivenza Spanish (e.g., situations 1a4, 1a5, 1a6, and 1a7), and the omission of some situations. Cf. the Appendix for both the Spanish and the Portuguese versions of the survey.

uation, the informants were asked to react verbally according to the given stimulus. It is worth mentioning that the speakers were largely free in choosing their vocabulary and in phrasing their utterances. Cf. (1) and (2) for an illustration:

(1) **Situation (1a2): Neutral statements**

The interviewer[131] shows a picture to the subject and asks her/him to react verbally:

***Olivenza Portuguese*:** Olha para o desenho e diz-me o que a Marina está fazendo. Começa a frase com "a Marina"[132], por favor!

'Please look at the picture and tell me what Marina is doing. Please start the sentence with "a Marina".'

Possible/Expected responses: A Marina está comendo tangerina(s)[133]. / A Marina está comendo uma tangerina. / A Marina come um gomo de tangerina.

'Marina is eating tangerines. / Marina is eating a tangerine. / Marina eats a slice of tangerine.'

***Olivenza Spanish*:** Mira el dibujo y dime qué está haciendo Marina. ¡Empieza la frase con "Marina", por favor!

'Please look at the picture and tell me what Marina is doing. Please start the sentence with "Marina".'

Possible/Expected responses: Marina está comiendo mandarina(s)[134]. / Marina se va a comer la mandarina. / Marina come una mandarina.

'Marina is eating tangerines. / Marina will eat the tangerine. / Marina eats a tangerine.'

***Castilian Spanish*:** Mira el dibujo y dime qué está haciendo Marina.

'Please look at the picture and tell me what Marina is doing.'

Possible/Expected responses: Está comiendo[135] mandarinas. / Se va a comer una mandarina. / Marina come una mandarina.

'(*pro*) Is eating tangerines. / (*pro*) Will eat a tangerine. / Marina eats a tangerine.'

(2) **Situation (2a1): Information-seeking yes-no questions**

The interviewer presents the following situation to the subject and asks her/him to react verbally:

***Olivenza Portuguese*:** Entras numa loja e perguntas se têm tangerinas.

'You enter a store and ask if they have any tangerines.'

Possible/Expected responses: Tem/Têm tangerinas? / Vende/Vendem tangerinas?

'Do you have tangerines? / Do you sell tangerines?'

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[131] The interviews to collect the Olivenza Spanish material were carried out by the author of the present work. As for the Olivenza Portuguese data, I am deeply obliged to Alba Herrero Núñez for her substantial help with the interviews.

[132] For Olivenza Spanish and Olivenza Portuguese, the speakers were asked to begin the neutral statements with the subject in order to produce SVO declarative sentences. The presence of the subject enables the analysis of the prosodic phrasing patterns of SVO declaratives in both varieties (cf. situations 1a2 to 1a7 in the Appendix).

[133] Final /s/, marking Plural (e.g., sp. *mandarina*, Sg. vs. *mandarinas*, Pl.), was often elided in the Olivenza Spanish and the Olivenza Portuguese data.

[134] Cf. footnote 133.

[135] The speakers of the three varieties can use different tenses in the neutral statements obtained with this situation: present (oli. port. *come* 's/he eats'), present progressive (oli. sp. *está comiendo* 's/he is eating'), and periphrastic future (cast. sp. *va a comer* 's/he will eat').

Olivenza Spanish *and* ***Castilian Spanish*****:** Entras en una tienda en la que nunca has estado antes y preguntas si tienen mandarinas.
'You enter a store that you have never been in before and ask if they have any tangerines.'
Possible/Expected responses: ¿Tenéis/Tienen mandarina(s)[136]? / ¿Venden mandarina(s)? / ¿Venden por casualidad mandarina(s) aquí?
'Do you have tangerines? / Do you sell tangerines? / Do you sell tangerines here by chance?'

Three main sentence types were elicited for the varieties under consideration: 1. neutral and biased statements, 2. neutral and biased questions (yes-no questions and wh-questions), and 3. imperatives. In the following, I present the different sentence types analyzed for both intonation (cf. Section 4.2.1) and speech rhythm (cf. Section 4.2.2) for Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish.

4.2.1 Intonational analysis

The total number of situations used for the data collection is 36 each for Olivenza Portuguese and Olivenza Spanish. In what follows, I offer the number of Intonational Phrases (IPs) analyzed with respect to intonation for both contact varieties under investigation. I analyzed 957 IPs in total (457 IPs for Olivenza Portuguese and 500 IPs for Olivenza Spanish): 60 neutral statements for Olivenza Portuguese and 60 for Olivenza Spanish; 69 biased statements for Olivenza Portuguese and 85 for Olivenza Spanish; 60 neutral (yes-no) questions for Olivenza Portuguese and 60 for Olivenza Spanish; 61 biased yes-no questions for Olivenza Portuguese and 64 for Olivenza Spanish; 88 neutral wh-questions for Olivenza Portuguese and 107 for Olivenza Spanish; 31 biased wh-questions for Olivenza Portuguese and 30 for Olivenza Spanish; 52 echo questions for Olivenza Portuguese and 52 for Olivenza Spanish; 36 imperatives for Olivenza Portuguese (19 commands and 17 requests) and 42 for Olivenza Spanish (18 commands and 24 requests).

Table 4.2 and Table 4.3 give an overview of all sentence types and present the exact number of IPs analyzed for Olivenza Portuguese and Olivenza Spanish.

[136] Cf. footnote 133.

Table 4.2. Sentences analyzed with respect to intonation for Olivenza Portuguese

sentence types		situations (items)	number of IPs
neutral statements	neutral statements: Subject (topic[137]) + Verb phrase (neutral focus)	1a2, 1a3, 1a4, 1a5	40
	neutral statements: Subject + Verb (topic) + Direct Object (neutral focus)	1a6, 1a7	20
biased statements	contrastive focus statements	1d1	22
	exclamative statements	1d2, 1d4	30
	contradiction statements	1d3	17
neutral (yes-no) questions	information-seeking yes-no questions	2a1, 2a2, 2a3, 2a4	40
	disjunctive questions	2b1	10
	interrogative enumerations	2c1	10
biased yes-no questions	exclamative yes-no questions (with counterexpectational meaning)	2d1, 2d2	21
	confirmation-seeking yes-no questions	2d3, 2d4, 2d5, 2d6	40
neutral wh-questions	information-seeking wh-questions	3a1, 3a2, 3a3, (2b1)[138], (2c1)[139], (4b1)[140]	52
	information-seeking wh-questions with a peripheral element	3b1	10
	enumerations (successive wh-questions)	3c1	26
biased wh-questions	exclamative wh-questions	3d1	10
	imperative wh-questions	3e1, 3e2	21
echo questions	echo yes-no questions	4a1	10
	echo wh-questions	4b1	14
	exclamative echo yes-no questions (with counterexpectational meaning)	4d1, 4d2	28
imperatives	commands	5a1	19
	requests	5b1	17
Total			**457**

[137] In Table 4.2, Table 4.3, and Table 4.4, the term *topic* is used to refer to given information.

[138] Utterances obtained with the situations 2b1 and 2c1 consisted of one IP (a disjunctive question or an interrogative enumeration, respectively) or of two IPs (an information-seeking wh-question followed by a disjunctive question or an interrogative enumeration, respectively). Cf. the following utterance obtained with situation 2b1: *O que querem? O sorvete de mango ou de amêndoa?* 'What would you like? Mango ice cream or almond (ice cream)?' All wh-questions produced in these conditions were analyzed within the group of the information-seeking wh-questions.

[139] Cf. footnote 138.

[140] A similar scenario to those presented in footnote 138 is found for the situation 4b1: the speakers often realized an information-seeking wh-question before the echo question which was expected to be obtained (cf. *O que me perguntaste? (D)onde vou?* 'What did you ask me? Where am I going?'). Wh-questions such as the underlined one were analyzed within the group of the information-seeking wh-questions.

Table 4.3. Sentences analyzed with respect to intonation for Olivenza Spanish

sentence types		situations (items)	number of IPs
neutral statements	neutral statements: Subject (topic) + Verb phrase (neutral focus)	1a2, 1a3, 1a4, 1a5	40
	neutral statements: Subject + Verb (topic) + Direct Object (neutral focus)	1a6, 1a7	20
biased statements	contrastive focus statements	1d1	29
	exclamative statements	1d2, 1d4	33
	contradiction statements	1d3	23
neutral (yes-no) questions	information-seeking yes-no questions	2a1, 2a2, 2a3, 2a4	40
	disjunctive questions	2b1	10
	interrogative enumerations	2c1	10
biased yes-no questions	exclamative yes-no questions (with counterexpectational meaning)	2d1, 2d2	20
	confirmation-seeking yes-no questions	2d3, 2d4, 2d5, 2d6	44
neutral wh-questions	information-seeking wh-questions	3a1, 3a2, 3a3, (2b1)[141], (2c1)[142], (4b1)[143]	60
	information-seeking wh-questions with a peripheral element	3b1	10
	enumerations (successive wh-questions)	3c1	37
biased wh-questions	exclamative wh-questions	3d1	10
	imperative wh-questions	3e1, 3e2	20
echo questions	echo yes-no questions	4a1	10
	echo wh-questions	4b1	10
	exclamative echo yes-no questions (with counterexpectational meaning)	4d1, 4d2	32
imperatives	commands	5a1	18
	requests	5b1	24
Total			**500**

[141] Utterances obtained with the situations 2b1 and 2c1 comprised one IP (a disjunctive question or an interrogative enumeration, respectively) or two IPs (an information-seeking wh-question followed by a disjunctive question or an interrogative enumeration, respectively). Similar to the Olivenza Portuguese data (cf. footnote 138), all wh-questions realized in these conditions were analyzed within the group of the information-seeking wh-questions.

[142] Cf. footnote 141.

[143] Similar to the Olivenza Portuguese corpus, the echo questions obtained with the situation 4b1 were often preceded by information-seeking wh-questions (cf. underlined question: *¿Qué me preguntaste? ¿A dónde voy?* 'What did you ask me? Where am I going?'). Questions such as the underlined one were analyzed within the group of the information-seeking wh-questions.

4.2.2 Rhythmic analysis

For all three varieties (i.e., Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish), I analyzed the rhythm patterns of the sentences obtained with 27 of the situations of the intonation survey. It is worth mentioning that there were some differences between the situations considered for the rhythmic analysis of Olivenza Portuguese and Olivenza Spanish and those considered for the rhythmic analysis of Castilian Spanish (cf. Table 4.4 and Table 4.5). These differences concern the statements only and are due to the fact that the surveys used for the collection of both the Olivenza Portuguese and the Olivenza Spanish data contain the same situations for the elicitation of neutral statements, in contrast to the Castilian Spanish intonation survey (note that the Castilian Spanish material was originally part of another corpus; cf. footnote 128, p. 78). Thus, I analyzed neutral statements obtained with seven situations (1a2, 1a3, 1a4, 1a5, 1a6, 1a7, and 1b1) and biased statements obtained with three situations (1d1, 1d3, and 1d4) for Olivenza Portuguese and Olivenza Spanish (cf. Table 4.4). For Castilian Spanish, neutral statements obtained with five situations (1a1, 1a2, 1a3, 1b1, and 1c1) and biased statements obtained with five situations (1d1, 1d2, 1d3, 1d4, and 1d5; cf. Table 4.5) were analyzed. As for the vocabulary used to describe the situations, there were small differences between the Castilian Spanish questionnaire and the Olivenza Spanish one (cf. the Appendix for more details).

Table 4.4 and Table 4.5 present the different sentence types analyzed with respect to rhythm for Olivenza Portuguese and Olivenza Spanish, and Castilian Spanish, respectively, and show the number of IPs segmented for each variety. As seen in the two tables, the material comprises neutral and biased sentences; the total number of sentences analyzed amounts to 879 IPs in total (334 IPs for Olivenza Portuguese, 367 IPs for Olivenza Spanish, and 178 IPs for Castilian Spanish): 70 neutral statements for each contact variety and 25 for Castilian Spanish; 57 biased statements for Olivenza Portuguese, 72 for Olivenza Spanish, and 36 for Castilian Spanish; 40 neutral yes-no questions for each contact variety and 27 for Castilian Spanish; 31 biased yes-no questions for Olivenza Portuguese, 34 for Olivenza Spanish, and 16 for Castilian Spanish; 46 neutral wh-questions for Olivenza Portuguese, 57 for Olivenza Spanish, and 26 for Castilian Spanish; 21 biased wh-questions for Olivenza Portuguese, 20 for Olivenza Spanish, and 11 for Castilian Spanish; 33 echo questions for Olivenza Portuguese, 32 for Olivenza Spanish, and 17 for Castilian Spanish; 36 imperatives for Olivenza Portuguese (19 commands and 17 requests), 42 for Olivenza Spanish (18 commands and 24 requests), and 20 for Castilian Spanish (7 commands and 13 requests).

Table 4.4. Sentences analyzed with respect to speech rhythm for Olivenza Portuguese and Olivenza Spanish

sentence types		situations (items)	number of IPs for OLI PORT	number of IPs for OLI SPA
neutral statements	neutral statements: Subject (topic) + VP (neutral focus)	1a2, 1a3, 1a4, 1a5	40	40
	neutral statements: Subject + Verb (topic) + DO (neutral focus)	1a6, 1a7	20	20
	declarative enumerations	1b1	10	10
biased statements	contrastive focus statements	1d1	22	29
	exclamative statements	1d4	18	20
	contradiction statements	1d3	17	23
neutral yes-no questions	information-seeking yes-no questions	2a1, 2a2, 2a3, 2a4	40	40
biased yes-no questions	exclamative yes-no questions (with counterexpectational meaning)	2d2	11	10
	confirmation-seeking yes-no questions	2d3, 2d6	20	24
neutral wh-questions	information-seeking wh-questions	3a1, 3a2	20	20
	enumerations (successive wh-questions)	3c1	26	37
biased wh-questions	exclamative wh-questions	3d1	10	10
	imperative wh-questions	3e2	11	10
echo questions	echo yes-no questions	4a1	10	10
	echo wh-questions	4b1	10	10
	exclamative echo yes-no questions (with counterexpectational meaning)	4d1	13	12
imperatives	commands	5a1	19	18
	requests	5b1	17	24
Total			**334**	**367**

Table 4.5. Sentences analyzed with respect to speech rhythm for Castilian Spanish

sentence types		situations (items)	number of IPs for CAST SPA
neutral statements	broad focus statements	1a1, 1a2, 1a3	15
	declarative enumerations	1b1	5
	statements with a peripheral element	1c1	5
biased statements	contrastive focus statements	1d1	11
	exclamative statements	1d2, 1d4	10
	contradiction statements	1d3	10
	uncertainty statements	1d5	5
neutral yes-no questions	information-seeking yes-no questions	2a1, 2a2, 2a3, 2a4	27
biased yes-no questions	exclamative yes-no questions (with counterexpectational meaning)	2d2	5
	confirmation-seeking yes-no questions	2d3, 2d6	11
neutral wh-questions	information-seeking wh-questions	3a1, 3a2	10
	enumerations (successive wh-questions)	3c1	16
biased wh-questions	exclamative wh-questions	3d1	5
	imperative wh-questions	3e2	6
echo questions	echo yes-no questions	4a1	5
	echo wh-questions	4b1	6
	exclamative echo yes-no questions (with counterexpectational meaning)	4d1	6
imperatives	commands	5a1	7
	requests	5b1	13
Total			**178**

4.3 Data segmentation

All the data recorded were transferred to a computer and analyzed with the software *Praat* (Versions 5.2.05 and 5.3.80) (Boersma & Weenink 2011).

In what follows, I introduce the criteria for the data segmentation and the analysis of both intonation and speech rhythm and clarify the methodological choices made in the present study.

4.3.1 Intonation

Coming back to the description of the prosodic phrasing properties of (Castilian) Spanish and (Standard) European Portuguese presented in Section 3.2.2, the question that arises here is: do compound IPs in Olivenza Portuguese and Olivenza Spanish consist of ips or IPs? For (Castilian) Spanish, it has been suggested that first, the ip is the next hierarchically lower level from the IP, and second, the end of the ip is tonally marked by a boundary tone[144] (Nibert 2000; Hualde 2002; Estebas-Vilaplana & Prieto 2008, 2010; Hualde & Prieto 2015, among others). Following this, (S)(VO), the typical prosodic phrasing pattern of neutral SVO declarative sentences in Castilian Spanish (Elordieta et al. 2003; D'Imperio et al. 2005; Elordieta et al. 2005), can be analyzed as a compound IP which comprises two ips: $((S)_{ip}(VO)_{ip})_{IP}$. In contrast, the same prosodic grouping (i.e., (S)(VO)), obtained in neutral SVO declaratives in Standard European Portuguese when the subject is longer than eight syllables (Elordieta et al. 2005; Frota 2014), is also considered to be a compound IP, yet composed of two other IPs instead of ips: $((S)_{IP}(VO)_{IP})_{IP}{}^{max}$ (Frota 2000: 191-212; Cruz 2013: 25-29; Frota 2014; cf. also Section 3.2.2). Regarding the varieties studied in the present work, neither the phrasing patterns of Olivenza Portuguese nor those of Olivenza Spanish have been previously described in the literature. Consequently, it is not known if compound IPs consist of ips or IPs. Since the data recorded for the intonational analysis of Olivenza Portuguese and Olivenza Spanish were not designed to exclusively test prosodic phrasing and thus to determine what the nature of lower prosodic units bearing boundary tones is (i.e., ips or IPs), I assume that the ip is the next hierarchically lower prosodic level below the IP in both Olivenza Portuguese and Olivenza Spanish. Thus, the material collected for the intonational analysis of Olivenza Portuguese and Olivenza Spanish was segmented into intonational phrases (IPs), intermediate phrases (ips), words, and syllables. In the present work, the IP was defined as follows: 1) The IP contains at least one intermediate phrase. 2) The IP groups all adjacent intermediate phrases within a root sentence. 3) The end of the IP is tonally marked by a boundary tone. I followed Frota (2014: 11) in analyzing parenthetical phrases, tags, and vocatives as independent IPs, since they are assumed to be "in a string not structurally attached to the sentence tree." In line with Hualde (2002, 2003), who proposes that IPs may be composed of one or more ips in Spanish, I analyzed neutral SVO declaratives in both Olivenza Portuguese and Olivenza Spanish as IPs which comprise more than one ip if (a) prosodic break(s) was/were realized within the IP.

[144] Terminal tones of intermediate phrases are suggested to be phrase accents in English (Beckman & Pierrehumbert 1986; Beckman 1996; Beckman et al. 2005, among others), in contrast to (Castilian) Spanish, in which terminal tones of intermediate phrases are analyzed as boundary tones (Estebas-Vilaplana & Prieto 2008, 2010, among others).

Furthermore, declarative and interrogative enumerations (cf. situations 1b1 and 2c1 in the Appendix for both Olivenza Portuguese and Olivenza Spanish) and disjunctive questions (cf. situation 2b1 in the Appendix for both Olivenza Portuguese and Olivenza Spanish) were analyzed as compound IPs which consist of more than one ip (cf. Estebas-Vilaplana & Prieto 2010 and Willis 2010 for a similar analysis of enumerations and disjunctive questions in Spanish). The criteria applied for the segmentation of IPs into ips, in both Olivenza Portuguese and Olivenza Spanish, were 1) a perceptual one and 2) a theoretical one (i.e., ips are suggested to be defined by the presence of a nuclear pitch accent and a boundary tone)[145].

The location of stress in prosodic words (non-verbs and verbs) was defined on the basis of the stress assignment rules presented in Mateus & d'Andrade (2000: 109-117), Mateus et al. (2003: 1050-1054), and Correia (2009: 21-23) for Portuguese and in Hualde (2005: 222-233), Kubarth (2009: 180, 183-185), and Gabriel et al. (2013: 154-160) for Spanish, as well as by taking into account the speakers' individual productions.

The segmentation into syllables was done following the criteria for (re)syllabification proposed in Mateus & d'Andrade (2000: 38-64) and Azevedo (2005: 49-50) for Portuguese and in Hualde (2014: 56-89) for Spanish, as well as by considering the speakers' individual productions.

As briefly explained in Section 4.2 and also shown in Table 4.2 and Table 4.3, the speakers of Olivenza Portuguese and Olivenza Spanish were asked to begin the neutral statements with an overt subject (cf. (1), p. 79, and the Appendix for situations 1a2, 1a3, 1a4, 1a5, 1a6, and 1a7). The reason for this methodological choice was twofold: First, if the subject is overtly realized, it is possible to examine the prosodic phrasing patterns of SVO declarative sentences in the varieties studied. Second, such a design allows us to contrast the durational properties of nuclear syllables and phrase-final syllables of inner[146] and IP-final ips[147] if prosodic breaks are realized in

[145] As mentioned in Section 3.1.1.1, within the AM model, ips are said to be defined by the presence of a nuclear pitch accent and a terminal tone (Beckman & Pierrehumbert 1986; Beckman 1996; Frota 2012, among others). Following Estebas-Vilaplana & Prieto (2008, 2010) (cf. footnote 144), I analyze terminal tones of ips as boundary tones. Although Frota (2014) does not assume the existence of ips in Standard European Portuguese, she patterns with Estebas-Vilaplana & Prieto (2008, 2010) in suggesting that the phrase-final tonal movements can be represented by means of boundary tones. Thus, she analyzes the tonal movements after the nuclear pitch accent as boundary tones (monotonal or bitonal ones), rather than as combinations of phrase accents and boundary tones.
[146] Inner ips are non-IP-final ips. It is important to note that the end of the IP-final ip is the end of the IP. If an IP consisted of one ip only, this ip was counted as an IP-final ip.
[147] As mentioned in Section 3.1.2, in Castilian Spanish and Standard European Portuguese, the nuclear pitch accent is realized on the last prosodic word of a phrase in neutral contexts. This holds for Romance varieties in general: "Romance languages have been characterized as showing very little flexibility in the placement of the nuclear accent (or main phrasal stress), which almost invariably falls on the last content word, except for very marked cases of emphatic or contradictory focus" (Hualde & Prieto 2015: 358). In the analysis of Olivenza Portuguese and Olivenza Spanish, I use the terms *nuclear syllable of an inner ip* to refer to the syllable on which the nuclear pitch accent of an inner ip is realized (this is usually the last stressed syllable within the inner ip), and *nuclear syllable of an IP-final ip* to refer to the syllable on which the nuclear pitch accent of an IP-final ip is realized (this is usually the last stressed syllable within the IP-final ip and also within the IP) (cf. footnote 146).

the data (e.g., $((S)_{ip}(VO)_{ip})_{IP}$ or $((SV)_{ip}(O)_{ip})_{IP}$). Since the SVO declaratives obtained with the aforementioned situations are semi-spontaneous data[148], it was not possible to fully control for the syllable structures, the length of the constituents, and the segments that occur in the material: The subject DPs chosen for the different stimuli were non-branching and almost the same concerning their length, stress patterns, and syllable structure types for both varieties (*a Marina* 'Marina' for 1a2 and 1a3, *a libélula* 'dragonfly' for 1a4, *a médica* 'doctor' and *o médico* 'doctor' for 1a5 and 1a6, and *a Ângela* 'Angela' for 1a7 for Olivenza Portuguese; *Marina* 'Marina' for 1a2 and 1a3, *la libélula* 'dragonfly' for 1a4, *la médica* 'doctor' for 1a5 and 1a6, and *Bárbara* 'Barbara' for 1a7 for Olivenza Spanish)[149]. The VPs produced mostly consisted of a verb (in the present tense, present progressive, or periphrastic future; cf. footnote 135)[150] and a direct object in both varieties. For the description of the results of the analysis of the prosodic phrasing of the SVO declaratives, the verbs were labeled with V if the present tense was used and with VV if a compound tense was used (i.e., present progressive or periphrastic future). Regarding the objects, some examples of double-branching objects and of two successive objects (DO and IO) were found in the data examined. These cases were annotated as OO[151]. In a few cases, a prepositional phrase was realized instead of a direct object (cf. underlined constituent: oli. sp. *La libélula está sobre la flor*. 'The dragonfly is sitting on the flower.'). The prepositional phrases were labeled with PP. The procedure for the analysis of the SVO declaratives produced in Olivenza Portuguese and Olivenza Spanish was the following: First, I performed an auditory analysis and thus determined the prosodic grouping of all sentences. Since there were many ambiguous cases in which it was not clear if there was a prosodic boundary between the subject and the verb phrase, two further raters, familiar with the analysis of prosodic phrasing, were asked to analyze all SVO sentences and to define if there was a boundary between the subject and the verb phrase. Regarding the final results, if at least two of the raters (e.g., the author and one of the other two raters) analyzed a sentence as being grouped as S | VO, the respective sentence was counted as a sentence in which the subject forms a separate ip. In a next step, I defined the tonal realization of all prenuclear and nuclear pitch accents and boundary tones produced in the data using the tonal inventory of pitch accents and boundary tones proposed for Castilian Spanish and Standard Eu-

[148] Note that I analyzed semi-spontaneous data only, because the Olivenza Portuguese speakers are not accustomed to using Portuguese in its written form (cf. Chapter 2).
[149] Stressed syllables are underlined.
[150] In the Olivenza Portuguese material, almost all verbs realized in the statements obtained with the situations 1a2, 1a3, 1a4, 1a5, 1a6, and 1a7 were in the present progressive, in contrast to the Olivenza Spanish data, in which all three tenses mentioned above were found.
[151] OO thus stands for a branching object (e.g., oli. sp. *zumo de mandarina* 'orange juice'; situation 1a3) or for two successive objects (a DO and an IO) (cf. the underlined constituents in the following example obtained with situation 1a5: oli. sp. *La médica le mira el pecho a la niña*. 'The doctor is looking at the thorax of the girl.').

ropean Portuguese within the AM model (cf. Section 3.1.2.1). Subsequently, I measured the durations of prenuclear[152], nuclear, and phrase-final syllables that occurred in the SVO declaratives in order to compare the durational properties of this sentence type in both varieties under consideration. It is worth mentioning that the presence of pauses was also taken into account in the durational analysis: The nuclear and the final syllables of inner ips were divided into two groups (1. without pauses; 2. with pauses). Consequently, both the mean duration of nuclear and final syllables of inner ips preceding a pause and the mean duration of nuclear and final syllables of inner ips after which no pause was inserted were calculated (cf. Rao 2010 for similar methods). Following the methodology of Pešková et al. (2012), a distinction between nuclear syllables of proparoxytone and paroxytone words (e.g., oli. sp./oli. port. *libélula* 'dragonfly' and *Marina* 'Marina') and nuclear syllables of oxytone words (e.g., oli. sp. *flor* 'flower' and oli. port. *amanhã* 'tomorrow') was made, since the pre-boundary syllable and the accented syllable coincide in the latter and thus a greater durational effect is expected. Finally, I calculated the percentage of different syllable types appearing in prenuclear, nuclear, and phrase-final positions to include or exclude the syllable structure complexity as a possible factor in the durational differences/similarities. The labels depicted in Table 4.6 were used in the durational analysis.

Table 4.6. Labels used in the durational analysis of neutral SVO declaratives

labels	meaning of label	numbers	syllable structure types
p	prenuclear syllables	1	CV
nn	nuclear syllables of inner ips	2	CVC
n	nuclear syllables of IP-final ips	3	VC
f	final syllables of inner ips	4	CCV
ff	final syllables of IP-final ips = unstressed IP-final syllables	5	CGlV / CVGl
nnf	nuclear syllables belonging to oxytones that occur at the end of inner ips	6	CGlVC / CVGlC
		7	GlV / VGl
nff	nuclear syllables belonging to oxytones that occur at the end of IP-final ips= stressed IP-final syllables	8	CCVC
		9	V
		10	CCGlV / CCVGl
		11	GlVC / VGlC

In the segmentation for the durational analysis of the neutral SVO declaratives, a minus "-" was included in the label if a pause was inserted after the end of the inner ips (i.e., "nn-", "f-", and "nnf-"). An additional codification was done using the numbers from 1 to 11 to indicate the syl-

[152] I used the term *prenuclear syllables* in the durational analysis to refer to all syllables which are not nuclear or phrase-final syllables (note that both stressed and unstressed syllables belong to this group).

lable type as shown in Table 4.6[153]. The segmentation for the durational analysis is illustrated by means of an example from Olivenza Spanish in Figure 4.1 (the abbreviation PB stands for *prosodic boundary*): the label **p1** marks the prenuclear syllables which first, appear in both ips realized within the IP *Marina bebe limonada* 'Marina drinks soda pop' and second, show the syllable structure CV; the label **nn1** marks the nuclear syllable of the inner ip *Marina bebe* and indicates that this is a CV syllable; the label **f1** marks the final syllable of the inner ip *Marina bebe* and indicates that this is a CV syllable; the label **n1** marks the nuclear syllable of the IP-final ip *limonada* and indicates that this is a CV syllable; and the label **ff1** marks the final syllable of the IP-final ip *limonada*, which is at the same time the IP-final syllable, and indicates that this is a CV syllable.

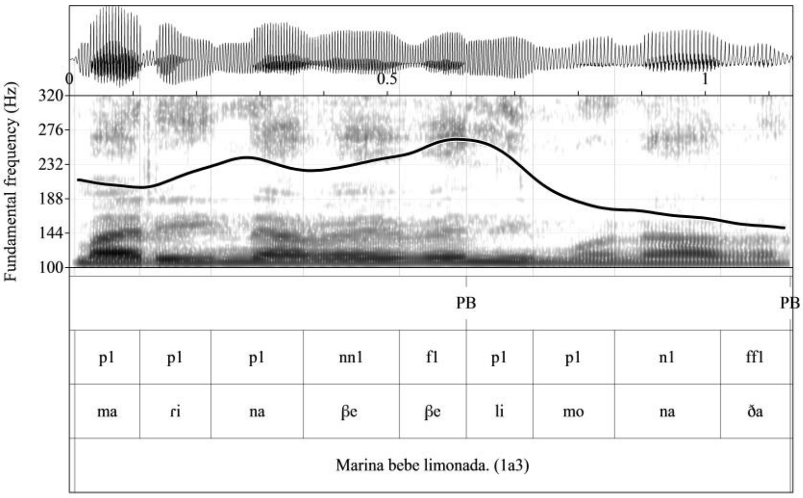

Figure 4.1. Segmentation for the durational analysis of the neutral SVO declaratives (a neutral statement realized in Olivenza Spanish: *Marina bebe limonada.* 'Marina drinks soda pop.')

To extract the durations of the intervals corresponding to the different labels, I used a *Praat* script[154].

All prenuclear pitch accents[155], nuclear pitch accents[156], and boundary tones[157] occurring in the data recorded for the intonational analysis of both Olivenza Portuguese and Olivenza Spanish were labeled using the tonal inventory of pitch accents and boundary tones proposed for

[153] ***C*** stands for consonant, ***V*** for vowel, and ***Gl*** for glide.
[154] The *Praat* script was written by Silvia C. Lipski (University of Oldenburg) and subsequently edited by Angel Bakardzhiev (University of Hamburg).
[155] Prenuclear accents are those pitch accents which precede the nuclear accent. They associate with the stressed syllables of the ip which precede the nuclear syllable.
[156] As mentioned above (cf. p. 86-87), each ip (an inner one or an IP-final one) is assumed to have a nuclear pitch accent which is usually associated with the stressed syllable of the last prosodic word within this ip.
[157] Boundary tones associate with the end of ips and IPs (cf. p. 86-87).

Castilian Spanish and Standard European Portuguese within the AM model (cf. Section 3.1.2.1). Figure 4.2 illustrates the intonational analysis by means of an example from Olivenza Spanish[158] (this is the analysis of the IP *Marina bebe limonada*[159] 'Marina drinks soda pop'): L+>H* is a prenuclear pitch accent associated with the stressed syllable *-ri-* of the prosodic word *Marina* 'Marina'. The pitch accent L+¡H*[160], which associates with the stressed syllable *be-* of the prosodic word *bebe* 'drinks', is the nuclear pitch accent of the inner ip *Marina bebe* 'Marina drinks'. The boundary tone H- associates with the end of the inner ip. L+¡H* H- or the combination of the nuclear pitch accent L+¡H* and the boundary tone H- is referred to as the nuclear configuration of the inner ip. The nuclear pitch accent of the IP-final ip *limonada* L*, which is associated with the stressed syllable *-na-*, and the boundary tone of the IP L%, which is associated with the end of the IP, form the final contour of this neutral declarative statement (i.e., L* L%)[161]. The difference between the nuclear configuration of the inner ip and the final contour of the IP is not only a tonal one (i.e., L+¡H* H- vs. L* L%), but also a pragmatic one: while the nuclear contour of the inner ip conveys continuation of the discourse, the final contour indicates the sentence type (a neutral statement here) and the end of the sentence. For this reason, I will refer to such a final contour, composed of the nuclear pitch accent of the IP-final ip and the boundary tone of the IP, as the nuclear contour or nuclear configuration of the IP. The break indices (BI) 0, 1, 3, and 4, proposed within the ToBI framework (cf. Beckman et al. 2002; Estebas-Vilaplana & Prieto 2008, 2010, among others), are used to mark cohesion between orthographic words (BI 0), a prosodic word end (BI 1), an intermediate phrase end (BI 3), and an intonational phrase end (BI 4), respectively.

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[158] The figures which illustrate the intonational analysis were made using a *Praat* script written by Pauline Welby (Aix-Marseille University) and subsequently changed by Paolo Roseano (University of Barcelona).

[159] Stressed syllables are underlined.

[160] L+¡H* is an upstepped pitch accent. In the present work, a pitch accent is analyzed as an upstepped pitch accent if its peak is higher than the peak of the previous pitch accent within the ip or if its peak has almost the same frequency as that of the peak of the preceding pitch accent within the ip. The upstep depicted in Figure 4.2 is assumed to be triggered by the boundary tone H-.

[161] As mentioned above (cf. footnote 145), in the present work, I adopt the view that the end of the ip is tonally marked by a boundary tone. This means that the IP-final ip of an IP and the respective IP will always have the same boundary tone (a monotonal or a bitonal one), since the end of the IP-final ip is the end of the IP. For this reason, I will label only the boundary tone of the IP in the figures that illustrate the tonal contours of the sentences considered for the intonational analysis of Olivenza Portuguese and Olivenza Spanish.

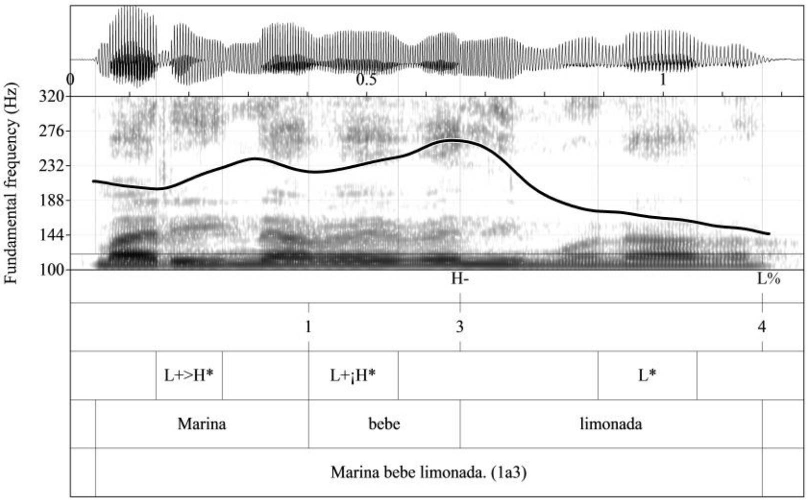

Figure 4.2. Segmentation for the intonational analysis (a neutral statement realized in Olivenza Spanish: *Marina bebe limonada.* ‘Marina drinks soda pop.’)

As mentioned in Section 3.1.2 and Section 3.1.2.2, an important difference between Castilian Spanish and Standard European Portuguese seems to be the distribution of pitch accents. While all prosodic words tend to bear a pitch accent in careful speech in Castilian Spanish, this is not the case for Standard European Portuguese. In Standard European Portuguese, IP-internal prosodic words, located between the first prosodic word and the last prosodic word of the IP, are usually pitch-deaccented (cf. Hualde & Prieto 2015 for Spanish and Frota 2014 and Frota et al. 2015 for Portuguese). Regarding the analysis of Olivenza Portuguese and Olivenza Spanish, I counted stressed syllables of phrase-internal prosodic words[162] as being pitch-deaccented if a high, mid, or low plateau was tonally realized within the temporal boundaries of these syllables (cf. O’Rourke 2006; Rao 2008, 2009). Furthermore, the tonal movements of the surrounding syllables (i.e., the pre-tonic and the post-tonic syllables) were also considered, since pitch accents “phonetically realized as an F0 valley on the accented syllable with a subsequent rise on the post-accentual syllable” (Estebas-Vilaplana & Prieto 2010: 19) can appear in prenuclear position in both Castilian Spanish and Standard European Portuguese (i.e., the bitonal pitch accent L*+H) (Estebas-Vilaplana & Prieto 2010; Frota 2014). I labeled pitch-deaccented syllables with a “*” in the present work to indicate that the respective prosodic word is pitch-deaccented, yet still has word stress (cf. Hualde & Prieto 2015 for a similar proposal[163]). The percentage of pitch-deaccented phrase-internal prosodic

[162] Phrase-internal prosodic words are those which occur between the first prosodic word and the last prosodic word within an ip.
[163] Hualde & Prieto (2015) propose to using a “*” to mark pitch accents without tonal correlates.

words was calculated for the neutral SVO declarative sentences, the confirmation-seeking yes-no questions, and the information-seeking wh-questions[164].

In order to offer a detailed description of the tonal shape of each sentence type and to determine the realization of prenuclear pitch accents that occurred in different positions within the sentence, the prenuclear pitch accents were divided into three groups: IP-initial prenuclear accents[165], phrase-internal prenuclear accents[166], and ip-initial prenuclear accents of non-IP-initial ips[167].

After defining the prosodic phrasing patterns and the tonal realization of all sentence types, an inventory of underlying pitch accents and boundary tones was established for both varieties under investigation.

4.3.2 Speech rhythm

For the segmentation, the material selected for the rhythmic analysis of Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish was divided into the following five groups: **statements** (neutral and biased statements), **yes-no questions** (neutral and biased yes-no questions), **wh-questions** (neutral and biased wh-questions), **echo questions** (including echo yes-no questions, echo wh-questions, and exclamative echo yes-no questions with counterexpectational meaning), and **imperatives** (including both commands and requests). All these data were segmented into vocalic[168] and consonantal intervals by the author of the present work. The segmental labeling was performed by means of an auditory analysis following standard phonetic criteria: **1)** All vowel-consonant boundaries were set at the point of zero crossing of the waveform (Peterson & Lehiste 1960). **2)** Both the formant structure and the pitch period were taken into account in determining the location of the boundaries between vocalic and consonantal intervals: i. the onset of a vowel usually coincided with the beginning of its F2-formant; ii. if a syllable ended in a na-

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[164] The percentage of pitch-deaccented phrase-internal prosodic words was calculated only for those sentence types which contained a large number of phrase-internal prosodic words.

[165] An IP-initial prenuclear pitch accent is the first prenuclear accent that occurs in the first ip of the IP (when there is more than one ip within the IP) or the first prenuclear accent that appears in the ip (when the IP contains only one ip).

[166] A phrase-internal prenuclear pitch accent is any prenuclear accent that appears between the first prenuclear accent and the nuclear accent of an ip.

[167] An ip-initial prenuclear accent of a non-IP-initial ip is the prenuclear pitch accent associated with the stressed syllable of the first prosodic word of an ip which does not occur in the initial position within the IP. For instance, the following IP contains three ips: $((ip)_1(ip)_2(ip)_3)_{IP}$; while $(ip)_1$ is an IP-initial ip, $(ip)_2$ and $(ip)_3$ are non-IP-initial ips.

[168] A vocalic interval is an interval "located between the onset and the offset of a vowel, or of a cluster of vowels" (Ramus et al. 1999: 271). Note that it is possible to have vowels (or consonants) belonging to different syllables and/or words within the same interval: sp. *habla español* '*pro* speaks Spanish' [a | βl | ae | sp | a | ɲ | o | l] = [v | c | v | c | v | c | v | c], where "v" stands for vocalic intervals and "c" for consonantal intervals.

sal, a lateral, or a vowel followed by a silent pause, the end of the interval was set considering the formant structure (F1 and F2 for vowels; F2 for laterals and nasals), the end of the pitch contour, and the amplitude of the signal (Peterson & Lehiste 1960; Grabe & Low 2002; White & Mattys 2007a). **3)** Nasal-vowel, vowel-nasal, lateral-vowel, and vowel-lateral sequences were segmented into vocalic/consonantal intervals by observing their formant structures, the amplitude of the signal, and the fault transitions between nasal consonants and vowels (Grabe & Low 2002). **4)** If a sentence or a phrase realized after a silent pause began with a plosive or an affricate, the beginning of the respective consonantal interval was set 0.05 seconds before the burst of the plosive (Mok & Dellwo 2008). **5)** Following Grabe & Low (2002) and White & Mattys (2007a), I included pre-pausal and phrase-final intervals in the counting, since possible lengthening effects should be reflected in the measures. **6)** Both pre-vocalic and post-vocalic glides were analyzed as belonging to the vocalic intervals if there was no friction attested (Grabe & Low 2002; Arvaniti 2012a). **7)** Last but not least, silent pauses and words (or phrases) affected by any kind of speech disfluency were not considered for the analysis. Figure 4.3 gives an example of the segmentation: as shown, vocalic intervals were labeled with "v" and consonantal intervals with "c" (a clarification of the segmentation done in tier 2 will be given below).

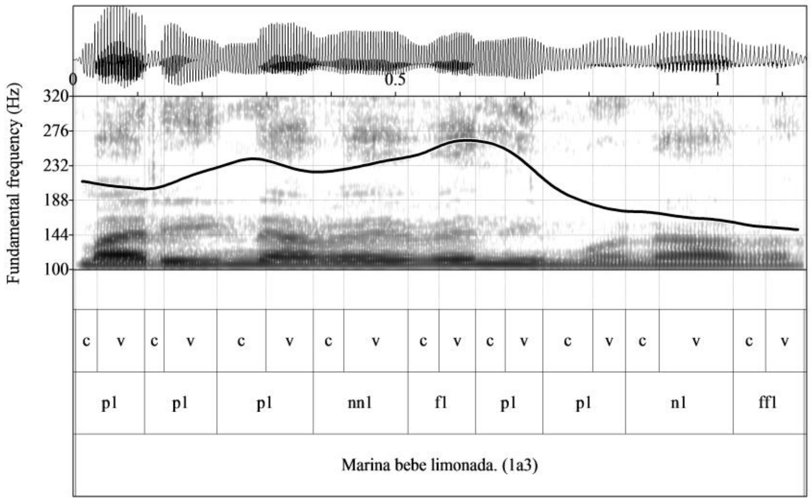

Figure 4.3. Segmentation for the rhythmic analysis (a neutral statement realized in Olivenza Spanish: *Marina bebe limonada.* 'Marina drinks soda pop.')

On the basis of the segmental labeling, six rhythm metrics were computed for each data group (i.e., statements, yes-no questions, wh-questions, echo questions, and imperatives) using the software *Correlatore* (Version 2.1) (Mairano & Romano 2010)[169]: **1)** the proportion of vocalic material (%V) (Ramus et al. 1999); **2)** the normalized variability coefficient VarcoV, which cal-

[169] The figures depicting the results of the rhythmic analysis were also made with *Correlatore*.

culates the durational variability of vocalic intervals over the whole acoustic signal (Ferragne & Pellegrino 2004; White & Mattys 2007a); **3)** the normalized variability coefficient VarcoC, which computes the durational variability of consonantal intervals over the whole acoustic signal (Dellwo & Wagner 2003); **4)** the normalized pairwise variability index VnPVI, which calculates the durational variability of vocalic intervals in successive intervals (Grabe & Low 2002); **5)** the non-normalized or raw pairwise variability index CrPVI, which computes the durational variability of consonantal intervals in successive intervals (Grabe & Low 2002); and **6)** the normalized pairwise variability index CnPVI, which calculates the durational variability of consonantal intervals in successive intervals (Kinoshita & Sheppard 2011).

%V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI values were first calculated on the basis of the productions of each of the 25 speakers for the five data groups mentioned above (i.e., statements, yes-no questions, wh-questions, echo questions, and imperatives). Subsequently, mean values (for the six rhythm metrics) were computed for each of the five data groups for Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish. In addition, scores for the six rhythm metrics were calculated for the statements both including and excluding the nuclear and the final syllables of inner ips from the analysis. Furthermore, values for the six rhythm metrics were computed for the yes-no questions, the wh-questions, and the echo questions, both including and excluding the IP-final syllables from the analysis.

In the figures depicting the rhythm patterns of the varieties under investigation, Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish were compared over the %V/VarcoV (White & Mattys 2007a) and the VnPVI/CrPVI (Grabe & Low 2002) planes.

I calculated the percentage of different syllable structure types that occurred in the five data groups for Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish to determine whether potential rhythmic differences between the varieties studied can be traced back to the syllable complexity. The mean durations of prenuclear, nuclear, and IP-final syllables were calculated for the yes-no questions, the wh-questions, and the echo questions (cf. segmentation done in tier 2 in Figure 4.3). I applied the same methods presented in Section 4.3.1 (cf. p. 89-90) to extract the syllable structures and the durations.

In order to define the statistical significance of the results, a Bonferroni Test[170] was applied. This statistical test provided multiple comparisons of the scores of each of the rhythm metrics %V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI which were obtained for each variety and for each of the five data groups mentioned above. Thus, a *p* value was computed for

[170] I am deeply obliged to Vasyl Druchkiv (University Medical Center Hamburg-Eppendorf, Germany) for his help with the statistical analyses.

each comparison. This procedure can be illustrated by means of the multiple comparison of the %V scores obtained from the analysis of the statements for each of the three varieties under investigation: the results of the multiple comparison in this case were three *p* values (a *p* value for the comparison between the %V scores for Olivenza Portuguese and the %V scores for Olivenza Spanish, a *p* value for the comparison between the %V scores for Olivenza Portuguese and the %V scores for Castilian Spanish, and a *p* value for the comparison between the %V scores for Olivenza Spanish and the %V scores for Castilian Spanish). The same holds for the remaining rhythm metrics calculated for the statements (i.e., three *p* values were obtained for the comparison of the VarcoV scores, three *p* values were obtained for the comparison of the VarcoC scores, etc.).

CHAPTER 5

Results

This chapter describes the results of the study on both the intonation and the speech rhythm of Olivenza Portuguese and Olivenza Spanish. Section 5.1 presents the results of the intonational analysis of the contact varieties and offers the typical tunes found in Olivenza Portuguese and Olivenza Spanish for the following sentence types: **1) neutral statements** (Section 5.1.1); **2) biased statements** (Section 5.1.2), divided into contrastive focus statements (Section 5.1.2.1), exclamative statements (Section 5.1.2.2), and contradiction statements (Section 5.1.2.3); **3) neutral (yes-no) questions** (Section 5.1.3), including information-seeking yes-no questions (Section 5.1.3.1), disjunctive questions (Section 5.1.3.2), and interrogative enumerations (Section 5.1.3.3); **4) biased yes-no questions** (Section 5.1.4), divided into exclamative yes-no questions with counterexpectational meaning (Section 5.1.4.1) and confirmation-seeking yes-no questions (Section 5.1.4.2); **5) neutral wh-questions** (Section 5.1.5), including information-seeking wh-questions, information-seeking wh-questions with a peripheral element (Section 5.1.5.1), and enumerations (successive information-seeking wh-questions) (Section 5.1.5.2); **6) biased wh-questions** (Section 5.1.6), divided into exclamative wh-questions (Section 5.1.6.1) and imperative wh-questions (Section 5.1.6.2); **7) echo questions** (Section 5.1.7), including echo yes-no questions (Section 5.1.7.1), echo wh-questions (Section 5.1.7.2), and exclamative echo yes-no questions with counterexpectational meaning (Section 5.1.7.3); and **8) imperatives** (Section 5.1.8), divided into commands (Section 5.1.8.1) and requests (Sections 5.1.8.2). In Section 5.2, I discuss the phonological status of prenuclear and nuclear pitch accents and boundary tones in Olivenza Portuguese and Olivenza Spanish and establish the inventory of pitch accents and boundary tones for both contact varieties. Section 5.3 depicts the rhythmic properties of Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish[171] on the basis of the analysis of neutral and biased statements (Section 5.3.1), neutral and biased yes-no questions (Section 5.3.2), neutral and biased wh-questions (Section 5.3.3), echo questions (Section 5.3.4), and imperatives (including both commands and requests) (Section 5.3.5).

[171] As mentioned above (cf. previous chapter), Castilian Spanish serves as a control group for the rhythmic analysis only.

5.1 Intonational analysis

5.1.1 Neutral statements

This section presents the results of the analysis of the neutral SVO declarative sentences. The following prosodic properties will be described: prosodic phrasing, tonal realization of prenuclear pitch accents and nuclear configurations, and durational properties of prenuclear[172], nuclear, and phrase-final syllables.

5.1.1.1 *Prosodic phrasing of neutral SVO declarative sentences*

As shown in Table 4.2 and Table 4.3, 120 neutral SVO declarative sentences were obtained with the situations 1a2, 1a3, 1a4, 1a5, 1a6, and 1a7[173] for both Olivenza Portuguese and Olivenza Spanish (i.e., 60 IPs per variety). Three of the 60 sentences produced in Olivenza Portuguese were excluded from the analysis of prosodic phrasing due to disfluencies. As already mentioned in Section 4.3.1, the subject DPs showed similar length, stress patterns, and syllable structures in both varieties. The following subject DPs occurred in the SVO declaratives: *a Marina*[174] 'Marina' for 1a2 and 1a3, *a libélula* 'dragonfly' for 1a4, *a médica* 'doctor' and *o médico* 'doctor' for 1a5 and 1a6, and *a Ângela* 'Angela' for 1a7 for Olivenza Portuguese; *Marina* 'Marina' for 1a2 and 1a3, *la libélula* 'dragonfly' for 1a4, *la médica* 'doctor' for 1a5 and 1a6, and *Bárbara* 'Barbara' for 1a7 for Olivenza Spanish. Regarding the verb phrase (i.e., the neutral focus), in the case of the stimuli 1a2, 1a3, 1a4, and 1a5, the speakers of each variety were free to realize VPs which, first, may comprise a different number of constituents, and second, do not necessarily have the same vocabulary. As for the situations 1a6 and 1a7, since both subject and verb were given and the object (i.e., the neutral focus) was clearly recognizable in the pictures presented (cf. situations 1a6 and 1a7 for Olivenza Portuguese and Olivenza Spanish in the Appendix), the speakers produced the same or similar sen-

[172] The term *prenuclear syllable* is used in the durational analysis to refer to all syllables which are not nuclear or phrase-final syllables (i.e., both stressed and unstressed syllables belong to this group).

[173] Concerning the information structure (cf. Table 4.2 and Table 4.3), the neutral SVO declarative sentences can be grouped into, first, neutral statements in which the subject is given and the verb phrase is a neutral focus (cf. situations 1a2, 1a3, 1a4, and 1a5 in the Appendix), and second, neutral statements in which both subject and verb are given and the direct object is a neutral focus (cf. situations 1a6 and 1a7 in the Appendix). However, since both sentence groups behave similarly with regard to the prosodic phrasing (cf. Table 5.1 and Table 5.2) and the tonal realization of prenuclear pitch accents and nuclear configurations for the varieties under consideration, the results of the prosodic analysis of the neutral statements obtained with situations 1a2, 1a3, 1a4, and 1a5 and the results of the prosodic analysis of the neutral statements obtained with situations 1a6 and 1a7 will be presented together and not separately (the prosodic analysis comprises the analysis of prosodic phrasing, the intonational analysis, the and durational analysis).

[174] Stressed syllables are underlined.

tences concerning both the vocabulary and the syntactic complexity. The majority of sentences uttered in both varieties consisted of a non-branching subject, a verb (in the present, present progressive, or periphrastic future[175]), and a non-branching object; their exact number amounts to 47 IPs in Olivenza Portuguese and to 41 IPs in Olivenza Spanish. Regarding the occurrence of branching objects or two successive objects (labeled with OO here), there were four SVVOO patterns in the Olivenza Portuguese data and twelve SV(V)OO patterns in the Olivenza Spanish data. As for the occurrence of prepositional phrases (labeled with PP here), six PPs were found in the Olivenza Portuguese material and seven in the Olivenza Spanish material.

According to the results obtained on the basis of the analysis of the prosodic phrasing of the neutral SVO declaratives, various phrasing patterns were found in the data examined. Table 5.1 and Table 5.2 exhibit the patterns of each sentence realized in the contact varieties. The most frequent patterns attested in Olivenza Portuguese were (SVVO)/(SVO), occurring in 35% of the cases, and (SVV)(O)/(SV)(VO) in 21%, followed by (S)(VV)(O)/(S)(VV)(OO)/(S)(VV)(PP) and (S)(VO)/(S)(VVO)/(S)(VVPP) appearing in 19% and 18% of the cases. For Olivenza Spanish, the most common prosodic groupings were (S)(VO)/(S)(VVO)/(S)(VVOO)/(S)(VVPP), occurring in 35% of the cases, and (SVO)/(SVVO)/(SVOO)/(SVPP)/(SVVOO) in 27%, followed by (SV)(O)/(SVV)(O)/(SVV)(OO)/(SV)(OO)/(SV)(PP)/(SVV)(PP), which appeared in 20% of the cases.

Table 5.1. Prosodic phrasing patterns of the SVO declarative sentences in Olivenza Portuguese

Stimuli	**1a2**	**1a3**	**1a4**	**1a5**	**1a6**	**1a7**
Speaker 1	(SV)(VO)	(SVV)(O)	(SV)(VO)	(SVVO)	(SVVO)	(SVVO)
Speaker 2	(S)(VV)(O)	(SV)(VO)	(SV)(V)(OO)	(S)(V)(VOO)	(S)(VVO)	(S)(VV)(PP)
Speaker 3	-	-	-	(SVVO)	(S)(VVPP)	(SVVO)
Speaker 4	(SVV)(O)	(SVVO)	(SVV)(OO)	(SVVO)	(SVV)(O)	(SVVO)
Speaker 5	(SVVO)	(SVVO)	(SV)(VO)	(SVVO)	(SV)(VO)	(SVVO)
Speaker 6	(S)(VV)(O)	(S)(VV)(O)	(SVV)(PP)	(SVV)(O)	(SVV)(O)	(SVV)(O)
Speaker 7	(SVVO)	(SVVO)	(SVVO)	(S)(VV)(OO)	(S)(VVO)	(S)(VVO)
Speaker 8	(S)(VV)(O)	(SV)(VO)	(S)(VVPP)	(S)(VV)(O)	(S)(VV)(PP)	(S)(VV)(PP)
Speaker 9	(SVVO)	(SVVO)	(S)(VO)	(S)(VO)	(S)(VO)	(S)(VO)
Speaker 10	(SVVO)	(SVVO)	(S)(VVO)	(SVVO)	(S)(VV)(O)	(S)(VV)(O)

[175] As mentioned in Chapter 4 (cf. footnote 150), the present progressive was predominantly used by the Olivenza Portuguese speakers, in contrast to the Olivenza Spanish speakers, who made use of all three tenses mentioned above. I use the label “V” for verbs conjugated in the present (e.g., oli. sp./oli. port. *come* ‘s/he eats’) and “VV” for verbs in the present progressive and periphrastic future (e.g., oli. sp./oli. port. *está comiendo/está comendo* ‘s/he is eating’) in describing the prosodic patterns of the SVO declaratives.

Table 5.2. Prosodic phrasing patterns of the SVO declarative sentences in Olivenza Spanish

Stimuli	**1a2**	**1a3**	**1a4**	**1a5**	**1a6**	**1a7**
Speaker 1	(SVV)(OO)	(SVVOO)	(SVPP)	(SVOO)	(SVO)	(SVO)
Speaker 2	(SVV)(O)	(SVV)(OO)	(S)(VVO)	(S)(VV)(OO)	(SVV)(O)	(SVVO)
Speaker 3	(SV)(OO)	(SVO)	(S)(VV)(PP)	(S)(VVOO)	(S)(VVO)	(S)(VVO)
Speaker 4	(SVVO)	(SVV)(O)	(SV)(PP)	(SV)(VO)	(SV)(O)	(SV)(O)
Speaker 5	(S)(VVO)	(SVO)	(S)(VVPP)	(S)(VO)	(S)(VO)	(S)(VO)
Speaker 6	(SVV)(O)	(SVO)	(S)(VO)	(S)(VVO)(O)	(S)(VO)	(S)(VO)
Speaker 7	(SVO)	(SVVO)(O)	(S)(VV)(O)	(S)(VVO)(O)	(S)(VVO)	(S)(V)(O)
Speaker 8	(S)(VO)	(SV)(O)	(S)(VVPP)	(S)(VV)(O)	(S)(VO)	(SVO)
Speaker 9	(SVVO)	(SVVO)	(S)(VVPP)	(SVVO)	(S)(VO)	(SVVO)
Speaker 10	(SVVO)(O)	(S)(VVOO)	(SVV)(PP)	(S)(VV)(O)	(S)(VO)	(S)(VO)

As can be seen in Table 5.1 and Table 5.2, great inter-speaker variation and variation within the data produced by each subject are attested for both Olivenza Portuguese and Olivenza Spanish.

In the following, I briefly discuss the stress patterns of the subject DPs and the weight of prosodic phrases (e.g., the number of constituents per prosodic phrase) in order to find out if these factors contribute to the results of the analysis. In Olivenza Portuguese, there is no correlation between the different stress patterns of the subject DPs (e.g., *a Marina* vs. *a médica*) or the number of syllables of the subject DPs (e.g., *a Marina* vs. *a libélula*) and the phrasing patterns attested. In Olivenza Spanish, paroxytone subject DPs such as *Marina* are grouped with the verb in the same prosodic phrase more frequently than proparoxytone subject DPs such as *la libélula*, *la médica* or *Bárbara* (cf. stimuli 1a2 and 1a3 vs. 1a4, 1a5, 1a6, and 1a7 in Table 5.2). The use of different tenses in the Olivenza Spanish data entails that the verb comprises a distinct number of syllables. However, neither the simple tense (i.e., present) nor the compound tenses (i.e., present progressive and periphrastic future) seem to facilitate the occurrence of a particular phrasing. Regarding the weight of prosodic phrases, the SVOO/SVVOO sentences do not show a uniform phrasing type: There is one (SVV)(OO) pattern, one (SV)(V)(OO) pattern, one (S)(VV)(OO) pattern, and one (S)(V)(VOO) pattern in Olivenza Portuguese. As for Olivenza Spanish, there are two (S)(VVOO) patterns, two (SVV)(OO) patterns, two (SVVO)(O) patterns, two (S)(VVO)(O) patterns, one (SV)(OO) pattern, one (SVOO) pattern, one (S)(VV)(OO) pattern, and one (SVVOO) pattern. The same holds for the SVPP/SVVPP sentences: I found three (S)(VV)(PP) patterns, two (S)(VVPP) patterns, and one (SVV)(PP) pattern in Olivenza Portuguese, and three (S)(VVPP) patterns, one (SV)(PP) pattern, one (SVV)(PP) pattern, one (SVPP) pattern, and one (S)(VV)(PP) pattern in Olivenza Spanish. Consequently, these findings do not allow us to draw conclusions about the relation between the weight of prosodic phrases and the phrasing patterns attested in the data analyzed for the varieties studied.

As mentioned above, 47 of the SVO declaratives produced in Olivenza Portuguese and 41 of the SVO declaratives realized in Olivenza Spanish comprised a non-branching subject, a verb (in the present, present progressive, or periphrastic future), and a non-branching object. Table 5.3 presents the phrasing patterns of these 88 neutral statements.

Table 5.3. Percentage and absolute numbers[176] of (SVO)/(SVVO), (S)(VO)/(S)(VVO), (SV)(O)/(SVV)(O), and (S)(V)(O)/(S)(VV)(O) patterns in Olivenza Portuguese and Olivenza Spanish

	(SVO)/(SVVO)	(S)(VO)/(S)(VVO)	(SV)(O)/(SVV)(O)	(S)(V)(O)/(S)(VV)(O)	(SV)(VO)
Olivenza Portuguese	42.5% (20)	17% (8)	13% (6)	14.5% (7)	13% (6)
Olivenza Spanish	32% (13)	39% (16)	17% (7)	10% (4)	2% (1)

According to the results depicted in Table 5.3, the (SVO)/(SVVO) pattern appeared in 42.5% of the cases and was thus the most frequent phrasing pattern in Olivenza Portuguese. In Olivenza Spanish, the (S)(VO)/(S)(VVO) pattern was the most common one, occurring in 39% of the cases.

In summary, it can be said that the following three phrasing patterns seem to co-occur in both Olivenza Portuguese and Olivenza Spanish: ((Subject-Verb-Object)$_{ip}$)$_{IP}$, ((Subject)$_{ip}$(Verb-Object)$_{ip}$)$_{IP}$, and ((Subject-Verb)$_{ip}$(Object)$_{ip}$)$_{IP}$[177]. While Olivenza Portuguese shows a clear preference for ((Subject-Verb-Object)$_{ip}$)$_{IP}$, Olivenza Spanish displays ((Subject)$_{ip}$(Verb-Object)$_{ip}$)$_{IP}$ as the most common phrasing pattern, followed by ((Subject-Verb-Object)$_{ip}$)$_{IP}$.

5.1.1.2 *Tonal realization of neutral SVO declarative sentences*

In what follows, I present the realization of prenuclear pitch accents, nuclear configurations of inner ips (i.e., the combination of the nuclear pitch accent and the boundary tone of an inner ip), and nuclear configurations of IPs (i.e., the combination of the nuclear pitch accent of the IP-final ip and the boundary tone of the IP; cf. p. 86-93). I will address their phonological status after presenting the tonal realization of all sentence types considered for the intonational analysis of Olivenza Portuguese and Olivenza Spanish (cf. Section 5.2.1, Section 5.2.2, and Section 5.2.3).

[176] Absolute numbers are given in brackets.
[177] As mentioned in Chapter 4 (cf. p. 86-87), I assume that the intermediate phrase (ip) is the next hierarchically lower prosodic level below the intonational phrase (IP) in both Olivenza Portuguese and Olivenza Spanish. Thus, each IP is suggested to be composed of one or more ips in the contact varieties under investigation.

The prenuclear pitch accents realized in the neutral SVO declaratives amounted to 114 for Olivenza Portuguese and to 113 for Olivenza Spanish. As mentioned in Chapter 4 (p. 93), I divided the prenuclear pitch accents into three groups in order to determine the realization of prenuclear accents attested in different positions within the ip/IP: IP-initial prenuclear accents[178], phrase-internal prenuclear accents[179], and ip-initial prenuclear accents of non-IP-initial ips[180].

The following IP-initial prenuclear accents were found in the data analyzed for the varieties studied: L+>H*[181] and L+H*[182] for Olivenza Portuguese and L+>H* and L*+H[183] for Olivenza Spanish. Concerning their occurrence, it is worth mentioning that the delayed peak (i.e., L+>H*) appeared far more commonly in both Olivenza Portuguese and Olivenza Spanish than the other two pitch accents (i.e., L+H* for Olivenza Portuguese and L*+H for Olivenza Spanish).

Regarding the realization of phrase-internal prenuclear accents, 53% of the phrase-internal prosodic words did not bear a pitch accent in the Olivenza Portuguese data and 56% did not in the Olivenza Spanish material[184]. Figure 5.1a and Figure 5.1b[185] show neutral SVO declaratives produced in Olivenza Portuguese in which the IP-initial prenuclear accents are realized as L+>H* and the phrase-internal prosodic words are pitch-deaccented (the stressed syllables of *e(s)<u>tá</u>* 'is' and *to<u>man</u>do* 'drinking' in Figure 5.1a and of *es<u>tá</u>* 'is' and *mi<u>ran</u>do* 'looking at' in Figure 5.1b are marked with a "*" to indicate that the prosodic words are pitch-deaccented, but still have word stress). Figure 5.2a and Figure 5.2b illustrate F0 contours of neutral SVO declaratives realized in Olivenza Spanish. In Figure 5.2a, the IP-initial prenuclear accent is realized as L+>H*, while the phrase-internal prosodic words are pitch-deaccented and thus marked with a "*". Figure 5.2b displays a compound IP consisting of two ips (*la li<u>bé</u>lula* 'the dragonfly' and

[178] An IP-initial prenuclear pitch accent is the first prenuclear accent that occurs in the first ip of the IP (when there is more than one ip within the IP) or the first prenuclear accent that appears in the ip (when the IP contains only one ip).
[179] A phrase-internal prenuclear pitch accent is any prenuclear accent that appears between the first prenuclear accent and the nuclear accent of an ip.
[180] An ip-initial prenuclear accent of a non-IP-initial ip is the prenuclear pitch accent associated with the stressed syllable of the first prosodic word of an ip which does not occur in the initial position within the IP. For instance, the following IP contains three ips: $((ip)_1(ip)_2(ip)_3)_{IP}$; while $(ip)_1$ is an IP-initial ip, $(ip)_2$ and $(ip)_3$ are non-IP-initial ips.
[181] L+>H* (also called "delayed peak") is phonetically realized as a rising movement on the stressed syllable with the peak located in the post-tonic syllable (Estebas-Vilaplana & Prieto 2008, 2010: 19). As mentioned in footnote 56, the label L+<H* has also been used for the annotation of the delayed peak. In the present work, I follow Estebas-Vilaplana & Prieto (2010) in labeling delayed peaks with L+>H*.
[182] L+H* (also called "early rising accent") is phonetically realized as a rise during the stressed syllable with the peak located at the end of this syllable (Estebas-Vilaplana & Prieto 2008, 2010: 19).
[183] L*+H (also called "late rising accent") is phonetically realized as a valley during the stressed syllable followed by a rise on the post-tonic syllable (Estebas-Vilaplana & Prieto 2008, 2010: 19).
[184] As already mentioned in Chapter 4, I counted a stressed syllable of a phrase-internal prosodic word as being pitch-deaccented if a high, mid, or low plateau was tonally realized within the temporal boundaries of this syllable (cf. p. 92-93).
[185] The figures depicting the tonal realization of the SVO declaratives can be found at the end of this section.

está posada sobre una flor ‘is sitting on a flower’). The ip-initial prenuclear accent of the non-IP-initial ip *está posada sobre una flor* surfaces as a fall during the stressed syllable *tá* (i.e., H+L*), while the phrase-internal prenuclear accent associated with the stressed syllable *sa* of the prosodic word *posada* ‘sitting’ is deaccented and labeled with a “*”. However, neutral declaratives can also be realized with a higher pitch accent density in both varieties under consideration. Figure 5.3 (for Olivenza Portuguese) and Figure 5.4 (for Olivenza Spanish) present neutral SVO declarative sentences in which each prosodic word bears a pitch accent. In Figure 5.3, both the IP-initial prenuclear accent and the ip-initial prenuclear accent of the non-IP-initial ip *(e)studiendo a mandarina* ‘examining the tangerine’ are produced as delayed peaks (i.e., L+>H*). Figure 5.4 depicts a compound IP in which the ip-initial prenuclear accent of the non-IP-initial ip *está posada en la flor* is a falling one (i.e., H+L*) and the phrase-internal prenuclear accent is a rising one (i.e., L*+H). To sum up, in the data analyzed, the following three phrase-internal prenuclear accents surfaced in the varieties under investigation: L+H*, L+>H*, and H+L*[186] in Olivenza Portuguese and H+L*, L*+H, and L+>H* in Olivenza Spanish. The occurrence of H+L* seems to be conditioned by the presence of a preceding peak belonging to the previous pitch accent and the lack of space to realize another rising movement immediately after this peak. For instance, in Figure 5.9, the H+L* phrase-internal prenuclear accent is directly preceded by the peak of the IP-initial prenuclear accent L+>H*. It can be seen that there is no sufficient segmental material between the peak of the L+>H* prenuclear accent and the following stressed syllable to realize another rise (e.g., L+>H*). Moreover, a fall in the fundamental frequency (i.e., gradual declination) is usually expected in (neutral) declarative sentences (Connell 2002). In the string of pitch accents and edge tones which define the neutral declarative sentences here, H+L* can be seen as a link which contributes to gradual declination. Thus, it can be said that due to the proximity to the peak of a previous prenuclear accent and the gradual declination, H+L* surfaces in such positions[187]. The same holds for the realization of the H+L* phrase-internal prenuclear accents in Olivenza Portuguese. Regarding L+>H* and L+H* (for Olivenza Portuguese) and L+>H* and L*+H (for Olivenza Spanish), it is worth mentioning that no preference for L+>H* or L+H* (in Olivenza Portuguese) or for L+>H* or L*+H (in Olivenza Spanish) as phrase-internal prenuclear accents was attested in the data examined.

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[186] The H+L* pitch accent was attested both as a phrase-internal prenuclear accent and as an ip-initial prenuclear accent of a non-IP-initial ip in very few cases in the Olivenza Portuguese data, in contrast to the Olivenza Spanish material.

[187] However, if the F0 contour remains at the same level as shown in Figure 5.2a, a deaccentuation takes place (i.e., a high plateau marked with a “*” is realized within the temporal boundaries of the stressed syllable(s) which follow(s) the IP-initial prenuclear accent).

The same three prenuclear accents attested in phrase-internal position were found as ip-initial prenuclear accents of non-IP-initial ips in both varieties: L+>H*, L+H*, and H+L*[188] in Olivenza Portuguese and H+L*, L*+H, and L+>H* in Olivenza Spanish. The comparison between non-IP-initial ips preceded by a pause and non-IP-initial ips directly preceded by another ip revealed that the realization of H+L* (in both Olivenza Portuguese and Olivenza Spanish) appears to be conditioned by the lack of space and the gradual declination, similar to the phrase-internal prenuclear accents: In Figure 5.2b and Figure 5.4, since after the H- boundary tone, there is not sufficient segmental material for the realization of a deeper fall whose end could serve as a low prefix of a following rising pitch accent (e.g., L+>H*), the H+L* pitch accent surfaces in these positions. Moreover, as mentioned above, a gradual declination of the F0 contour may be expected in both figures, since these are declarative sentences (Connell 2002). Thus, in the string of pitch accents and terminal tones which define the neutral declarative sentences, H+L* can be analyzed as a link which contributes to gradual declination. However, it is also possible that the fundamental frequency does not continue to fall during the stressed syllable of the first prosodic word of such non-IP-initial ips, but rather remains at the same level, as shown in Figure 5.6 and Figure 5.8 (cf. the stressed syllable of the prosodic word *está* in both figures). In such cases, plateaus are realized within the temporal boundaries of the stressed syllables; these plateaus were analyzed as instances of deaccentuation and marked with a "*" in both contact varieties. In contrast, L+>H* or L+H* for Olivenza Portuguese and L+>H* or L*+H for Olivenza Spanish occurred as ip-initial prenuclear accents of non-IP-initial ips if, first, a pause or a lapsus (lps) was inserted between the end of the ip preceding the respective non-IP-initial ip and the beginning of the respective non-IP-initial ip (cf. Figure 5.3, Figure 5.5, and Figure 5.10), or second, the first prosodic word of the non-IP-initial ip was lengthened and there was enough space to realize a rising accent.

In summary, L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish were found as IP-initial prenuclear accents, phrase-internal prenuclear accents, and ip-initial prenuclear accents of non-IP-initial ips in the data examined. In contrast, H+L* surfaced as a phrase-internal prenuclear accent or as an ip-initial prenuclear accent of non-IP-initial ips if it was preceded by a high peak (e.g., L+>H*, L*+H, L+H* or L+H* H-/L+H* !H-).

Each ip belonging to an IP (e.g., $(S)_{ip}$ and $(VO)_{ip}$ in the $((S)_{ip}(VO)_{ip})_{IP}$ pattern) was characterized by the presence of a nuclear pitch accent associated with the last stressed syllable of this ip and a boundary tone realized at the end of this ip. According to the results of the intonational

[188] Cf. footnote 186.

analysis, inner ips showed rising nuclear contours (composed of a rising pitch accent and a rising boundary tone) or rising pitch accents followed by high plateaus, in contrast to IP-final ips, which were realized with falling nuclear contours or low plateaus in the varieties under investigation. The nuclear configurations of inner ips were predominantly realized as L+H* H- (i.e., a rise on the stressed syllable into the end of the phrase) or L+H* !H- (i.e., a rise on the stressed syllable followed by a high plateau during the last syllable of the phrase)[189] in both Olivenza Portuguese and Olivenza Spanish (cf. Table 5.4). If a prenuclear pitch accent was realized before the nuclear accent of the inner ip, the nuclear accent of the inner ip was often upstepped and phonetically produced as L+¡H* (cf. Figure 5.3 and Figure 5.8). However, since I assume that the upstep is triggered by the presence of the boundary tone H- or !H- in such cases, I analyzed such pitch accents as underlying L+H* pitch accents. Figures 5.7a, b, c, d illustrate the realization of L+H* H- and L+H* !H- on proparoxytone and paroxytone words (cf. also Figure 5.2b, Figure 5.3, Figure 5.4, Figure 5.6, Figure 5.8, and Figure 5.10 for some examples). Note that there was a clear predominance of the L+H* H- nuclear contour in both Olivenza Portuguese and Olivenza Spanish (cf. Table 5.4).

Table 5.4. Percentage of nuclear configurations of inner ips of the SVO declarative sentences in Olivenza Portuguese and Olivenza Spanish

	L+H* H- (CR)	L+H* !H- (SP)	others
Olivenza Portuguese	57%	29%	14%
Olivenza Spanish	52%	29%	19%

Finally, the nuclear configurations of IPs will be taken into account: As seen in the figures below (cf. Figures 5.1a, b, Figure 5.3, and Figure 5.8 for Olivenza Portuguese and Figures 5.2a, b, Figure 5.4, Figure 5.5, and Figure 5.6 for Olivenza Spanish), two different nuclear configurations can be found in Olivenza Portuguese and Olivenza Spanish (i.e., H+L* L% and L* L%). H+L* L% is a nuclear configuration consisting of a falling nuclear pitch accent (i.e., H+L*) followed by a low boundary tone (i.e., L%). L* L% comprises a low nuclear pitch accent (i.e., L*) and a

[189] The rising pitch accent of such final contours of inner ips whose end is marked with the break index (BI) 3 have been tonally analyzed as L+H* (Estebas-Vilaplana & Prieto 2010: 31; Gabriel et al. 2010: 292; López-Bobo & Cuevas-Alonso 2010: 55; Ortiz et al. 2010: 267; Willis 2010: 140, among others), as L+>H* (Gabriel et al. 2013: 208; O’Rourke 2010: 232), or as L+<H* (Hualde & Prieto 2015) (as mentioned in footnotes 56 and 181, Hualde & Prieto 2015 label delayed peaks with the L+<H* pitch accent, instead of L+>H*). Note that while some scholars analyze contours such as L+>H* H- (i.e., composed of a pitch accent and a following boundary tone at the BI=3) as a combination of a prenuclear pitch accent (i.e., L+>H* here) and a boundary tone (i.e., H- here) (cf. O’Rourke 2010: 232; Gabriel et al. 2013: 196-197), others (cf. for instance Ortiz et al. 2010: 267), as I do in the present work, claim that such final contours constitute the nuclear configuration of the inner ip. I will refer to this topic in Section 5.2.2 after describing the realization of all sentence types considered for the intonational analysis of Olivenza Portuguese and Olivenza Spanish.

low boundary tone (i.e., L%). In Olivenza Portuguese, both nuclear contours H+L* L% and L* L% appeared with a similar frequency. Regarding Olivenza Spanish, the H+L* L% nuclear configuration occurred in very few cases in the data analyzed, in contrast to the L* L% nuclear configuration, which was the most common nuclear contour. Besides the nuclear contours H+L* L% and L* L%, two further nuclear configurations were attested in the SVO declaratives in the varieties under investigation: L* LH%[190] and L+H* L%[191] (cf. Figure 5.9 and Figure 5.10). However, they are assumed to convey different pragmatic meanings as compared to H+L* L% and L* L%. Whereas H+L* L% and L* L % signal neutral statements in Olivenza Portuguese and Olivenza Spanish, L* LH% and L+H* L% seem to be used to express obviousness and focus/emphasis, respectively[192].

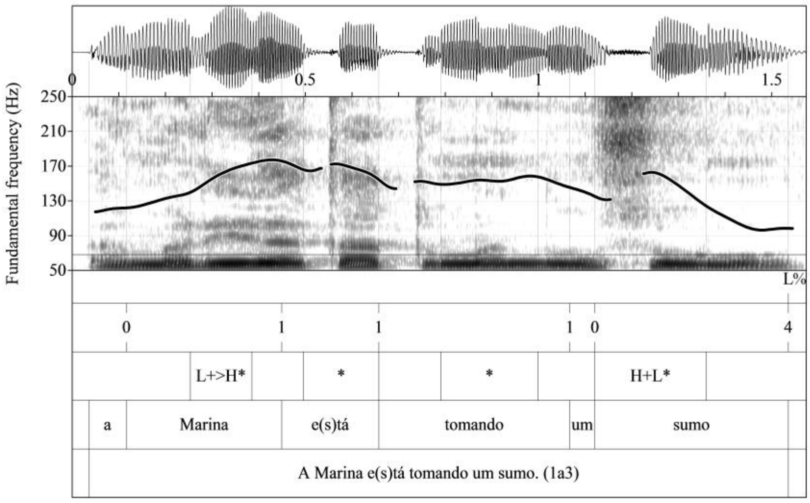

Figure 5.1a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the neutral statement *A Marina e(s)tá tomando um sumo*.[193] 'Marina is drinking a juice.' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, two pitch-deaccented phrase-internal prosodic words (*está* and *tomando*), a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

[190] This contour is phonetically realized as a valley during the stressed syllable (i.e., L*) followed by a rising movement during the post-tonic syllable(s) which can be labeled with a LH% boundary tone. In Olivenza Portuguese, a H+L* pitch accent was also found in such contexts instead of a L* pitch accent.

[191] This contour is phonetically realized as a rise during the stressed syllable with the peak located at the end of this syllable (i.e., L+H*) followed by a fall during the post-tonic syllable (i.e., L%).

[192] Since few examples of the configuration L* LH% occurred in the data analyzed, the question about its pragmatic meaning and use remains for further research. Regarding L+H* L%, the results of the intonational analysis of the remaining sentence types will show that the L+H* pitch accent is used to signal focus/emphasis in both varieties under consideration.

[193] In all figure captions in this section, the stressed syllables to which the pitch accents associate are underlined and the phrase-final syllables on which the boundary tones are realized are in bold.

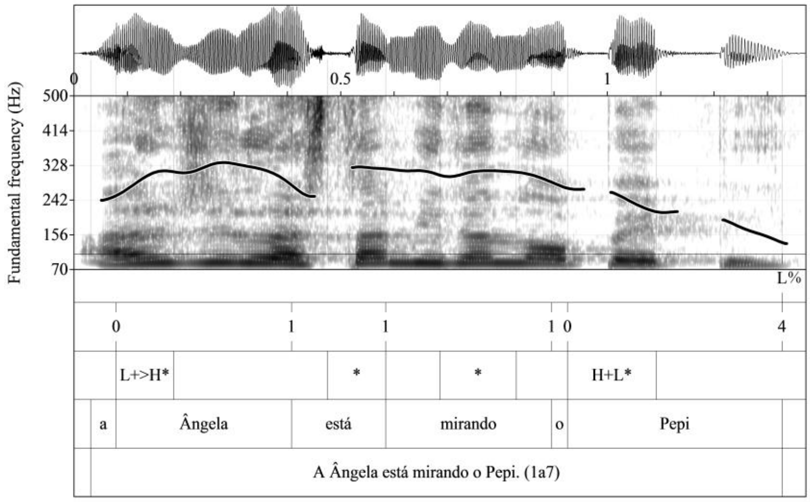

Figure 5.1b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the neutral statement *A Ângela está mirando o Pe**pi***. ‘Ângela is looking at Pepi.’ which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, two pitch-deaccented phrase-internal prosodic words (*está* and *mirando*), a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

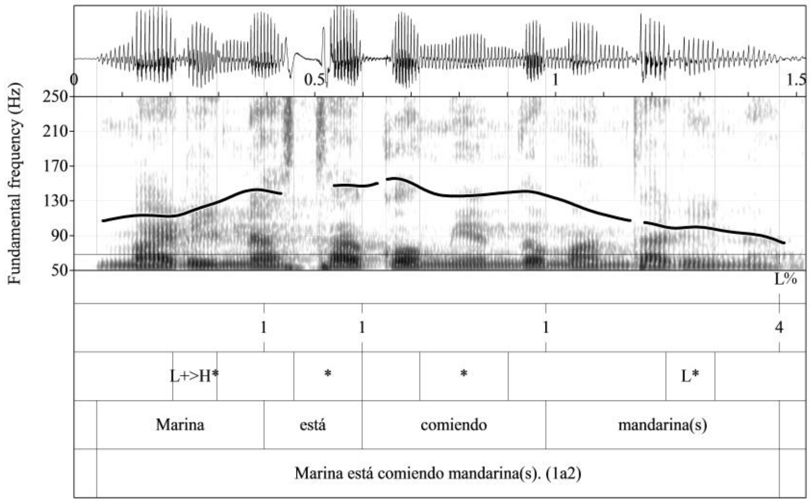

Figure 5.2a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *Marina está comiendo mandari**na(s)***. ‘Marina is eating tangerines.’ which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, two pitch-deaccented phrase-internal prosodic words (*está* and *comiendo*), a L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is L* L%

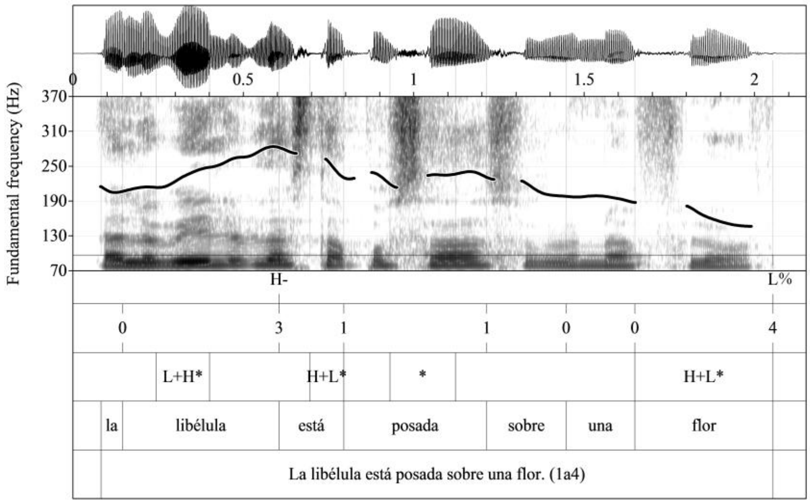

Figure 5.2b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *La libé**lula** está posada sobre una **flor***. 'The dragonfly is sitting on a flower.' which represents an IP composed of two ips (*la libé**lula*** and *está posada sobre una **flor***) and is produced with a L+H* nuclear accent of the inner ip, a H- boundary tone of the inner ip, a H+L* prenuclear accent, a pitch-deaccented phrase-internal prosodic word (*posada*), a H+L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+H* H- and H+L* L%, respectively

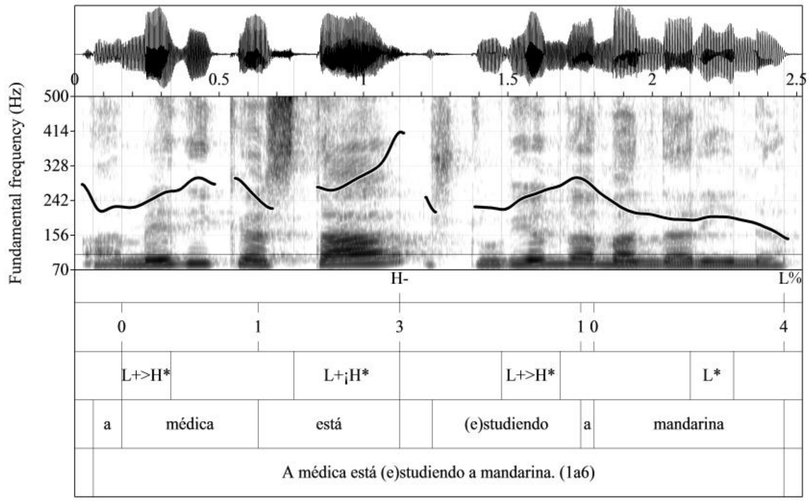

Figure 5.3. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the neutral statement *A médica es**tá** (e)studiendo a manda**rina***.[194] 'The doctor is examining the tangerine.' which represents an IP composed of two ips (*a médica es**tá*** and *estudiendo a manda**rina***) and is produced with a L+>H* prenuclear accent, a L+¡H*[195] nuclear accent of the inner ip, a H- boundary tone of the inner ip, a L+>H* prenuclear accent, a L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+¡H* H- and L* L%, respectively

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[194] I found both lexical and morphosyntactic borrowings from Spanish in Olivenza Portuguese. Since this is not the topic of the present study, I will not refer to this issue anymore.

[195] The L+¡H* nuclear accent of the inner ip is an upstepped pitch accent. However, since the upstep seems to be triggered by the presence of the boundary tone in such contexts (e.g., H- here), I analyze such pitch accents as underlying L+H* pitch accents.

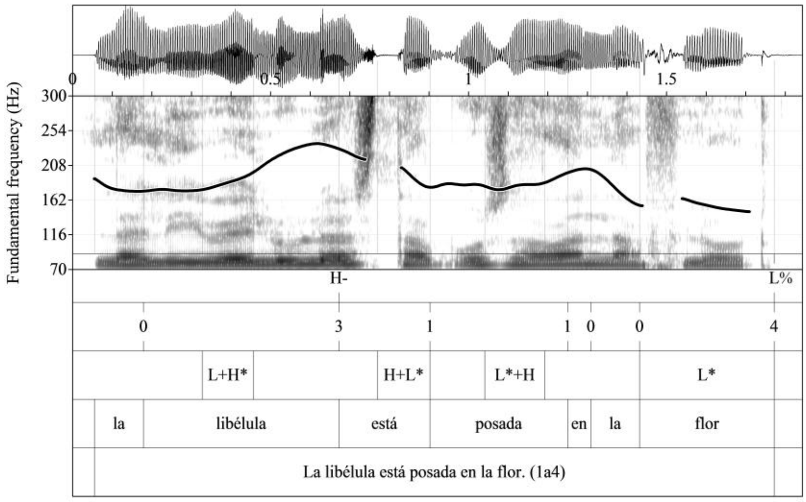

Figure 5.4. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *La libé**lula** está posada en la **flor***. ‘The dragonfly is sitting on the flower.’ which represents an IP composed of two ips (*la libé**lula*** and *está posada en la **flor***) and is produced with a L+H* nuclear accent of the inner ip, a H- boundary tone of the inner ip, a H+L* prenuclear accent, a L*+H prenuclear accent, a L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+H* H- and L* L%, respectively

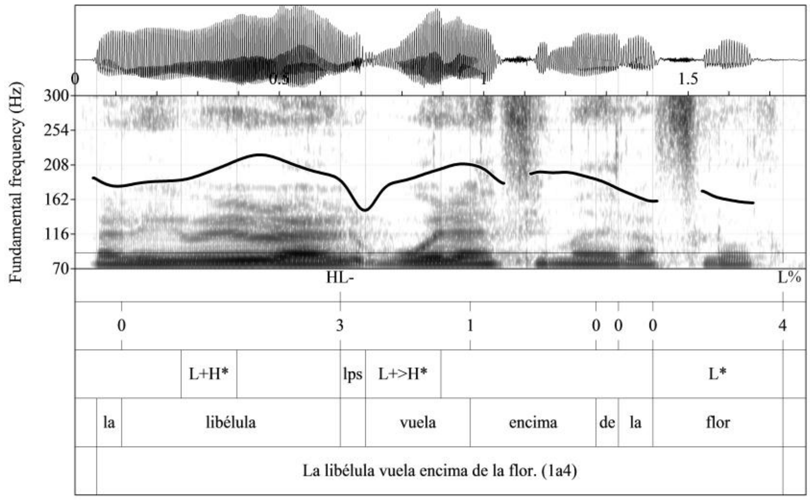

Figure 5.5. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *La libé**lula** vuela encima de la **flor***. ‘The dragonfly flies over the flower.’ which represents an IP composed of two ips (*la libé**lula*** and *vuela encima de la **flor***) and is produced with a L+H* nuclear accent of the inner ip, a HL- boundary tone of the inner ip, a L+>H* prenuclear accent, a L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+H* HL- and L* L%, respectively

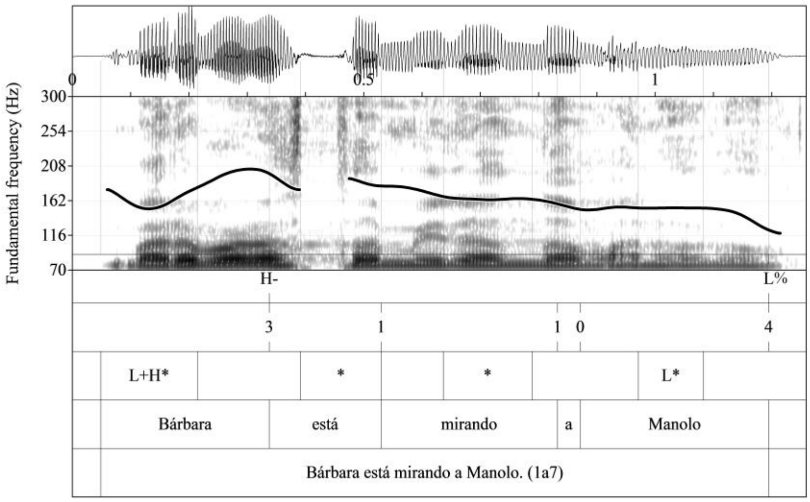

Figure 5.6. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *Bár**bara** está mirando a Mano**lo***. ‘Bárbara is looking at Manolo.’ which represents an IP composed of two ips (*Bár**bara*** and *está mirando a Mano**lo***) and is produced with a L+H* nuclear accent of the inner ip, a H- boundary tone of the inner ip, two pitch-deaccented prosodic words (*está* and *mirando*), a L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+H* H- and L* L%, respectively

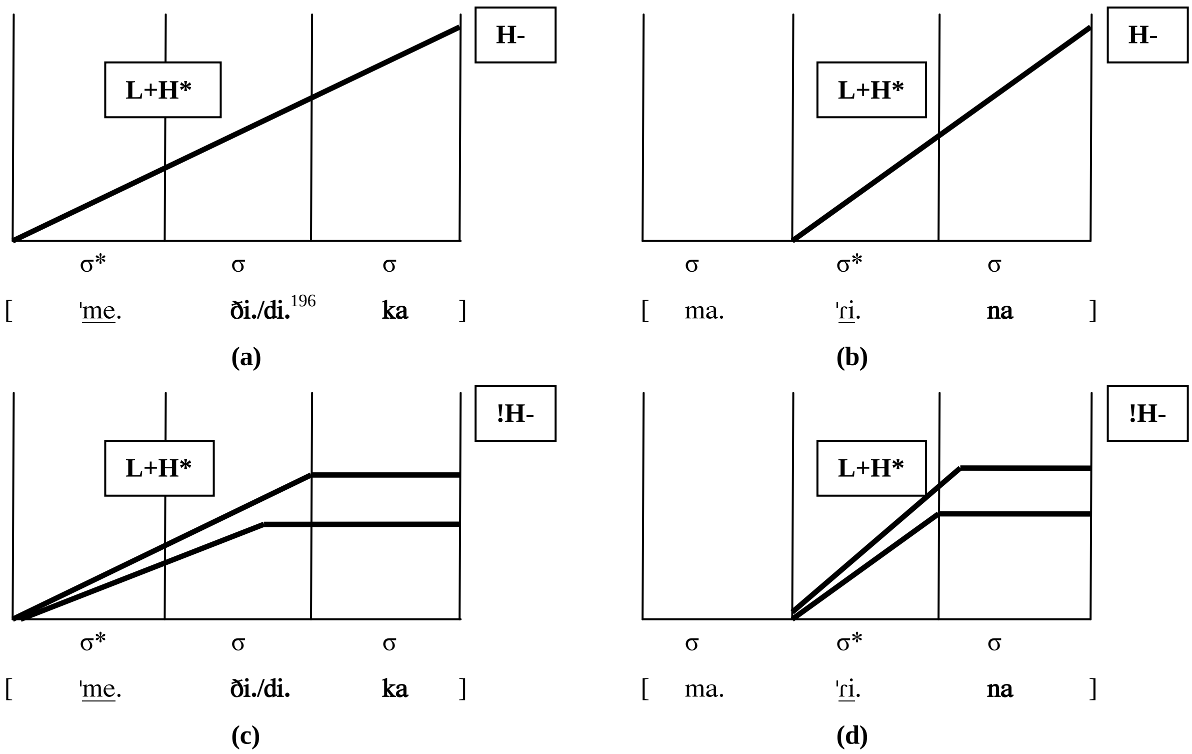

Figure 5.7. Schematic representation of a continuation rise (H-) on a proparoxytone word (a), a CR on a paroxytone word (b), a sustained pitch (!H-) on a proparoxytone word (c), and a SP on a paroxytone word (d)

[196] [di] and [ði] are the phonetic transcriptions of the syllable <di> of the prosodic word <médica> realized in Olivenza Portuguese and Olivenza Spanish, respectively.

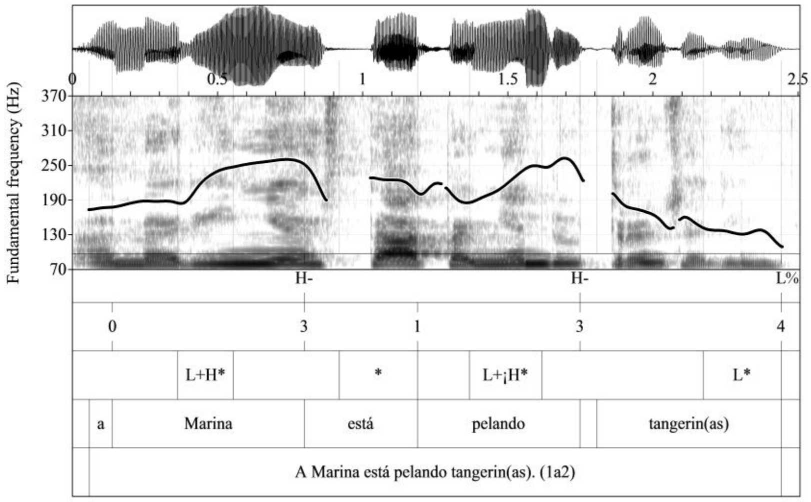

Figure 5.8. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the neutral statement *A Ma<u>ri</u>-**na** es<u>tá</u> pe<u>lan</u>**do** tange<u>**rin**</u>(as)*. 'Marina is peeling tangerines.' which represents an IP composed of three ips (*a Ma<u>ri</u>**na***, *es<u>tá</u> pe<u>lan</u>**do***, and *tange<u>**rin**</u>(as)*) and is produced with a L+H* nuclear accent of the first inner ip, a H- boundary tone of the first inner ip, a pitch-deaccented prosodic word (*es<u>tá</u>*), a L+¡H*[197] nuclear accent of the second inner ip, a H- boundary tone of the second inner ip, a L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ips and the IP are L+H* H-, L+¡H* H-, and L* L%, respectively

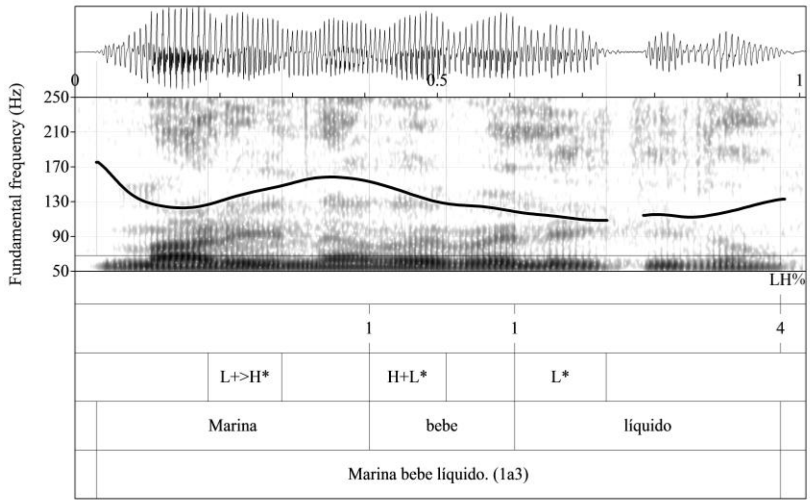

Figure 5.9. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the statement with a nuance of obviousness *Ma<u>ri</u>na <u>be</u>be <u>lí</u>**quido***. 'Marina drinks a liquid.' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a H+L* prenuclear accent, a L* nuclear accent, and a LH% boundary tone; the nuclear configuration of the IP is L* LH%

[197] Cf. footnote 195.

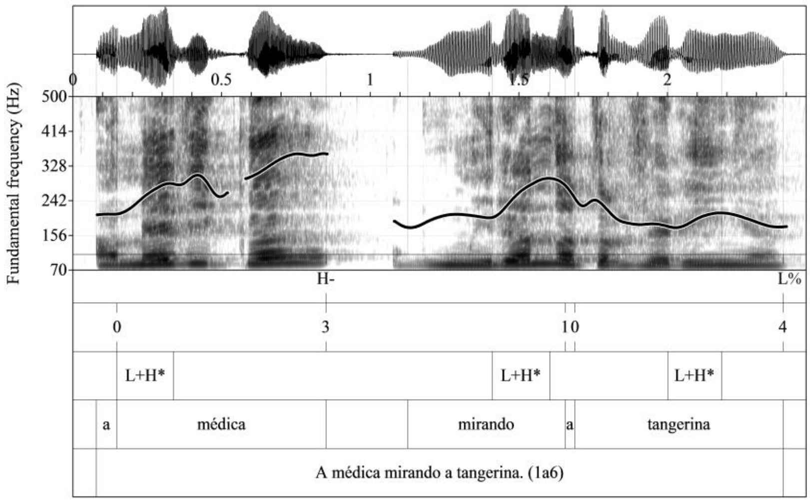

Figure 5.10. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the statement with emphasis on the last prosodic word *A <u>mé</u>**dica** mi<u>ran</u>do a tange<u>ri</u>**na***. 'The doctor looking at the tangerine.' which represents an IP composed of two ips (*a <u>mé</u>**dica*** and *mi<u>ran</u>do a tange<u>ri</u>**na***) and is produced with a L+H* nuclear accent of the inner ip, a H- boundary tone of the inner ip, a L+H* prenuclear accent, a L+H* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+H* H- and L+H* L%, respectively

5.1.1.3 *Durational analysis of neutral SVO declarative sentences*

This section outlines the durational properties of the prenuclear syllables[198] and the nuclear and phrase-final syllables of inner ips and IP-final ips[199] that occurred in the SVO declarative sentences analyzed for both varieties.

Table 5.5 and Table 5.6 show, first, the absolute numbers and the mean duration of prenuclear syllables, nuclear syllables, and phrase-final syllables, and second, the percentage of the corresponding syllable structure types. In the first column of both tables, the ten different types of syllables considered for the durational analysis and their absolute numbers are depicted. The ten types of syllables include prenuclear syllables ("p")[200], nuclear syllables of inner ips without a pause after the end of the ip ("n ip^{inner}"), nuclear syllables of inner ips with a pause after the end of the ip ("n- ip^{inner}"), nuclear syllables of IP-final ips ("n $ip^{IP\text{-}final}$"), nuclear syllables belonging to oxytones which appear at the end of inner ips after which no pause is inserted ("nf ip^{inner}"), nuclear syllables belonging to oxytones which appear at the end of inner ips after

198 I use the term *prenuclear syllables* in the durational analysis to refer to all syllables which are not nuclear or phrase-final syllables (i.e., both stressed and unstressed syllables belong to this group).

199 As seen in the previous section, the term *inner ips* is used to refer to *non-IP-final ips*. It is important to note that the end of the IP-final ip is the end of the IP. If an IP consisted of one ip only, this ip was counted as an IP-final ip. Cf. footnotes 146 and 147 and p. 89-90 in Section 4.3.1 for a more detailed description of the methods applied in the durational analysis.

200 The abbreviations used to refer to each of the different types of syllables are given in brackets.

which a pause is inserted ("nf- ip$^{\text{inner}}$"), nuclear syllables belonging to oxytones which appear at the end of IP-final ips ("nf ip$^{\text{IP-final}}$"), final syllables of inner ips after which no pause is inserted ("f ip$^{\text{inner}}$"), final syllables of inner ips after which a pause is inserted ("f- ip$^{\text{inner}}$"), and final syllables of IP-final ips ("f ip$^{\text{IP-final}}$").

As shown in Table 5.5 and Table 5.6, ten different syllable structure types are attested: CV, CVC, VC, CCV, CGlV / CVGl, CGlVC / CVGlC, GlV / VGl, CCVC, V, and GlVC / VGlC[201].

Table 5.5. Durational analysis of the SVO declarative sentences: absolute numbers[202] and mean duration of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for Olivenza Portuguese

OLI PORT	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V	GlVC / VGlC	Duration
p (453)	61.37%	15.01%	3.97%	3.97%	1.11%	0.66%	0.22%	0.22%	13.25%	0.22%	140 ms
n ip$^{\text{inner}}$ (24)	62.5%	16.67%	16.67%			4.16%					191 ms
n- ip$^{\text{inner}}$ (17)	23.53%	76.47%									239 ms
n ip$^{\text{IP-final}}$ (53)	75.47%		1.89%	15.09%				7.55%			184 ms
nf ip$^{\text{inner}}$ (0)											
nf- ip$^{\text{inner}}$ (8)	50%	12.5%		37.5%							331 ms
nf ip$^{\text{IP-final}}$ (4)		25%			50%			25%			371 ms
f ip$^{\text{inner}}$ (24)	91.67%				8.33%						183 ms
f- ip$^{\text{inner}}$ (17)	94.12%	5.88%									227 ms
f ip$^{\text{IP-final}}$ (53)	79.24%				18.87%	1.89%					180 ms

Table 5.6. Durational analysis of the SVO declarative sentences: absolute numbers and mean duration of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for Olivenza Spanish

OLI SPA	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V	GlVC / VGlC	Duration
p (503)	72.76%	12.52%	5.96%	0.4%	1.59%	1.59%	0.2%		4.18%	0.8%	121 ms
n ip$^{\text{inner}}$ (40)	70%	15%				12.5%		2.5%			152 ms
n- ip$^{\text{inner}}$ (10)	80%	20%									160 ms
n ip$^{\text{IP-final}}$ (51)	84.32%	1.96%		1.96%		5.88%		1.96%	1.96%	1.96%	142 ms
nf ip$^{\text{inner}}$ (5)	60%	20%				20%					212 ms
nf- ip$^{\text{inner}}$ (1)	100%										292 ms
nf ip$^{\text{IP-final}}$ (9)		11.1%		11.1%				77.8%			313 ms
f ip$^{\text{inner}}$ (40)	92.5%	2.5%			2.5%				2.5%		122 ms
f- ip$^{\text{inner}}$ (10)	90%				10%						190 ms
f ip$^{\text{IP-final}}$ (51)	94.12%	5.88%									149 ms

[201] ***C*** stands for consonant, ***V*** for vowel, and ***Gl*** for glide.
[202] Absolute numbers are given in brackets.

The durational properties of the aforementioned ten different types of syllables considered for the durational analysis are depicted in the hierarchy given in (3) for Olivenza Portuguese and in (4) for Olivenza Spanish. The symbols '<' and '≈' are used with the following meaning: 'shorter in duration than' and 'almost the same duration as'[203].

(3) $p < f\ ip^{IP\text{-}final} \approx f\ ip^{inner} \approx n\ ip^{IP\text{-}final} < n\ ip^{inner} < f\text{-}\ ip^{inner} < n\text{-}\ ip^{inner} < nf\text{-}\ ip^{inner} < nf\ ip^{IP\text{-}final}$

(4) $p \approx f\ ip^{inner} < n\ ip^{IP\text{-}final} < f\ ip^{IP\text{-}final} \approx n\ ip^{inner} < n\text{-}\ ip^{inner} < f\text{-}\ ip^{inner} < nf\ ip^{inner} < nf\text{-}\ ip^{inner} < nf\ ip^{IP\text{-}final}$

According to the results of the durational analysis, each of the ten types of syllables showed a longer duration in Olivenza Portuguese than in Olivenza Spanish.

In Olivenza Portuguese, the prenuclear syllables had the shortest mean duration (140 ms). The final syllables of inner ips without a pause after their end (183 ms), the final syllables of IP-final ips (180 ms), the nuclear syllables of both inner ips after which no pause was inserted (191 ms) and IP-final ips (184 ms) exhibited quite similar mean durations. Moreover, the nuclear and final syllables of inner ips preceding a pause displayed longer mean durations than the aforementioned syllable types (239 ms and 227 ms, respectively). Finally, the nuclear syllables belonging to oxytones which appeared at the end of inner ips after which a pause was inserted (331 ms) and the nuclear syllables belonging to oxytones which appeared at the end of IP-final ips (371 ms) had the longest mean durations.

Olivenza Spanish showed the shortest mean durations for the prenuclear syllables (121 ms) and the final syllables of inner ips without a pause after their end (122 ms). The nuclear syllables of IP-final ips (142 ms), the final syllables of IP-final ips (149 ms), and the nuclear syllables of inner ips after which no pause was realized (152 ms) displayed similar mean durations. Like in Olivenza Portuguese, the nuclear and final syllables of inner ips produced before a pause had longer mean durations than the aforementioned syllable types (160 ms and 190 ms, respectively). The syllables with the longest mean durations were the nuclear syllables belonging to oxytones which appeared at the end of inner ips (212 ms for "$nf\ ip^{inner}$" and 292 ms for "$nf\text{-}\ ip^{inner}$") and the nuclear syllables belonging to oxytones which occurred at the end of IP-final ips (313 ms).

Considering the outcomes presented in Table 5.5 and Table 5.6, it can be said that the final lengthening of both inner ips and IPs is stronger in Olivenza Portuguese than in Olivenza Spanish. In addition, the presence of pauses after the end of inner ips leads to a stronger ip-final lengthening in both contact varieties.

[203] '≈' is used if the durational difference between two or more syllable types is less than 5 ms.

In the Olivenza Spanish data, some of the durational differences found can be traced back to the syllable complexity. For instance, the "n ip^{inner}" syllables show a slightly longer mean duration than the "n ip$^{IP\text{-}final}$" syllables and the "f ip$^{IP\text{-}final}$" syllables due to the more complex syllable structures attested in the former syllable type.

5.1.2 Biased statements

In this section, the intonational properties of contrastive focus statements, exclamative statements, and contradiction statements are presented. I describe the realization of prenuclear pitch accents and nuclear configurations of IPs (i.e., the combination of the nuclear pitch accent of the IP-final ip[204] and the boundary tone of the IP). Their phonological status will be discussed after the description of the tonal realization of all sentence types considered for the intonational analysis of Olivenza Portuguese and Olivenza Spanish (cf. Section 5.2.1 and Section 5.2.3).

5.1.2.1 *Contrastive focus statements*

51 contrastive focus statements were obtained with situation 1d1 for both varieties: 22 IPs for Olivenza Portuguese and 29 IPs for Olivenza Spanish (cf. Table 4.2 and Table 4.3). The number of prenuclear pitch accents realized in the data amounted to 25 for Olivenza Portuguese and to 12 for Olivenza Spanish. Similar to the neutral SVO declarative sentences, the prenuclear accents L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish were also found in the contrastive focus statements (the delayed peak was the most frequent one in both varieties).

The results of the intonational analysis showed that both contact varieties exhibit the same nuclear configuration of IPs, namely L+H* L%. In Figure 5.11 and Figure 5.12, a L+H* pitch accent is realized on the focused prosodic words *manda<u>ri</u>na / tange<u>ri</u>na* 'tangerine' (cf. Figure 5.11) and *manda<u>ri</u>na(s)* 'tangerines'(cf. Figure 5.12). The nuclear configurations of IPs depicted in both figures[205] are phonetically realized as rising-falling movements consisting of a L+H* pitch accent and a L% falling boundary tone. Contrasting the final contours of neutral SVO declaratives and contrastive focus statements (i.e., H+L* L% and L* L% vs. L+H* L%), it can be said that these three nuclear configurations differ with respect to their nuclear pitch accents: H+L* and L* vs. L+H*. This comparison allows the assumption that the nuclear pitch accents of these nuclear configurations of IPs convey different pragmatic meanings in both contact varieties:

[204] As has been mentioned several times, each IP is assumed to be composed of at least one ip (cf. p. 86-93). If an IP consists of only one ip, this ip is referred to as the IP-final ip in the present work.
[205] Except the nuclear contour of the vocative *¡Señora!* 'Miss!'

while the L+H* nuclear accent expresses focus, the H+L* and L* nuclear accents signal neutral or broad focus readings[206].

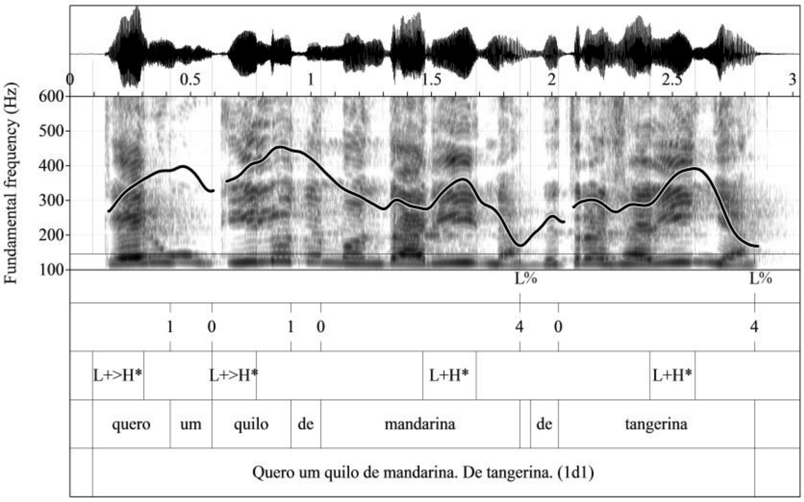

Figure 5.11. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the contrastive focus statements *<u>Que</u>ro um <u>qui</u>lo de manda<u>ri</u>**na**. De tange<u>ri</u>**na**.*[207] 'I want a kilogram of tangerines. Of tangerines.' which represent two IPs (*<u>Que</u>ro um <u>qui</u>lo de manda<u>ri</u>**na*** and *De tange<u>ri</u>**na***) each composed of one ip. *<u>Que</u>ro um <u>qui</u>lo de manda<u>ri</u>**na*** is produced with two L+>H* prenuclear accents, a L+H* nuclear accent, and a L% boundary tone. *De tange<u>ri</u>**na*** is produced with a L+H* nuclear accent and a L% boundary tone. The nuclear configuration of each IP is L+H* L%

[206] Note that the nuclear configurations H+L* L% and L* L% occurred with a similar frequency in the neutral SVO declaratives analyzed for Olivenza Portuguese, in contrast to the Olivenza Spanish data, in which L* L% was the most frequent nuclear configuration and the H+L* L% nuclear contour appeared in very few cases.

[207] In all figure captions in Section 5.1.2, stressed syllables are underlined and phrase-final syllables are in bold.

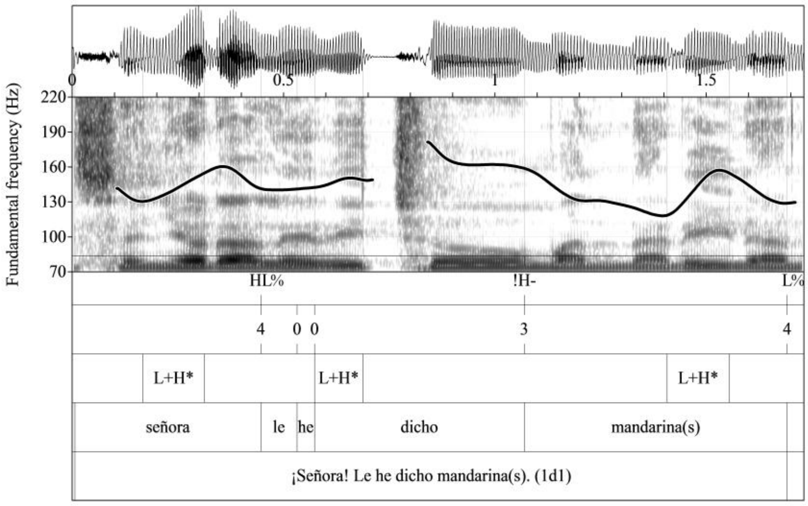

Figure 5.12. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the contrastive focus statement *Le he **<u>di</u>cho** manda**<u>ri</u>na(s)***. 'I have told you tangerines.' which represents an IP composed of two ips (*le he **<u>di</u>cho*** and *manda**<u>ri</u>na(s)***) and is produced with a L+H* nuclear accent of the inner ip, a !H- boundary tone of the inner ip, a L+H* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+H* !H- and L+H* L%, respectively

5.1.2.2 *Exclamative statements*

63 exclamative statements were obtained with situations 1d2 and 1d4 in total (30 IPs for Olivenza Portuguese and 33 IPs for Olivenza Spanish) (cf. Table 4.2 and Table 4.3). 37 prenuclear pitch accents were realized in the Olivenza Portuguese data and 33 in the Olivenza Spanish material. Similar to the other statements described above, the prenuclear accents L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish were also found in the exclamative statements.

In the exclamative statements produced in Olivenza Portuguese and Olivenza Spanish, the typical realization of the final contour was L+¡H* L%[208] (cf. Figure 5.13a and Figure 5.14). It is worth mentioning that the L+H* L% nuclear configuration also appeared in the data analyzed for the varieties under investigation. I believe that the upstep is used in the exclamative statements to express more emphasis. The comparison between the nuclear configurations of IPs attested in the analysis of the exclamative statements and the contrastive focus statements (i.e., L+¡H* L% and L+H* L% for exclamative statements vs. L+H* L% for contrastive focus statements) allows the assumption that first, the L+H* nuclear accent is used to express focus/emphasis, and second, the L+¡H* nuclear accent is used to signal a greater emphasis in both Olivenza Portuguese and Olivenza Spanish. Interestingly, a further nuclear configuration of IPs occurred in the Olivenza

[208] The peak of the L+¡H* pitch accent may have almost the same frequency as the peak of the preceding pitch accent (cf. Figure 5.13a and Figure 5.14) or be raised in relation to the previous H tone.

Portuguese material: H*+L L% (cf. Figure 5.13b). However, only four examples of this contour were found in the 30 IPs analyzed for Olivenza Portuguese. Moreover, the L+(¡)H* L% nuclear contour also appeared in the data obtained from the speakers who produced the H*+L L% nuclear configuration.

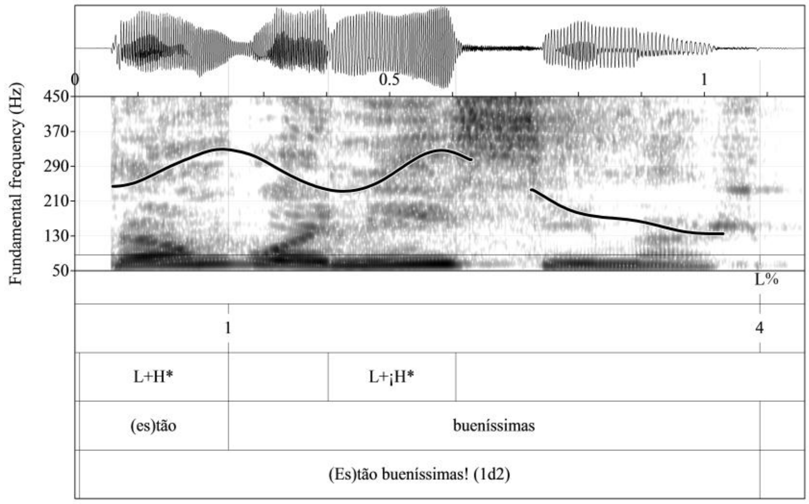

Figure 5.13a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the exclamative statement *(Es)<u>tão</u> bue<u>ní</u>**ssimas**!* 'They are delicious!' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a L+¡H* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is L+¡H* L%

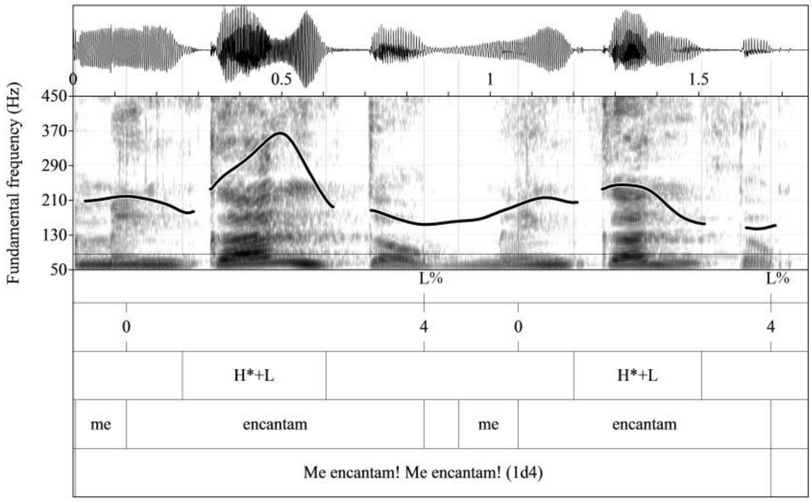

Figure 5.13b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the exclamative statements *Me en<u>can</u>**tam**! Me en<u>can</u>**tam**!* 'I love them! I love them!' which represent two IPs (*Me en<u>can</u>**tam*** and *Me en<u>can</u>**tam***) each composed of one ip. Each IP is produced with a H*+L nuclear accent and a L% boundary tone. The nuclear configuration of each IP is H*+L L%[209]

[209] The first H*+L nuclear accent can also be labeled with a L+H*+L (cf. Gabriel et al. 2010). However, since Frota (2014) labels pitch accents such as those depicted in Figure 5.13b with a H*+L in (Standard) European

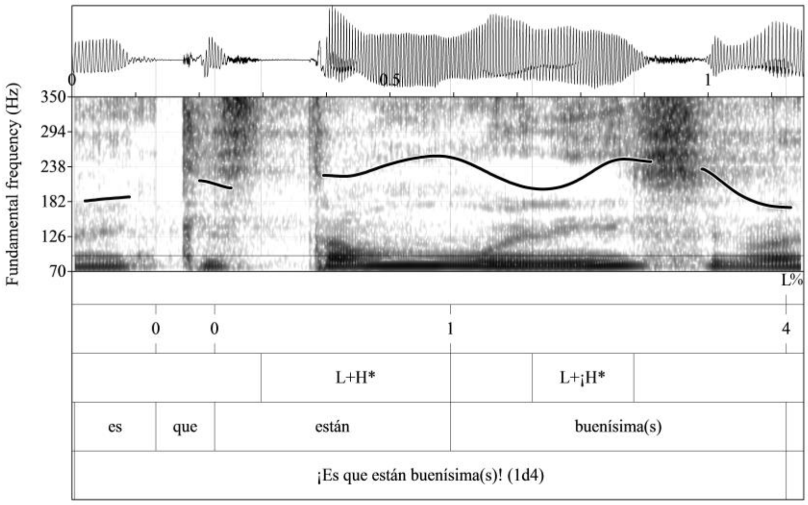

Figure 5.14. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the exclamative statement *¡Es que están buenísima(s)!* 'They are delicious!' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a L+¡H* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is L+¡H* L%

5.1.2.3 *Contradiction statements*

As shown in Table 4.2 and Table 4.3, 40 contradiction statements were obtained with situation 1d3 (17 IPs for Olivenza Portuguese and 23 IPs for Olivenza Spanish). The prenuclear pitch accents produced in the data amounted to 57 in total: 31 for Olivenza Portuguese and 26 for Olivenza Spanish. The results of the intonational analysis showed that the prenuclear pitch accents L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish also appeared in the contradiction statements (the delayed peak was the most frequent prenuclear accent in both varieties).

Olivenza Portuguese and Olivenza Spanish patterned together in exhibiting the same nuclear accent to mark the focused prosodic word in the contradiction statements analyzed: L+H*[210]. These findings confirm the assumptions made in the previous two sections that the L+H* pitch accent is used in nuclear configurations of IPs to convey focus/emphasis. However, both varieties differed with respect to the boundary tone used to express contradiction statements: while the boundary tone L% was found in Olivenza Portuguese, HL% was the most common boundary tone attested in Olivenza Spanish. Consequently, the contact varieties show two differ-

Portuguese and I will compare Olivenza Portuguese with (Standard) European Portuguese, I follow Frota (2014) in labeling this nuclear accent with a H*+L.

[210] It is worth mentioning that the H*+L nuclear accent also occurred in the Olivenza Portuguese data. However, only two IPs were found in which this nuclear accent was realized.

ent nuclear configurations of IPs: L+H* L% for Olivenza Portuguese and L+H* HL%[211] for Olivenza Spanish (cf. Figure 5.15 and Figure 5.16).

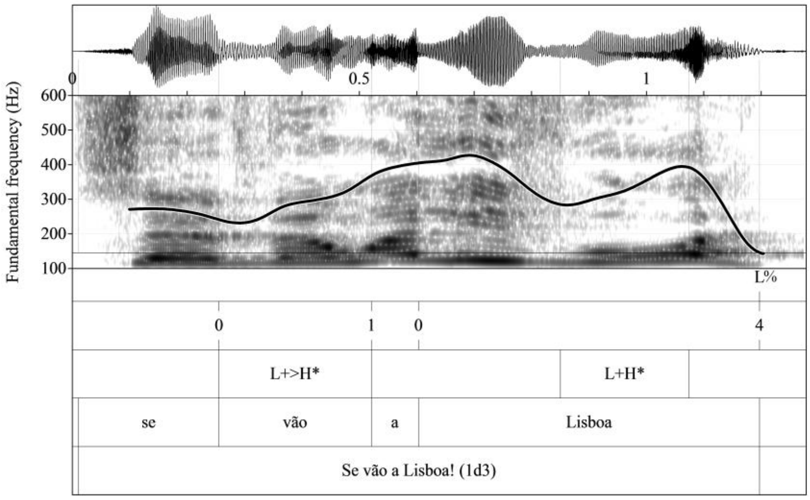

Figure 5.15. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the contradiction statement *Se <u>vão</u> a Lis<u>bo</u>**a***[212]***!*** 'They are going to Lisbon, for sure!' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a L+H* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is L+H* L%

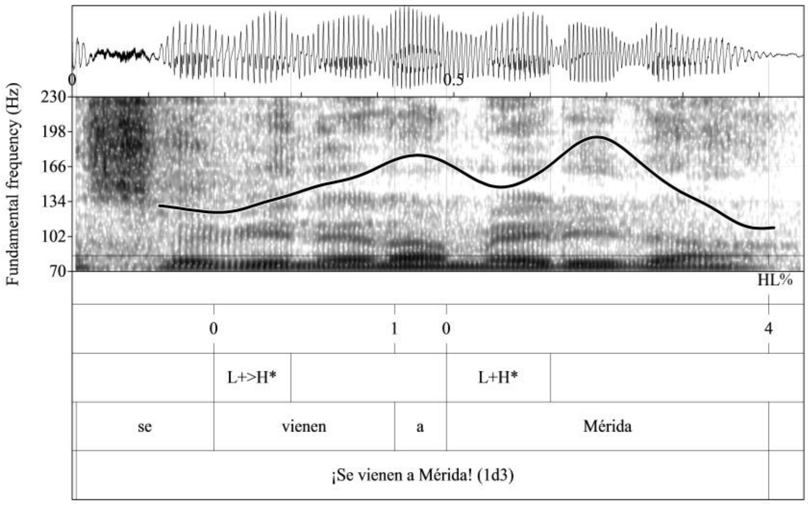

Figure 5.16. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the contradiction statement *¡Se <u>vie</u>nen a <u>Mé</u>**rida!*** 'They are coming to Mérida, for sure!' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a L+H* nuclear accent, and a HL% boundary tone; the nuclear configuration of the IP is L+H* HL%

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[211] The L+H* HL% nuclear contour is phonetically realized as a rising movement during the stressed syllable followed by a further rise and subsequent fall in the post-tonic syllable(s).

[212] The name of the city which was supposed to be realized as a focused element here is *<u>Mér</u>tola* (cf. the Appendix), but some speakers had difficulties in pronouncing it and *<u>Mér</u>tola* was substituted by *Lis<u>bo</u>a* in such cases. The nuclear configurations of the IPs realized in both cases were the same (i.e., L+H* L%).

5.1.3 Neutral (yes-no) questions

The next three sections are devoted to the description of the intonational properties of information-seeking yes-no questions, neutral disjunctive questions, and neutral interrogative enumerations. I show the realization of prenuclear pitch accents, nuclear configurations of inner ips (i.e., the combination of the nuclear pitch accent and the boundary tone of an inner ip), and nuclear configurations of IPs (i.e., the combination of the nuclear pitch accent of the IP-final ip and the boundary tone of the IP; cf. p. 86-93). I will discuss their phonological status after depicting the tonal realization of all sentence types considered for the intonational analysis of Olivenza Portuguese and Olivenza Spanish (cf. Section 5.2.1, Section 5.2.2, and Section 5.2.3).

5.1.3.1 *Information-seeking yes-no questions*

80 information-seeking yes-no questions (i.e., 40 IPs per variety) were collected with situations 2a1, 2a2, 2a3, and 2a4 (cf. Table 4.2 and Table 4.3). The number of prenuclear pitch accents realized in the data amounted to 51 for Olivenza Portuguese and to 57 for Olivenza Spanish. While almost all prenuclear accents that occurred in the information-seeking yes-no questions were IP-initial prenuclear accents, phrase-internal prenuclear accents and ip-initial prenuclear accents of non-IP-initial ips rarely appeared in the material analyzed for both varieties. The IP-initial prenuclear accents were produced as L+>H* or L+H* in Olivenza Portuguese (cf. Figures 5.17a, b, c and Figures 5.18a, b) and as L+>H* or L*+H in Olivenza Spanish (cf. Figures 5.19a, b, Figures 5.20a, b, and Figure 5.21). They do not seem to be restricted to special conditions (e.g., the stress pattern of the prosodic words to whose stressed syllables they associate or the distance between the prenuclear accent and the nuclear accent). Both prenuclear accents (i.e., L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish) appeared with a similar frequency in the data examined. Regarding the realization of the few non-IP-initial prenuclear accents, it can be said that information-seeking yes-no questions behaved similarly to statements: first, examples of deaccentuation were found in both varieties, and second, the H+L* pitch accent surfaced after preceding rising tones in Olivenza Spanish (cf. Figure 5.21). In Figure 5.21, an IP-initial prenuclear accent L+>H* is produced on the monosyllabic prosodic word *ha* ‘has’. Since the next stressed syllable on which a pitch accent can be realized occurs only one syllable after *ha* ‘has’ (i.e., the stressed syllable *ga* of the prosodic word *llegado* ‘arrived’), there is no sufficient segmental material to realize another rising pitch accent and the H+L* prenuclear accent is produced. Furthermore, the monosyllabic prosodic word *ya* ‘yet’ is pitch-deaccented and marked with a “*”.

The nuclear pitch accents H+L* and L* surfaced in the information-seeking yes-no questions analyzed for both Olivenza Portuguese and Olivenza Spanish. Their occurrence depended on the space available between the peak of the preceding prenuclear accent (i.e., L+>H*, L+H*, and L*+H) and the respective nuclear accent: When there was enough segmental material, e.g., enough unstressed syllables, between the prenuclear accent and the nuclear accent, the L* pitch accent surfaced in both varieties (cf. Figures 5.17b, c, Figure 5.18b, Figure 5.19b, and Figure 5.20b). In contrast, when only one unstressed syllable intervened between the prenuclear accent and the nuclear accent and the peak of the prenuclear accent was located at the end of that syllable, then the H+L* pitch accent was realized in both varieties (cf. Figure 5.18a, Figure 5.19a, and Figure 5.20a). As shown in Figure 5.17a, the L* pitch accent can also be produced when only one syllable intervenes between the prenuclear accent and the nuclear accent if the following conditions are met: first, the peak of the prenuclear accent is located at the beginning or in the middle of the intervening unstressed syllable, and second, the intervening unstressed syllable is long enough.

The boundary tones !HL% and H% were used to express information-seeking yes-no questions in both varieties under consideration (cf. figures below). The former is phonetically realized as a compressed falling movement (i.e., slow fall). It was always produced on considerably lengthened IP-final syllables (cf. Figures 5.17a, b for Olivenza Portuguese and Figures 5.19a, b for Olivenza Spanish)[213]. The second boundary tone, the rising one (i.e., H%), was also realized on notably lengthened IP-final syllables in Olivenza Portuguese (cf. Figures 5.18a, b), in contrast to Olivenza Spanish, in which it was not accompanied by such a lengthening (cf. Figures 5.20a, b and Figure 5.21). Note that in Figure 5.18b, the fall of the contour at the end of the IP is due to the presence of the fricative [ʃ], which is the coda of the IP-final syllable *nas* of the prosodic word *tangerinas* 'tangerines'; the boundary tone produced by the speaker is a rising one (i.e., H%) and not a rising-falling one. Regarding the occurrence of both boundary tones, the H% boundary tone occurred more frequently than the !HL% boundary tone in the Olivenza Spanish data, while the !HL% boundary tone appeared more commonly in the Olivenza Portuguese material. In addition, it is worth mentioning that a L% boundary tone was also found in both Olivenza Portuguese and Olivenza Spanish (cf. Figure 5.17c for Olivenza Portuguese). Similar to the !HL% boundary tone, the L% boundary tone was always realized on strongly lengthened IP-final syllables in both varieties. If information-seeking yes-no questions produced with the nuclear configurations L* L% or H+L* L% and neutral declarative statements produced with the

[213] Cf. the F0 values of the vowels of the phrase-final syllables on which the !HL% boundary tone is realized in footnotes 216, 217, 221, and 222.

same nuclear configurations (i.e., L* L% or H+L* L%; cf. Section 5.1.1.2) are compared, it can be observed that the lengthening of the IP-final syllables attested in the former is the main factor which distinguishes these two sentence types. Considering this, it can be assumed that the IP-final lengthening is a phonological feature used to mark interrogativity in both contact varieties. Thus, it can be said that a durational marking, in addition to a tonal marking (e.g., the L% boundary tone in statements vs. the !HL% and H% boundary tones in information-seeking yes-no questions), is used in Olivenza Portuguese and Olivenza Spanish to distinguish between declarative and interrogative intonation. Finally, it should be added that the lengthening of the IP-final syllables was stronger in Olivenza Portuguese than in Olivenza Spanish. According to the results of the analysis of the information-seeking yes-no questions, the following nuclear configurations of IPs were used to express information-seeking yes-no questions in both Olivenza Portuguese and Olivenza Spanish: L* !HL% / H+L* !HL%, L* H% / H+L* H%, and L* L% / H+L* L%.

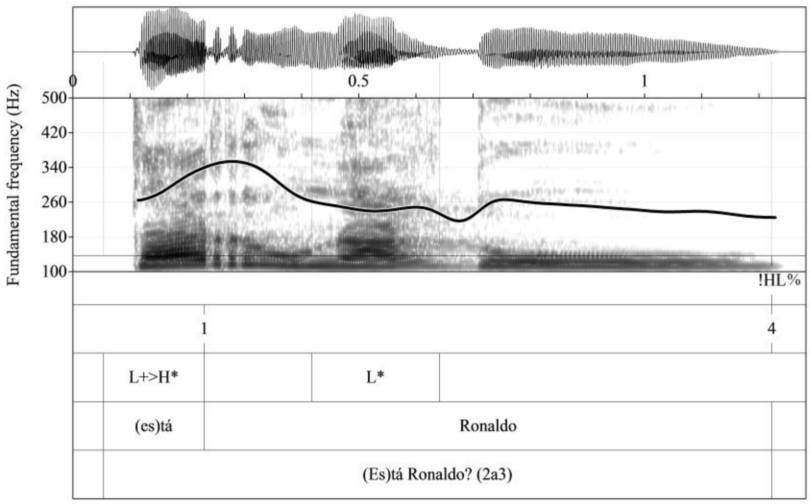

Figure 5.17a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *(Es)tá Ronal**do***[214]*?* 'Is Ronaldo there?'[215] which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a L* nuclear accent, and a !HL% boundary tone[216]; the nuclear configuration of the IP is L* !HL%

[214] The definite article which accompanies proper names in Portuguese is not realized here (i.e., *Ronaldo* is produced instead of *o Ronaldo*). Note that "yes-no questions show the same surface syntactic properties as declaratives" (Frota 2014: 22). Thus, the *subject+verb* word order could be expected here.
[215] In the figure captions of Section 5.1.3, stressed syllables are underlined and phrase-final syllables are in bold.
[216] Duration of the final syllable <**do**> [**du**] (*Ronal**do***): 580 ms. Duration of the vowel [**u**] of the final syllable <**do**> [**du**]: 502 ms. F0 values of the vowel [**u**] (from the highest F0 point to the lowest): 272 Hz in the beginning of the vowel onset, 244 Hz in the middle of the vowel, and 224 Hz at the end of the vowel coda.

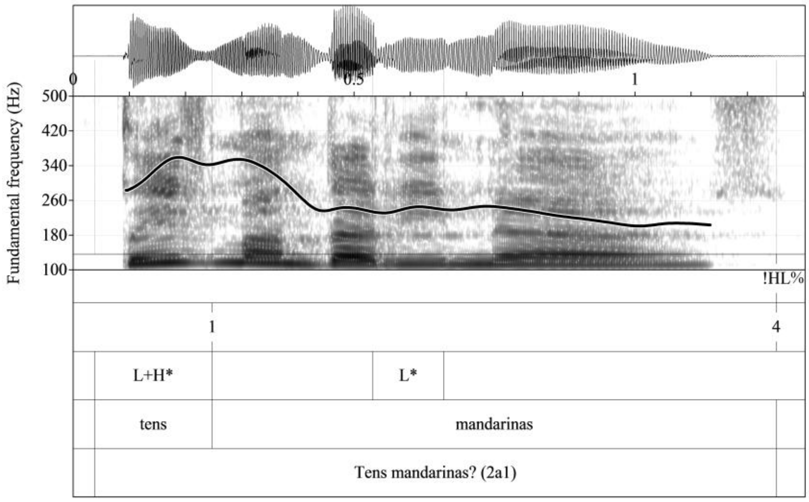

Figure 5.17b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *Tens mandarinas?* 'Have you got any tangerines?' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a L* nuclear accent, and a !HL% boundary tone[217]; the nuclear configuration of the IP is L* !HL%

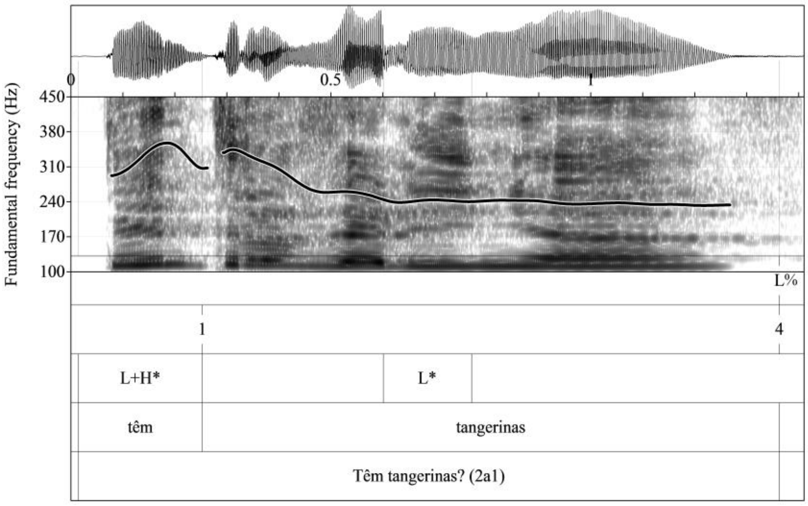

Figure 5.17c. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *Têm tangerinas?* 'Have you got any tangerines?' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a L* nuclear accent, and a L% boundary tone[218]; the nuclear configuration of the IP is L* L%

[217] Duration of the final syllable <**nas**> [**nas**] (*mandarinas*): 604 ms. Duration of the vowel [**a**] of the final syllable <**nas**> [**nas**]: 374 ms. F0 values of the vowel [**a**] (from the highest F0 point to the lowest): 244 Hz in the beginning of the vowel onset, 210 Hz in the middle of the vowel, and 197 Hz at the end of the vowel coda before a small rise is detected due to the syllable-final [s]. Note that word-final /s/ is found produced as both [s] and [ʃ] in the Olivenza Portuguese data analyzed for the present study.

[218] Duration of the final syllable <**nas**> [**njas**] (*tangerinas*): 592 ms. Duration of the diphthong [**ja**] of the final syllable <**nas**> [**njas**]: 393 ms. F0 values of the diphthong [**ja**] (from the highest F0 point to the lowest): 242 Hz in the beginning of the diphthong, 239 Hz in the middle of the diphthong, and 233 Hz at the end of the diphthong.

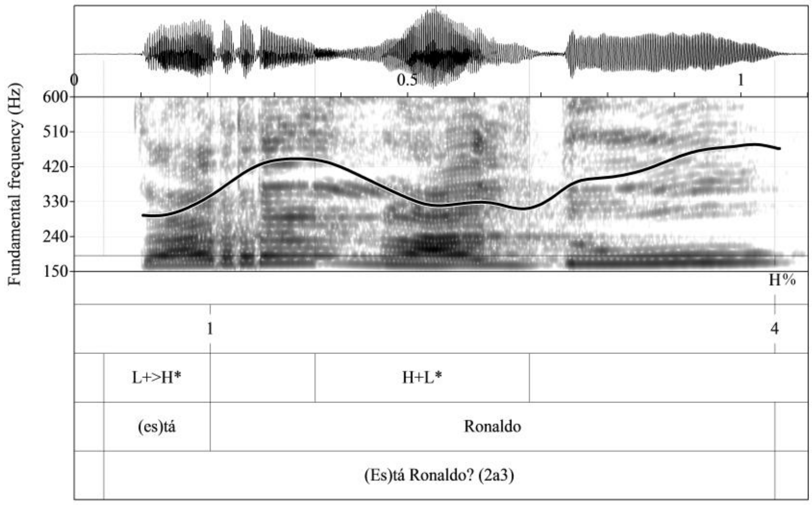

Figure 5.18a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *(Es)tá Ronal**do***[219]*?* 'Is Ronaldo there?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a H+L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is H+L* H%

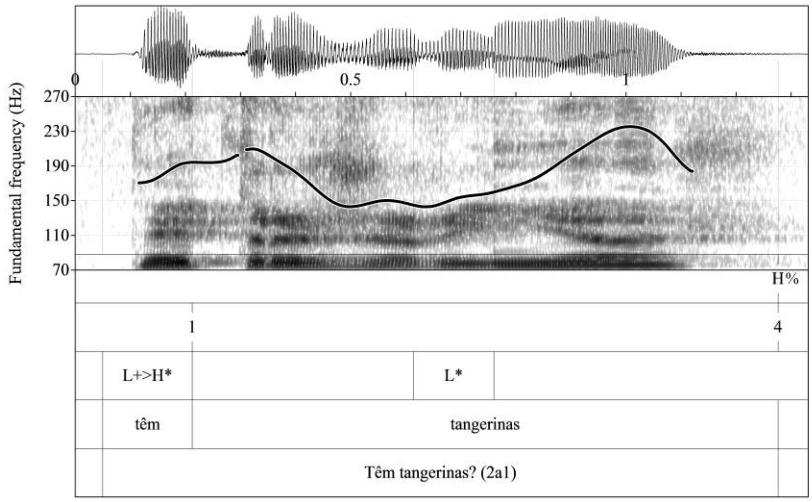

Figure 5.18b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *Têm tange**rinas**?* 'Have you got any tangerines?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

[219] Cf. footnote 214.

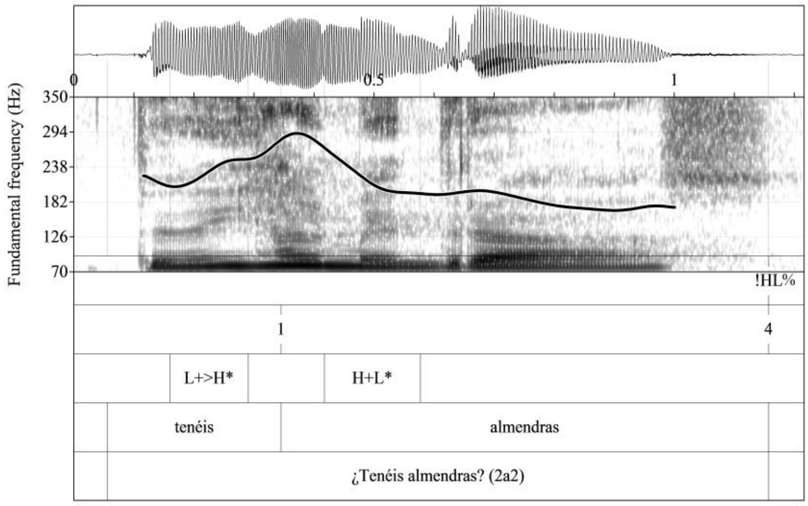

Figure 5.19a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *¿Te<u>néis</u>*[220] *al<u>men</u>**dras**?* 'Have you got any almonds?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a H+L* nuclear accent, and a !HL% boundary tone[221]; the nuclear configuration of the IP is H+L* !HL%

[220] *Tenéi**s** **a**lmendras* is realized as [te.ˈnɛj.**ha**l.ˈmen̪.dᵊ.ɾas]. That is the reason why <s> is not underlined in the syllable *<u>néi</u>s* in the figure caption. Note that [ᵊ] is an epenthetic vowel (sp. *elemento esvarabático*) similar to schwa which frequently surfaces between obstruents (e.g., /b d ɡ f/) and taps (i.e., /ɾ/) in Spanish (Quilis 1981: 296-301; Martínez Celdrán & Fernández Planas 2007: 159-160). [ᵊ] can be analyzed as a part of the tap or as an epenthetic element which does not belong to the tap (cf. discussion in Blecua Falgueras 2001). I analyze [ᵊ] as an epenthetic element which is not part of the syllable which contains the tap. Thus, the few sequences such as <dras> which appear in the data are considered to comprise two syllables ([dᵊ.ɾas]).

[221] Duration of the final syllable <**ras**> [**ɾas**] (*almend**ras***): 515 ms. Duration of the vowel [**a**] of the final syllable <**ras**> [**ɾas**]: 305 ms. F0 values of the vowel [**a**] (from the highest F0 point to the lowest): 202 Hz in the beginning of the vowel onset, 172 Hz in the middle of the vowel, 166 Hz at the end of the vowel coda before a small rise is detected due to the syllable-final [s]. Note that if the duration of [dᵊ] (70 ms) is included, the sequence [dᵊɾas] has a total duration of 585 ms.

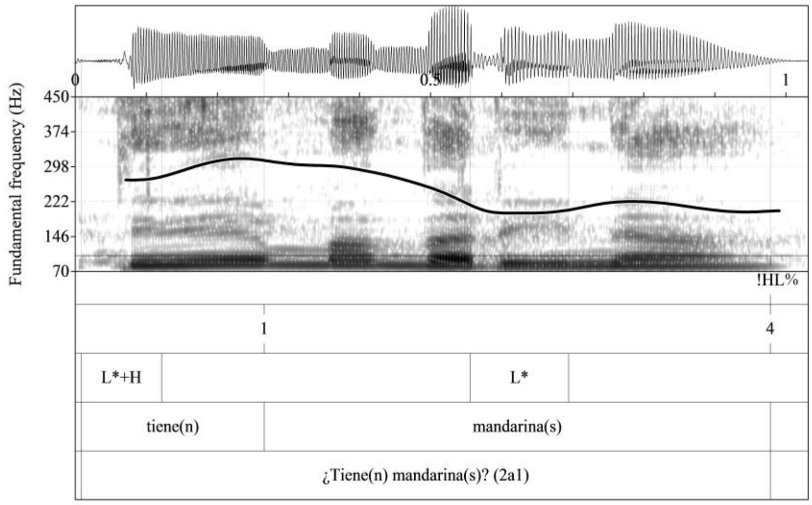

Figure 5.19b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *¿Tiene(n) mandari**na(s)**?* ‘Have you got any tangerines?’ which represents an IP composed of one ip and is produced with a L*+H prenuclear accent, a L* nuclear accent, and a !HL% boundary tone[222]; the nuclear configuration of the IP is L* !HL%

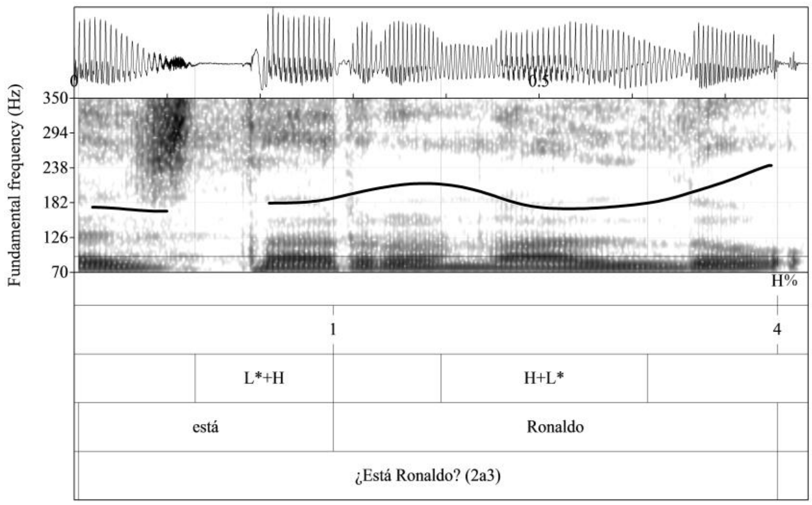

Figure 5.20a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *¿Está Ronal**do**?* ‘Is Ronaldo there?’ which represents an IP composed of one ip and is produced with a L*+H prenuclear accent, a H+L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is H+L* H%

[222] Duration of the final syllable <**na(s)**> [**na**] (*mandari**na(s)***): 294 ms. Duration of the vowel [**a**] of the final syllable <**na(s)**> [**na**]: 224 ms. F0 values of the vowel [**a**] (from the highest F0 point to the lowest): 223 Hz in the beginning of the vowel onset, 208 Hz in the middle of the vowel, 197 Hz at the end of the vowel coda.

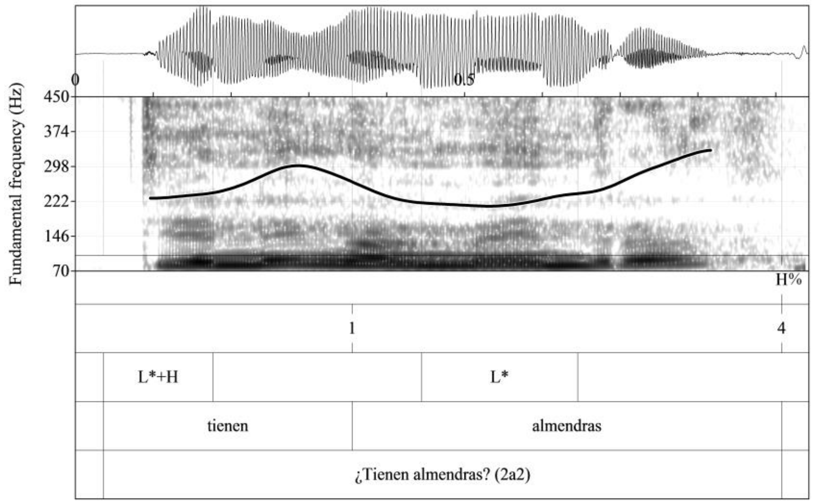

Figure 5.20b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *¿Tienen almen**dras**?* 'Have you got any almonds?' which represents an IP composed of one ip and is produced with a L*+H prenuclear accent, a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

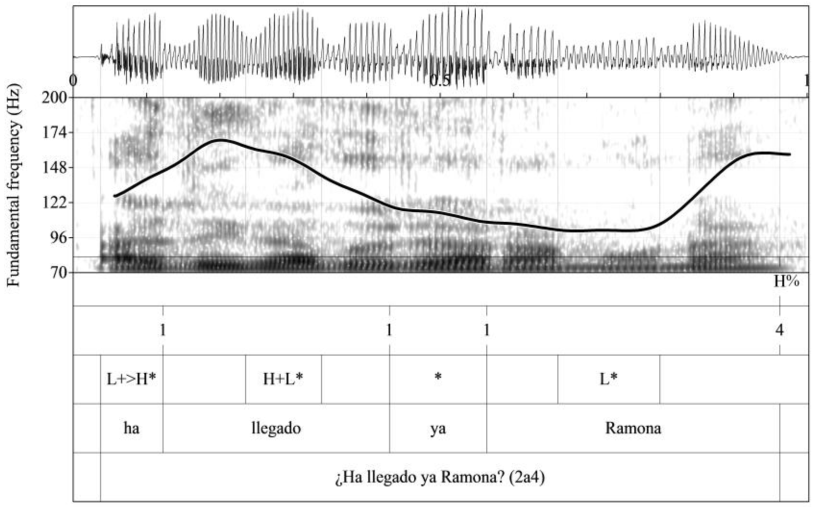

Figure 5.21. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the information-seeking yes-no question *¿Ha llegado ya Ramo**na**?* 'Has Ramona arrived yet?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a H+L* prenuclear accent, a pitch-deaccented prosodic word (*ya*), a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

5.1.3.2 *Disjunctive questions*

5.1.3.2.1 *Prosodic phrasing* As seen in Table 4.2 and Table 4.3, 20 disjunctive questions were obtained with situation 2b1 for the varieties studied (10 IPs for Olivenza Portuguese and 10 IPs for Olivenza Spanish)[223]. Each of these IPs usually consisted of two ips as shown in (5) for Olivenza Portuguese and in (6) for Olivenza Spanish:

(5) ((O sorvete de mango)$_{ip}$ (ou de amêndoa)$_{ip}$)$_{IP}$

(6) ((Helado de mango)$_{ip}$ (o de almendra)$_{ip}$)$_{IP}$

‘Mango ice cream or almond (ice cream)?’

5.1.3.2.2 *Tonal realization* Since only 11 prenuclear pitch accents were produced in the data analyzed for both Olivenza Portuguese and Olivenza Spanish, I will not describe their realization.

Two different nuclear configurations of inner ips were found in the varieties under consideration: L+H* H- and L+H* !H- (cf. Figure 5.22 and Figures 5.23a, b). While the L+H* H- nuclear configuration occurred in 90% of the cases in Olivenza Spanish, both contours appeared with a similar frequency in Olivenza Portuguese. It is worth mentioning that the peaks of the nuclear accents of the inner ips were higher than the peaks of the preceding prenuclear accents in both varieties (cf. Figure 5.23b for Olivenza Spanish). However, since the upstep is assumed to be triggered by the boundary tone H- (or !H-), I analyzed such upstepped pitch accents (i.e., L+¡H*) as underlying L+H* pitch accents.

Regarding the nuclear configurations of IPs, two final contours were attested in the data examined: H+L* L% and L* L% (cf. Figure 5.22 and Figures 5.23a, b). The H+L* L% nuclear contour was phonetically realized as a falling movement at a considerably lower F0 level as compared to the highest F0 point of the nuclear configuration of the inner ip (cf. Figure 5.22 for Olivenza Portuguese and Figure 5.23a for Olivenza Spanish). Whereas the H+L* L% nuclear contour was the main contour that occurred in Olivenza Portuguese, both nuclear configurations, H+L* L% and L* L%, appeared with a similar frequency in the Olivenza Spanish material.

[223] One IP per variety was excluded from the analysis due to disfluencies.

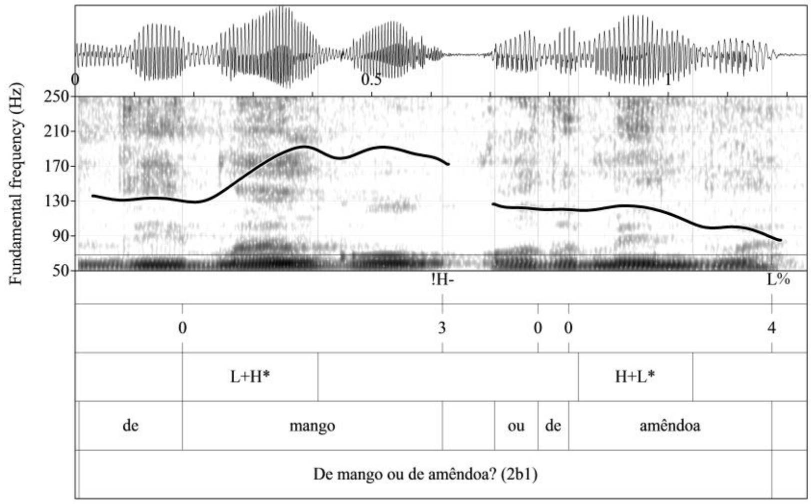

Figure 5.22. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the disjunctive question *De* *__man__**go** ou de a__mên__**doa**?* 'Mango (ice cream) or almond (ice cream)?' which represents an IP composed of two ips (*de __man__**go*** and *ou de a__mên__**doa***) and is produced with a L+H* nuclear accent of the inner ip, a !H- boundary tone of the inner ip, a H+L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+H* !H- and H+L* L%, respectively

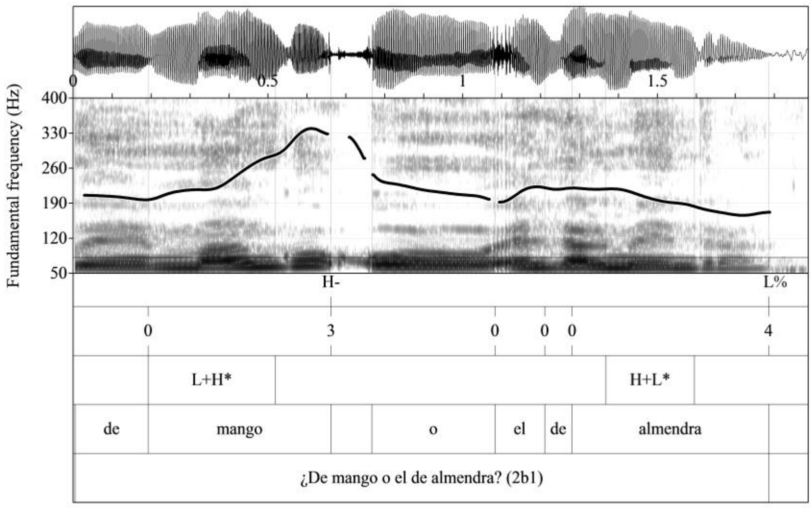

Figure 5.23a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the disjunctive question *¿De __man__**go** o el de al__men__**dra**?*[224] 'Mango (ice cream) or almond (ice cream)?' which represents an IP composed of two ips (*de __man__**go*** and *o el de al__men__**dra***) and is produced with a L+H* nuclear accent of the inner ip, a H- boundary tone of the inner ip, a H+L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+H* H- and H+L* L%, respectively

[224] Some lengthening effects can be observed here: the syllables *de*, *man*-, and *o* were lengthened due to planning of the discourse.

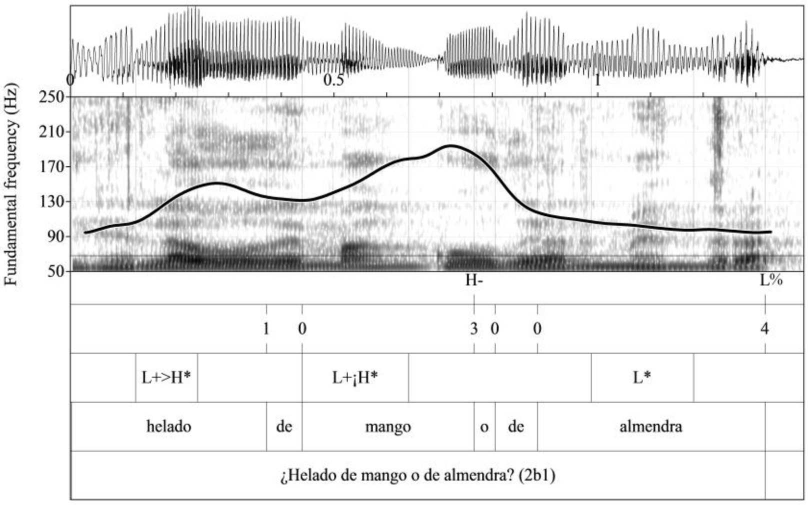

Figure 5.23b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the disjunctive question *¿Helado de man**go** o de almen**dra**?* 'Mango ice cream or almond (ice cream)?' which represents an IP composed of two ips (*helado de man**go*** and *o de almen**dra***) and is produced with a L+>H* prenuclear accent, a L+¡H* nuclear accent of the inner ip, a H- boundary tone of the inner ip, a L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ip and the IP are L+¡H* H- and L* L%, respectively

5.1.3.3 *Interrogative enumerations*

5.1.3.3.1 *Prosodic phrasing* 20 interrogative enumerations were obtained with situation 2c1 for the varieties under investigation (cf. Table 4.2 and Table 4.3): 10 IPs for Olivenza Portuguese and 10 IPs for Olivenza Spanish. Each IP was usually composed of three ips as shown in the examples given in (7) for Olivenza Portuguese[225] and (8) for Olivenza Spanish:

(7) ((Na segunda-feira)$_{\text{ip}}$ (na terça-feira)$_{\text{ip}}$ (ou na sexta-feira)$_{\text{ip}}$)$_{\text{IP}}$[226]
((Na segunda)$_{\text{ip}}$ (na terça)$_{\text{ip}}$ (ou na sexta)$_{\text{ip}}$)$_{\text{IP}}$

(8) ((El lunes)$_{\text{ip}}$ (el martes)$_{\text{ip}}$ (o el viernes)$_{\text{ip}}$)$_{\text{IP}}$
'Monday, Tuesday, or Friday?'

5.1.3.3.2 *Tonal realization* A very small number of prenuclear pitch accents was realized in the data: 25 in total (24 for Olivenza Portuguese and one for Olivenza Spanish). Since the majority of the Olivenza Portuguese speakers produced the compounds (i.e., *segunda-feira*, *terça-feira*, and *sexta-feira*) instead of the abbreviations (*segunda*, *terça*, and *sexta*), prenuclear accents were produced on the first word of the compound and nuclear accents on the second. This was not the

[225] Two ips were excluded from the analysis due to disfluencies.
[226] The weekdays can be abbreviated as follows: *segunda* 'Monday', *terça* 'Tuesday', *quarta* 'Wednesday', *quinta* 'Thursday', and *sexta* 'Friday'.

case for Olivenza Spanish, in which each ip usually consisted of one prosodic word only (cf. (8)). In the Olivenza Portuguese material, the IP-initial prenuclear accents surfaced as L+H* or L+>H* (L+H* being much more common). The ip-initial prenuclear accents of non-IP-initial ips were produced as L+H* or as plateaus. Similar to the analysis of the neutral statements (cf. p. 104), these plateaus were analyzed as instances of deaccentuation and labeled with a "*" (cf. the prenuclear accent associated with the stressed syllable of the prosodic word *quinta* 'Thursday' in the IP-final ip in Figure 5.24).

In Olivenza Spanish, the nuclear configurations of inner ips were realized as L+H* H- in 84% of the cases and as L+H* !H- in 16%. In Olivenza Portuguese, both nuclear contours, L+H* H- and L+H* !H-, occurred with a similar frequency. The nuclear pitch accents of these configurations were often upstepped in the Olivenza Portuguese data. Similar to the disjunctive questions, the upstep was attributed to the boundary tone H- (or !H-) and such upstepped pitch accents (i.e., L+¡H*) were analyzed as underlying L+H* pitch accents.

As for the nuclear configurations of IPs, the H+L* L% nuclear contour appeared predominantly in both varieties under consideration. Like in the disjunctive questions, the H+L* L% nuclear configuration was phonetically realized as a falling movement at a notably lower F0 level as compared to the highest peak realized in the nuclear configuration of the preceding ip (cf. Figure 5.24 for Olivenza Portuguese and Figure 5.25 for Olivenza Spanish).

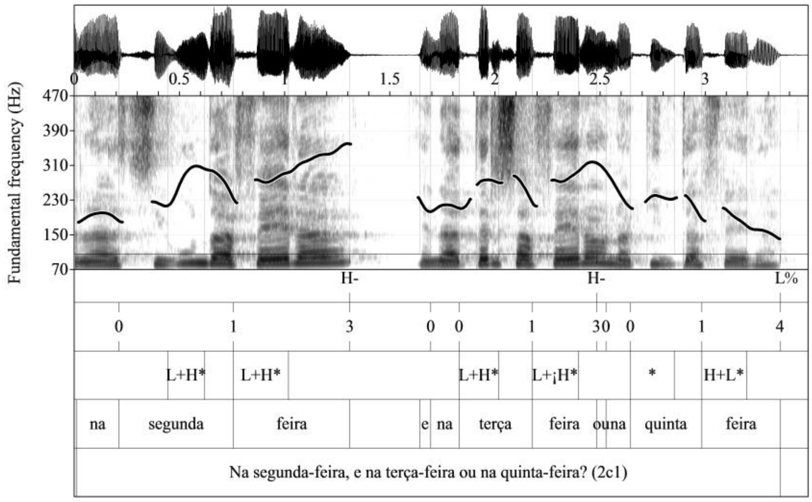

Figure 5.24. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the interrogative enumeration *Na segunda-fei**ra**, e na terça-fei**ra** ou na quinta-fei**ra**?*[227] 'Monday, Tuesday, or Thursday?' which represents an IP composed of three ips (*na segunda-fei**ra***, *e na terça-fei**ra***, and *ou na quinta-fei**ra***) and is produced with a L+H* prenuclear accent, a L+H* nuclear accent of the first inner ip, a H- boundary tone of the first inner ip, a L+H* prenuclear accent, a L+¡H* nuclear accent of the second inner ip, a H- boundary tone of the second inner ip, a pitch-deaccented prosodic word (*quinta*), a H+L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ips and the IP are L+H* H-, L+¡H* H-, and H+L* L%, respectively

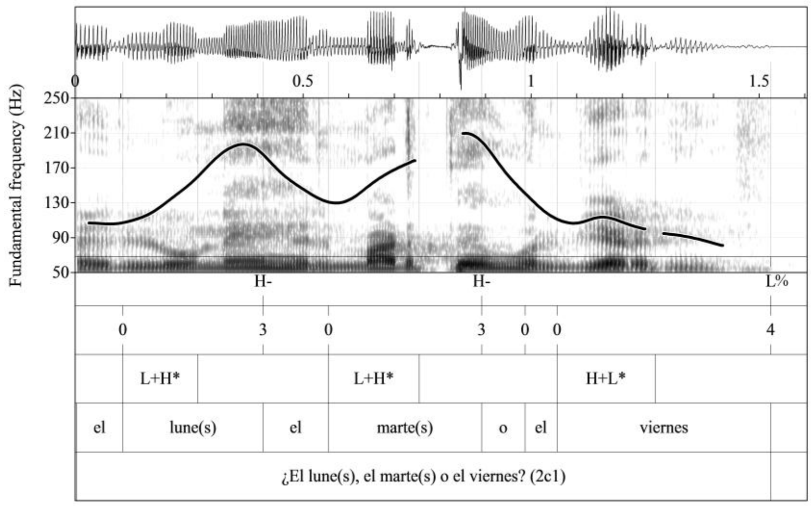

Figure 5.25. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the interrogative enumeration *¿El lu**ne(s)**, el mar**te(s)** o el vier**nes**?* 'Monday, Tuesday, or Friday?' which represents an IP composed of three ips (*el lu**ne(s)***, *el mar**te(s)***, and *o el vier**nes***) and is produced with a L+H* nuclear accent of the first inner ip, a H- boundary tone of the first inner ip, a L+H* nuclear accent of the second inner ip, a H- boundary tone of the second inner ip, a H+L* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ips and the IP are L+H* H-, L+H* H-, and H+L* L%, respectively

[227] In some cases, the speakers produced enumerations which contained other weekdays than the ones depicted in (7). However, since the vocabulary was not important for the analysis, but rather the fluency of the sentences uttered, these speakers were not asked to realize the enumeration again.

5.1.4 Biased yes-no questions

This section provides the reader with a description of the intonational properties of exclamative yes-no questions (with counterexpectational meaning) and confirmation-seeking yes-no questions. I present the realization of prenuclear pitch accents and nuclear configurations of IPs (i.e., the combination of the nuclear pitch accent of the IP-final ip[228] and the boundary tone of the IP). Their phonological status will be discussed after the depiction of the tonal realization of all sentence types considered for the intonational analysis of Olivenza Portuguese and Olivenza Spanish (cf. Section 5.2.1 and Section 5.2.3).

5.1.4.1 *Exclamative yes-no questions (with counterexpectational meaning)*

41 exclamative yes-no questions (with counterexpectational meaning) were obtained with situations 2d1 and 2d2 for the varieties under consideration (cf. Table 4.2 and Table 4.3): 21 IPs for Olivenza Portuguese and 20 IPs for Olivenza Spanish. The yes-no questions produced in both varieties contained a similar number of prenuclear pitch accents: 41 for Olivenza Portuguese and 39 for Olivenza Spanish. Among them both IP-initial and phrase-internal prenuclear accents were attested. The following IP-initial prenuclear accents were realized in the exclamative yes-no questions: L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish. However, the L+>H* pitch accent appeared more commonly than the other two pitch accents in the data examined for both varieties. Regarding the phrase-internal prenuclear accents, the majority of them were not realized in Olivenza Spanish due to a clash of two successive stressed syllables: As illustrated in Figure 5.27a and Figure 5.27b, the short unstressed syllable *a* which occurs between the stressed syllables of the prosodic words *toda<u>ví</u>a* and *<u>tie</u>nes* does not offer enough space for the realization of the peak of the prenuclear accent associated with the syllable *ví* of the prosodic word *toda<u>ví</u>a*. Thus, only one rising pitch accent is realized on the two successive stressed syllables with the peak located at the end of the second stressed syllable. Similar cases were not found in the Olivenza Portuguese data, but rather instances of deaccentuation of phrase-internal prosodic words.

As for the nuclear configurations of IPs, both Olivenza Portuguese and Olivenza Spanish speakers used the L+H* !HL% nuclear contour to express exclamative yes-no questions (with counterexpectational meaning). The nuclear pitch accent of this final contour is the same one occurring in the nuclear configurations of IPs presented for the biased statements in the previous

[228] As has been mentioned several times, each IP is assumed to consist of at least one ip (cf. p. 86-93). If an IP is composed of only one ip, this ip is referred to as the IP-final ip in the present work.

sections; this is the L+H* pitch accent, which conveys focus/emphasis. It is not surprising that this nuclear pitch accent appears here, since exclamative yes-no questions are produced with emphasis. The !HL% boundary tone used to express exclamative yes-no questions in both contact varieties is the same one found in the information-seeking yes-no questions: it is phonetically realized as a compressed falling movement (cf. Figure 5.26 for Olivenza Portuguese) and is always produced on strongly lengthened IP-final syllables (cf. footnote 230 for the durational properties and the F0 values of the final syllable depicted in Figure 5.26). However, it is worth mentioning that in some cases, such as the one presented in Figure 5.27a for Olivenza Spanish, the slow fall was very weak or even not present in both varieties (cf. footnote 232 for the durational properties and the F0 values of the final syllable depicted in Figure 5.27a). In such cases, the boundary tone was produced as a sustained pitch and labeled with the !H% boundary tone.

The observation that biased statements (cf. Section 5.1.2) were produced without a strong IP-final lengthening and exclamative yes-no questions with the final contours L+H* !HL% and L+H* !H% were realized with a strong IP-final lengthening in Olivenza Portuguese and Olivenza Spanish seems to confirm the assumption made above that the IP-final lengthening is a phonological feature used to mark interrogativity in both contact varieties. Thus, a durational marking, besides a tonal marking (e.g., the L+H* L% nuclear configuration attested in biased statements vs. the L+H* !HL% nuclear configuration found in the biased yes-no questions analyzed in this section), is used in Olivenza Portuguese and Olivenza Spanish to distinguish between declarative and interrogative intonation.

In Olivenza Spanish, a further nuclear configuration of IPs was used to express exclamative yes-no questions (with counterexpectational meaning): L+¡H* L% (cf. Figure 5.27b). This contour is phonetically realized as a rising movement on the nuclear syllable followed by a fall during the final syllable. It is important to note that the IP-final syllables on which the L% boundary tone was produced were not characterized by such strong lengthening effects as those described for the IP-final syllables carrying the boundary tones !HL% and !H%.

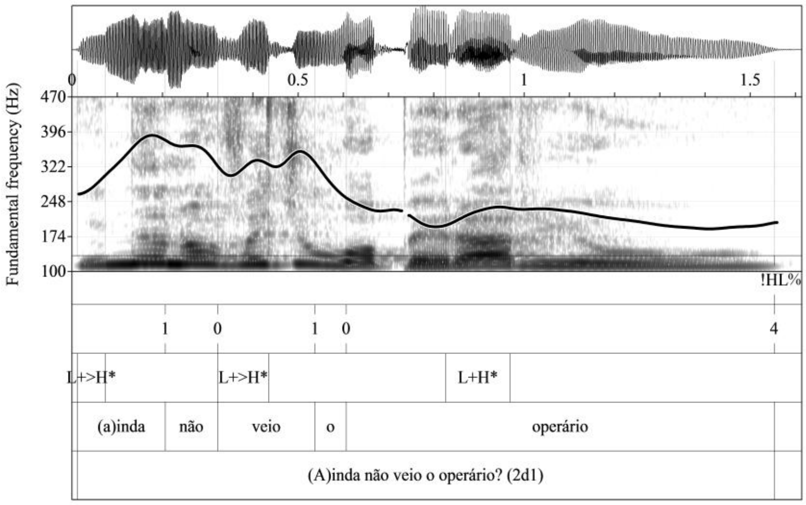

Figure 5.26. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the exclamative yes-no question (with counterexpectational meaning) *(A)inda não veio o operá**rio**?* 'The plumber has not arrived yet?'[229] which represents an IP composed of one ip and is produced with two L+>H* prenuclear accents, a L+H* nuclear accent, and a !HL% boundary tone[230]; the nuclear configuration of the IP is L+H* !HL%

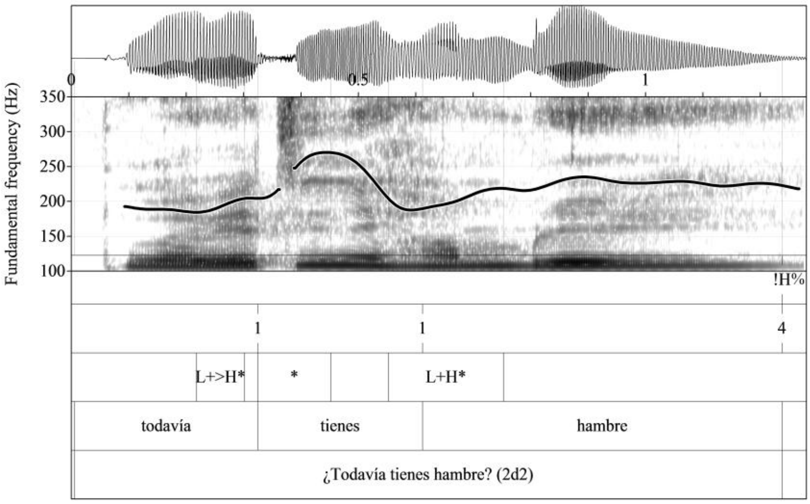

Figure 5.27a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the exclamative yes-no question (with counterexpectational meaning) *¿Todavía tienes ham**bre**?* 'You are still hungry?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent[231], a L+H* nuclear accent, and a !H% boundary tone[232]; the nuclear configuration of the IP is L+H* !H%

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[229] In the figure captions of Section 5.1.4, stressed syllables are underlined and phrase-final syllables are in bold.
[230] Duration of the final syllable <**rio**> [**ɾju**] (*operá**rio***): 584 ms. Duration of the diphthong [**ju**] of the final syllable <**rio**> [**ɾju**]: 528 ms. F0 values of the diphthong [**ju**] (from the highest F0 point to the lowest): 234 Hz in the beginning of the diphthong, 200 Hz in the middle of the diphthong, 190 Hz at the end of the diphthong before a small rise is detected.
[231] As mentioned in Section 5.1.1.2, the star "*" is used to indicate pitch-deaccented prosodic words. In Figure 5.27a, the clash of the two stressed syllables conditions the realization of one pitch accent on the prosodic words *todavía* and *tienes*.
[232] Duration of the final syllable <**bre**> [**bɾe**] (note that the sequence *tienes ham**bre*** was produced as follows: [ˈti.ne.ˈham.**bɾe**]): 474 ms. Duration of the vowel [**e**] of the final syllable <**bre**> [**bɾe**]: 364 ms. F0 values of the

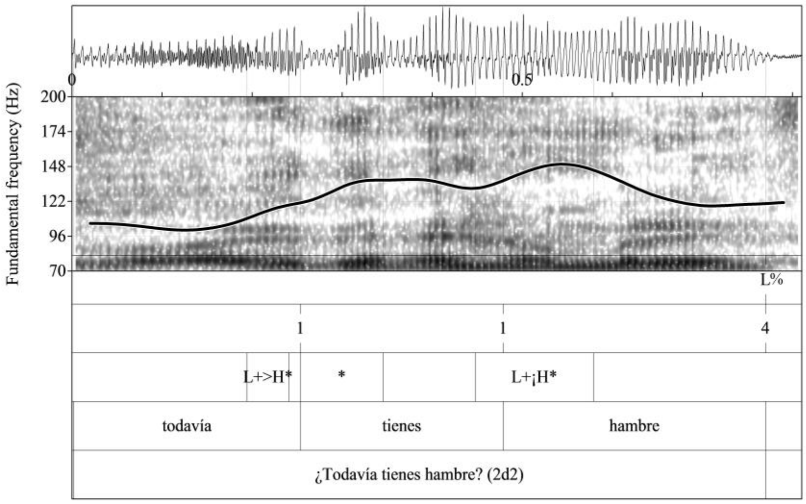

Figure 5.27b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the exclamative yes-no question (with counterexpectational meaning) *¿Todavía tienes ham**bre**?* 'You are still hungry?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent[233], a L+¡H* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is L+¡H* L%

5.1.4.2 *Confirmation-seeking yes-no questions*

As shown in Table 4.2 and Table 4.3, 84 confirmation-seeking yes-no questions were obtained with situations 2d3, 2d4, 2d5, and 2d6 (i.e., 40 IPs for Olivenza Portuguese and 44 IPs for Olivenza Spanish). 102 prenuclear pitch accents occurred in the Olivenza Portuguese material and 86 in the Olivenza Spanish data. Almost all of them were IP-initial and phrase-internal prenuclear accents. Similar to the information-seeking yes-no questions, L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish appeared with a similar frequency as IP-initial prenuclear accents in the confirmation-seeking yes-no questions. The deaccentuation of phrase-internal prosodic words amounted to 61% of the cases in Olivenza Portuguese and to 90% in Olivenza Spanish. In Figure 5.29 for instance, the phrase-internal prosodic word *veni(r)* is deaccented (the star marks the lack of a pitch accent and indicates that the prosodic word still has word stress). When the phrase-internal prenuclear accents were not deaccented, they surfaced as L+>H* or L+H* in Olivenza Portuguese and as H+L* in Olivenza Spanish. H+L* appeared as a phrase-internal prenuclear accent if it was preceded by the peak of a rising prenuclear accent[234].

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vowel [e] (from the highest F0 point to the lowest): 236 Hz in the beginning of the vowel onset, 228 Hz in the middle of the vowel, 219 Hz at the end of the vowel coda.

[233] Cf. footnote 231 concerning the clash of the two stressed syllables. Note that the sequence *tienes ham**bre*** was produced as follows: [ˈte.ne.ˈham.bɾe].

[234] The conditions which contribute to the occurrence of the H+L* prenuclear accent are the same for statements and questions (cf. p. 103-104 for the occurrence of H+L* as a prenuclear accent in neutral statements).

Regarding the nuclear configurations of IPs, Olivenza Portuguese and Olivenza Spanish speakers patterned together in using the nuclear configuration L+(¡)H* H% to express confirmation-seeking yes-no questions. The nuclear accent was often upstepped in the data examined for both varieties (cf. Figure 5.28 and Figure 5.29). However, since the upstep is assumed to be triggered by the boundary tone H%, I analyzed such upstepped accents as underlying L+H* accents for both varieties under investigation.

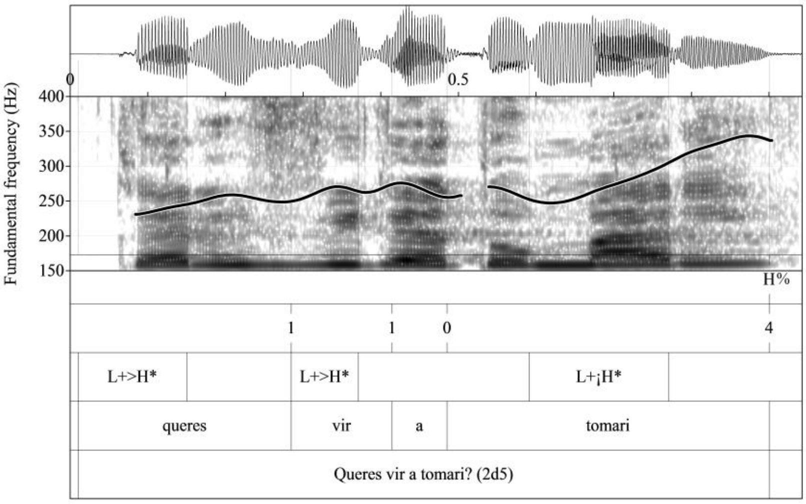

Figure 5.28. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the confirmation-seeking yes-no question *Queres vir a tomari*[235]*?* 'Would you like to come to have a drink with me?' which represents an IP composed of one ip and is produced with two L+>H* prenuclear accents[236], a L+¡H* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L+¡H* H%

[235] As mentioned in Chapter 2, Olivenza Portuguese shows a word-final vowel epenthesis called *paragoge* (i.e., an [i] is usually inserted at the end of oxytones which end in an /ɾ/ or /l/). This is a phenomenon typical of the Portuguese variety spoken in Alentejo (Cruz 2013: 15-16).
[236] Note that the sequence *vir a* was produced as follows: [ˈvi.ɾɐ].

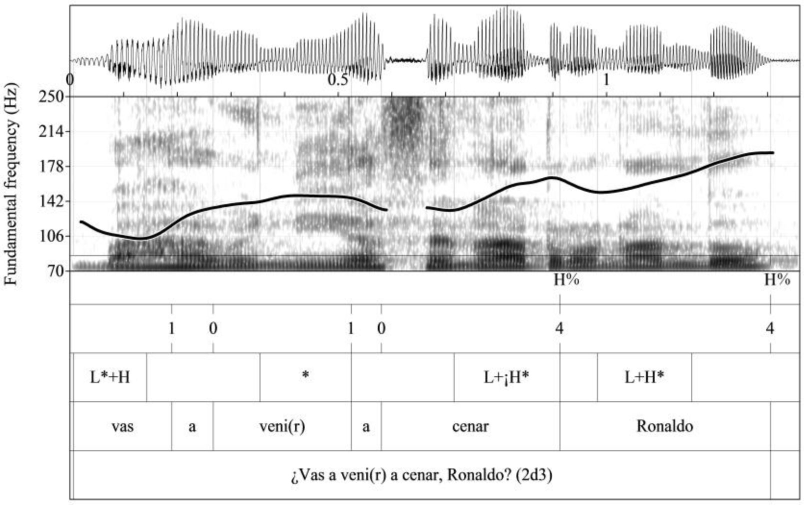

Figure 5.29. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the confirmation-seeking yes-no question *¿Vas a veni(r) a ce**nar**?* 'Would you like to come to have dinner with me?' which represents an IP composed of one ip and is produced with a L*+H prenuclear accent[237], a pitch-deaccented prosodic word (*veni(r)*), a L+¡H* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L+¡H* H%

5.1.5 Neutral wh-questions

In this section, I describe the intonation of information-seeking wh-questions, information-seeking wh-questions with a peripheral element, and successive information-seeking wh-questions (i.e., enumerations). I depict the realization of prenuclear pitch accents and nuclear configurations of IPs (i.e., the combination of the nuclear pitch accent of the IP-final ip[238] and the boundary tone of the IP). I will discuss their phonological status after presenting the tonal realization of all sentence types considered for the intonational analysis of Olivenza Portuguese and Olivenza Spanish (cf. Section 5.2.1 and Section 5.2.3).

5.1.5.1 *Information-seeking wh-questions and information-seeking wh-questions with a peripheral element*

The results of the analysis of the information-seeking wh-questions and the information-seeking wh-questions with a peripheral element will be presented together, since these two sentence types did not differ with respect to the realization of both prenuclear pitch accents and nuclear configurations of IPs. As shown in Table 4.2 and Table 4.3, the information-seeking wh-questions examined for both varieties were obtained with situations 3a1, 3a2, 3a3, 3b1, 2b1, 2c1, and 4b1. The last three situations (i.e., 2b1, 2c1, and 4b1) were originally used for the collection

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[237] Note that the sequence *vas a* was produced as follows: ['ba.ha].

[238] In Olivenza Portuguese and Olivenza Spanish, each IP is suggested to be composed of at least one ip (cf. p. 86-93). If an IP consists of only one ip, this ip is referred to as the IP-final ip.

of disjunctive questions (2b1), interrogative enumerations (2c1), and echo wh-questions (4b1). However, utterances collected with situations 2b1 and 2c1 frequently consisted of two IPs (an information-seeking wh-question followed by a disjunctive question or an interrogative enumeration) (cf. the Appendix, p. 276 and p. 281), and utterances collected with situation 4b1 often comprised an information-seeking wh-question followed by an echo wh-question (cf. the Appendix, p. 278 and p. 283). All neutral wh-questions obtained with these four situations were analyzed within the group of the information-seeking wh-questions. As a result, a larger number of information-seeking wh-questions was considered for the analysis of both Olivenza Portuguese and Olivenza Spanish. Thus, 112 information-seeking wh-questions and 20 information-seeking wh-questions with a peripheral element were examined in total (52 IPs and 10 IPs for Olivenza Portuguese and 60 IPs and 10 IPs for Olivenza Spanish, respectively).

128 prenuclear pitch accents were realized in the Olivenza Portuguese data. 88% of the IP-initial prenuclear accents surfaced as L+>H* or L+H*; no preference for one of them was attested in the material examined. The remaining 12% were produced as high plateaus and analyzed as instances of deaccentuation[239]. Regarding the phrase-internal prenuclear accents, while 56% of them were deaccented, the other 44% were produced as L+>H* or L+H* (L+H* being the most frequent one). The few ip-initial prenuclear accents of non-IP-initial ips occurring in the material were realized as L+>H* or L+H* or were deaccented: the prenuclear accents L+>H* and L+H* usually appeared when there was enough segmental material after the boundary tone of the preceding ip (i.e., enough space between the boundary tone of the preceding ip and the first stressed syllable of the following ip); otherwise the ip-initial prenuclear accents of non-IP-initial ips were realized as plateaus and analyzed as instances of deaccentuation.

142 prenuclear pitch accents were attested in the information-seeking wh-questions analyzed for Olivenza Spanish. 83% of the IP-initial prenuclear accents were produced as L+>H* or L*+H; both pitch accents, L+>H* and L*+H, appeared with a similar frequency. The remaining 17% of the IP-initial prenuclear accents were realized as high plateaus and interpreted as instances of deaccentuation[240], like in Olivenza Portuguese. While 82% of the phrase-internal prenuclear accents were deaccented (cf. Figures 5.32a, b; a pitch-deaccented syllable is marked

[239] It is worth mentioning that two different analyses are possible here: the high plateaus occurring as IP-initial prenuclear accents can be interpreted as instances of deaccentuation, as proposed here, or analyzed as monotonal pitch accents (i.e., H*). Considering the high occurrence of L+>H* and L+H* (in Olivenza Portuguese) and of L+>H* and L*+H (in Olivenza Spanish) as IP-initial prenuclear accents, it can be assumed that first, IP-initial prenuclear accents typically show a rising tonal movement in both contact varieties, and second, the high plateaus represent a deficient version of the rising prenuclear accents in which the low prefix is not realized. Based on these assumptions, I suggest that the high plateaus are deaccented versions of the rising pitch accents (L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish).
[240] Cf. footnote 239.

with a “*” to indicate that there is no pitch accent associated with this syllable, but that the prosodic word still has word stress), the other 18% surfaced as H+L*, L*+H, or L+>H* (cf. Figure 5.33a for H+L*). As for the ip-initial prenuclear accents of non-IP-initial ips, they were produced as H+L* or were realized as plateaus and analyzed as instances of deaccentuation[241].

The Olivenza Portuguese and the Olivenza Spanish speakers used the same nuclear configurations of IPs to express information-seeking wh-questions: H+L* L% and L* H% (cf. Figures 5.30a, b and Figure 5.31 for Olivenza Portuguese and Figures 5.32a, b and Figures 5.33a, b for Olivenza Spanish). Besides these two final contours, the L* L% nuclear configuration of IPs was also found in the varieties under investigation, but only in a few cases.

Concerning the durational properties of the information-seeking wh-questions described in this section, it was observed that the majority of the Olivenza Portuguese speakers did not mark the information-seeking wh-questions and the information-seeking wh-questions with a peripheral element by lengthening the IP-final syllables to such an extent as shown for the information-seeking yes-no questions and the exclamative yes-no questions. In Olivenza Spanish, some speakers considerably lengthened the IP-final syllables in the information-seeking wh-questions and the information-seeking wh-questions with a peripheral element, while others did not use such a durational marking. As mentioned above, the IP-final lengthening is assumed to be a phonological feature used to mark interrogativity in both contact varieties (note that a strong IP-final lengthening was found in yes-no questions, in contrast to statements). However, wh-questions are lexically marked by a wh-word, in contrast to yes-no questions, which usually exhibit the same surface syntactic properties as statements. Thus, the presence of the IP-final lengthening in the (information-seeking) wh-questions may be seen as somewhat redundant, since there is a lexical marker (i.e., the wh-word) to indicate that this is a question. I will return to this point in Section 5.2.3.

[241] Cf. footnote 234.

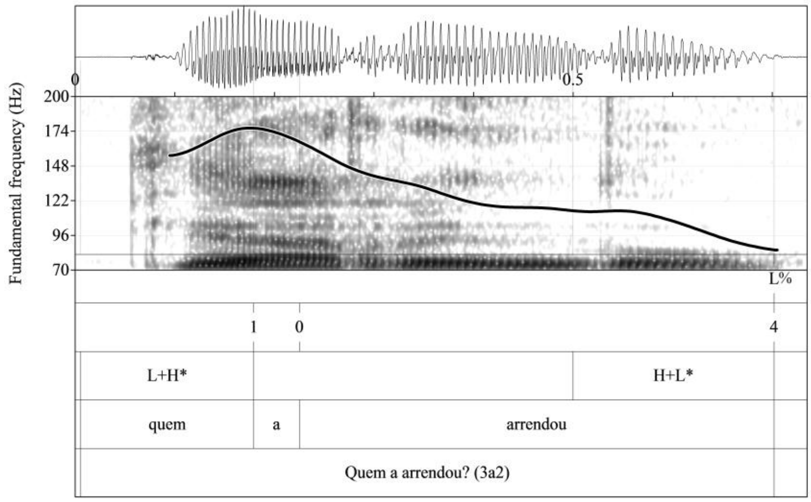

Figure 5.30a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *Quem a arren**dou**?* 'Who has rented it?'[242] which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

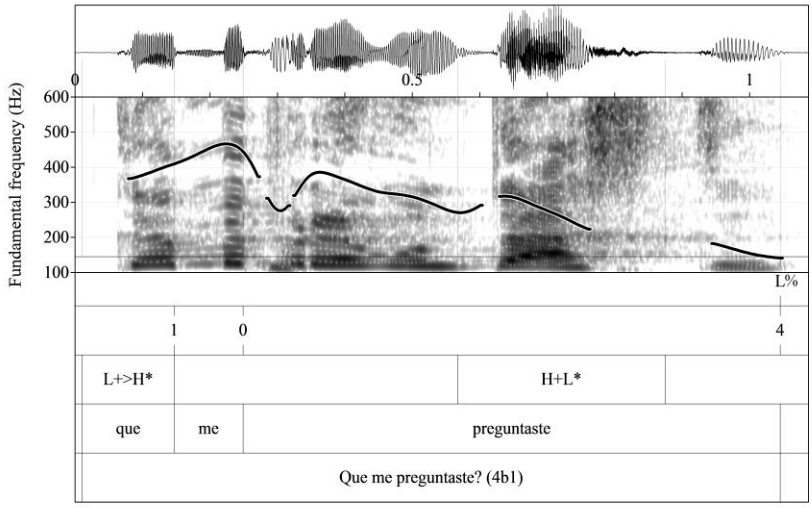

Figure 5.30b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *Que me preguntas**te**?*[243] 'What did you ask me?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

[242] In the figure captions of Section 5.1.5, stressed syllables are underlined and phrase-final syllables are in bold.
[243] This speaker used the Spanish form of the verb 'to ask' instead of the Portuguese one (i.e., sp. *preguntar* 'to ask' instead of port. *perguntar* 'to ask').

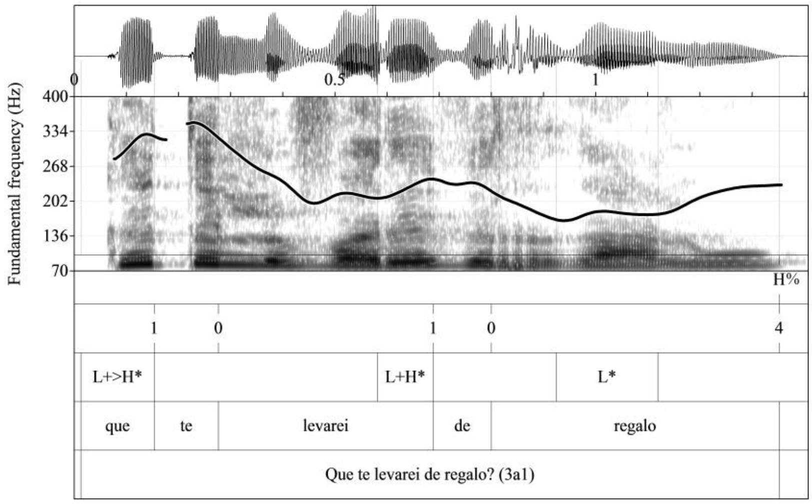

Figure 5.31. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *Que te levarei de regalo?* 'What could I bring you as a gift?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a L+H* prenuclear accent, a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

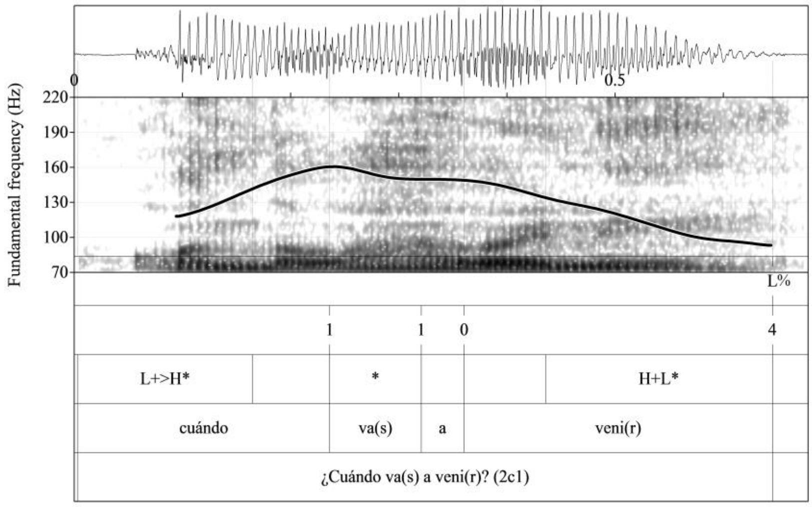

Figure 5.32a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Cuándo va(s) a veni(r)?* 'When are you coming?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a pitch-deaccented prosodic word (*va(s)*), a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

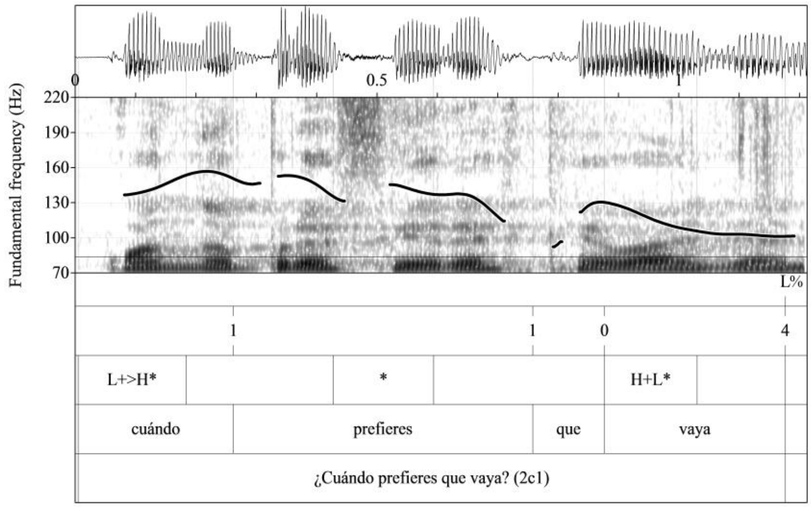

Figure 5.32b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Cuándo prefieres que vaya?* 'When should I come by?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a pitch-deaccented prosodic word (*prefieres*), a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

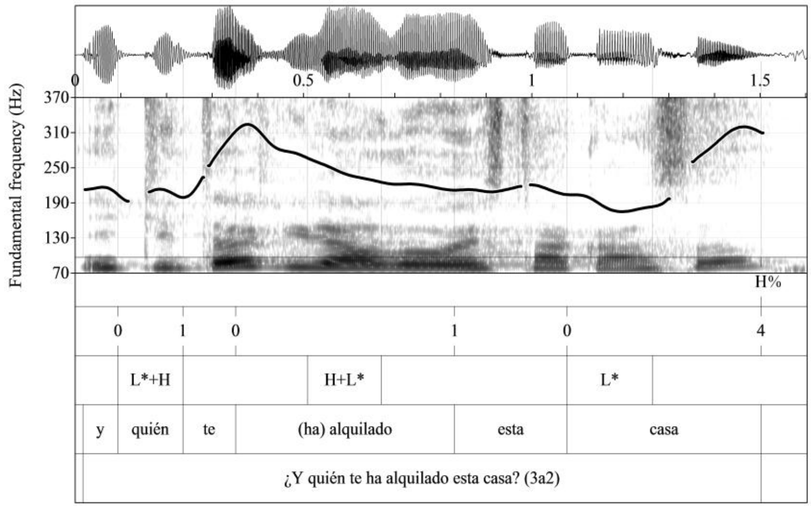

Figure 5.33a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Y quién te ha alquilado esta casa?* 'Who has rented the house?' which represents an IP composed of one ip and is produced with a L*+H prenuclear accent, a H+L* prenuclear accent, a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

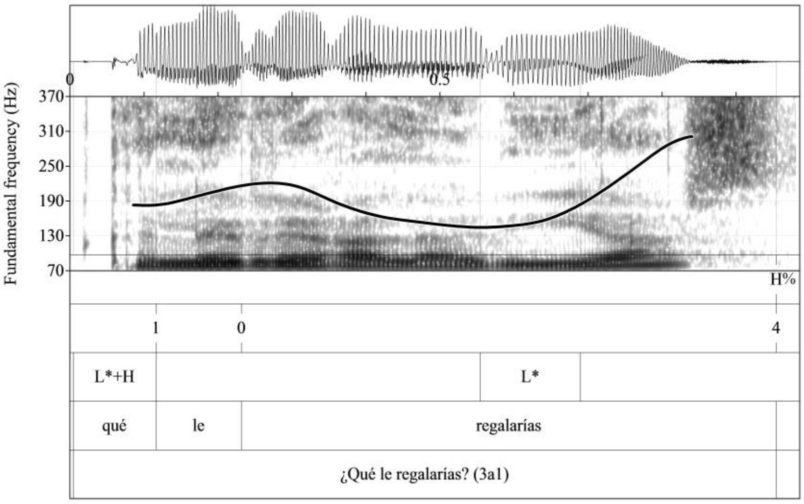

Figure 5.33b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Qué le regalaríás?* 'What would you give him?' which represents an IP composed of one ip and is produced with a L*+H prenuclear accent, a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

5.1.5.2 *Enumerations (wh-questions)*

5.1.5.2.1 *Prosodic phrasing* 20 utterances consisting of successive information-seeking wh-questions were obtained with situation 3c1 in total: 10 for Olivenza Portuguese and 10 for Olivenza Spanish. The 10 utterances collected for each variety contained 26 IPs for Olivenza Portuguese and 37 IPs for Olivenza Spanish. An example is given in (9) for Olivenza Portuguese and in (10) for Olivenza Spanish:

(9) ((Onde vais)$_{IP}$ (como vais)$_{IP}$ (e quando vais (a) voltar(i))$_{IP}$)$_{Utt}$[244]

(10) ((Dónde vas)$_{IP}$ (cómo vas)$_{IP}$ (y cuándo vas a volver a casa)$_{IP}$)$_{Utt}$

'Where are you going? How are you going? And when are you coming back home?'

5.1.5.2.2 *Tonal realization* 47 prenuclear accents were produced in the Olivenza Portuguese data and 54 in the Olivenza Spanish material. The successive information-seeking wh-questions patterned with the information-seeking wh-questions described in the previous section in showing a similar realization of prenuclear accents: in the successive information-seeking wh-questions, L+>H* and L+H* were the most frequent IP-initial prenuclear accents in Olivenza Portuguese

[244] *Utt* is the abbreviation of the term *utterance*. The particle *(a)* is in brackets here, because Olivenza Portuguese speakers often applied the periphrastic future with the particle *a*: Cf. *vas **a** volver* 'you are coming back / you will come back' (Spanish) vs. *vais **(a)** voltar(i)* 'you are coming back / you will come back' (Olivenza Portuguese) vs. *vais voltar* 'you are coming back / you will come back' (other Portuguese varieties). Regarding the verb form *voltar(i)*, it should be mentioned that [i] is an epenthetic vowel which is usually inserted at the end of oxytones which end in an [ɾ] or [l] in Olivenza Portuguese (cf. footnote 235 and Chapter 2).

and L+>H* and L*+H were the most common IP-initial prenuclear accents in Olivenza Spanish. Furthermore, instances of deaccentuation of IP-initial prenuclear accents were also found in both varieties (cf. p. 140 and footnote 239 for deaccentuation of IP-initial prenuclear accents in information-seeking wh-questions). As for the phrase-internal prenuclear accents, if they were not deaccented, they surfaced as L+>H* or L+H* in Olivenza Portuguese and as H+L* in Olivenza Spanish[245].

The Olivenza Portuguese and the Olivenza Spanish speakers used the following three nuclear configurations of IPs to express successive information-seeking wh-questions: H+L* L%, L* H%, and L+(¡)H* H%. The first two are expected to be found in the successive information-seeking wh-questions, since they have been attested in the information-seeking wh-questions described in the previous section. Regarding the latter (i.e., L+(¡)H* H%), I attribute its occurrence to the enumeration of successive questions and analyze it as an instance of a continuation rise.

5.1.6 Biased wh-questions

This section describes the intonational properties of exclamative wh-questions and imperative wh-questions. I present the realization of prenuclear pitch accents and nuclear configurations of IPs (i.e., the combination of the nuclear pitch accent of the IP-final ip[246] and the boundary tone of the IP). Their phonological status will be discussed after the depiction of the tonal realization of all sentence types considered for the intonational analysis of Olivenza Portuguese and Olivenza Spanish (cf. Section 5.2.1 and Section 5.2.3).

5.1.6.1 *Exclamative wh-questions*

As shown in Table 4.2 and Table 4.3, 20 exclamative wh-questions were collected with situation 3d1 in total (i.e., 10 IPs per variety). The number of prenuclear accents produced in the exclamative wh-questions amounted to 25 for Olivenza Portuguese and to 34 for Olivenza Spanish. L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish appeared as IP-initial prenuclear accents also in the exclamative wh-questions; however, the L+H* pitch accent was the most common one in the Olivenza Portuguese material and the L+>H* pitch accent was the most frequent one in the Olivenza Spanish data. Regarding the realization of phrase-internal prenuclear accents, Olivenza Portuguese showed few instances of

[245] Cf. footnote 234.

[246] In both varieties under consideration, each IP is assumed to consist of at least one ip (cf. p. 86-93). If an IP is composed of only one ip, this ip is referred to as the IP-final ip.

deaccentuation, in contrast to Olivenza Spanish (cf. the syllables marked with a "*" in Figure 5.35). When the phrase-internal prenuclear accents were not deaccented, they were produced as L+>H*, L+H*, or H+L* in Olivenza Portuguese and as L+>H* or H+L* in Olivenza Spanish[247].

The nuclear configurations of IPs used to express exclamative wh-questions were L+¡H* L% and L+H* L% in both varieties under investigation (cf. Figure 5.34 and Figure 5.35). It is not surprising that the L+(¡)H* pitch accent was found in the nuclear configurations of the exclamative wh-questions, since it has been shown that this nuclear accent signals focus and emphasis in Olivenza Portuguese and Olivenza Spanish (cf. for instance exclamative statements and exclamative yes-no questions). The results of the intonational analysis of the exclamative wh-questions produced in both Olivenza Portuguese and Olivenza Spanish seem to confirm the assumption made in Section 5.1.2.2 that although both nuclear accents L+H* and L+¡H* attested in the nuclear configurations of IPs convey focus/emphasis, the L+¡H* nuclear accent appears to be used to signal a greater emphasis.

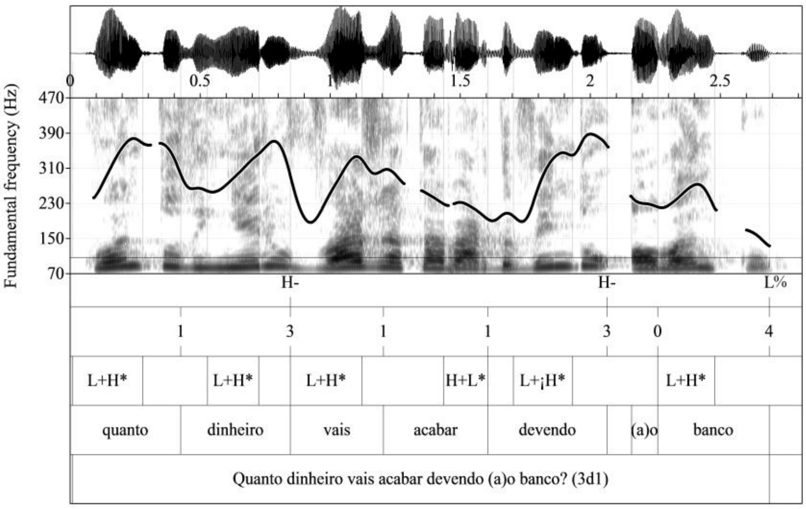

Figure 5.34. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the exclamative wh-question *<u>Quan</u>to di<u>nhei</u>**ro** <u>vais</u>*[248] *aca<u>bar</u> de<u>ven</u>**do** (a)o <u>ban</u>**co**?* 'How much money will you end up owing to the bank?'[249] which represents an IP composed of three ips (*<u>quan</u>to di<u>nhei</u>**ro***, *<u>vai</u>s aca<u>bar</u> de<u>ven</u>**do***, and *(a)o <u>ban</u>**co***) and is produced with a L+H* prenuclear accent, a L+H* nuclear accent of the first inner ip, a H- boundary tone of the first inner ip, a L+H* prenuclear accent, a H+L* prenuclear accent, a L+¡H*[250] nuclear accent of the second inner ip, a H- boundary tone of the second inner ip, a L+H* nuclear accent of the IP-final ip, and a L% boundary tone; the nuclear configurations of the inner ips and the IP are L+H* H-, L+¡H* H-, and L+H* L%, respectively

[247] Cf. footnote 234.
[248] Note that the sequence *<u>vai</u>s aca<u>bar</u>* was produced as follows: [ˈva.zɐ.kɐ.ˈbaɾ].
[249] In the figure captions of Section 5.1.6, stressed syllables are underlined and phrase-final syllables are in bold.
[250] The upstep is assumed to be triggered by the boundary tone H- here.

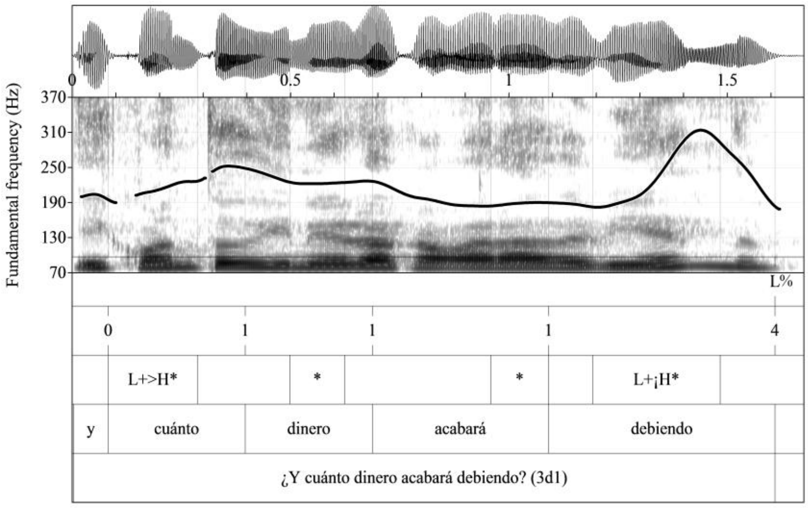

Figure 5.35. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the exclamative wh-question *¿Y <u>cuán</u>to di<u>ne</u>ro acaba<u>rá</u> de<u>bien</u>**do**?* 'How much money will he end up owing to the bank?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, two pitch-deaccented prosodic words (*di<u>ne</u>ro* and *acaba<u>rá</u>*), a L+¡H* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is L+¡H* L%

5.1.6.2 *Imperative wh-questions*

41 imperative wh-questions were obtained with situations 3e1 and 3e2 in total (cf. Table 4.2 and Table 4.3): 21 IPs for Olivenza Portuguese and 20 IPs for Olivenza Spanish. The number of prenuclear accents produced in the data amounted to 52 for Olivenza Portuguese and to 49 for Olivenza Spanish. Both IP-initial and phrase-internal prenuclear accents appeared in the material. Similar to the wh-questions described in the previous sections, L+>H* and L+H* (for Olivenza Portuguese) and L+>H* and L*+H (for Olivenza Spanish) also occurred as IP-initial prenuclear accents in the imperative wh-questions. In addition, L+H* was attested as an IP-initial prenuclear accent in Olivenza Spanish when the syllable carrying the prenuclear accent immediately preceded the syllable bearing the nuclear accent (cf. Figure 5.37a). The realization of the L+H* pitch accent in Figure 5.37a is attributed to the lack of space; if at least one unstressed syllable has been produced between the prenuclear accent and the nuclear accent, the L+>H* pitch accent would have been expected to surface instead of the L+H* pitch accent. Phrase-internal prenuclear accents were often deaccented in longer IPs in both varieties. The prenuclear accents realized in phrase-internal position were L+>H*, L+H*, or H+L* for Olivenza Portuguese and L*+H or H+L* for Olivenza Spanish[251].

[251] Cf. footnote 234.

Two nuclear configurations of IPs were used to express imperative wh-questions in both varieties under investigation: H+L* L% and L* H% (cf. Figures 5.36a, b for Olivenza Portuguese and Figures 5.37a, b for Olivenza Spanish). However, since the nuclear contours H+L* L% and L* H% were also attested in information-seeking wh-questions, the questions that arise here are: First, why do information-seeking wh-questions and imperative wh-questions show the same nuclear configurations of IPs? Second, which prosodic cues are used to express the imperative nuance: Intensity? Higher fundamental frequency? Duration? These questions remain unanswered for now and require further research.

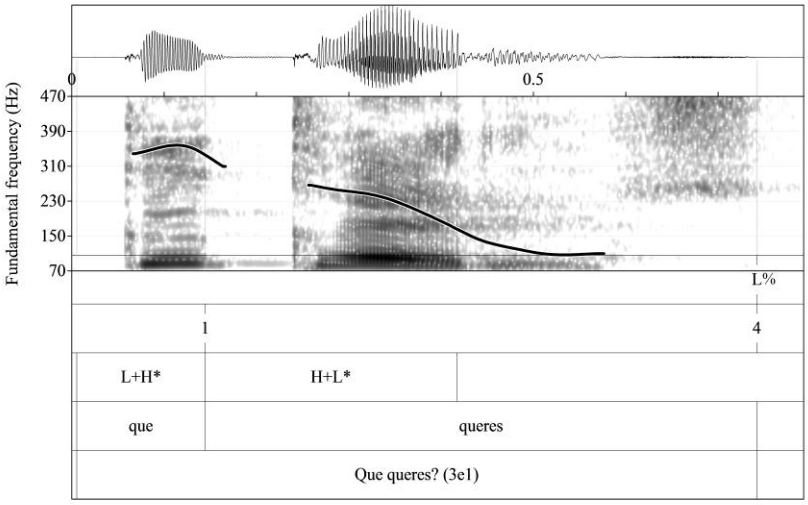

Figure 5.36a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the imperative wh-question <u>Que</u> <u>que</u>***res****?* 'What do you want?' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

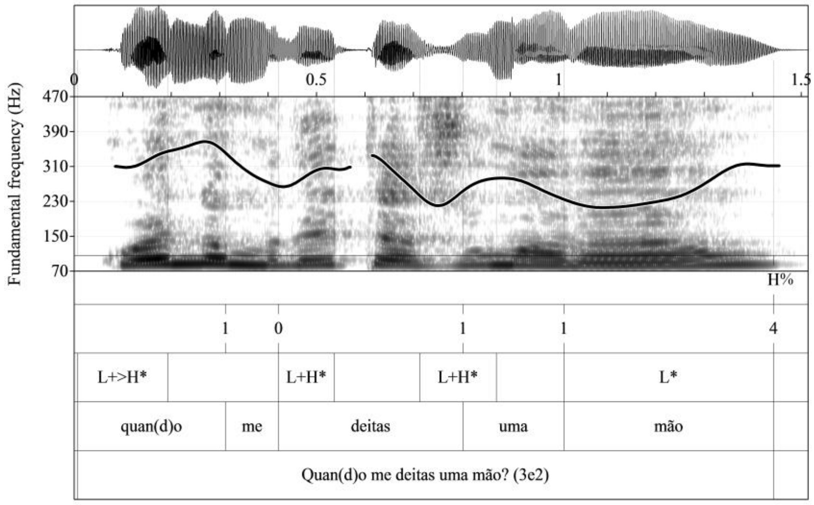

Figure 5.36b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the imperative wh-question *<u>Qua</u>n(d)o me <u>dei</u>tas*[252] *<u>u</u>ma* ***<u>mão</u>****?* 'When are you going to help me?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, two L+H* prenuclear accents, a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

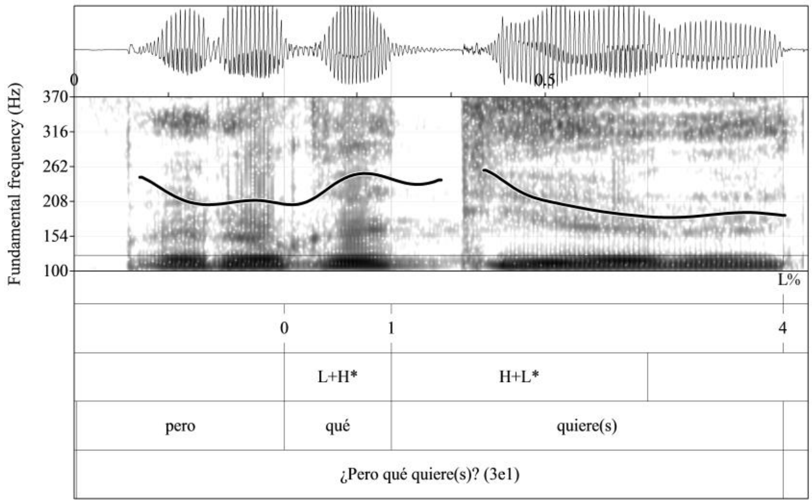

Figure 5.37a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the imperative wh-question *¿Pero <u>qué</u> <u>quie</u>****re(s)****?* 'What do you want?' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

[252] Note that the sequence *<u>dei</u>ta<u>s</u> <u>u</u>ma* was produced as follows: [ˈde.tɐ.ˈzu.mɐ].

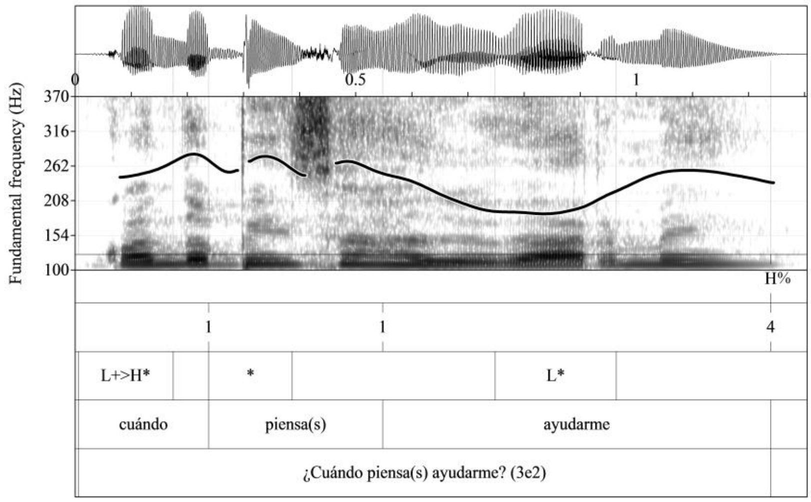

Figure 5.37b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the imperative wh-question *¿<u>Cuán</u>do <u>pien</u>sas ayu<u>dar</u>**me**?* 'When are you going to help me?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a pitch-deaccented prosodic word (*<u>pien</u>sas*), a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

5.1.7 Echo questions

The current section describes the intonation of echo yes-no questions, echo wh-questions, and exclamative echo yes-no questions (with counterexpectational meaning). I depict the realization of prenuclear pitch accents and nuclear configurations of IPs (i.e., the combination of the nuclear pitch accent of the IP-final ip[253] and the boundary tone of the IP). I will discuss their phonological status after presenting the tonal realization of all sentence types considered for the intonational analysis of Olivenza Portuguese and Olivenza Spanish (cf. Section 5.2.1 and Section 5.2.3).

5.1.7.1 *Echo yes-no questions*

As shown in Table 4.2 and Table 4.3, the number of echo yes-no questions obtained with situation 4a1 amounted to 20 IPs (i.e., 10 IPs for Olivenza Portuguese and 10 IPs for Olivenza Spanish). Since the IPs predominantly consisted of two prosodic words, few prenuclear accents appeared in the data: 13 for Olivenza Portuguese and 14 for Olivenza Spanish. Similar to the yes-no questions examined in the previous sections, L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish also occurred as IP-initial prenuclear accents in the echo yes-no questions.

[253] In both Olivenza Portuguese and Olivenza Spanish, each IP is suggested to be composed of at least one ip (cf. p. 86-93). If an IP consists of only one ip, this ip is referred to as the IP-final ip.

The following nuclear configurations of IPs were used to express echo yes-no questions in both varieties under investigation: L* !HL%, L+H* !HL%, and L* H% (cf. Figures 5.38a, b for Olivenza Portuguese and Figures 5.39a, b for Olivenza Spanish). As mentioned above (cf. Section 5.1.3.1 and Section 5.1.4.1), the !HL% boundary tone is phonetically realized as a compressed slow fall. It is always produced on strongly lengthened IP-final syllables (cf. footnotes 255, 256, and 257 for the duration and the F0 values of the final syllables depicted in Figures 5.38a, b and Figure 5.39b). Regarding the occurrence of the final contours, whereas L+H* !HL% was the most common nuclear configuration in the Olivenza Portuguese material, L* H% was the most frequent nuclear configuration in the Olivenza Spanish data. The comparison between the echo yes-no questions and the yes-no questions described in Section 5.1.3.1 and Section 5.1.4.1 revealed that first, the Olivenza Portuguese and the Olivenza Spanish speakers used the nuclear configurations L* !HL% and L* H% to mark both information-seeking yes-no questions and echo yes-no questions, and second, the Olivenza Portuguese and the Olivenza Spanish speakers used the L+H* !HL% nuclear configuration to mark both exclamative yes-no questions (with counterexpectational meaning) and echo yes-no questions. Considering the observation that the L+H* nuclear accent, attested in numerous nuclear configurations of IPs, conveys focus and emphasis in both contact varieties (cf. Section 5.1.2 and Section 5.1.4.1), in contrast to the L* nuclear accent, which signals neutral or broad focus readings in both contact varieties and was attested in nuclear configurations of neutral sentences (cf. the nuclear configurations of IPs described for neutral SVO declaratives and information-seeking yes-no questions), it can be assumed that first, the Olivenza Portuguese and the Olivenza Spanish speakers realize echo yes-no questions with the L* !HL% or the L* H% final contour when they do not produce the last prosodic word with emphasis, and second, the Olivenza Portuguese and the Olivenza Spanish speakers realize echo yes-no questions with the L+H* !HL% nuclear configuration when they produce the last prosodic word with emphasis. However, further research is needed to confirm these assumptions, since only 10 echo yes-no questions were analyzed per variety.

The fact that echo yes-no questions exhibit a strong IP-final lengthening (cf. footnotes 255, 256, and 257) appears to corroborate the assumption made above that the IP-final lengthening is a phonological feature used to mark interrogativity in both contact varieties (cf. Section 5.1.3.1 and Section 5.1.4.1).

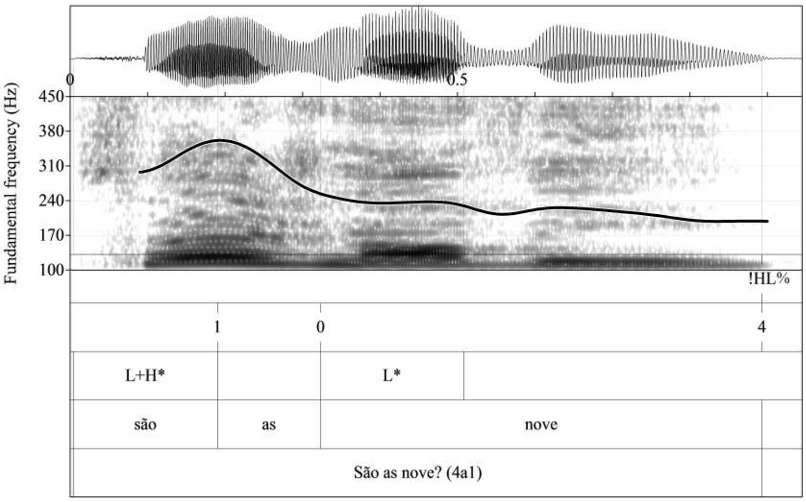

Figure 5.38a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the echo yes-no question *São as nove?* 'It is nine o'clock?'[254] which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a L* nuclear accent, and a !HL% boundary tone[255]; the nuclear configuration of the IP is L* !HL%

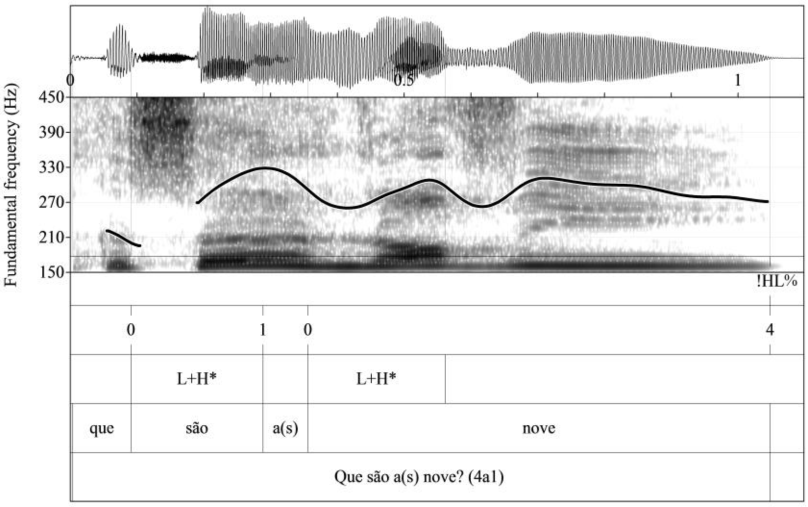

Figure 5.38b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the echo yes-no question *Que são as nove?* 'It is nine o'clock?' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a L+H* nuclear accent, and a !HL% boundary tone[256]; the nuclear configuration of the IP is L+H* !HL%

[254] In the figure captions of Section 5.1.7, stressed syllables are underlined and phrase-final syllables are in bold.
[255] Duration of the final syllable <**ve**> [**vi**] (*nove*): 385 ms. Duration of the vowel [**i**] of the final syllable <**ve**> [**vi**]: 284 ms. F0 values of the vowel [**i**] (from the highest F0 point to the lowest): 227 Hz in the beginning of the vowel onset, 212 Hz in the middle of the vowel, 197 Hz at the end of the vowel coda.
[256] Duration of the final syllable <**ve**> [**vi**] (*nove*): 487 ms. Duration of the vowel [**i**] of the final syllable <**ve**> [**vi**]: 367 ms. F0 values of the vowel [**i**] (from the highest F0 point to the lowest): 315 Hz in the beginning of the vowel onset, 297 Hz in the middle of the vowel, 269 Hz at the end of the vowel coda.

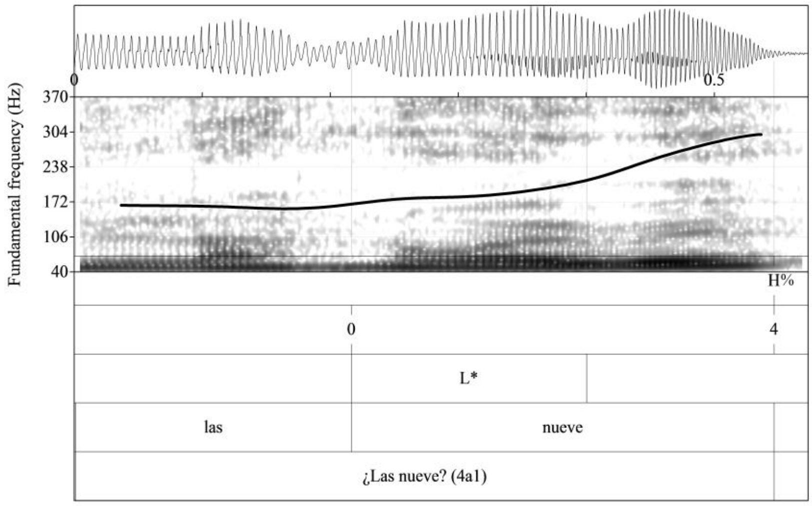

Figure 5.39a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the echo yes-no question *¿Las* *nue**ve**?* 'It is nine o'clock?' which represents an IP composed of one ip and is produced with a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

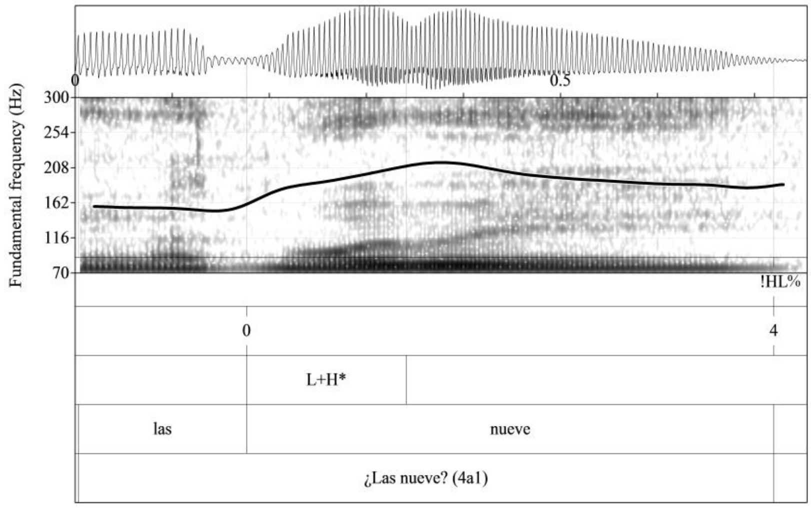

Figure 5.39b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the echo yes-no question *¿Las* *nue**ve**?* 'It is nine o'clock?' which represents an IP composed of one ip and is produced with a L+H* nuclear accent, and a !HL% boundary tone[257]; the nuclear configuration of the IP is L+H* !HL%

5.1.7.2 *Echo wh-questions*

24 echo wh-questions were collected with situation 4b1 for both varieties in total: 14 IPs for Olivenza Portuguese and 10 IPs for Olivenza Spanish (cf. Table 4.2 and Table 4.3). The number of prenuclear pitch accents produced in the data amounted to 17 for Olivenza Portuguese and to 22 for Olivenza Spanish. The IP-initial prenuclear accents were realized as L+H* in Olivenza

[257] Duration of the final syllable <**ve**> [βe] (*nue**ve***): 379 ms. Duration of the vowel [e] of the final syllable <**ve**> [βe]: 323 ms. F0 values of the vowel [e] (from the highest F0 point to the lowest): 214 Hz in the beginning of the vowel onset, 190 Hz in the middle of the vowel, 178 Hz at the end of the vowel coda.

Portuguese and as L+>H* in Olivenza Spanish. Similar to the wh-questions described above, instances of deaccentuation of phrase-internal prosodic words were also attested here (cf. the syllables marked with a "*" in Figure 5.41b).

Regarding the nuclear configurations of IPs, the following nuclear contours were used to express echo wh-questions: L* !HL%[258], L* H%, and H+L* L% in Olivenza Portuguese and H+L* L%, L* H%, and L* L% in Olivenza Spanish (cf. Figures 5.40a, b, c for Olivenza Portuguese and Figures 5.41a, b for Olivenza Spanish).

The echo wh-questions were characterized by a notable lengthening of the IP-final syllables in Olivenza Portuguese. The fact that the last prosodic word of most of the IPs was an oxytone reinforced the lengthening effects. When the last prosodic word was an oxytone and the L* !HL% nuclear contour was realized on it, the L* nuclear accent and the !HL% boundary tone seemed to overlap as shown in Figure 5.40a (cf. footnote 260 for the duration and the F0 values of the final syllable illustrated in Figure 5.40a). In contrast, when the last prosodic word was a paroxytone, both nuclear accent and boundary tone surfaced separately: in Figure 5.40b, the L* nuclear accent associates with the stressed syllable of the prosodic word *iva* 'I was going' and the !HL% boundary tone is realized on the IP-final syllable *va* (cf. footnote 262 for the duration and the F0 values of the final syllable illustrated in Figure 5.40b).

As for Olivenza Spanish, it is worth mentioning that the L* L% nuclear configuration was realized with a notably strong IP-final lengthening. This nuclear contour was the same one as those attested in the information-seeking yes-no questions when the L% boundary tone was realized instead of the !HL% boundary tone (cf. Section 5.1.3.1). The fact that the last prosodic word of most of the IPs was an oxytone also contributed to strong lengthening effects in the remaining nuclear contours (cf. Figures 5.41a, b).

In sum, it can be said that the speakers of both Olivenza Portuguese and Olivenza Spanish, first, used the same nuclear configurations of IPs to express echo wh-questions and information-seeking wh-questions (i.e., H+L* L% and L* H%), and second, used the same nuclear configurations of IPs to express echo wh-questions and information-seeking yes-no questions (i.e., L* !HL% and L* L%). The boundary tones of the L* !HL% and L* L% nuclear contours were always produced on notably lengthened IP-final syllables. The results of the analysis of the echo wh-questions appear to confirm the assumption made in previous sections that the IP-final lengthening is a phonological feature used to mark interrogativity in both contact varieties (cf.

[258] As has been mentioned several times, the !HL% boundary tone is phonetically realized as a compressed falling movement. It is always produced on strongly lengthened IP-final syllables.

Section 5.1.3.1, Section 5.1.4.1, and Section 5.1.7.1). However, due to the small number of sentences analyzed, further research is needed to confirm the findings of this section.

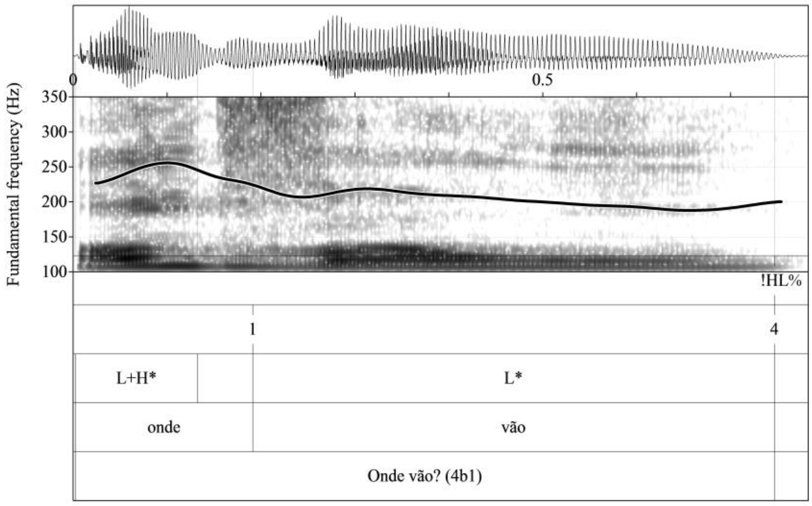

Figure 5.40a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the echo wh-question *Onde* ***vão****?*[259] 'Where are they going?' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a L* nuclear accent, and a !HL% boundary tone[260]; the nuclear configuration of the IP is L* !HL%

[259] Some speakers conjugated the verb in the 3.P.Pl. instead of the 1.P.Sg. However, if the respective sentence was realized fluently, I did not ask them to repeat the question with the "correct" verb form.
[260] Duration of the final syllable <**vão**> [**vɐ̃w**] (***vão***): 556 ms. Duration of the diphthong [**ɐ̃w**] of the final syllable <**vão**> [**vɐ̃w**]: 476 ms. F0 values of the diphthong [**ɐ̃w**] (from the highest F0 point to the lowest): 221 Hz in the beginning of the diphthong, 200 Hz in the middle of the diphthong, 186 Hz at the end of the diphthong.

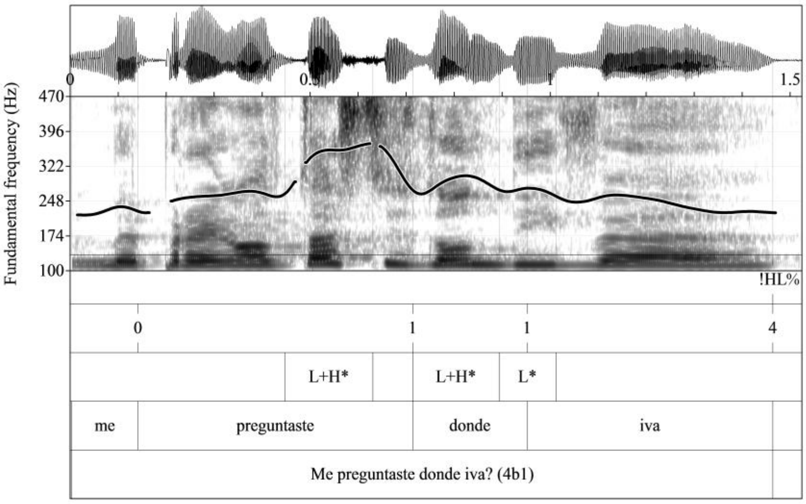

Figure 5.40b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the echo wh-question *Me preguntaste donde iva?*[261] 'Did you ask me where I was going?' which represents an IP composed of one ip and is produced with two L+H* prenuclear accents, a L* nuclear accent, and a !HL% boundary tone[262]; the nuclear configuration of the IP is L* !HL%

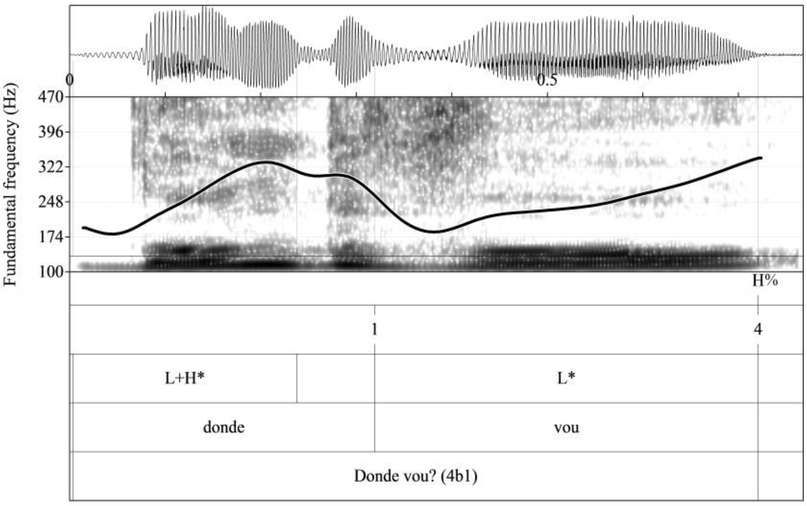

Figure 5.40c. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the echo wh-question *Donde vou?* 'Where am I going?' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

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[261] It is worth mentioning that many Olivenza Portuguese speakers used the interrogative pronoun *donde* 'where' instead of *onde* 'where', very probably due to influences from Spanish (sp. *dónde* 'where'). Further deviations from other Portuguese varieties attested here concern the verb 'to ask' (port. *perguntar* vs. sp. *preguntar*) and the imperfect form *iva* 'I was going' (in the Olivenza Portuguese produced by this speaker *iva* vs. *ia* in other Portuguese varieties). Note that the syllables *de* of the prosodic word *donde* and the syllable *i* of the prosodic word *iva* were realized in one syllable: ['di] (i.e., contraction).

[262] Duration of the final syllable <**va**> [**vɐ**] (*iva*): 452 ms. Duration of the vowel [**ɐ**] of the final syllable <**va**> [**vɐ**]: 354 ms. F0 values of the vowel [**ɐ**] (from the highest F0 point to the lowest): 262 Hz in the beginning of the vowel onset, 234 Hz in the middle of the vowel, 223 Hz at the end of the vowel coda.

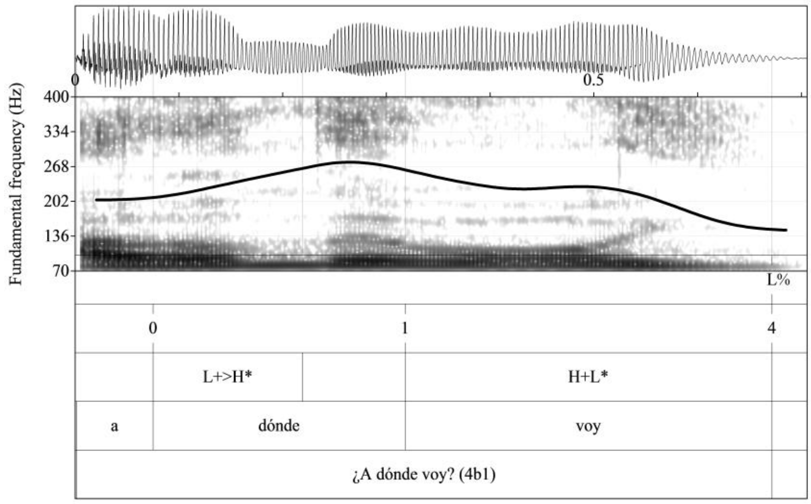


Figure 5.41a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the echo wh-question *¿A <u>dón</u>de **<u>voy</u>**?* 'Where am I going?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

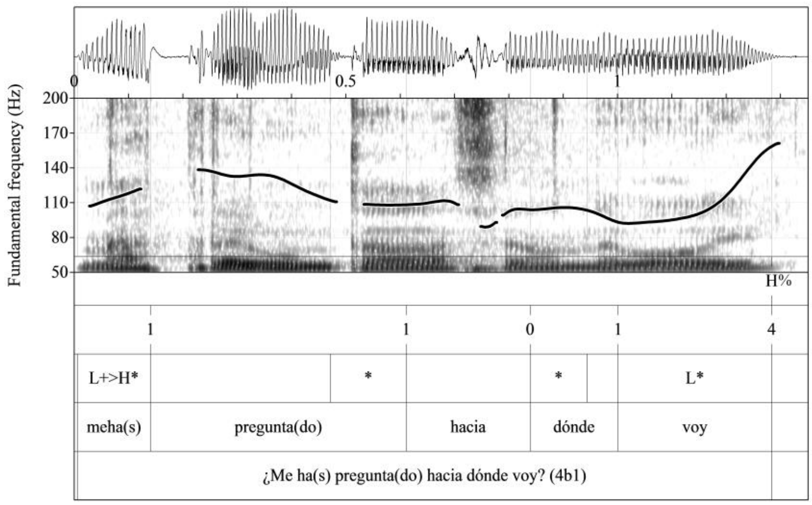


Figure 5.41b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the echo wh-question *¿<u>Me ha(s)</u>*[263] *pregun<u>ta</u>(do) hacia <u>dón</u>de **<u>voy</u>**?* 'Have you asked me where I am going?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, two pitch-deaccented prosodic words (*pregun<u>ta</u>(do)* and *<u>dón</u>de*), a L* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L* H%

5.1.7.3 *Exclamative echo yes-no questions (with counterexpectational meaning)*

As shown in Table 4.2 and Table 4.3, 60 exclamative echo yes-no questions (with counterexpectational meaning) were obtained with situations 4d1 and 4d2 in total (28 IPs for Olivenza Portuguese and 32 IPs for Olivenza Spanish). Two IPs per variety were excluded from

[263] Note that *me* and *ha(s)* were realized in one syllable: ['ma] (i.e., contraction).

the analysis due to disfluencies. The number of prenuclear pitch accents realized in the data amounted to 27 for Olivenza Portuguese and to 34 for Olivenza Spanish. The majority of them were IP-initial prenuclear accents, since the questions analyzed for both varieties predominantly consisted of two prosodic words. The prenuclear accents were produced as L+>H* or L+H* in Olivenza Portuguese and as L+>H* or L*+H in Olivenza Spanish.

Olivenza Portuguese and Olivenza Spanish speakers used the L+H* !HL% nuclear configuration of IPs to express exclamative echo yes-no questions (with counterexpectational meaning) (cf. Figure 5.42a and Figure 5.43a). The nuclear pitch accent of this contour (i.e., L+H*) is the one which signals focus and emphasis in different sentence types in both contact varieties (cf. for instance the nuclear configurations of IPs described for biased statements, exclamative yes-no questions, and exclamative wh-questions). The !HL% boundary tone is phonetically realized as a compressed falling movement (i.e., a slow fall); it is always produced on strongly lengthened IP-final syllables: in Figure 5.42a and Figure 5.43a, the IP-final syllables on which the !HL% boundary tone is realized are notably lengthened; the durations of the IP-final syllables *te* and *de* of the prosodic words *presiden**te*** 'president' and *alcal**de*** 'mayor' are 761 ms and 470 ms, respectively (cf. footnotes 264 and 266 for the durational properties and the F0 values of the final syllables depicted in Figure 5.42a and Figure 5.43a). The slow fall produced on the IP-final syllables was sometimes stronger and sometimes weaker in the exclamative echo yes-no questions analyzed for both Olivenza Portuguese and Olivenza Spanish. When the slow fall was weaker or nearly not present, the boundary tone was realized as a sustained pitch and labeled with the !H% boundary tone instead of the !HL% boundary tone (cf. Figure 5.42b for Olivenza Portuguese; cf. also the exclamative yes-no questions for similar examples). It is worth mentioning that the IP-final lengthening observed in Olivenza Spanish was weaker as compared to that attested in Olivenza Portuguese.

In Olivenza Spanish, a further nuclear configuration of IPs was used to express exclamative echo yes-no questions (with counterexpectational meaning): L+(¡)H* H% (cf. Figure 5.43b). The nuclear accents of these contours were predominantly produced as upstepped pitch accents (i.e., L+¡H*) in the material examined. However, since the upstep was attributed to the boundary tone H%, the upstepped pitch accents were analyzed as underlying L+H* pitch accents. In contrast to the !HL% boundary tone, the H% boundary tone was not accompanied by such a strong IP-final lengthening.

The observation that exclamative yes-no questions (with counterexpectational meaning) (cf. Section 5.1.4.1) and exclamative echo yes-no questions (with counterexpectational meaning) realized with the final contours L+H* !HL% and L+H* !H% were produced with a strong IP-final lengthening, in contrast to biased statements (cf. Section 5.1.2), in both Olivenza Portuguese and Olivenza Spanish appears to confirm the assumption made above that the IP-final lengthening is a phonological feature used to mark interrogativity in both contact varieties. It can be said that a durational marking, in addition to a tonal marking (e.g., the L+H* L% nuclear configuration found in biased statements vs. the L+H* !HL% nuclear configuration attested in exclamative echo yes-no questions), is used in the contact varieties to distinguish between declarative and interrogative intonation.

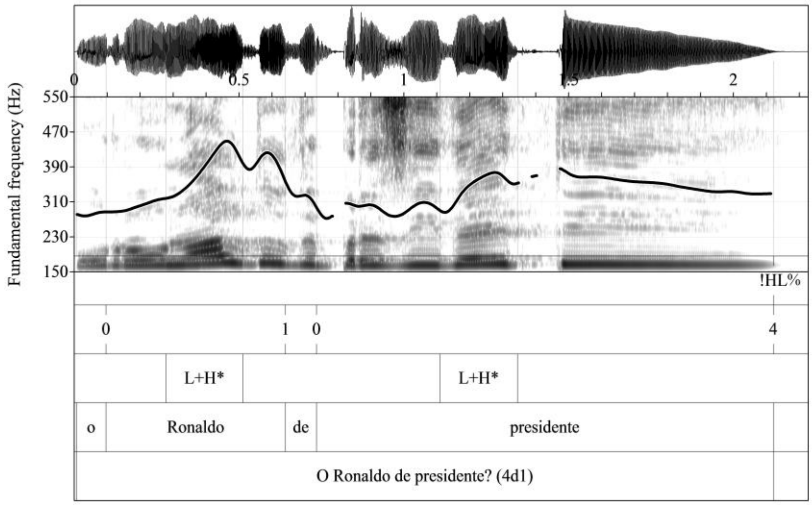


Figure 5.42a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the exclamative echo yes-no question *O Ronaldo de presidente?* 'Ronaldo for president?' which represents an IP composed of one ip and is produced with a L+H* prenuclear accent, a L+H* nuclear accent, and a !HL% boundary tone[264]; the nuclear configuration of the IP is L+H* !HL%

[264] Duration of the final syllable <**te**> [**ti**] (*presidente*): 761 ms. Duration of the vowel [**i**] of the final syllable <**te**> [**ti**]: 640 ms. F0 values of the vowel [**i**] (from the highest F0 point to the lowest): 380 Hz in the beginning of the vowel onset, 351 Hz in the middle of the vowel, 327 Hz at the end of the vowel coda.

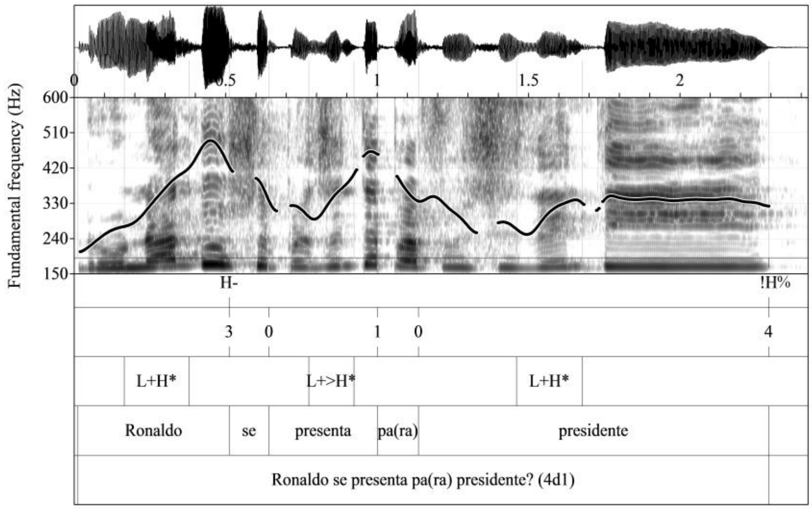


Figure 5.42b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the exclamative echo yes-no question *Ro<u>nal</u>**do** se pre<u>sen</u>ta pa(ra) presi<u>den</u>**te**?* 'Ronaldo is running for president?' which represents an IP composed of two ips (*Ro<u>nal</u>**do*** and *se pre<u>sen</u>ta pa(ra) presi<u>den</u>**te***) and is produced with a L+H* nuclear accent of the inner ip, a H- boundary tone of the inner ip, a L+>H* prenuclear accent, a L+H* nuclear accent of the IP-final ip, and a !H% boundary tone[265]; the nuclear configurations of the inner ip and the IP are L+H* H- and L+H* !H%, respectively

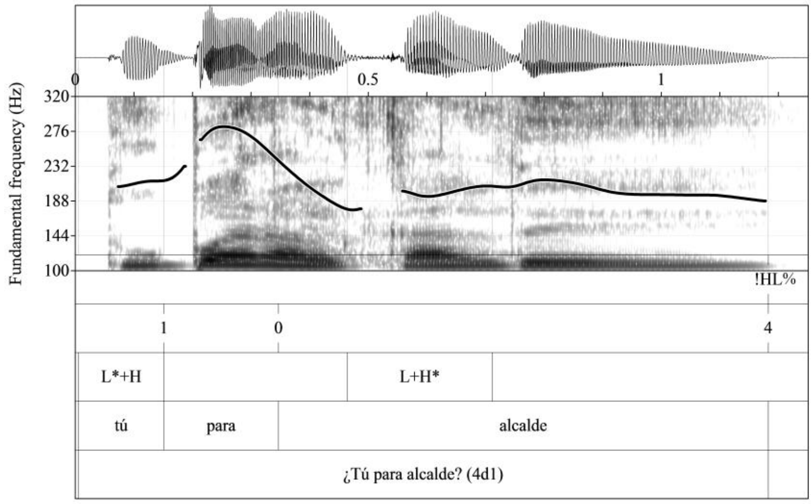


Figure 5.43a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the exclamative echo yes-no question *¿<u>Tú</u> para al<u>cal</u>**de**?* 'You for mayor?' which represents an IP composed of one ip and is produced with a L*+H prenuclear accent, a L+H* nuclear accent, and a !HL% boundary tone[266]; the nuclear configuration of the IP is L+H* !HL%

[265] Duration of the final syllable <**te**> [**ti**] (*presiden**te***): 615 ms. Duration of the vowel [**i**] of the final syllable <**te**> [**ti**]: 537 ms. F0 values of the vowel [**i**] (from the highest F0 point to the lowest): 356 Hz in the beginning of the vowel onset, 339 Hz in the middle of the vowel, 339 Hz at the end of the vowel coda.

[266] Duration of the final syllable <**de**> [**de**] (*alcal**de***): 470 ms. Duration of the vowel [**e**] of the final syllable <**de**> [**de**]: 410 ms. F0 values of the vowel [**e**] (from the highest F0 point to the lowest): 217 Hz in the beginning of the vowel onset, 195 Hz in the middle of the vowel, 185 Hz at the end of the vowel coda.

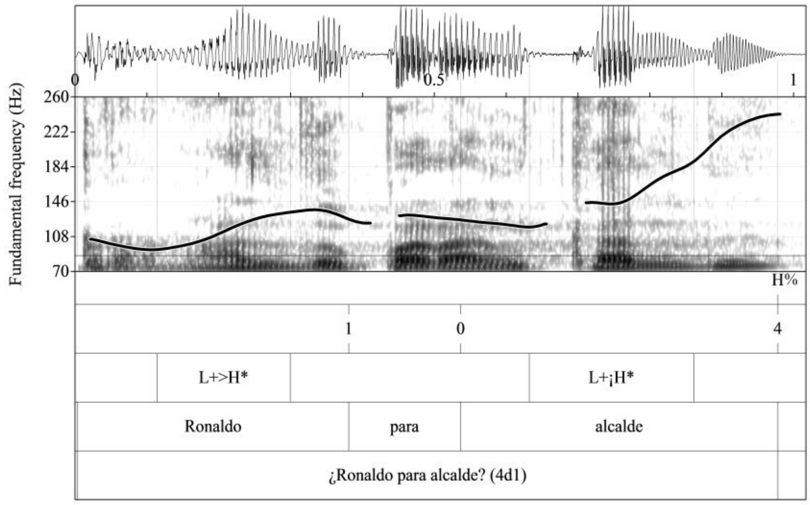


Figure 5.43b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the exclamative echo yes-no question *¿Ronaldo para alcal**de**?* 'Ronaldo for mayor?' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a L+¡H* nuclear accent, and a H% boundary tone; the nuclear configuration of the IP is L+¡H* H%

5.1.8 Imperatives

In this section, I describe the intonational properties of commands and requests. I present the realization of prenuclear pitch accents and nuclear configurations of IPs (i.e., the combination of the nuclear pitch accent of the IP-final ip[267] and the boundary tone of the IP). Their phonological status will be discussed in Section 5.2.1 and Section 5.2.3.

5.1.8.1 *Commands*

A shown in Table 4.2 and Table 4.3, 37 commands were obtained with situation 5a1 in total: 19 IPs for Olivenza Portuguese and 18 IPs for Olivenza Spanish. The number of prenuclear accents analyzed amounted to 17 for Olivenza Portuguese and to 13 for Olivenza Spanish. Most of these were IP-initial prenuclear accents realized as L+>H* or L+H* in Olivenza Portuguese (L+>H* being the most frequent one) and as L+>H* in Olivenza Spanish.

Two different nuclear configurations of IPs occurred with a similar frequency in the varieties studied: H+L* L% and L+H* L% (cf. Figures 5.44a, b for Olivenza Portuguese and Figures 5.45a, b for Olivenza Spanish). As for their pragmatic meanings, I believe that these two final contours convey different nuances of commands: while the H+L* L% nuclear configuration

[267] In both contact varieties, each IP is assumed to be composed of at least one ip (cf. p. 86-93). If an IP consists of only one ip, this ip is referred to as the IP-final ip.

seems to be used to signal a clear order, the L+H* L% nuclear configuration appears to be used to express emphasis. However, further research is needed to corroborate this assumption.

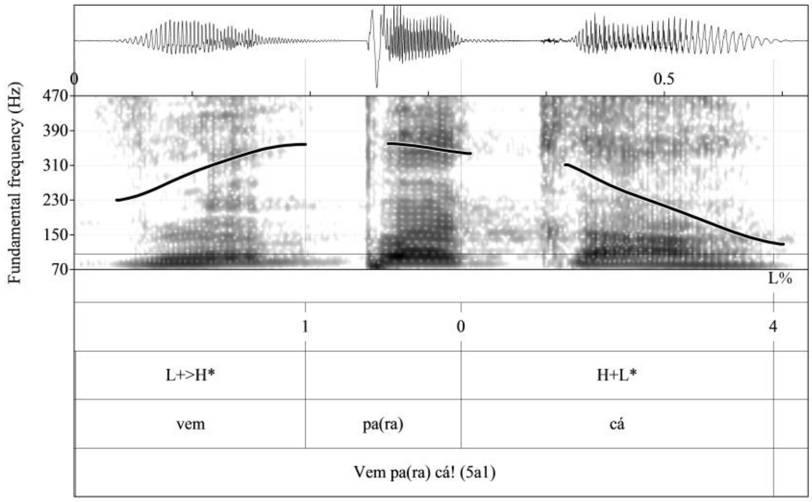


Figure 5.44a. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the command *Vem pa(ra)* ***cá***! 'Come here!'[268] which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

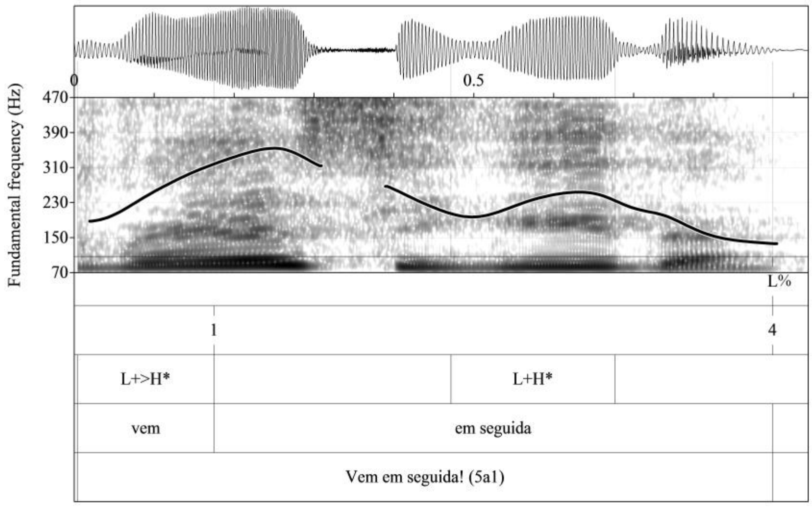


Figure 5.44b. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the command *Vem em segui**da**!* 'Come immediately!' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a L+H* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is L+H* L%

[268] In the figure captions of Section 5.1.8, stressed syllables are underlined and phrase-final syllables are in bold.

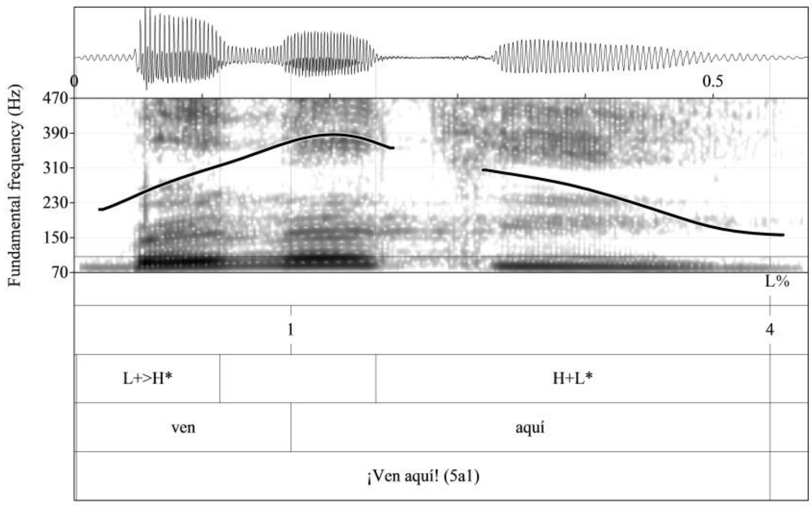


Figure 5.45a. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the command ¡*Ven*[269] ***aquí!*** 'Come here!' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a H+L* nuclear accent, and a L% boundary tone; the nuclear configuration of the IP is H+L* L%

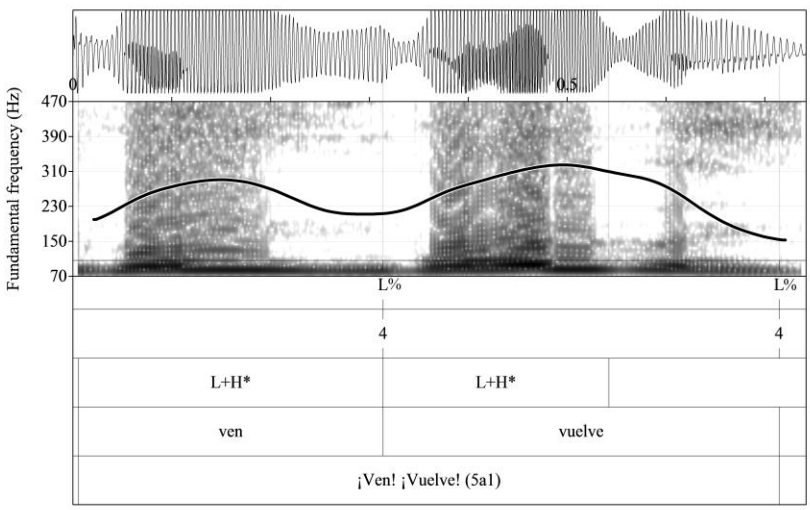


Figure 5.45b. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the commands ¡***Ven!*** ¡*Vuel**ve!*** 'Come! Come back!' which represent two IPs (***Ven*** and *Vuel**ve***) each composed of one ip. Each IP is produced with a L+H* nuclear accent and a L% boundary tone. The nuclear configuration of each IP is L+H* L%

5.1.8.2 *Requests*

41 requests were collected with situation 5b1 in total: 17 IPs for Olivenza Portuguese and 24 IPs for Olivenza Spanish (cf. Table 4.2 and Table 4.3). The number of prenuclear accents analyzed amounted to 20 for Olivenza Portuguese and to 16 for Olivenza Spanish. Most of these were IP-initial prenuclear accents which surfaced as L+>H* or L+H* in Olivenza Portuguese and as

[269] Note that the sequence *ven* ***aquí*** was produced as follows: [ˈbe.na.ˈ**ki**].

L+>H* or L*+H in Olivenza Spanish. Instances of deaccentuation of phrase-internal prosodic words were attested in both varieties (cf. Figure 5.47 for Olivenza Spanish; the pitch-deaccented syllables are marked with a "*").

Two different nuclear configurations of IPs were used to express requests in both varieties: L+H* HL% in Olivenza Portuguese and L* HL% in Olivenza Spanish. As shown in Figure 5.46, the nuclear configuration of the IP is composed of an upstepped rising nuclear accent (i.e., L+¡H*) followed by a rising-falling boundary tone (i.e., HL%). Since the upstep is assumed to be triggered by the presence of the HL% boundary tone, I analyzed the upstepped nuclear accents L+¡H* as underlying L+H* pitch accents. In Figure 5.47, the nuclear contour of the IP consists of the low nuclear pitch accent L* and the rising-falling boundary tone HL%.

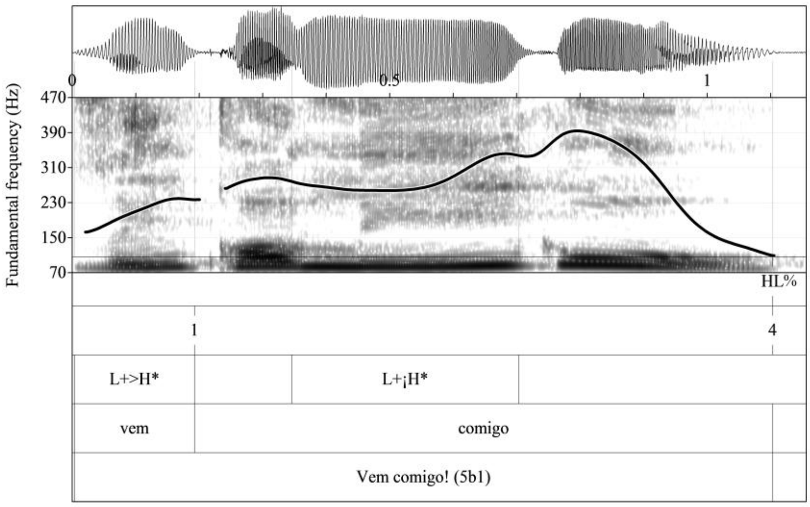


Figure 5.46. Olivenza Portuguese: Waveform, spectrogram, and F0 contour for the request *Vem comi**go**!* 'Come with me!' which represents an IP composed of one ip and is produced with a L+>H* prenuclear accent, a L+¡H* nuclear accent[270], and a HL% boundary tone; the nuclear configuration of the IP is L+¡H* HL%

[270] The relatively late begin of the rise within the L+¡H* nuclear accent may be attributed to the fact that only one unstressed syllable is produced between the prenuclear accent and the nuclear accent. Thus, in order to realize a rising pitch accent immediately after the L+>H* prenuclear accent, the speaker lengthened the nuclear syllable *mi*.

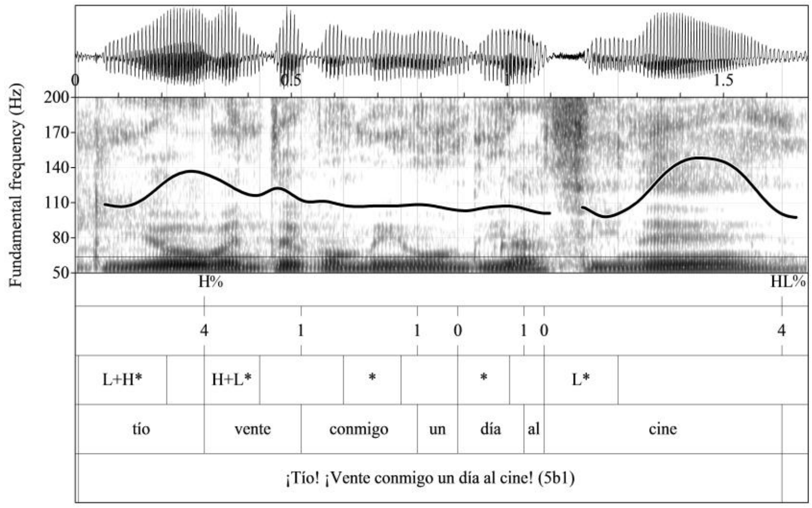


Figure 5.47. Olivenza Spanish: Waveform, spectrogram, and F0 contour for the request *¡Vente conmigo un día al **cine!*** 'Come with me to the cinema one day!' which represents an IP composed of one ip and is produced with a H+L* prenuclear accent, two pitch-deaccented prosodic words (*conmigo* and *día*), a L* nuclear accent, and a HL% boundary tone; the nuclear configuration of the IP is L* HL%

5.2 Tonal inventory of Olivenza Portuguese and Olivenza Spanish

In what follows, I discuss the phonological status of the prenuclear pitch accents, the nuclear configurations of inner ips, and the nuclear configurations of IPs attested in the different sentence types described in Section 5.1. Furthermore, I present an inventory of underlying nuclear configurations of IPs established on the basis of the intonational analysis of Olivenza Portuguese and Olivenza Spanish. Lastly, I propose an inventory of pitch accents and boundary tones for each variety.

5.2.1 Phonological status of the prenuclear pitch accents in Olivenza Portuguese and Olivenza Spanish

According to the results of the intonational analysis presented in Section 5.1, the pitch accents L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish were used to tonally mark the prenuclear stressed syllables in numerous sentence types. These prenuclear accents were found as IP-initial prenuclear accents, phrase-internal prenuclear accents, and ip-initial prenuclear accents of non-IP-initial ips[271]. The intonational analysis revealed that: First, the L+>H* prenuclear accent was more common than the two others (i.e., L+H* for Olivenza Portuguese and L*+H for Olivenza Spanish) in the statements (cf. neutral SVO de-

[271] Cf. p. 93 and p. 102 for a definition of the terms *IP-initial prenuclear accent*, *phrase-internal prenuclear accent*, and *ip-initial prenuclear accent of a non-IP-initial ip*.

clarative sentences, contrastive focus statements, and contradiction statements) and the exclamative yes-no questions. Second, both pitch accents, i.e., L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish, appeared with a similar frequency as IP-initial prenuclear accents in the information-seeking yes-no questions, the confirmation-seeking yes-no questions, and the information-seeking wh-questions. As for the realization of phrase-internal prenuclear accents, it can be said that deaccentuation often took place in the data examined for both varieties: In the neutral SVO declaratives, the deaccentuation of phrase-internal prosodic words amounted to 53% of the cases for Olivenza Portuguese and to 56% for Olivenza Spanish. In the confirmation-seeking yes-no questions, the deaccentuation of phrase-internal prosodic words amounted to 61% of the cases for Olivenza Portuguese and to 90% for Olivenza Spanish. In the information-seeking wh-questions, the deaccentuation of phrase-internal prosodic words amounted to 56% of the cases for Olivenza Portuguese and to 82% for Olivenza Spanish. When phrase-internal prosodic words were not pitch-deaccented, the L+>H*, L+H*, or H+L* pitch accents appeared in Olivenza Portuguese and the L+>H*, L*+H, or H+L* pitch accents occurred in Olivenza Spanish. Regarding the H+L* prenuclear accent, it is worth mentioning that the same conditions (i.e., the presence of a high preceding peak, e.g., L+><u>H*</u>, L*+<u>H</u>, L+<u>H*</u> or L+H* <u>H-</u>/L+H* <u>!H-</u>, lack of space to produce a rising prenuclear accent, and gradual declination) contributed to the occurrence of this falling prenuclear accent in both statements and questions in the contact varieties. The question that arises after this summary is: Are there underlying prenuclear pitch accents in both varieties under consideration? The results of the intonational analysis allow the assumption that the delayed peak (i.e., L+>H*) is an underlying prenuclear pitch accent used to mark the prenuclear stressed syllables in statements in both contact varieties. If this assumption is correct, the remaining two prenuclear accents (i.e., L+H* for Olivenza Portuguese and L*+H for Olivenza Spanish) can be seen as free surface variants (or realizations) of the underlying L+>H* prenuclear accent. Furthermore, the H+L* prenuclear accent, which appears when the conditions mentioned above are met, can be interpreted as a phonetic realization of the underlying L+>H* prenuclear accent. As for the information-seeking yes-no questions, the confirmation-seeking yes-no questions, and the information-seeking wh-questions, due to the observation that L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish occurred with a similar frequency as IP-initial prenuclear accents in these sentence types, it is not possible to determine if the L+>H* prenuclear accent is a surface variant of the L+H* prenuclear accent in Olivenza Portuguese or vice versa. The same holds for Olivenza Spanish: it cannot be determined if the L+>H* prenuclear accent is a surface variant of the L*+H prenuclear accent or vice versa.

The next question that should be addressed is: do prenuclear accents contribute to the identification of a particular sentence type? If the suggestion made above is correct (i.e., that the L+>H* prenuclear accent is the underlying prenuclear accent in statements in both varieties), it can be expected that Olivenza Portuguese and Olivenza Spanish speakers would perceive statements produced with L+>H* prenuclear accents as more natural than statements produced with the other two prenuclear accents (i.e., L+H* for Olivenza Portuguese and L*+H for Olivenza Spanish). Nevertheless, since the delayed peak (i.e., L+>H*) can be used in statements, questions, and imperatives in both contact varieties, it can be assumed that Olivenza Portuguese and Olivenza Spanish speakers would not be able to distinguish for instance neutral statements from information-seeking yes-no questions by means of the prenuclear accents only[272].

The last question to which attention should be paid is: do prenuclear accents contribute to the pragmatic meaning of the IP? The analysis of the neutral SVO declaratives has shown that the prenuclear accents L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish were used to mark both given and new information (cf. footnote 173). Consequently, it can be said that prenuclear accents contribute to the general meaning of an IP, but the most essential pragmatic information is conveyed by the nuclear accent(s) of the ip(s) of which an IP is composed, the boundary tones of the inner ip(s), and the boundary tone of the IP in both contact varieties.

Last but not least, it is worth mentioning that both pitch accents, L+>H* and L*+H, were used only as prenuclear pitch accents in Olivenza Spanish. In Olivenza Portuguese, while the L+>H* pitch accent only appears in prenuclear position, the L+H* pitch accent occurs both in prenuclear and nuclear positions. This topic will be discussed in Section 6.3.3.1.

5.2.2 Phonological status of the nuclear configurations of inner ips in Olivenza Portuguese and Olivenza Spanish

The results of the intonational analysis of the neutral SVO declaratives have shown that the nuclear configurations of inner ips were predominantly realized as L+H* H- or L+H* !H- in both Olivenza Portuguese and Olivenza Spanish[273]. A clear preference for the L+H* H- nuclear con-

[272] Note that information-seeking yes-no questions and neutral statements usually show the same surface syntactic properties in Olivenza Portuguese and Olivenza Spanish. In contrast, other linguistic means, besides intonation, can be used to distinguish wh-questions and imperatives (e.g., the wh-word in wh-questions or the verb form in imperatives).

[273] If a prenuclear pitch accent was produced before the nuclear accent of the inner ip, the nuclear accent of the inner ip was often upstepped and phonetically realized as L+¡H*. In such cases, I assumed that the upstep is triggered by the presence of the boundary tone H- or !H-. Consequently, such pitch accents were analyzed as underlying L+H* pitch accents in all sentence types.

tour was attested in both varieties. These results allow the assumption that the underlying nuclear configuration of inner ips in this sentence type is L+H* H- for both Olivenza Portuguese and Olivenza Spanish. L+H* !H- can in turn be seen as a surface realization of the underlying L+H* H- nuclear configuration.

In neutral disjunctive questions and neutral interrogative enumerations, the same two nuclear configurations of inner ips presented above, i.e., L+H* H- and L+H* !H-, were found in Olivenza Portuguese and Olivenza Spanish. While the L+H* H- nuclear configuration occurred in ca. 90% of the cases in the Olivenza Spanish data, both contours appeared with a similar frequency in the Olivenza Portuguese material. These findings can be interpreted as follows: For both sentence types, the L+H* H- nuclear contour can be analyzed as the underlying nuclear configuration of inner ips in Olivenza Spanish. In contrast, the situation is less clear for Olivenza Portuguese, since both nuclear contours of inner ips occurred with a similar frequency in the neutral disjunctive questions and the neutral interrogative enumerations analyzed for this variety. Based on these findings, it cannot be determined if the L+H* !H- nuclear configuration is a surface realization of the L+H* H- nuclear configuration or vice versa.

Regarding the pragmatic meaning conveyed by the underlying H- boundary tone, it can be suggested that this boundary tone is used to express incompleteness of the discourse in both Olivenza Portuguese and Olivenza Spanish. Thus, in producing the /H-/ boundary tone at the end of an inner ip, the speaker signals to the hearer that the sentence, i.e., the IP, which s/he is producing is not completed.

Although the !H- boundary tone seems to have surfaced only as a phonetic realization of the underlying H- boundary tone in the sentences mentioned above, and for this reason, both H- and !H- can be assumed to convey the same pragmatic meanings in these sentence types, I believe that the !H- boundary tone can be used to convey a further pragmatic meaning in Olivenza Portuguese and Olivenza Spanish: it can be used to express a certain uncertainty. In such cases, the !H- boundary tone is accompanied by a considerable phrase-final lengthening, typically occurring when speakers are planning their upcoming thoughts.

5.2.3 Inventory of the underlying nuclear configurations of IPs in Olivenza Portuguese and Olivenza Spanish

In what follows, I present the underlying nuclear configurations of IPs which were established on the basis of the intonational analysis of Olivenza Portuguese and Olivenza Spanish.

For the neutral SVO declarative sentences, I propose the following underlying nuclear configurations of IPs: H+L* L% and L* L% for Olivenza Portuguese[274] and L* L% for Olivenza Spanish. The H+L* nuclear accent which appeared in very few cases in the neutral SVO declaratives examined for Olivenza Spanish[275] is analyzed as a surface realization of the underlying L* nuclear accent. In contrast to the nuclear pitch accents H+L* and L*, which signal neutral/broad focus readings in statements, L+(¡)H* is the nuclear pitch accent used to express focus/emphasis in biased statements in both varieties under investigation. The underlying nuclear configurations of IPs established for contrastive focus statements, exclamative statements, and contradiction statements are L+H* L% (for both varieties), L+¡H* L% (for both varieties), and L+H* L% vs. L+H* HL% (Olivenza Portuguese vs. Olivenza Spanish). Considering this, it can be said that Olivenza Portuguese speakers make use of the same nuclear configuration to express contrastive focus statements and contradiction statements, in contrast to Olivenza Spanish speakers, who use the same nuclear pitch accent (i.e., L+H*), but two different boundary tones (i.e., L% vs. HL%) to express contrastive focus statements and contradiction statements. The upstep attested in nuclear configurations of exclamative statements in both contact varieties is assumed to be used to signal more emphasis. Thus, it can be said that the L+H* nuclear accent is used to express focus/emphasis, and in addition, the L+¡H* nuclear accent is used to signal a greater emphasis in both Olivenza Portuguese and Olivenza Spanish. It has been shown that a further nuclear configuration of IPs occurred in the biased statements analyzed for Olivenza Portuguese: H*+L L% (cf. exclamative statements and contradiction statements). However, only very few examples in which the H*+L nuclear pitch accent was used to express focus/emphasis were found in the data examined for Olivenza Portuguese. Moreover, the L+(¡)H* L% nuclear contour also occurred in the data obtained from the speakers who realized the H*+L L% nuclear contour. For this reason, the H*+L nuclear accent is analyzed as a surface realization of the underlying L+(¡)H* nuclear accent in Olivenza Portuguese.

The following nuclear configurations of IPs were used to express information-seeking yes-no questions in both Olivenza Portuguese and Olivenza Spanish: L* !HL%, H+L* !HL%, L* H%, H+L* H%, L* L%, and H+L* L%. The results of the intonational analysis allow us to propose two of these six configurations as underlying nuclear configurations of information-seeking yes-no questions for both contact varieties: L* !HL% and L* H%. This decision can be motivated as follows: The occurrence of the L* and H+L* nuclear accents in the Olivenza Portuguese

[274] Both nuclear contours appeared with a similar frequency in the neutral SVO declaratives examined for Olivenza Portuguese.
[275] Note that the H+L* L% nuclear contour was attested in very few cases in the neutral SVO declaratives analyzed for Olivenza Spanish.

and the Olivenza Spanish data was determined by the space available between the peak of the preceding prenuclear accent and the nuclear accent. The H+L* nuclear accent surfaced when only one unstressed syllable intervened between the prenuclear accent and the nuclear accent and the peak of the prenuclear accent was located at the end of that syllable. Otherwise, the L* nuclear accent was realized. This distribution allowed us to establish L* as the underlying nuclear accent in information-seeking yes-no questions instead of H+L* for both Olivenza Portuguese and Olivenza Spanish and to analyze H+L* as a phonetic realization of the underlying L* nuclear accent. Regarding the boundary tones, the !HL% and L% boundary tones were realized on strongly lengthened IP-final syllables in both contact varieties; the former was produced as a compressed falling movement and the latter as a sustained low pitch (or low plateau). I propose analyzing !HL% as the underlying boundary tone and L% as its phonetic realization, since both boundary tones are used to express information-seeking yes-no questions and both boundary tones are realized on considerably lengthened IP-final syllables in Olivenza Portuguese and Olivenza Spanish. The H% boundary tone was not accompanied by such a strong IP-final lengthening in Olivenza Spanish, in contrast to Olivenza Portuguese. Comparing the underlying nuclear configurations of neutral SVO declaratives with those of information-seeking yes-no questions in both varieties, it can be seen that these two sentence types are characterized by the same underlying nuclear pitch accent (i.e., L*), but by different boundary tones (L% for the neutral SVO declaratives vs. !HL% and H% for the information-seeking yes-no questions). A further difference between these two sentence types is the use of a strong IP-final lengthening in the information-seeking yes-no questions (the lengthening occurs in both varieties when the /!HL%/ boundary tone is produced[276]). This lengthening is claimed to be a phonological feature used to mark interrogativity and to distinguish declarative from interrogative intonation in both contact varieties.

As for the neutral disjunctive questions and the neutral interrogative enumerations, the underlying nuclear configurations of IPs established for the contact varieties under consideration are: H+L* L% for both sentence types for Olivenza Portuguese, H+L* L% and L* L%[277] for the neutral disjunctive questions for Olivenza Spanish, and H+L* L% for the neutral interrogative enumerations for Olivenza Spanish.

For the exclamative yes-no questions with counterexpectational meaning, while only one underlying nuclear configuration of IPs was established for Olivenza Portuguese on the basis of

[276] As mentioned above, in Olivenza Portuguese, the /H%/ boundary tone is also produced on notably lengthened IP-final syllables.
[277] Both nuclear configurations occurred with a similar frequency in the disjunctive questions analyzed for Olivenza Spanish.

the intonational analysis, namely L+H* !HL%, two underlying nuclear configurations of IPs were proposed for Olivenza Spanish: L+H* !HL% and L+¡H* L%[278]. Comparing the underlying nuclear configuration L* !HL% established for the information-seeking yes-no questions and the underlying nuclear configuration L+H* !HL% established for the exclamative yes-no questions (for both contact varieties), it can be seen that first, these two sentence types are characterized by the same underlying boundary tone (i.e., !HL%), but by two different underlying nuclear accents (L* for the information-seeking yes-no questions and L+H* for the exclamative yes-no questions). Thus, it can be noted that the L* nuclear accent is used to signal neutral/broad focus readings in neutral sentences (e.g., in the neutral SVO declaratives and the information-seeking yes-no questions) and the L+(¡)H* nuclear accent is used to convey focus/emphasis in biased sentences (e.g., biased statements and exclamative yes-no questions) in both Olivenza Portuguese and Olivenza Spanish. The underlying !HL% boundary tone proposed for the exclamative yes-no questions (for both Olivenza Portuguese and Olivenza Spanish) can surface as a compressed falling movement (labeled with !HL%) or as a sustained high pitch (labeled with !H%); note that /!HL%/ always surfaces on notably lengthened IP-final syllables. The reason why the underlying !HL% boundary tone surfaces as a sustained high pitch (i.e., !H%) in the exclamative yes-no questions and as a sustained low pitch (i.e., L%) in the information-seeking yes-no questions (cf. p. 171) is due to the fact that a L+H* nuclear accent is produced before the boundary tone in the exclamative yes-no questions and a L* nuclear accent is produced before the boundary tone in the information-seeking yes-no questions. The observation that a strong IP-final lengthening is also attested in the exclamative yes-no questions confirms the assumption that the IP-final lengthening is a phonological feature used to mark interrogativity in both contact varieties (note that while exclamative yes-no questions are produced with a strong IP-final lengthening when the /!HL%/ boundary tone is realized, biased statements do not show such a durational marking). It is worth mentioning that the IP-final syllables on which the underlying L% boundary tone (of the second underlying nuclear contour proposed for Olivenza Spanish) was realized were not characterized by such a strong lengthening as that described for the IP-final syllables on which the underlying !HL% boundary tone was produced.

L+H* H% is the underlying nuclear configuration of IPs established for the varieties under investigation on the basis of the intonational analysis of the confirmation-seeking yes-no questions. The nuclear accent of this contour was often upstepped in the material examined for both

[278] Note that L+¡H* L% was proposed as an underlying nuclear configuration of exclamative statements in Olivenza Spanish. However, comparing Figure 5.14 and Figure 5.27b, it can be seen that the global F0 contour is quite different in both examples (and presumably in both sentence types in general).

Olivenza Portuguese and Olivenza Spanish. However, I assumed that the upstep is triggered by the boundary tone H% and analyzed such upstepped accents as underlying L+H* accents.

Olivenza Portuguese and Olivenza Spanish speakers used the same nuclear configurations of IPs to express information-seeking wh-questions: H+L* L%, L* H%, and L* L% (the latter occurring in very few cases). Based on these results, H+L* L% and L* H% were established as underlying nuclear configurations of IPs for this sentence type for both contact varieties and the L* L% nuclear contour was analyzed as a surface realization of the H+L* L% nuclear configuration. Interestingly, it can be noted that information-seeking wh-questions and neutral SVO declaratives can be produced with the same nuclear configurations in Olivenza Portuguese and Olivenza Spanish (i.e., H+L* L% and L* L%[279]). A strong IP-final lengthening, like that attested in the yes-no questions, was also found in the information-seeking wh-questions. However, it is worth mentioning that the majority of the Olivenza Portuguese speakers did not produce the information-seeking wh-questions with a strong lengthening of the IP-final syllables. In Olivenza Spanish, some speakers marked the information-seeking wh-questions by lengthening the IP-final syllables to such an extent as shown for the information-seeking yes-no questions, while others did not use such a durational marking. Since only few Olivenza Portuguese speakers applied the strong IP-final lengthening in the information-seeking wh-questions, I believe that the presence of such a durational marking in the information-seeking wh-questions can be seen as a kind of hypercorrection. The interrogativity in wh-questions is expressed in the first place by the presence of a lexical marker (i.e., the wh-word), in contrast to yes-no questions, which are not lexically marked and usually display the same surface syntactic properties as statements. Thus, the use of an extra phonological feature (the IP-final lengthening here) to mark interrogativity seems to be more justified in yes-no questions than in wh-questions.

The L+(¡)H* nuclear accent was also used to convey focus/emphasis in the exclamative wh-questions in the contact varieties. On the basis of the analysis of the biased statements, it was suggested that the L+H* nuclear accent is used to express focus/emphasis and the L+¡H* nuclear accent is used to signal a greater emphasis in both Olivenza Portuguese and Olivenza Spanish (cf. p. 170). Based on this and considering the results of the intonational analysis of the exclamative wh-questions, I propose L+¡H* L% as the underlying nuclear configuration of IPs for the exclamative wh-questions for both Olivenza Portuguese and Olivenza Spanish. It can thus be pointed out that exclamative wh-questions and exclamative statements have the same underlying nuclear contours of IPs in Olivenza Portuguese and Olivenza Spanish. This means that these two

[279] Cf. footnote 275.

sentence types do not differ tonally, but rather lexically: wh-questions are characterized by the presence of a wh-word, in contrast to statements.

The underlying nuclear configurations of IPs which were established for the imperative wh-questions for both varieties are the same ones as those proposed for the information-seeking wh-questions: H+L* L% and L* H%[280].

Since the echo yes-no questions in both Olivenza Portuguese and Olivenza Spanish were expressed by means of the same nuclear configurations of IPs found in the information-seeking yes-no questions (i.e., L* !HL% and L* H%) and the exclamative yes-no questions with counterexpectational meaning (i.e., L+H* !HL%), it can be assumed that echo yes-no questions do not show a proper tonal marking in the contact varieties, but rather exhibit the tonal marking of the yes-no questions. The choice of the nuclear accent (L* or L+H*) seems to depend on the question whether the prosodic word which bears the nuclear accent is produced with or without emphasis (if the last prosodic word is produced with emphasis, the L+H* pitch accent is expected to be used, otherwise the L* pitch accent is expected to be realized).

According to the results of the intonational analysis, in Olivenza Portuguese and Olivenza Spanish, the echo wh-questions were expressed by means of the nuclear configurations of IPs found in the information-seeking wh-questions (i.e., H+L* L% and L* H%) as well as the nuclear configurations of IPs found in the information-seeking yes-no questions (i.e., L* !HL% and L* L%). I believe that echo wh-questions were realized with the nuclear contours of information-seeking yes-no questions because of the use of the strong IP-final lengthening. As mentioned above, the IP-final lengthening which appears when the /!HL%/ boundary tone is realized is assumed to mark interrogativity in the contact varieties. Consequently, it can be suggested that Olivenza Portuguese and Olivenza Spanish speakers use a durational marking, the strong IP-final lengthening here, to emphasize and express the interrogativity in echo wh-questions. Considering all this, it can be assumed that echo wh-questions do not show a proper tonal marking in the contact varieties, but rather display the tonal marking of wh-questions and yes-no questions.

The results of the intonational analysis revealed that the same nuclear configurations of IPs were used to express both exclamative echo yes-no questions (with counterexpectational meaning) and exclamative yes-no questions (with counterexpectational meaning) in the contact varieties: L+H* !HL% and L+H* !H% (note that the boundary tones !HL% and !H% always surfaced on notably lengthened IP-final syllables). Interestingly, a further nuclear contour of IPs was at-

[280] As mentioned in Section 5.1.6.2, the questions why the contact varieties show the same nuclear configurations of IPs in information-seeking wh-questions and imperative wh-questions and which prosodic cues are used to express the imperative nuance in imperative wh-questions remain for further research.

tested in Olivenza Spanish: L+(¡)H* H% (note that this nuclear configuration was also used to express confirmation-seeking yes-no questions). Considering these results, I propose analyzing L+H* !HL% as the underlying nuclear configuration of IPs for the exclamative echo yes-no questions in Olivenza Portuguese and establishing L+H* !HL% and L+H* H% as the underlying nuclear configurations of IPs for the exclamative echo yes-no questions in Olivenza Spanish. Similar to the exclamative yes-no questions (cf. p. 171-172), the !H% boundary tone is assumed to be a phonetic realization of the underlying !HL% boundary tone in the exclamative echo yes-no questions in both contact varieties.

H+L* L% and L+H* L% are the underlying nuclear configurations of IPs established for the commands for both Olivenza Portuguese and Olivenza Spanish. The H+L* L% nuclear configuration was suggested to be used to signal a clear order, and the L+H* L% nuclear configuration was said to be used to express emphasis. These findings show that contrastive focus statements and commands may be expressed by means of the same nuclear configuration in both contact varieties (i.e., L+H* L%). Furthermore, neutral SVO declaratives and commands may also be expressed by means of the same nuclear configuration in Olivenza Portuguese and Olivenza Spanish (i.e., H+L* L%[281]).

The following underlying nuclear configurations of IPs were proposed for the requests: L+H* HL% for Olivenza Portuguese and L* HL% for Olivenza Spanish. This shows that Olivenza Portuguese and Olivenza Spanish speakers use the same boundary tone to express requests, but different nuclear accents. Furthermore, it is worth mentioning that this boundary tone was not found in other sentence types in Olivenza Portuguese. In contrast, the HL% boundary tone is also used to express contradiction statements in Olivenza Spanish. However, while the underlying nuclear configuration of IPs established on the basis of the analysis of the contradiction statements is L+H* HL% in Olivenza Spanish, the underlying nuclear configuration of IPs proposed for the requests is L* HL%.

The reasons why two different underlying nuclear configurations of IPs were established for some sentence types in Olivenza Portuguese (e.g., H+L* L% and L* L% for the neutral SVO declaratives) and Olivenza Spanish (e.g., L+H* !HL% and L+¡H* L% for the exclamative yes-no questions) will be discussed in Chapter 6.

Table 5.7 and Table 5.8 summarize the underlying nuclear configurations of IPs established for the different sentence types.

[281] Cf. footnote 275.

Table 5.7. Inventory of underlying nuclear configurations of IPs in Olivenza Portuguese

sentence types		nuclear configurations of IPs
neutral statements	neutral SVO declarative sentences	H+L* L% L* L%
biased statements	contrastive focus statements	L+H* L%
	exclamative statements	L+¡H* L%
	contradiction statements	L+H* L%
neutral (yes-no) questions	information-seeking yes-no questions	L* !HL% L* H%
	disjunctive questions	H+L* L%
	interrogative enumerations	H+L* L%
biased yes-no questions	exclamative yes-no questions (with counterexpectational meaning)	L+H* !HL%
	confirmation-seeking yes-no questions	L+H* H%
neutral wh-questions	information-seeking wh-questions	H+L* L% L* H%
	information-seeking wh-questions with a peripheral element	
	enumerations (successive information-seeking wh-questions)	H+L* L% L* H%
biased wh-questions	exclamative wh-questions	L+¡H* L%
	imperative wh-questions	H+L* L% L* H%
echo questions	echo yes-no questions	nuclear configurations of yes-no questions (e.g., L* !HL%, L* H%, L+H* !HL%)
	echo wh-questions	nuclear configurations of wh-questions and yes-no questions (e.g., L* !HL%, L* H%, H+L* L%)
	exclamative echo yes-no questions (with counterexpectational meaning)	L+H* !HL%
imperatives	commands	H+L* L% L+H* L%
	requests	L+H* HL%

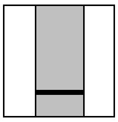
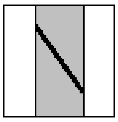
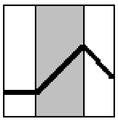
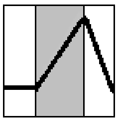
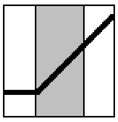
Table 5.8. Inventory of underlying nuclear configurations of IPs in Olivenza Spanish

sentence types		nuclear configurations of IPs
neutral statements	neutral SVO declarative sentences	L* L%
biased statements	contrastive focus statements	L+H* L%
	exclamative statements	L+¡H* L%
	contradiction statements	L+H* HL%
neutral (yes-no) questions	information-seeking yes-no questions	L* !HL% L* H%
	disjunctive questions	H+L* L% L* L%
	interrogative enumerations	H+L* L%
biased yes-no questions	exclamative yes-no questions (with counterexpectational meaning)	L+H* !HL% L+¡H* L%
	confirmation-seeking yes-no questions	L+H* H%
neutral wh-questions	information-seeking wh-questions	H+L* L% L* H%
	information-seeking wh-questions with a peripheral element	
	enumerations (successive information-seeking wh-questions)	H+L* L% L* H%
biased wh-questions	exclamative wh-questions	L+¡H* L%
	imperative wh-questions	H+L* L% L* H%
echo questions	echo yes-no questions	nuclear configurations of yes-no questions (e.g., L* H%, L+H* !HL%, L* !HL%)
	echo wh-questions	nuclear configurations of wh-questions and yes-no questions (e.g., H+L* L%, L* H%, L* L%)
	exclamative echo yes-no questions (with counterexpectational meaning)	L+H* !HL% L+H* H%
imperatives	commands	H+L* L% L+H* L%
	requests	L* HL%

5.2.4 Pitch accents and boundary tones in Olivenza Portuguese and Olivenza Spanish

Olivenza Portuguese has an inventory of five pitch accents (L*, H+L*, L+H*, L+¡H*, and L+>H*) and Olivenza Spanish has an inventory of six pitch accents (L*, H+L*, L*+H, L+H*, L+¡H*, and L+>H*)[282] (cf. Table 5.9 and Table 5.10). The results of the intonational analysis of the different sentence types revealed that first, the pitch accents L+>H* and L+H* for Olivenza Portuguese and L+>H* and L*+H for Olivenza Spanish occurred in prenuclear position in the contact varieties (cf. Section 5.2.1), and second, the pitch accents L*, H+L*, L+H*, and L+¡H* appeared in nuclear position in both varieties (cf. Section 5.2.2, Section 5.2.3, Table 5.7, and Table 5.8).

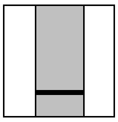
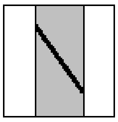
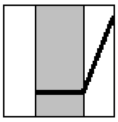
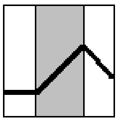
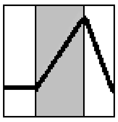
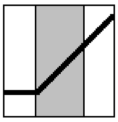
Table 5.9. Inventory of pitch accents in Olivenza Portuguese

Pitch accents[283]	**Phonetic description**
Monotonal pitch accent	
L* 	L* is phonetically realized as a low plateau during the stressed syllable. Its level correlates with the minimum of the speaker's range.
Bitonal pitch accents	
H+L* 	H+L* is phonetically realized as a fall during the stressed syllable.
L+H* 	L+H* is phonetically realized as a rise during the stressed syllable with the peak located at the end of this syllable.
L+¡H* 	L+¡H* is phonetically realized as a steep rise during the stressed syllable with the peak located at the end of this syllable.
L+>H* 	L+>H* is phonetically realized as a rise during the stressed syllable with the peak located in the post-tonic syllable.

[282] The H* pitch accent is not presented as a part of the inventory of pitch accents of the varieties under investigation for the following reasons: High plateaus realized within the temporal boundaries of prenuclear stressed syllables were analyzed as instances of deaccentuation in both Olivenza Portuguese and Olivenza Spanish (cf. Section 5.1.1.2 for neutral SVO declaratives and Section 5.1.5.1 for information-seeking wh-questions). Moreover, no underlying nuclear configuration of inner ips or of IPs which contains the H* pitch accent has been proposed for one of the contact varieties (cf. Section 5.2.2 and Section 5.2.3).

[283] The gray parts represent metrically strong (i.e., stressed) syllables; the white parts illustrate the unstressed syllables before and after the stressed syllable.

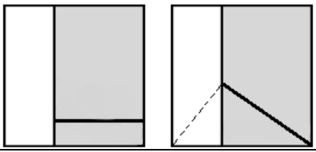
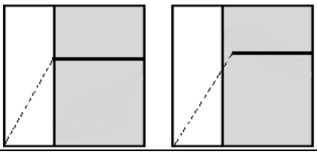
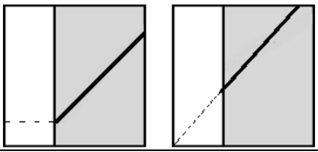
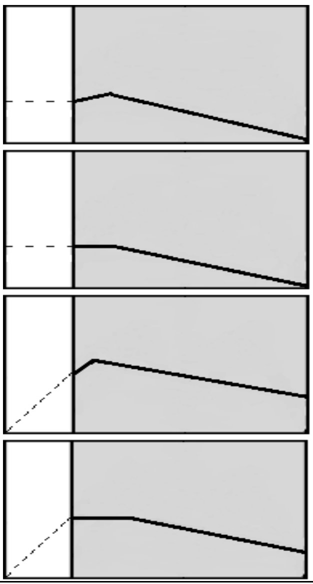
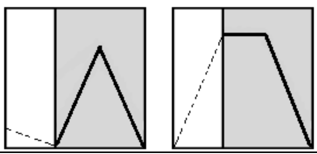
Table 5.10. Inventory of pitch accents in Olivenza Spanish

Pitch accents[284]	Phonetic description
Monotonal pitch accent	
L* 	L* is phonetically realized as a low plateau during the stressed syllable. Its level correlates with the minimum of the speaker's range.
Bitonal pitch accents	
H+L* 	H+L* is phonetically realized as a fall during the stressed syllable.
L*+H 	L*+H is phonetically realized as a valley during the stressed syllable followed by a rise on the post-tonic syllable.
L+H* 	L+H* is phonetically realized as a rise during the stressed syllable with the peak located at the end of this syllable.
L+¡H* 	L+¡H* is phonetically realized as a steep rise during the stressed syllable with the peak located at the end of this syllable.
L+>H* 	L+>H* is phonetically realized as a rise during the stressed syllable with the peak located in the post-tonic syllable.

Olivenza Portuguese and Olivenza Spanish have the same inventory of boundary tones (cf. Table 5.11). This inventory contains the following boundary tones: three monotonal boundary tones (L- / L%, !H- / !H%, and H- / H%) and two bitonal boundary tones (!HL- / !HL% and HL- / HL%)[285]. These boundary tones were part of nuclear configurations of inner ips (e.g., H- and !H-) and of nuclear configurations of IPs (L%, !H%, H%, !HL%, and HL%)[286].

[284] Cf. footnote 283.
[285] Note that the LH% boundary tone was also found in the SVO declarative sentences analyzed for both varieties (cf. Section 5.1.1.2). It has been suggested that this boundary tone is used to convey obviousness in Olivenza Portuguese and Olivenza Spanish. However, since very few examples were attested in the material examined, further research is needed to confirm this assumption. For this reason, LH% is not included in the inventory of boundary tones presented in Table 5.11.
[286] As mentioned in Section 4.3.1 (cf. p. 86-93), I adopted the view that the end of the ip is tonally marked by a boundary tone in both contact varieties. This means that the IP-final ip of an IP and the respective IP itself will always have the same boundary tone (a monotonal or a bitonal one), since the end of the IP-final ip is the end of the IP. Thus, the IP-final ips show the same boundary tones as the IPs: i.e., L-, !H-, H-, !HL-, and HL-.

Table 5.11. Inventory of boundary tones in Olivenza Portuguese and Olivenza Spanish

Boundary tones[287]	
Monotonal boundary tones	
L- L% 	L- / L% is phonetically realized as a low sustained tone or as a falling tone. Its level correlates with the minimum of the speaker's range if it is a low sustained tone. It is realized as a falling tone after a preceding rise (cf. dotted line).
!H- !H% 	!H- / !H% is phonetically realized as a high sustained tone.
H- H% 	H- / H% is phonetically realized as a rising tone. It can be produced after low or rising pitch accents (cf. dotted lines).
Bitonal boundary tones	
!HL- !HL% 	!HL- / !HL% is phonetically realized as a compressed falling tone (i.e., slow fall). The syllables which bear this boundary tone are always considerably lengthened. It can be produced after low or rising pitch accents (cf. dotted lines).
HL- HL% 	HL- / HL% is phonetically realized as a peak followed by a fall. It can be produced after low or rising pitch accents (cf. dotted lines).

[287] Boundary tones at the end of ips and IPs are marked with a hyphen (-) and a percent sign (%), respectively. The gray parts represent the syllable(s) on which the boundary tone is realized; the white parts illustrate the preceding syllable(s).

5.3 Rhythmic analysis

In this section, I describe the rhythmic properties of statements, yes-no questions, wh-questions, echo questions, and imperatives in Castilian Spanish, Olivenza Spanish, and Olivenza Portuguese.

5.3.1 Statements

The declarative sentences segmented for the rhythmic analysis comprised both neutral and biased statements for the three varieties under investigation (cf. Table 4.4 and Table 4.5 for the different statement types). Their number amounted to 61 IPs for Castilian Spanish (25 neutral and 36 biased statements), to 142 IPs for Olivenza Spanish (70 neutral and 72 biased statements), and to 127 IPs for Olivenza Portuguese (70 neutral and 57 biased statements)[288].

Table 5.12 presents the absolute numbers of vocalic and consonantal intervals into which the data mentioned above were segmented and the mean scores for %V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI calculated on the basis of the data segmentation[289].

Table 5.12. Mean values[290] for %V, VarcoV, VarcoC, and the PVIs and absolute numbers of intervals for the statements in Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port)

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Cast Spa	40.61	43.19	43.68	37.51	41.52	45.32	468	504
Oli Spa	44.68	47.69	42.9	39.08	37.81	45.51	1251	1279
Oli Port	49.12	52.04	41.38	42.18	45.13	46.44	1192	1132

As mentioned in Section 4.3.2, the varieties under consideration are compared over the %V/VarcoV and the VnPVI/CrPVI planes. Figure 5.48 (Panel A) shows that Olivenza Spanish exhibits intermediate scores on both axes between those for Castilian Spanish and Olivenza Portuguese. Moreover, Olivenza Portuguese displays the highest %V and VarcoV values. In Figure 5.48 (Panel B), the same distribution of the varieties studied can be seen on the x-axis: thus, Olivenza Spanish shows intermediate VnPVI values situated between the ones for Castilian

[288] Since semi-spontaneous speech was analyzed (cf. Section 4.2), both the number of IPs obtained per variety and the intervals produced by each subject vary. The same holds for the remaining sentence types described in Section 5.3.

[289] %V calculates the proportion of vocalic material in the speech signal; VarcoV and VarcoC are normalized variability coefficients which compute the durational variability of vocalic and consonantal intervals over the whole acoustic signal; VnPVI and CnPVI are normalized pairwise variability indices which calculate the durational variability of vocalic and consonantal intervals in successive intervals; CrPVI is a non-normalized or raw pairwise variability index which computes the durational variability of consonantal intervals in successive intervals (cf. the references in Section 4.3.2).

[290] Cf. the Appendix for the %V, VarcoV, VarcoC, and PVI scores obtained for each speaker.

Spanish and those for Olivenza Portuguese. Regarding the CrPVI scores depicted on the y-axis, Olivenza Portuguese presents the greatest durational variability of consonantal intervals and Olivenza Spanish the lowest. Last but not least, the three varieties show almost the same VarcoC and CnPVI scores (cf. Table 5.12).

According to the results of the Bonferroni Test, which provides a multiple comparison of the %V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI scores calculated for each variety, statistically significant differences were found between the three varieties for %V (Castilian Spanish vs. Olivenza Spanish ($p = 0.010$); Castilian Spanish vs. Olivenza Portuguese ($p < 0.001$); Olivenza Portuguese vs. Olivenza Spanish ($p = 0.001$)) and between Olivenza Spanish and Olivenza Portuguese for CrPVI ($p = 0.003$).

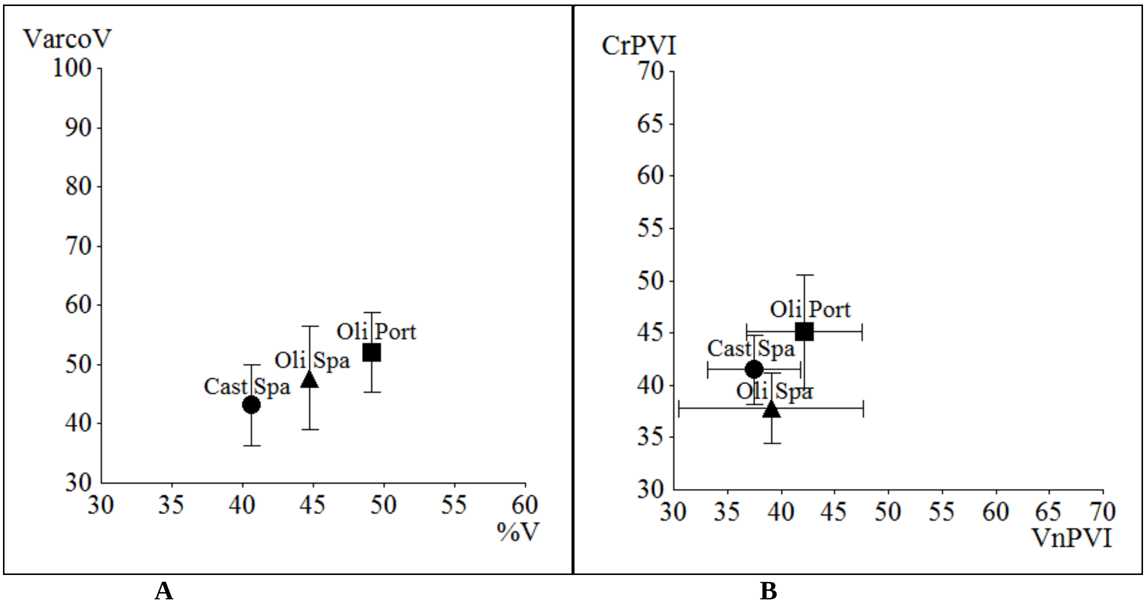


Figure 5.48. Panel A of the figure depicts the %V/VarcoV values and panel B the VnPVI/CrPVI values for the statements for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean

Considering the %V, VarcoV, and VnPVI scores obtained from the analysis of the statements, the following hierarchy can be established for the three varieties under investigation: Castilian Spanish < Olivenza Spanish < Olivenza Portuguese. However, the differences observed between Castilian Spanish and Olivenza Spanish as well as between Olivenza Spanish and Olivenza Portuguese are quite small: for %V (40.61 < 44.68 < 49.12), for VarcoV (43.19 < 47.69 < 52.04), and for VnPVI (37.51 < 39.08 < 42.18). They may be traced back to the following phonological properties: the differences between Castilian Spanish and Olivenza Spanish may be explained by taking into account, first, the higher elision of the intervocalic approximants [β ð ɣ][291] in the Olivenza Spanish data, and second, the non-systematic vowel reduction[292] attested in the contact variety. As for the elision of intervocalic approximants (or of other intervocalic consonants; cf. footnote 291), it contributes to both a higher proportion of vocalic material (i.e., higher %V values) and a greater durational variability of vocalic intervals (i.e., higher VarcoV and VnPVI scores). Regarding vowel reduction, it is well known that it may have a direct impact on speech rhythm when it is accompanied by a durational reduction (it is, for instance, reflected in a greater durational variability of vocalic intervals; cf. the references in Section 3.3). However, it should be mentioned that the non-systematic vowel reduction in Olivenza Spanish rarely correlates with a strong durational reduction in the material analyzed. The differences between Olivenza Portuguese and Olivenza Spanish may be partially explained by considering the stronger lengthening of both nuclear and final syllables of inner ips attested in the statements analyzed for Olivenza Portuguese. When the nuclear and final syllables of inner ips are excluded from the counting, Olivenza Portuguese exhibits a lower durational variability of vocalic intervals (cf. VarcoV values) as compared to those obtained when the nuclear and final syllables of the inner ips are included in the analysis (cf. Table 5.13). In contrast, this is not the case for the Spanish varieties: Castilian Spanish displays the same scores for %V and slightly higher values for VarcoV and VnPVI. Olivenza Spanish shows almost the same scores for %V, VarcoV, and VnPVI. However, the %V scores for Olivenza Portuguese with or without nuclear and final syllables of inner ips are higher than those for Castilian Spanish and Olivenza Spanish. This may be related to the age of the speakers[293]: note that it has been shown that older speakers display both a lower speech rate and higher %V values than younger speakers (cf. Pettorino et al. 2014). Regarding the vowel

[291] 31 instances of elision of the intervocalic approximants [β ð ɣ] were attested in the Olivenza Spanish statements: 13 for [β] as in *qué* ***b****uena(s)* 'how delicious' ['ke.'we.na], 16 for [ð] as in *sába****d****o* 'Saturday' ['sa.βa.o], and 2 for [ɣ] as in *albóndi****g****a(s)* 'meatballs' [al.'βɔn̪.di.a]. The intervocalic approximants [β ð] were elided in 14 cases in the Castilian Spanish material: 9 for [β] as in *qué* ***b****ueno* 'how delicious' ['ke.'we.no] and 5 for [ð] as in *sába****d****o* 'Saturday' ['sa.βa.o]).
In addition, it is worth mentioning that eight instances of elision of intervocalic nasals or liquids were found in the Olivenza Spanish statements. Moreover, elision of syllable final /s/, which contributes to the formation of longer vocalic intervals, was attested in five cases in the Olivenza Spanish statements. In contrast, such elision processes did not occur in the data analyzed for Castilian Spanish.
[292] As already mentioned in Chapter 2, González Salgado (2003) claims that Olivenza Spanish shows a non-systematic vowel reduction of word-final /o/ due to the contact with Portuguese. In the material examined for the rhythmic analysis, examples of reduction (raising or centralization) of /a/ to [ɐ], of /o/ to [u], and of /e/ to [ə]/[ɨ] were found. However, a formant analysis of the vowels produced by the monolingual Olivenza Spanish speakers remains as a desideratum for further research.
[293] Nowadays, only speakers older than 60 speak Olivenza Portuguese (cf. Chapter 2).

reduction in Olivenza Portuguese, it is worth mentioning that it has seldom been observed to correlate with a strong durational reduction in the material analyzed[294].

Table 5.13. Mean values for %V, VarcoV, and VnPVI for the statements **with** (non-shaded rows) and **without** nuclear and final syllables of inner ips (shaded rows) in Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port)

	%V	VarcoV	VnPVI
Cast Spa	40.61	43.19	37.51
Cast Spa	41.41	46.33	39.81
Oli Spa	44.68	47.69	39.08
Oli Spa	44.34	46.99	38.47
Oli Port	49.12	52.04	42.18
Oli Port	48.54	48.88	41.41

As for the consonantal variability, the results of the rhythmic analysis revealed that Castilian Spanish, Olivenza Spanish, and Olivenza Portuguese exhibit almost the same VarcoC and CnPVI values (cf. Table 5.12). This can be explained by referring to the fact that Olivenza Portuguese and the Spanish varieties show quite similar syllable structure types (cf. Table 5.14, Table 5.15, and Table 5.16). It is important to mention that complex consonant clusters which result from the deletion of reduced vowels seldom occurred in the statements analyzed for Olivenza Portuguese (note that phonetic consonant clusters resulting from vowel deletion can be seen as the main reason why other European Portuguese varieties, e.g., Standard European Portuguese, display a greater durational variability of consonantal intervals than varieties such as Spanish; cf. Section 3.3.2 and the references therein).

The results of the present section suggest that the three varieties under investigation show similar rhythmic properties for statements.

[294] The role of vowel reduction and the degree of durational reduction of the reduced (raised or centralized) vowels in both varieties are topics which remain for further research.

Table 5.14. Absolute numbers of syllables[295] and percentage of syllable structure types occurring in the statements for Castilian Spanish[296]

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V	CCGlV / CCVGl	GlVC / VGlC
p (297)	56.23%	16.16%	5.05%	2.36%	7.07%	5.05%	2.69%	0.34%	4.71%		0.34%
nn (50)	40%	18%	2%		14%	24%		2%			
n (42)	47.5%	40.5%			2.5%	4.5%	2.5%		2.5%		
nnf (14)	64.25%	21.45%				7.15%				7.15%	
nff (19)	52.5%	10.5%				31.5%			5.5%		
f (50)	42%	54%			2%				2%		
ff (42)	45%	50%		2.5%					2.5%		

Table 5.15. Absolute numbers of syllables and percentage of syllable structure types occurring in the statements for Olivenza Spanish

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V	GlVC / VGlC
p (836)	71.77%	13.16%	5.62%	1.08%	2.15%	0.96%	0.36%		4.42%	0.48%
nn (129)	50.39%	19.39%			10.85%	17.83%		0.77%	0.77%	
n (116)	72%	17%		1%	3.5%	3.5%			2%	1%
nnf (20)	60%	20%			10%	10%				
nff (26)	46%	11.5%	4%	4%		11.5%		23%		
f (129)	81.40%	12.40%			2.33%		0.77%		3.10%	
ff (116)	85%	9.5%		1%			2%		2.5%	

[295] Absolute numbers are given in brackets.
[296] The abbreviations “p”, “nn”, “n”, “f”, “ff”, “nnf”, and “nff” are used as follows (cf. Section 4.3.1 for the prosodic constituency relevant for intonational structure in Olivenza Portuguese and Olivenza Spanish):

labels	meaning of label
p	prenuclear syllables
nn	nuclear syllables of inner ips
n	nuclear syllables of IP-final ips
f	final syllables of inner ips
ff	final syllables of IP-final ips = unstressed IP-final syllables
nnf	nuclear syllables belonging to oxytones that occur at the end of inner ips
nff	nuclear syllables belonging to oxytones that occur at the end of IP-final ips = stressed IP-final syllables

Table 5.16. Absolute numbers of syllables and percentage of syllable structure types occurring in the statements for Olivenza Portuguese

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V	CCGlV / CCVGl	GlVC / VGlC
p (766)	62.40%	15.27%	3.40%	2.87%	2.09%	0.92%	0.39%		12.40%	0.13%	0.13%
nn (112)	49.11%	31.25%	2.68%	1.78%	5.36%	8.93%		0.89%			
n (118)	68.64%	13.56%	0.85%	7.63%	0.85%			3.39%	5.08%		
nnf (20)	30%	15%		15%	25%		10%	5%			
nff (9)		11.1%			66.7%		11.1%	11.1%			
f (112)	93.75%	3.57%			2.68%						
ff (118)	66.95%	8.48%	0.85%		15.25%	2.54%			5.93%		

5.3.2 Yes-no questions

As shown in Table 4.4 and Table 4.5, both neutral and biased yes-no questions were analyzed with respect to speech rhythm for the three varieties under investigation. The corpus thus comprised 43 IPs for Castilian Spanish (27 neutral and 16 biased yes-no questions), 74 IPs for Olivenza Spanish (40 neutral and 34 biased yes-no questions), and 71 IPs for Olivenza Portuguese (40 neutral and 31 biased yes-no questions).

In Table 5.17, the absolute numbers of vocalic and consonantal intervals into which the yes-no questions were segmented and the mean scores for %V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI calculated on the basis of the data segmentation are presented.

Table 5.17. Mean values[297] for %V, VarcoV, VarcoC, and the PVIs and absolute numbers of intervals for the yes-no questions in Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port)

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Cast Spa	40.17	45.78	39.63	43.59	37.11	47.98	316	325
Oli Spa	48.2	62.96	41.93	54.62	38.01	48.81	645	638
Oli Port	53.84	76.22	38.41	59.6	41.19	44.84	589	590

Figure 5.49 (Panel A and Panel B) shows that Olivenza Spanish displays intermediate %V, VarcoV, and VnPVI values situated between those for Castilian Spanish and Olivenza Portuguese. Olivenza Portuguese presents the highest proportion of vocalic material and the greatest durational variability of vocalic intervals. Regarding the durational variability of consonantal intervals, the three varieties pattern together in exhibiting similar VarcoC, CrPVI, and CnPVI scores (cf. Table 5.17).

[297] Cf. the Appendix for the %V, VarcoV, VarcoC, and PVI scores obtained for each speaker.

According to the results of the Bonferroni Test, statistically significant differences were found, first, between the three varieties for %V (Castilian Spanish vs. Olivenza Spanish ($p < 0.001$); Castilian Spanish vs. Olivenza Portuguese ($p < 0.001$); Olivenza Portuguese vs. Olivenza Spanish ($p = 0.002$)), second, between Olivenza Portuguese and Castilian Spanish for VarcoV ($p = 0.002$), and third, between the contact varieties and Castilian Spanish for VnPVI (Castilian Spanish vs. Olivenza Spanish ($p = 0.035$); Castilian Spanish vs. Olivenza Portuguese ($p = 0.002$)).

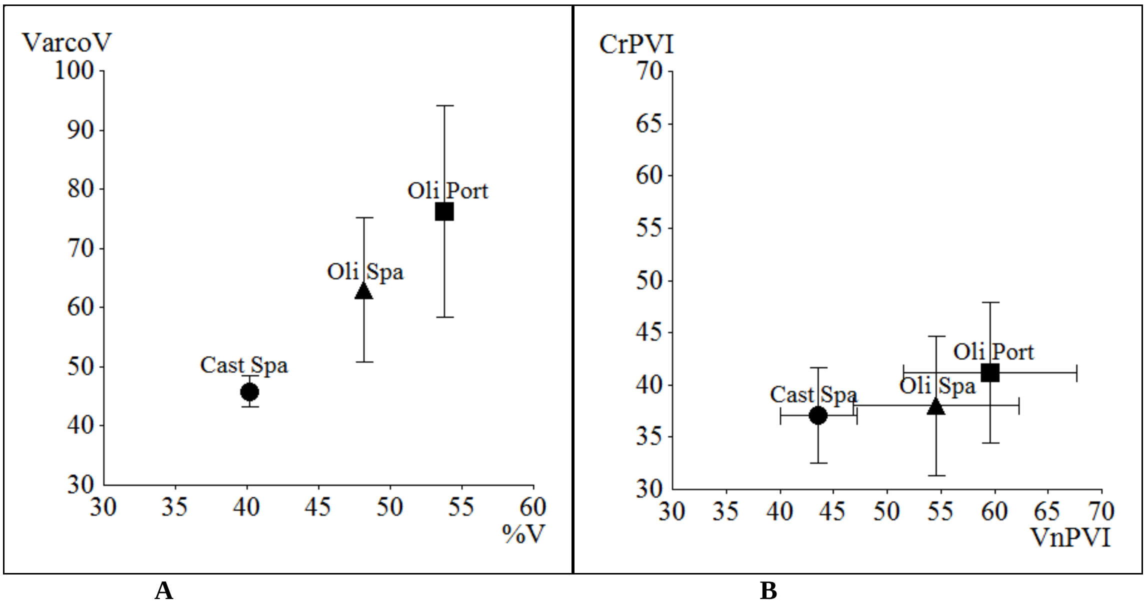
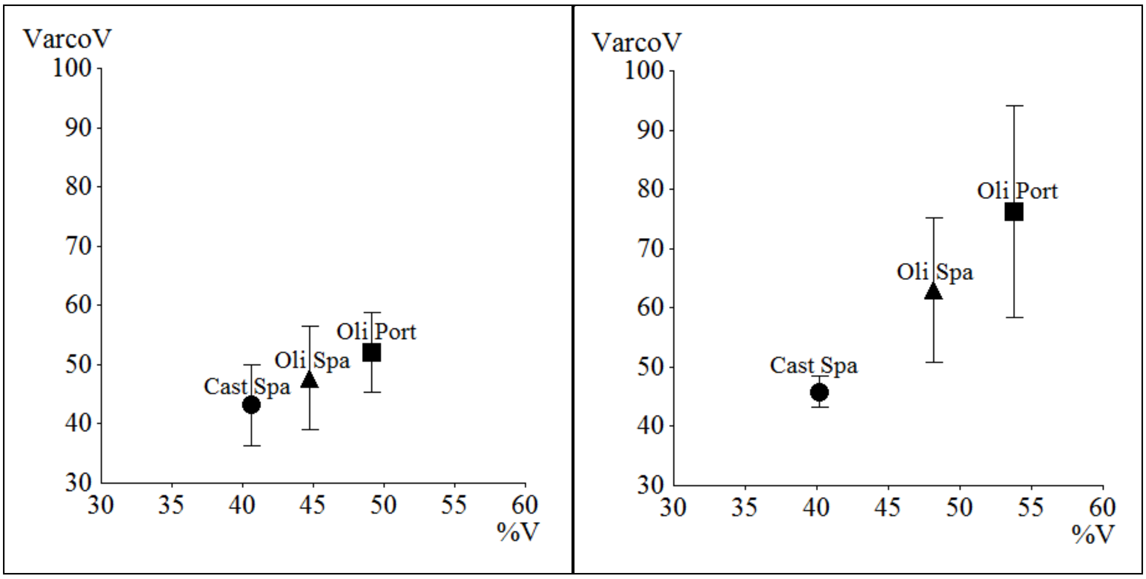


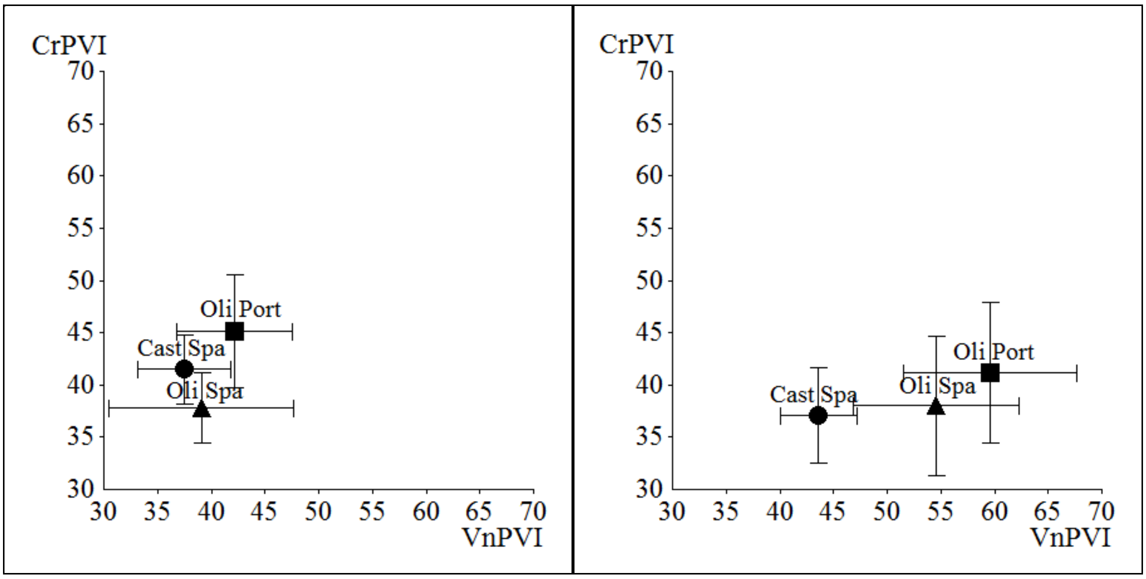
Figure 5.49. Panel A of the figure depicts the %V/VarcoV values and panel B the VnPVI/CrPVI values for the yes-no questions for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean

The results of the analysis of the yes-no questions have shown that the distribution of the three varieties concerning the %V, VarcoV, and VnPVI scores is the same as that described for the statements. Thus, the following hierarchy can be given: Castilian Spanish < Olivenza Spanish < Olivenza Portuguese. However, while the contact varieties display considerably higher %V, VarcoV, and VnPVI values for the yes-no questions as compared to the ones obtained for the statements, this is not the case for Castilian Spanish, which exhibits similar %V, VarcoV, and VnPVI scores for both statements and yes-no questions (cf. Panel A vs. Panel B in Figure 5.50 and Figure 5.51).



A **B**

Figure 5.50. Panel A of the figure depicts the %V/VarcoV values for the statements and panel B the %V/VarcoV values for the yes-no questions for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean



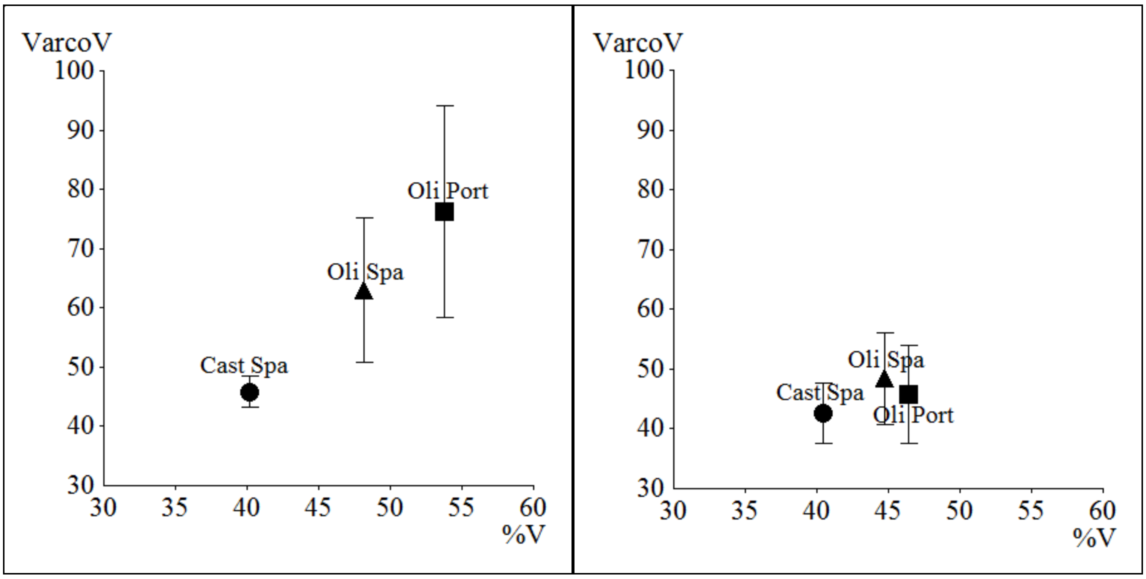
A **B**

Figure 5.51. Panel A of the figure depicts the VnPVI/CrPVI values for the statements and panel B the VnPVI/CrPVI values for the yes-no questions for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean

As can be seen in Figure 5.50 and Figure 5.51, Castilian Spanish shows quite similar %V, VarcoV, and VnPVI values for both statements and yes-no questions, in contrast to Olivenza Spanish and Olivenza Portuguese, which display notably higher %V, VarcoV, and VnPVI scores for the yes-no questions as compared to those for the statements. This can be traced back to the strong lengthening of IP-final syllables attested in the yes-no questions examined for the contact varieties. As shown in Section 5.1.3.1 and Section 5.1.4.1, Olivenza Portuguese speakers mark yes-no questions by notably lengthening the IP-final syllables regardless of the boundary tone produced (i.e., !HL%, L%, or H% in information-seeking yes-no questions and !HL% and !H% in exclamative yes-no questions (with counterexpectational meaning)). In Olivenza Spanish, IP-final syllables of yes-no questions on which the boundary tones !HL%, L%, and !H% are realized are always characterized by strong lengthening effects (note that the boundary tones !HL% and L% were found in information-seeking yes-no questions and the boundary tones !HL% and !H% were attested in exclamative yes-no questions (with counterexpectational meaning)). Since the IP-final lengthening is more frequently applied and is stronger in Olivenza Portuguese than in Olivenza Spanish (cf. mean durations of IP-final syllables (ff) in Table 5.19, Table 5.20, and Table 5.21 below), the %V, VarcoV, and VnPVI scores for the yes-no questions are higher for Olivenza Portuguese than for Olivenza Spanish. The following evidence confirms the assumption that the IP-final lengthening in the yes-no questions in Olivenza Portuguese and Olivenza Spanish is responsible for the differences between the contact varieties and Castilian Spanish: when the IP-final syllables are excluded from the counting, the %V, VarcoV, and VnPVI scores for both Olivenza Portuguese and Olivenza Spanish strongly decrease, in contrast to those for Castilian Spanish, which largely remain unchanged (cf. Table 5.18 and Figure 5.52). Note that the rhythmic values for the contact varieties are quite similar when the IP-final syllables are excluded from the analysis.

Table 5.18. Mean values for %V, VarcoV, VarcoC, and the PVIs for the yes-no questions **with** (non-shaded rows) and **without** IP-final syllables (shaded rows) in Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port)

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI
Cast Spa	40.17	45.78	39.63	43.59	37.11	47.98
Cast Spa	40.35	42.57	37.48	38.91	34.15	46
Oli Spa	48.2	62.96	41.93	54.62	38.01	48.81
Oli Spa	44.66	48.43	38.94	46.85	33.67	45.53
Oli Port	53.84	76.22	38.41	59.6	41.19	44.84
Oli Port	46.41	45.65	37.27	44.13	39.53	45.09



A B

Figure 5.52. Panel A of the figure depicts the %V/VarcoV values for the yes-no questions **with** IP-final syllables and panel B the %V/VarcoV values for the yes-no questions **without** IP-final syllables for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean

It is worth mentioning that the strong IP-final lengthening attested in the contact varieties cannot be traced back to the syllable structure or the stress patterns of the last prosodic word[298] (cf. Table 5.19, Table 5.20, and Table 5.21).

Regarding the variability of consonantal intervals, the three varieties pattern together in displaying almost the same scores for VarcoC and CnPVI when the IP-final syllables are excluded from the analysis (cf. Table 5.18). In addition, Olivenza Portuguese shows the highest CrPVI values.

[298] It has been shown that stressed IP-final syllables (i.e., IP-final syllables that appear when the last prosodic word within the IP is an oxytone word) usually exhibit a longer duration than unstressed ones (i.e., IP-final syllables that occur when the last prosodic word in the IP is a paroxytone word or a proparoxytone word) (cf. Pešková et al. 2012). As shown in Table 5.21, no oxytones in IP-final position are found in Olivenza Portuguese. In the yes-no questions analyzed for both Spanish varieties, oxytones in IP-final position occur with a similar frequency (cf. Table 5.19 and Table 5.20). In Castilian Spanish, the stressed IP-final syllables have a longer duration than the unstressed ones in Table 5.19. The fact that Castilian Spanish displays a longer mean duration for stressed IP-final syllables than Olivenza Spanish can definitely be traced back to the syllable structures attested in the yes-no questions in both varieties (cf. Table 5.19 and Table 5.20). When the unstressed IP-final syllables are taken into account (cf. Table 5.19, Table 5.20, and Table 5.21), it can clearly be seen that Castilian Spanish exhibits the shortest mean duration: 187 ms for Castilian Spanish < 234 ms for Olivenza Spanish < 343 ms for Olivenza Portuguese.

Table 5.19. Absolute numbers[299] and mean durations of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for the yes-no questions for Castilian Spanish[300]

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V	Duration
p (240)	57.5%	16.67%	3.33%		13.75%	0.83%	0.42%	2.08%	5.42%	118 ms
n (32)	57.14%	42.86%								149 ms
nff (11)	15.38%	46.16%				38.46%				251 ms
ff (32)	42.86%	40%		5.71%	11.43%					187 ms

Table 5.20. Absolute numbers and mean durations of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for the yes-no questions for Olivenza Spanish

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V	GlVC / VGlC	Duration
p (509)	62.28%	13.75%	4.52%	0.98%	6.68%	1.18%	2.16%	0.39%	7.86%	0.2%	113 ms
n (63)	58.90%	38.36%	2.74%								163 ms
nff (11)	63.64%	27.27%		9.09%							228 ms
ff (63)	79.45%	17.81%		2.74%							234 ms

Table 5.21. Absolute numbers and mean durations of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for the yes-no questions for Olivenza Portuguese

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	V	CCGlV / CCVGl	GlVC / VGlC	Duration
p (439)	62.64%	20.27%	1.14%	1.14%	5.7%	1.59%	0.68%	6.15%	0.23%	0.46%	148 ms
n (71)	67.9%	32.1%									205 ms
nff (0)											
ff (71)	65.44%	1.23%	11.11%		7.41%	2.47%	1.23%	11.11%			343 ms

In summary, both contact varieties pattern together in showing a strong IP-final lengthening in yes-no questions, in contrast to Castilian Spanish, which does not exhibit such a durational marking. The IP-final lengthening appears more frequently and is stronger in Olivenza Portuguese than in Olivenza Spanish.

5.3.3 Wh-questions

The wh-questions segmented for the rhythmic analysis comprised both neutral and biased wh-questions (cf. Table 4.4 and Table 4.5 for the different types of wh-questions examined). The following number of IPs was analyzed: 37 IPs for Castilian Spanish (26 neutral and 11 biased

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[299] Absolute numbers are given in brackets.
[300] Cf. footnote 296 for the abbreviations used in the tables (i.e., “p”, “n”, “nff”, and “ff”).

wh-questions), 77 IPs for Olivenza Spanish (57 neutral and 20 biased wh-questions), and 67 IPs for Olivenza Portuguese (46 neutral and 21 biased wh-questions).

In Table 5.22, I present the absolute numbers of vocalic and consonantal intervals into which the material mentioned above was segmented and the mean scores for %V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI calculated on the basis of the data segmentation.

Table 5.22. Mean values[301] for %V, VarcoV, VarcoC, and the PVIs and absolute numbers of intervals for the wh-questions in Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port)

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Cast Spa	41.3	53.8	37.82	43.43	33.46	41.65	259	275
Oli Spa	49.47	64.14	41.12	54.05	34.63	43.84	564	553
Oli Port	52.37	69.25	45.13	54.35	45.25	47.03	512	502

According to the results depicted in Figure 5.53 (Panel A), Olivenza Spanish once again displays intermediate %V and VarcoV values between the ones for Castilian Spanish and Olivenza Portuguese. Furthermore, Olivenza Portuguese shows the highest proportion of vocalic material and the greatest durational variability of vocalic intervals. In Figure 5.53 (Panel B), Olivenza Portuguese and Olivenza Spanish pattern together in exhibiting almost the same VnPVI values, which are higher than the ones for Castilian Spanish. Finally, Olivenza Portuguese presents higher CrPVI, VarcoC, and CnPVI scores than Castilian Spanish and Olivenza Spanish, which in turn display similar durational variability of consonantal intervals (cf. Table 5.22 and Figure 5.53, Panel B).

The Bonferroni Test showed that statistically significant differences were found, first, between both contact varieties and Castilian Spanish for %V (Castilian Spanish vs. Olivenza Spanish ($p < 0.001$); Castilian Spanish vs. Olivenza Portuguese ($p < 0.001$)) and for VnPVI (Castilian Spanish vs. Olivenza Spanish ($p = 0.038$); Castilian Spanish vs. Olivenza Portuguese ($p = 0.032$)), and second, between Olivenza Portuguese and the Spanish varieties for CrPVI (Castilian Spanish vs. Olivenza Portuguese ($p = 0.028$); Olivenza Spanish vs. Olivenza Portuguese ($p = 0.014$)).

[301] Cf. the Appendix for the %V, VarcoV, VarcoC, and PVI scores obtained for each speaker.

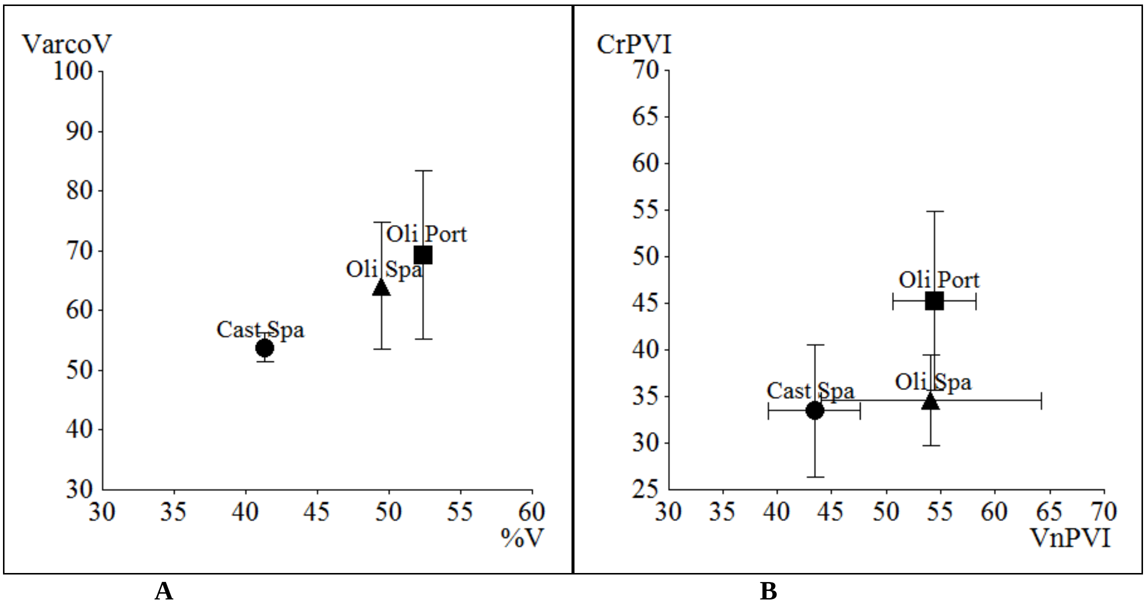


Figure 5.53. Panel A of the figure depicts the %V/VarcoV values and panel B the VnPVI/CrPVI values for the wh-questions for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean

According to the %V, VarcoV, and VnPVI scores for the wh-questions, the three varieties under investigation can be organized in the following hierarchy: Castilian Spanish < Olivenza Spanish ≤ Olivenza Portuguese. Similar to the yes-no questions, both contact varieties exhibit notably higher %V, VarcoV, and VnPVI values for the wh-questions than for the statements. However, the differences between the %V scores for Olivenza Spanish and the %V scores for Olivenza Portuguese are smaller for the wh-questions as compared to the differences between the %V values for Olivenza Spanish and the %V values for Olivenza Portuguese attested in the yes-no questions; the same holds for the VarcoV and the VnPVI scores (cf. Figure 5.49 and Figure 5.53). In addition, it is worth mentioning that Castilian Spanish displays slightly higher %V scores and greater VarcoV and VnPVI values for the wh-questions than for the statements. The question that arises is: how can these findings be explained? Two factors can be taken into account to motivate these differences and/or similarities: first, the strong IP-final lengthening used to mark questions in the contact varieties, and second, the considerable number of oxytones occurring in IP-final position in the wh-questions analyzed for the three varieties. The following observations seem to explain why the differences between the %V, VarcoV, and VnPVI scores for Olivenza Spanish and the %V, VarcoV, and VnPVI scores for Olivenza Portuguese are smaller for the wh-questions as compared to those attested for the yes-no questions: While almost all Olivenza Portuguese speakers realized information-seeking yes-no questions and exclamative yes-no questions with a strong lengthening of the IP-final syllables, few Olivenza Portuguese speakers lengthened the IP-final syllables in wh-questions to such an extent (cf. mean durations of IP-final syllables (ff) for the yes-no questions and the wh-questions for Olivenza Portuguese in Table 5.21 and Table 5.26). In Olivenza Spanish, some speakers considerably lengthened the IP-final syllables in both yes-no questions (cf. information-seeking yes-no questions and exclamative yes-no questions) and wh-questions (cf. information-seeking wh-questions and information-seeking wh-questions with a peripheral element), while others did not exhibit such a durational marking. However, it is noted that the IP-final lengthening was stronger in the yes-no questions than in the wh-questions in Olivenza Spanish (cf. mean durations of IP-final syllables (ff) for the yes-no questions and the wh-questions in Table 5.20 and Table 5.25). In addition, it should be mentioned that a large number of oxytones occurred in IP-final position in the wh-questions analyzed for both contact varieties (cf. Table 5.25 and Table 5.26 below). Thus, greater durational effects can be expected (cf. Pešková et al. 2012), since the nuclear and the final syllables coincide in these cases. When the IP-final syllables are excluded from the counting (cf. Table 5.23), the %V, VarcoV, and VnPVI scores for Olivenza Portuguese and Olivenza Spanish decrease, as in the case of the yes-no questions. However, the differences between the %V, VarcoV, and VnPVI scores computed with the IP-final syllables and the %V, VarcoV, and VnPVI scores computed without the IP-final syllables are not so large for the wh-questions as compared to the ones attested for the yes-no questions. This is due, first, to the fact that the IP-final lengthening was applied more frequently in the yes-no questions than in the wh-questions in Olivenza Portuguese, second, to the observation that the IP-final lengthening effects in the wh-questions were weaker than those in the yes-no questions for both varieties (cf. mean durations of IP-final syllables (ff) for the yes-no questions and the wh-questions for Olivenza Spanish in Table 5.20 and Table 5.25 and for Olivenza Portuguese in Table 5.21 and Table 5.26), and, third, to other possible factors which will be mentioned below. Regarding Castilian Spanish, it can be seen that both the VarcoV and the VnPVI scores for Castilian Spanish also decrease when the IP-final syllables are excluded from the analysis (cf. Table 5.23). This can be explained by referring to the fact that more than half of the IP-final syllables in the Castilian Spanish data were stressed syllables (i.e., syllables belonging to oxytone words that occurred in IP-final position; cf. Table 5.24). Consequently, both the slightly higher %V values and the higher VarcoV and VnPVI scores for the wh-questions (as compared to those for the statements) in Castilian Spanish and the decrease in the same values when the IP-final syllables are excluded from the analysis can be traced back to the presence of such a number of stressed IP-final syllables in the material analyzed.

Table 5.23. Mean values for %V, VarcoV, VarcoC, and the PVIs for the wh-questions **with** (non-shaded rows) and **without** IP-final syllables (shaded rows) in Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port)

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI
Cast Spa	41.3	53.8	37.82	43.43	33.46	41.65
Cast Spa	41.47	45.19	35.88	38.81	30.89	40.75
Oli Spa	49.47	64.14	41.12	54.05	34.63	43.84
Oli Spa	46.97	52.59	38.38	48.05	30.92	42.03
Oli Port	52.37	69.25	45.13	54.35	45.25	47.03
Oli Port	49.2	54.96	41.49	50.58	39.42	42.22

Even when the IP-final syllables are excluded from the analysis, the three varieties display differences. According to the ‘new’ %V, VarcoV, and VnPVI scores, the following hierarchy can be given: Castilian Spanish < Olivenza Spanish < Olivenza Portuguese. These differences are perhaps due to factors such as the presence/absence of phrase-final lengthening in inner ips, the presence/absence of lengthening of the nuclear syllables of IP-final ips, and the occurrence of long vocalic intervals resulting from syllable contact (e.g., $[\ldots V]_\sigma + [V\ldots]_\sigma$ = a longer vocalic interval). Both the lengthening of nuclear and/or phrase-final syllables and the clash of successive vowels can lead to higher %V, VarcoV, and VnPVI values.

As for the consonantal variability, when the IP-final syllables are excluded from the counting, Olivenza Portuguese displays higher VarcoC and CrPVI values than the Spanish varieties.

According to the results of the present section, the contact varieties Olivenza Portuguese and Olivenza Spanish mark wh-questions by notably lengthening the IP-final syllables, in contrast to Castilian Spanish, which does not exhibit similar durational marking. In addition, it is worth mentioning that first, the strong IP-final lengthening is applied more frequently in the yes-no questions than in the wh-questions in Olivenza Portuguese, and second, the wh-questions are characterized by a weaker IP-final lengthening than the yes-no questions in both Olivenza Portuguese and Olivenza Spanish. However, since other factors played a role in the analysis of the wh-questions (e.g., the high occurrence of oxytones), further research is required.

Table 5.24. Absolute numbers[302] and mean durations of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for the wh-questions for Castilian Spanish[303]

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	V	GlVC / VGlC	Duration
p (220)	66%	13%	3%	0.5%	3%	9%	2%	2%	1.5%	126 ms
n (17)	53%	17.5%		6%	6%	17.5%				168 ms
nff (20)	5%	80%	10%			5%				248 ms
ff (17)	70.5%			6%			6%	6%	11.5%	132 ms

Table 5.25. Absolute numbers and mean durations of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for the wh-questions for Olivenza Spanish

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V	GlVC / VGlC	Duration
p (473)	63%	9.94%	1.48%	1.48%	2.75%	7.82%	2.11%		10.57%	0.85%	118 ms
n (43)	58.13%	11.62%		2.33%	2.33%	20.93%		2.33%	2.33%		185 ms
nff (34)	29.41%	50%			8.83%	2.94%	2.94%		5.88%		267 ms
ff (43)	81.39%	4.65%	2.33%	2.33%			2.33%			6.97%	220 ms

Table 5.26. Absolute numbers and mean durations of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for the wh-questions for Olivenza Portuguese

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V	CCGlV / CCVGl	GlVC / VGlC	Duration
p (414)	61.35%	11.84%	0.48%	1.93%	5.31%	6.04%	2.66%		9.91%		0.48%	147 ms
n (46)	71.74%	13.04%		6.52%					8.70%			227 ms
nff (21)	23.81%	19.05%		4.76%	33.34%	9.52%		9.52%				400 ms
ff (46)	84.78%	6.53%			2.17%				4.35%	2.17%		225 ms

5.3.4 Echo questions

As shown in Table 4.4 and Table 4.5, the echo questions segmented for the rhythmic analysis comprised both echo yes-no questions and echo wh-questions. The following number of IPs was analyzed: 17 IPs for Castilian Spanish, 32 IPs for Olivenza Spanish, and 33 IPs for Olivenza Portuguese.

In Table 5.27, I present the absolute numbers of vocalic and consonantal intervals into which the echo questions were segmented and the mean scores for %V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI calculated on the basis of the data segmentation.

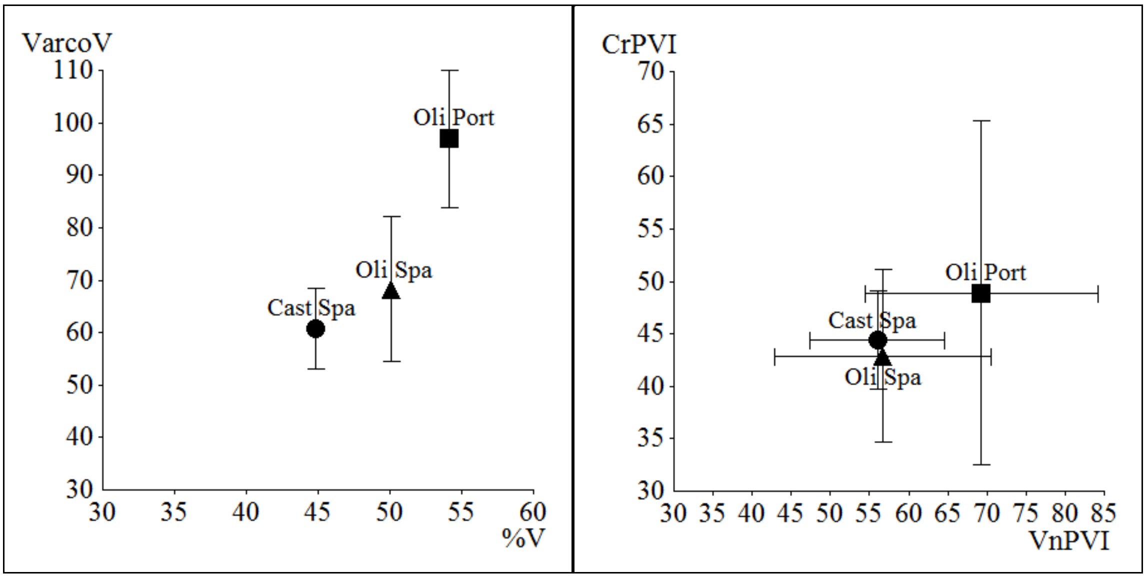
[302] Absolute numbers are given in brackets.
[303] Cf. footnote 296 for the abbreviations used in the tables (i.e., “p”, “n”, “nff”, and “ff”).

Table 5.27. Mean values[304] for %V, VarcoV, VarcoC, and the PVIs and absolute numbers of intervals for the echo questions in Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port)

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Cast Spa	44.79	60.69	48.21	55.95	44.36	51.77	99	97
Oli Spa	50.08	68.27	48.44	56.66	42.94	54.45	204	202
Oli Port	54.14	96.98	42.66	69.3	48.86	48.53	214	208

In Figure 5.54 (Panel A), Olivenza Spanish once again shows intermediate %V and VarcoV scores situated between those for Castilian Spanish and Olivenza Portuguese. Furthermore, Olivenza Portuguese displays the highest proportion of vocalic material and the greatest durational variability of vocalic intervals. In Figure 5.54 (Panel B), the two Spanish varieties exhibit similar VnPVI values, while Olivenza Portuguese once more presents the highest durational variability of vocalic intervals. Regarding the consonantal variability (cf. Table 5.27 and Figure 5.54, Panel B), Castilian Spanish and Olivenza Spanish display higher VarcoC and CnPVI scores and lower CrPVI values than Olivenza Portuguese.

The Bonferroni Test showed that statistically significant differences were found, first, between Olivenza Portuguese and Castilian Spanish for %V ($p = 0.011$), and second, between Olivenza Portuguese and both Spanish varieties for VarcoV (Olivenza Portuguese vs. Castilian Spanish ($p < 0.001$); Olivenza Portuguese vs. Olivenza Spanish ($p < 0.001$)).



A B

Figure 5.54. Panel A of the figure depicts the %V/VarcoV values and panel B the VnPVI/CrPVI values for the echo questions for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean

[304] Cf. the Appendix for the %V, VarcoV, VarcoC, and PVI scores obtained for each speaker.

According to the results presented above, the %V and VarcoV values provide a different distribution of the three varieties as compared to the VnPVI scores. Concerning the %V and VarcoV values, the following hierarchy can be given: Castilian Spanish < Olivenza Spanish < Olivenza Portuguese. As for the VnPVI scores, the three varieties are organized as follows: Castilian Spanish ≈ Olivenza Spanish < Olivenza Portuguese. In both contact varieties, the echo questions pattern with the yes-no questions and the wh-questions in displaying considerably higher %V, VarcoV, and VnPVI scores than the statements. Castilian Spanish also exhibits a higher proportion of vocalic material and a greater durational variability of vocalic intervals for the echo questions than for the statements. How can these findings be explained? Which lengthening effects are responsible for these results? In the data analyzed, the following phenomena which lead to long vocalic intervals and thus to higher %V, VarcoV, and VnPVI values come together: First, a considerable lengthening of the IP-final syllables is attested in the echo questions for both Olivenza Portuguese and Olivenza Spanish[305]. Second, a large number of oxytones appears in IP-final position in the echo questions analyzed for the three varieties under investigation (cf. Table 5.29, Table 5.30, and Table 5.31 below)[306]. Third, vowel clusters resulting from syllable contact (e.g., $[\ldots V]_\sigma+[V\ldots]_\sigma$) occur in the three varieties with a different frequency. Thus, the notably high %V, VarcoV, and VnPVI values obtained for the contact varieties can be attributed to all three phenomena mentioned above. However, the strong IP-final lengthening used to mark questions in Olivenza Portuguese and Olivenza Spanish seems to be the most important one. In contrast, the notably high %V, VarcoV, and VnPVI values obtained for Castilian Spanish are due to the last two phenomena (i.e., the occurrence of oxytones in IP-final position and the high amount of vowel clusters resulting from syllable contact). When the IP-final syllables are excluded from the counting (cf. Table 5.28 and Figure 5.55), the %V, VarcoV, and VnPVI scores for the contact varieties strongly decrease (cf. %V: 54.14 → 45.69; VarcoV: 96.98 → 66.08; VnPVI: 69.3 → 53.86 for Olivenza Portuguese and %V: 50.08 → 41.71; VarcoV: 68.27 → 43.7; VnPVI: 56.66 → 43.15 for Olivenza Spanish), in contrast to those for Castilian Spanish (%V: 44.79 → 40.53; VarcoV: 60.69 → 57.23; VnPVI: 55.95 → 52.93). This confirms the assumption that the strong IP-final lengthening is the main factor responsible for the notably high %V, VarcoV, and VnPVI scores for the echo questions for Olivenza Portuguese and Olivenza Spanish. As seen in Table 5.29, Table 5.30, and Table 5.31, the IP-final syllables are considerably longer

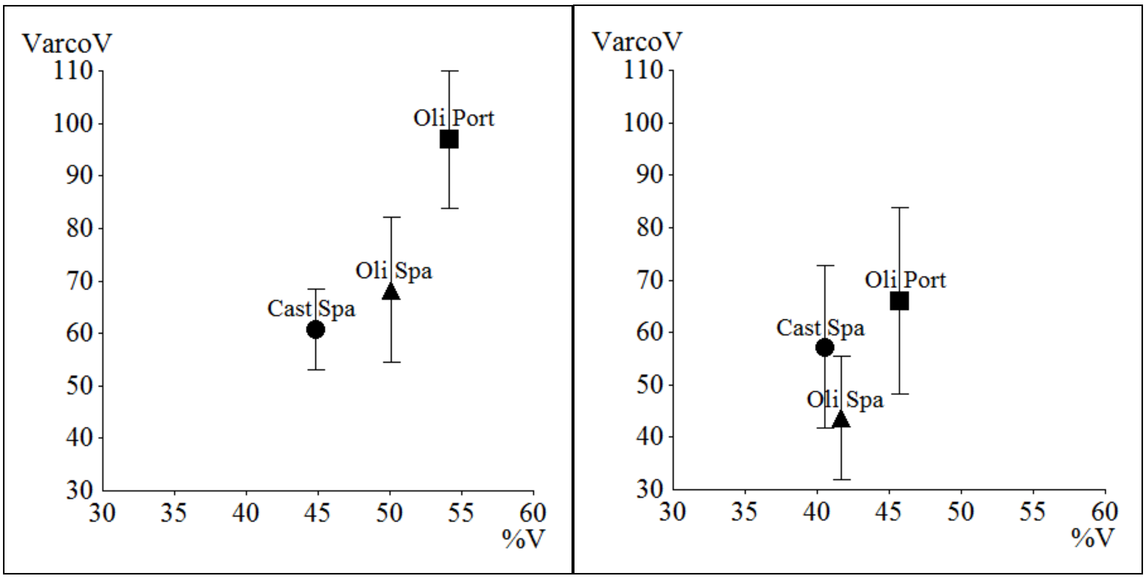
[305] As seen in Section 5.1.7, the !HL% boundary tone, which is always realized on notably lengthened IP-final syllables, was produced in the echo questions in both Olivenza Portuguese and Olivenza Spanish.

[306] As mentioned in the previous two sections, stressed IP-final syllables (i.e., syllables belonging to oxytone words in IP-final position) usually display a stronger lengthening than unstressed IP-final syllables, since the nuclear and the final syllables coincide in the former.

in the contact varieties than in Castilian Spanish (cf. the mean durations of the ff-syllables). Since the considerable lengthening of the IP-final syllables occurs more commonly in the Olivenza Portuguese data than in the Olivenza Spanish material and it is stronger in the former variety, Olivenza Portuguese displays higher %V, VarcoV, and VnPVI scores than Olivenza Spanish (cf. also the mean durations of IP-final syllables (ff) for Olivenza Portuguese and Olivenza Spanish in Table 5.30 and Table 5.31). Finally, the fact that the VarcoV and the VnPVI values for Castilian Spanish remain largely unchanged when the IP-final syllables are excluded from the counting corroborates the suggestion that more than one factor is responsible for the high proportion of vocalic material and the great durational variability of vocalic intervals obtained for the echo questions in Castilian Spanish. Even when the IP-final syllables (including the stressed ones belonging to the oxytones in IP-final position) are excluded from the analysis, the VarcoV and the VnPVI values for Castilian Spanish remain high (cf. Table 5.28 and Figure 5.55), since the IP-internal vowel clusters (resulting from syllable contact; e.g., $[\ldots V]_{\sigma}+[V\ldots]_{\sigma}$) are still present.

Table 5.28. Mean values for %V, VarcoV, VarcoC, and the PVIs for the echo questions **with** (non-shaded rows) and **without** IP-final syllables (shaded rows) in Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port)

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI
Cast Spa	44.79	60.69	48.21	55.95	44.36	51.77
Cast Spa	40.53	57.23	48.57	52.93	49.49	55.45
Oli Spa	50.08	68.27	48.44	56.66	42.94	54.45
Oli Spa	41.71	43.7	44.67	43.15	45.06	54.65
Oli Port	54.14	96.98	42.66	69.3	48.86	48.53
Oli Port	45.69	66.08	42.01	53.86	44.59	47.68



A **B**

Figure 5.55. Panel A of the figure depicts the %V/VarcoV values for the echo questions **with** IP-final syllables and panel B the %V/VarcoV values for the echo questions **without** IP-final syllables for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean

As for the consonantal variability, when the IP-final syllables are excluded from the counting, Castilian Spanish exhibits the highest VarcoC, CrPVI, and CnPVI values.

It is worth mentioning that the echo yes-no questions and the echo wh-questions were analyzed together in the same group, since they show similar rhythmic properties in the contact varieties (i.e., a strong IP-final lengthening is found in both question types; cf. Section 5.1.7.1 and Section 5.1.7.2 for their tonal realization).

The results of the present section have revealed that both Olivenza Portuguese and Olivenza Spanish mark echo questions by notably lengthening the IP-final syllables, in contrast to Castilian Spanish, which does not use such a durational marking. In addition, it should be added that the IP-final lengthening occurs more frequently and is stronger in Olivenza Portuguese than in Olivenza Spanish.

Table 5.29. Absolute numbers[307] and mean durations of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for the echo questions for Castilian Spanish[308]

	CV	CVC	VC	CGlV / CVGl	CGlVC / CVGlC	CCVC	V	CCGlV / CCVGl	Duration
p (71)	52.11%	19.72%	8.45%	9.86%	4.22%	1.41%	2.82%	1.41%	129 ms
n (10)		50%		30%			20%		209 ms
nff (7)	14.29%			71.42%	14.29%				241 ms
ff (10)	100%								148 ms

Table 5.30. Absolute numbers and mean durations of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for the echo questions for Olivenza Spanish

	CV	CVC	VC	CCV	CGlV / CVGl	GlV / VGl	V	CCGlV / CCVGl	GlVC / VGlC	Duration
p (172)	58.72%	25.58%	4.65%	2.33%	2.91%	0.58%	4.07%	0.58%	0.58%	127 ms
n (19)	10.53%	52.63%			31.58%		5.26%			225 ms
nff (13)	15.38%				84.62%					243 ms
ff (19)	94.74%				5.26%					242 ms

Table 5.31. Absolute numbers and mean durations of prenuclear syllables, nuclear syllables, and phrase-final syllables, and percentage of syllable structure types for the echo questions for Olivenza Portuguese

	CV	CVC	VC	CCV	CGlV / CVGl	GlV / VGl	V	CCGlV / CCVGl	Duration
p (160)	65.62%	22.5%	1.25%	0.63%	1.25%	1.25%	7.5%		148 ms
n (23)	73.91%	26.09%							206 ms
nff (10)	10%	10%		30%	30%	10%		10%	437 ms
ff (23)	86.95%	4.35%			4.35%	4.35%			401 ms

5.3.5 Imperatives

The imperatives analyzed for the three varieties under investigation comprised both commands and requests (cf. Table 4.4 and Table 4.5). Their number amounted to 20 IPs for Castilian Spanish (7 commands and 13 requests), 42 IPs for Olivenza Spanish (18 commands and 24 requests), and 36 IPs for Olivenza Portuguese (19 commands and 17 requests).

Table 5.32 presents the absolute numbers of vocalic and consonantal intervals into which the imperatives were segmented and the mean scores for %V, VarcoV, VarcoC, VnPVI, CrPVI, and CnPVI calculated on the basis of the data segmentation.

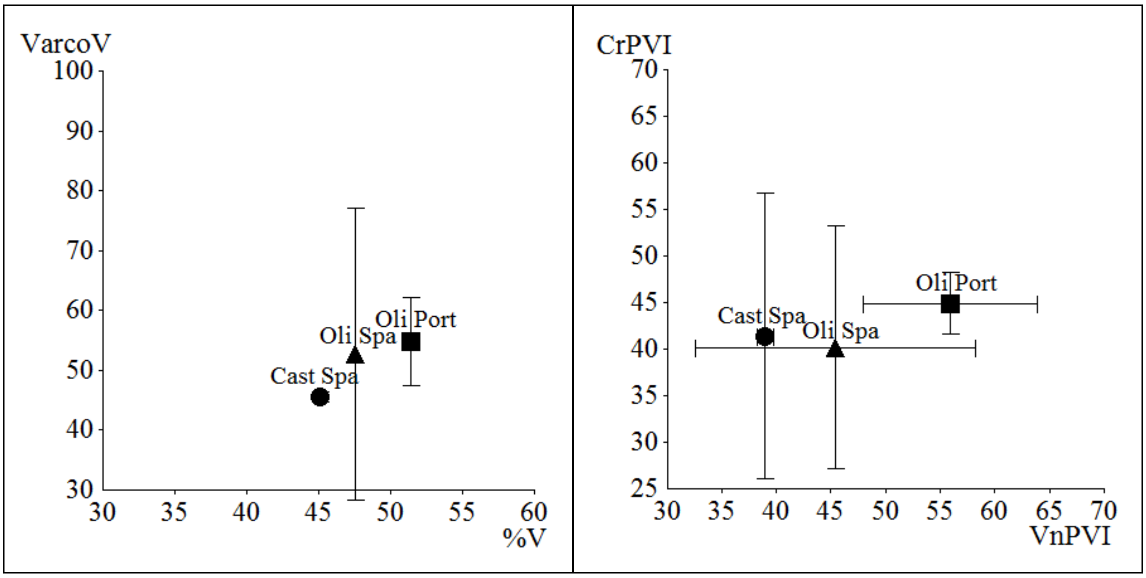
[307] Absolute numbers are given in brackets.
[308] Cf. footnote 296 for the abbreviations used in the tables (i.e., “p”, “n”, “nff”, and “ff”).

Table 5.32. Mean values[309] for %V, VarcoV, VarcoC, and the PVIs and absolute numbers of intervals for the imperatives in Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port)

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Cast Spa	45.13	45.52	35.94	38.95	41.42	47.99	76	76
Oli Spa	47.47	52.67	37.72	45.44	40.24	46.81	167	166
Oli Port	51.41	54.76	36.48	55.85	44.93	43.11	174	167

As can be seen in Figure 5.56 (Panel A and Panel B), Olivenza Spanish exhibits intermediate %V, VarcoV, and VnPVI values situated between those for Castilian Spanish and Olivenza Portuguese. Regarding the VarcoC, CrPVI, and CnPVI scores, the three varieties present similar durational variability of consonantal intervals (cf. Table 5.32 and Figure 5.56, Panel B).

The Bonferroni Test showed that statistically significant differences were found only between Olivenza Portuguese and Castilian Spanish for VnPVI ($p = 0.024$).



A **B**

Figure 5.56. Panel A of the figure depicts the %V/VarcoV values and panel B the VnPVI/CrPVI values for the imperatives for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean

According to the %V, VarcoV, and VnPVI scores, the three varieties can be organized in the following hierarchy: Castilian Spanish < Olivenza Spanish < Olivenza Portuguese. The higher or lower %V, VarcoV, and VnPVI values obtained for the imperatives seem to correlate with the stronger or less strong lengthening of nuclear and phrase-final syllables in each variety: First, the strongest lengthening effects are observed in Olivenza Portuguese. This possibly explains why it

[309] Cf. the Appendix for the %V, VarcoV, VarcoC, and PVI scores obtained for each speaker.

exhibits the highest proportion of vocalic material and the greatest durational variability of vocalic intervals. Second, an additional factor which may play a role in the higher %V, VarcoV, and VnPVI scores for the contact varieties as compared to those for Castilian Spanish is the occurrence of a larger number of oxytones in IP-final position[310] in both Olivenza Portuguese and Olivenza Spanish (cf. Table 5.33, Table 5.34, and Table 5.35).

Contrasting the %V, VarcoV, and VnPVI values for the imperatives with the ones for the statements, it can be seen that the three varieties show a higher proportion of vocalic material and a greater durational variability of vocalic intervals for the imperatives than for the statements (though to a different extent: the differences are greater in Olivenza Portuguese and Olivenza Spanish than in Castilian Spanish).

Table 5.33. Absolute numbers of syllables[311] and percentage of syllable structure types occurring in the imperatives for Castilian Spanish[312]

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	V
p (45)	46.67%	31.11%	2.22%	8.9%	2.22%		4.44%	4.44%
n (17)	52.94%	29.42%	11.76%			5.88%		
nff (3)	66.67%	33.33%						
ff (17)	76.48%	5.88%			5.88%		11.76%	

Table 5.34. Absolute numbers of syllables and percentage of syllable structure types occurring in the imperatives for Olivenza Spanish

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	V
p (100)	65%	24%			8%			3%
n (30)	43.33%	26.67%	6.67%		13.33%	6.67%		3.33%
nff (12)	50%	16.67%					16.67%	16.66%
ff (30)	96.67%			3.33%				

[310] As mentioned in the previous sections, stressed IP-final syllables (i.e., syllables which belong to oxytone words in IP-final position) usually show a stronger lengthening than unstressed IP-final syllables, since the nuclear and the final syllables coincide in the former.
[311] Absolute numbers are given in brackets.
[312] Cf. footnote 296 for the abbreviations used in the tables (i.e., “p”, “n”, “nff”, and “ff”).

Table 5.35. Absolute numbers of syllables and percentage of syllable structure types occurring in the imperatives for Olivenza Portuguese

	CV	CVC	VC	CCV	CGlV / CVGl	CGlVC / CVGlC	GlV / VGl	CCVC	V
p (110)	56.36%	23.64%	5.45%	1.82%	6.36%		0.91%	1.82%	3.64%
n (28)	75%		3.57%	3.57%					17.86%
nff (8)	50%					12.5%	25%		12.5%
ff (28)	92.86%	3.57%					3.57%		

When the commands and the requests are considered separately, the following distribution of the varieties studied can be observed: For the commands, the three varieties show almost the same scores for %V and VarcoV (cf. Figure 5.57, Panel A). For the requests, Olivenza Spanish displays intermediate %V values between those for Castilian Spanish and Olivenza Portuguese. Furthermore, both contact varieties pattern together in exhibiting higher VarcoV scores than Castilian Spanish (cf. Figure 5.57, Panel B).

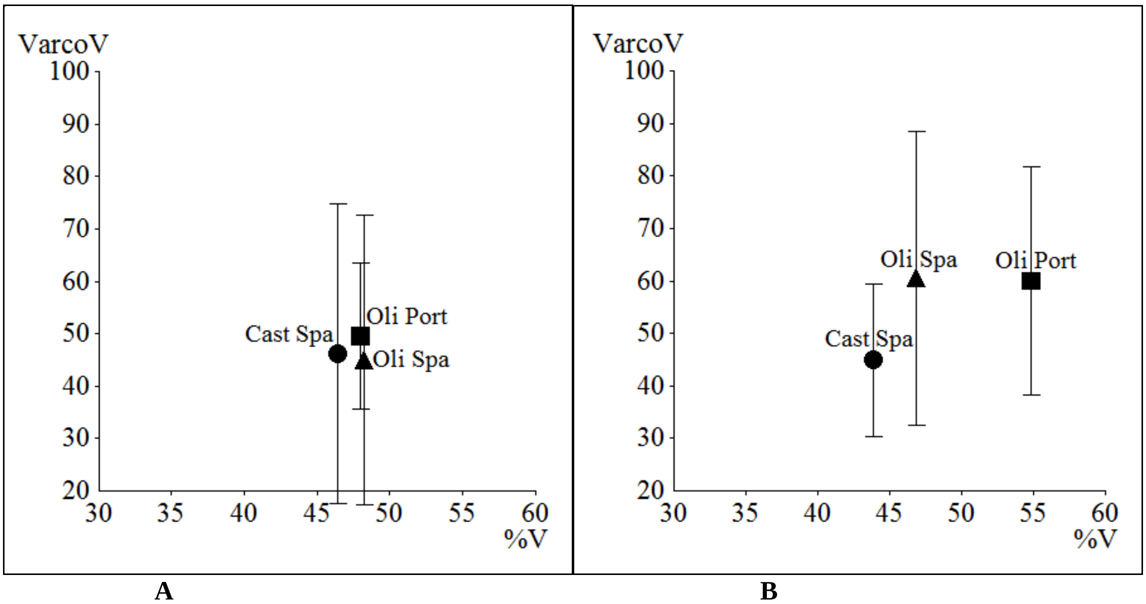


Figure 5.57. Panel A of the figure depicts the %V/VarcoV values for the commands and panel B the %V/VarcoV values for the requests for Castilian Spanish (Cast Spa), Olivenza Spanish (Oli Spa), and Olivenza Portuguese (Oli Port). The error bars represent the standard deviation around the mean

In summary, the results of this section suggest that the three varieties under investigation exhibit similar rhythm patterns for imperatives (the similarities being greater for commands than for requests). The higher or lower proportion of vocalic material and the greater or lower durational variability of vocalic intervals seem to depend on the degree of lengthening of nuclear and phrase-final syllables which each variety shows.

CHAPTER 6

Discussion

The major goal of the present study is to describe the intonation and the speech rhythm of Olivenza Portuguese spoken by bilingual speakers and Olivenza Spanish spoken by monolingual speakers. A further aim is to give answers to the following research questions:

1. How similar are the prosodic systems of Olivenza Portuguese spoken by bilinguals and Olivenza Spanish spoken by monolinguals?
2. What are the prosodic differences and similarities between Olivenza Portuguese and Standard European Portuguese?
3. What are the prosodic differences and similarities between Olivenza Spanish and Castilian Spanish?
4. How can the prosodic similarities and/or differences between the Olivenza Portuguese and the Olivenza Spanish prosodic systems be explained in terms of language contact?
5. How does prosodic change work?
6. Which kinds of prosodic features are usually transferred? Which kinds of prosodic features are more sensitive to convergence?

In the course of this chapter, I will attempt to answer these research questions: In Section 6.1, I summarize the similarities and differences between the prosodic systems of Olivenza Portuguese spoken by bilinguals and Olivenza Spanish spoken by monolinguals. Section 6.2 is devoted to the comparison between the prosodic systems of Olivenza Portuguese, Standard European Portuguese, Olivenza Spanish, and Castilian Spanish. In Section 6.3, on the basis of the comparison between the contact varieties and the standard varieties, I try to detect the traces of substratum transfer and convergence processes that may have occurred during the development of the contact varieties under discussion and are reflected in their current prosodic systems. Section 6.4 deals with the question of how in general prosodic change works. Finally, Section 6.5 provides the reader with the answers to the question 6 presented above.

6.1 Similarities and differences between the prosodic systems of Olivenza Portuguese and Olivenza Spanish

The results of the intonational and the rhythmic analyses have revealed that the current varieties of Olivenza Portuguese spoken by bilinguals and Olivenza Spanish spoken by monolinguals share numerous prosodic features and show few differences. In what follows, I briefly outline these prosodic similarities and differences.

Similarities between the prosodic systems of Olivenza Portuguese and Olivenza Spanish:

- Both the prosodic phrasing patterns (SVO) and (S)(VO) are attested in the neutral SVO declarative sentences analyzed for Olivenza Portuguese and Olivenza Spanish ((SVO) being the most common in Olivenza Portuguese and (S)(VO) in Olivenza Spanish).
- The nuclear configurations of inner ips L+H* H- and L+H* !H- occur with a similar frequency in the neutral SVO declarative sentences in both varieties (L+H* H- being the most frequent one in both varieties).
- The underlying nuclear configuration of inner ips, which is assumed to express incompleteness of the discourse, is L+H* H- in the neutral SVO declarative sentences analyzed for both varieties.
- The ip boundaries and the IP boundaries in the neutral SVO declarative sentences seem not to be far apart in prosodic strength in both Olivenza Portuguese and Olivenza Spanish.
- The presence of pauses after inner ips in the neutral SVO declarative sentences leads to a stronger ip-final lengthening in both varieties.
- The L+>H* pitch accent has been established as an underlying prenuclear accent in statements in both varieties.
- The H+L* prenuclear accent has been analyzed as a phonetic realization of the underlying L+>H* prenuclear accent in statements in both varieties.
- There is quite low tonal density in different sentence types in both varieties (the deaccentuation of phrase-internal prosodic words being more frequent in Olivenza Spanish than in Olivenza Portuguese).
- The nuclear accents H+L* and L* (attested in numerous nuclear configurations of IPs) are used to signal neutral/broad focus readings in both varieties.
- The L+(¡)H* nuclear accent (attested in numerous nuclear configurations of IPs) is used to signal focus/emphasis in both varieties.

- The underlying L* nuclear accent is phonetically realized as L* or H+L* in information-seeking yes-no questions in both varieties.
- The underlying !HL% boundary tone is phonetically realized as L% in information-seeking yes-no questions and as !H% in exclamative yes-no questions (with counterexpectational meaning) and exclamative echo yes-no questions (with counterexpectational meaning) in both varieties.
- The underlying H+L* L% nuclear configuration is phonetically realized as L* L% in information-seeking wh-questions in both varieties.
- The following underlying nuclear configurations of IPs have been established for both varieties:
  - L* L% for neutral SVO declarative sentences
  - L+H* L% for contrastive focus statements
  - L+¡H* L% for exclamative statements
  - L* !HL% and L* H% for information-seeking yes-no questions
  - H+L* L% for neutral disjunctive questions
  - H+L* L% for neutral interrogative enumerations
  - L+H* !HL% for exclamative yes-no questions (with counterexpectational meaning)
  - L+H* H% for confirmation-seeking yes-no questions
  - H+L* L% and L* H% for information-seeking wh-questions
  - L+¡H* L% for exclamative wh-questions
  - H+L* L% and L* H% for imperative wh-questions
  - L+H* !HL% for exclamative echo yes-no questions (with counterexpectational meaning)
  - H+L* L% and L+H* L% for commands
- In both varieties, speakers make use of the nuclear configurations of yes-no questions to mark echo yes-no questions.
- In both varieties, speakers make use of the nuclear configurations of wh-questions and yes-no questions to mark echo wh-questions.
- A phonological IP-final lengthening is used to mark interrogativity and thus to convey sentence modality contrasts in both varieties (use of a strong IP-final lengthening in yes-no questions and wh-questions, in contrast to statements).
- Vowel reduction is present in both varieties.
- Both varieties show similar rhythmic properties (first, Olivenza Portuguese and Olivenza Spanish display a higher proportion of vocalic material and a greater durational variability of vocalic intervals for interrogatives than Castilian Spanish, and second, Olivenza Portuguese and

Olivenza Spanish exhibit a similar durational variability of consonantal intervals across sentence types).

– The contact varieties and Castilian Spanish show far more similar rhythmic properties for declaratives and imperatives than for interrogatives.

Differences between the prosodic systems of Olivenza Portuguese and Olivenza Spanish:

– The L+H* prenuclear accent is used in Olivenza Portuguese.
– The L*+H prenuclear accent is used in Olivenza Spanish.
– There is a preference for the nuclear configuration of inner ips L+H* H- in neutral disjunctive questions and neutral interrogative enumerations in Olivenza Spanish.
– H+L* L% has been established as an underlying nuclear configuration of IPs for the neutral SVO declarative sentences in Olivenza Portuguese.
– L+H* L% has been established as the underlying nuclear configuration of IPs for the contradiction statements in Olivenza Portuguese.
– L+H* HL% has been established as the underlying nuclear configuration of IPs for the contradiction statements in Olivenza Spanish.
– L* L% has been established as an underlying nuclear configuration of IPs for the neutral disjunctive questions in Olivenza Spanish.
– L+¡H* L% has been established as an underlying nuclear configuration of IPs for the exclamative yes-no questions (with counterexpectational meaning) in Olivenza Spanish.
– L+H* H% has been established as an underlying nuclear configuration of IPs for the exclamative echo yes-no questions (with counterexpectational meaning) in Olivenza Spanish.
– L+H* HL% has been established as the underlying nuclear configuration of IPs for the requests in Olivenza Portuguese.
– L* HL% has been established as the underlying nuclear configuration of IPs for the requests in Olivenza Spanish.

6.2 Prosodic distance between Olivenza Portuguese and Standard European Portuguese and between Olivenza Spanish and Castilian Spanish

The comparison between the prosodic features of Olivenza Portuguese and Standard European Portuguese has revealed that these two Portuguese varieties display more differences than similarities: as shown in Table 6.1, they differ with respect to the realization of, first, prenuclear accents (L+>H* and L+H* in Olivenza Portuguese vs. H* and L*+H in Standard European Portuguese) (cf. Frota 2003, 2014 for Standard European Portuguese), second, the nuclear accents used to signal focus/emphasis in statements and yes-no questions (L+(¡)H* in statements and yes-no questions in Olivenza Portuguese vs. H*+L in statements and L*+H in yes-no questions in Standard European Portuguese) (cf. Frota 2014; Frota et al. 2015 for Standard European Portuguese), and third, the nuclear configuration in various sentence types (e.g., L* !HL% in information-seeking yes-no questions in Olivenza Portuguese vs. H+L* LH% in Standard European Portuguese) (cf. Frota 2014; Frota et al. 2015 for Standard European Portuguese). Furthermore, Olivenza Portuguese exhibits a lower percentage of deaccented phrase-internal prosodic words than Standard European Portuguese (53% in Olivenza Portuguese vs. 83% in Standard European Portuguese) (cf. Frota et al. 2015 for Standard European Portuguese). The similarities between Olivenza Portuguese and Standard European Portuguese, depicted in Table 6.1, concern the phrasing patterns of neutral declaratives and the realization of the nuclear configuration in both neutral declaratives (i.e., broad focus statements) (H+L* L%) and information-seeking wh-questions (H+L* L%) (cf. Frota 2002b; Elordieta et al. 2003; D'Imperio et al. 2005; Elordieta et al. 2005; Frota & Vigário 2007; Frota 2014; Frota et al. 2015 for Standard European Portuguese). Considering the results of the rhythmic analysis presented in Section 5.3 and the description of the speech rhythm of Standard European Portuguese provided in the studies of Frota & Vigário (2001), Vigário et al. (2003), and Cruz & Frota (2013), it can be noted that Olivenza Portuguese seems to differ from Standard European Portuguese in that first, vowel reduction is seldom accompanied by a strong durational reduction in Olivenza Portuguese, and second, deletion of unstressed vowels rarely occurs in the Portuguese variety spoken in Olivenza. One of the most striking differences between these Portuguese varieties is the use of a strong IP-final lengthening to mark interrogativity and thus to convey sentence modality contrasts in Olivenza Portuguese, in contrast to Standard European Portuguese, which does not show a similar durational marking (cf. Frota 2002b, 2003; Elordieta et al. 2003; D'Imperio et al. 2005; Elordieta et al. 2005; Frota & Vigário 2007; Frota 2014; Frota et al. 2015, among others for Standard European Portuguese).

The comparison between Olivenza Spanish and Castilian Spanish shows that these two Spanish varieties share numerous prosodic features. As seen in Table 6.1 and Table 6.2, they display many similarities concerning both the intonation and the speech rhythm of statements: regarding intonation, consider, first, phrasing patterns of neutral declaratives (cf. Elordieta et al. 2003; D'Imperio et al. 2005; Elordieta et al. 2005 for Castilian Spanish), second, the use of the L+>H* prenuclear accent (cf. Estebas-Vilaplana & Prieto 2010; Hualde & Prieto 2015 for Castilian Spanish), third, the use of the L+(¡)H* nuclear accent to signal focus/emphasis (cf. Estebas-

Vilaplana & Prieto 2010; Hualde & Prieto 2015 for Castilian Spanish), and fourth, the use of nuclear configurations of IPs (e.g., L* L% in neutral declaratives (i.e., broad focus statements) and L+H* L% in contrastive focus statements) (cf. Estebas-Vilaplana & Prieto 2010; Hualde & Prieto 2015 for Castilian Spanish); regarding speech rhythm, both varieties display a similar durational variability of consonantal intervals (cf. also Section 5.3). Taking into account the realization of interrogatives and imperatives (cf. Table 6.1 and Table 6.2), it can be said that the Olivenza Spanish prosodic system represents a mixed system characterized by intonational and rhythmic patterns typical of both Olivenza Portuguese and Castilian Spanish: in regard to intonation, consider for instance the nuclear configurations of information-seeking yes-no questions, disjunctive questions, exclamative echo yes-no questions (with counterexpectational meaning), information-seeking wh-questions, and commands (cf. Estebas-Vilaplana & Prieto 2010; Robles-Puente 2011; Hualde & Prieto 2015 for Castilian Spanish); as for speech rhythm, as shown in Section 5.3, Olivenza Spanish exhibits intermediate %V and VarcoV values situated between those for Castilian Spanish and those for Olivenza Portuguese for yes-no questions, wh-questions, echo questions, and imperatives. Regarding deaccentuation in statements, Olivenza Spanish shows a higher percentage of deaccented phrase-internal prosodic words than Castilian Spanish (56% in Olivenza Spanish vs. ca. 30% in Castilian Spanish) (cf. Face 2003 for Castilian Spanish). The most striking difference between these two Spanish varieties is the strong IP-final lengthening used to mark interrogativity and to convey sentence modality contrasts in Olivenza Spanish, which is absent in Castilian Spanish (cf. Estebas-Vilaplana & Prieto 2008, 2010; Gabriel & Kireva 2014a; Hualde & Prieto 2015, among others for Castilian Spanish).

Considering the comparison between Olivenza Portuguese, Standard European Portuguese, Olivenza Spanish, and Castilian Spanish made in this section, it can be noted that the contact varieties show more ‘Castilian Spanish’ prosodic features than ‘Standard European Portuguese’ ones.

Table 6.1. Intonational distance between Olivenza Portuguese, Standard European Portuguese, Olivenza Spanish, and Castilian Spanish

	Olivenza Portuguese	Standard European Portuguese	Olivenza Spanish	Castilian Spanish
prosodic phrasing of neutral SVO declarative sentences[313]	(SVO) / (S)(VO) (with a clear preference for (SVO))	(SVO)	(SVO) / (S)(VO) (with a slight preference for (S)(VO))	(S)(VO)
prenuclear accents in neutral statements	L+>H* / L+H* (L+>H* being the most frequent one)	$\left.\begin{array}{l}\mathrm{H}^*\\ \mathrm{L}^*\mathrm{+H}\\ \%\mathrm{H}\\ \mathrm{H}\end{array}\right\}\boxed{\mathrm{(H)}}$	L+>H* / L*+H (L+>H* being the most frequent one)	L+>H*
percentage of deaccented (phrase-internal)[314] prosodic words in (neutral) statements	53%	83%	56%	ca. 30%
prenuclear accents in yes-no questions	L+>H* / L+H*	(H)	L+>H* / L*+H	L*+H
prenuclear accents in wh-questions	L+>H* / L+H*	(H)	L+>H* / L*+H	L+>H* / H*
focus/emphasis marker in statements	L+(¡)H* ([H*+L]</L+(¡)H*/)[315]	H*+L	L+(¡)H*	L+H*
focus/emphasis marker in yes-no questions	L+H*	L*+H	L+(¡)H*	L+H* (?)
nuclear configuration of broad focus statements	H+L* L% L* L%	H+L* L%	L* L%	L* L%

[313] The comparison between the phrasing patterns of both contact varieties and those of Castilian Spanish and Standard European Portuguese should be treated with caution, since different methodologies were used in the present study (cf. Chapter 4) and in the studies of Elordieta et al. (2003), D'Imperio et al. (2005), Elordieta et al. (2005), and Frota & Vigário (2007). While the present work investigates semi-spontaneous speech (cf. Section 4.2 and Section 4.3.1 for a description of both the material analyzed and the methodology applied), the studies mentioned above considered read data only. The neutral SVO declaratives analyzed for Olivenza Portuguese and Olivenza Spanish contain both given and new information, in contrast to the data examined by the aforementioned studies, which comprise broad focus statements consisting of new information. However, the study of Pešková et al. (2011) has shown that the same phrasing patterns can be found when analyzing declaratives with different information structures.

[314] In the present work, a percentage of deaccented phrase-internal prosodic words is calculated. In the study of Face (2003: 122), which shows that "approximately 30% of accentable words lack a pitch accent" in the Castilian Spanish data examined, it is not specified whether this percentage includes only phrase-internal prosodic words.

[315] The H*+L pitch accent appears with a very low frequency in the data analyzed for Olivenza Portuguese. For this reason, it is interpreted as a surface realization of the underlying /L+(¡)H*/ pitch accent (cf. Section 5.1.2.2, Section 5.1.2.3, and Section 5.2.3).

(neutral SVO declaratives)[316]				
nuclear configuration of contrastive focus statements	L+H* L%	H*+L L%	L+H* L%	L+H* L% L* HL%
nuclear configuration of exclamative statements	L+¡H* L%	-	L+¡H* L%	L+H* L%
nuclear configuration of contradiction statements	L+H* L%	-	L+H* HL%	L* HL%
nuclear configuration of information-seeking yes-no questions	L* !HL% L* H%	H+L* LH%	L* !HL% L* H%	L* HH%[317]
nuclear configuration of disjunctive questions	L+H* H- / L+H* !H- H+L* L%	-	L+H* H- H+L* L% L* L%	L+H* HH- L* L%
nuclear configuration of confirmation-seeking yes-no questions	L+H* H%	H+L* LH%	L+H* H%	H+L* L% L* H%
nuclear configuration of exclamative echo yes-no questions (with counterexpectational meaning)	L+H* !HL%	L*+H HL%	L+H* !HL% L+H* H%	L+H* LH% L+H* HH%
nuclear configuration of information-seeking wh-questions	H+L* L% L* H%	H+L* L% (H+L* H%)[318]	H+L* L% L* H%	L* L% L* HH%
nuclear configuration of imperative wh-questions	H+L* L% L* H%	-	H+L* L% L* H%	H+L* L%
nuclear configuration of commands	H+L* L% L+H* L%	H*+L L%[319] H*+L … L* L% L*+H … L* L%	H+L* L% L+H* L%	L+H* M% L+!H* L%
nuclear configuration of requests	L+H* HL%	L* L%	L* HL%	L* HL%

[316] H+L* L% and L* L% (for Olivenza Portuguese) and L* L% (for Olivenza Spanish) are the nuclear configurations of IPs established on the basis of the analysis of the neutral SVO declarative sentences.
[317] Cf. footnote 60 in Section 3.1.2.2.
[318] Cf. footnote 70 in Section 3.1.2.2.
[319] Cf. the description in Section 3.1.2.2.

Table 6.2. Rhythmic distance between Olivenza Spanish and Castilian Spanish

statements	1) A slightly higher proportion of vocalic material and a slightly greater durational variability of vocalic intervals for Olivenza Spanish (presumably due to stronger elision of intervocalic consonants and non-systematic vowel reduction in Olivenza Spanish) 2) A similar durational variability of consonantal intervals for both Spanish varieties
yes-no questions, wh-questions, and echo questions	1) A considerably higher proportion of vocalic material and a notably greater durational variability of vocalic intervals for Olivenza Spanish (due to a strong IP-final lengthening attested in Olivenza Spanish) 2) A similar durational variability of consonantal intervals for both Spanish varieties
imperatives	1) A slightly higher proportion of vocalic material and a greater durational variability of vocalic intervals for Olivenza Spanish (presumably due to a stronger lengthening of nuclear and phrase-final syllables in Olivenza Spanish) 2) A similar durational variability of consonantal intervals for both Spanish varieties

6.3 How can the prosodic similarities and/or differences between the Olivenza Portuguese and the Olivenza Spanish prosodic systems be explained in terms of language contact?

Section 6.1 and Section 6.2 have shown that first, Olivenza Portuguese and Olivenza Spanish share numerous prosodic patterns, and second, Olivenza Portuguese and Olivenza Spanish exhibit more 'Castilian Spanish' prosodic features than 'Standard European Portuguese' ones. In the next sections, I try to find out which kind of mechanisms are responsible for these results. For this purpose, I use the comparison between the contact varieties and the standard varieties provided in the previous section. The question that may arise here is: why do I compare the contact varieties with the standard varieties and not with other Spanish or Portuguese varieties in order to explain the prosodic similarities and/or differences between the Olivenza Portuguese and the Olivenza Spanish prosodic systems in terms of language contact? Note that Olivenza Portuguese and Olivenza Spanish have been classified as *sub-dialecto alentejano* or *alto-alentejano* (i.e., Alentejo Portuguese or Alto Alentejo Portuguese; Vasconcellos 1890-1892; Matias 1984: 85, 2001; Carrasco González 2001; Ossenkop 2013: 37) and as *español meridional* or *español extremeño leonés meridional* (i.e., Southern Peninsular Spanish (spoken in Extremadura); Sánchez Fernández 1997; Carrasco González 2006), respectively. Thus, it could be expected that the prosodic properties of Olivenza Portuguese and Olivenza Spanish would be compared with those of the Portuguese variety spoken in Alto Alentejo and the Spanish variety spoken in Extremadura. The decision to contrast Olivenza Portuguese and Olivenza Spanish with Castilian Spanish instead of the Spanish spoken in Extremadura is motivated as follows: First, a great linguistic diversity among the varieties spoken in Extremadura is described in the literature. It is said that there is no one variety which can be denominated *Extremadura Spanish*, but there are distinct dialectal areas metaphorically called *islotes* 'islands'[320], which show different grammatical features (Montero Curiel 2006: 10, 23-25; Ariza Viguera 2008: 21). It should further be mentioned that the Spanish varieties spoken in Extremadura are classified as *hablas de tránsito* 'varieties of transition', since they exhibit grammatical properties typical of the geographically surrounding varieties (e.g., Leonese, Castilian, Andalusian, and Portuguese) (Zamora Vicente 1967: 332-336; Montero Curiel 2006: 16-31; Ariza Viguera 2008: 20-37, among others). Second, it is reported that the Spaniards who settled in Olivenza after its incorporation into Spain predominantly came from Northern Spain (e.g., La Rioja, Logroño) and from Extremadura (Vallecillo Teodoro 1999: 66-67, 115-116, 121-122). However, little is known about the parts of Extremadura from which the Spanish settlers moved to Olivenza. Taking this into account, it can be assumed that the Spanish variety acquired as a second language (L2) by the Portuguese speaking population[321] at that time was a mix of Northern Spanish (e.g., the variety of the settlers coming from Logroño) and Extremadura Spanish (i.e., the Spanish varieties spoken by the settlers coming from Extremadura). Third, it has been pointed out that regional varieties often converge towards the standard variety (Labov & Harris 1986; Morera 1990: 128-138; Villena Ponsoda 2005, 2008; Morgenthaler García 2008: 291-322; Hernández-Campoy 2008, 2011; Barone et al. 2013, among others). Thus, a comparison between Olivenza Spanish and Castilian Spanish enables a discussion about a possible convergence of the current variety of Olivenza Spanish towards Castilian Spanish (i.e., the standard variety; Morgenthaler García 2008: 179; Villena Ponsoda 2008; Hualde 2014: 285). The last reason to choose Castilian Spanish for the prosodic comparison is related to the fact that the intonation of no Spanish variety spoken in Extremadura has been systematically described within the AM framework. To my knowledge, the studies dedicated to the investigation of the intonational properties of the Spanish varieties spoken in Extremadura have been carried out within the AMPER Project (e.g., Congosto Martín et al. 2010 and Congosto Martín 2011 analyze the intonational patterns of neutral statements and information-seeking yes-no questions in the Spanish variety spoken in Don Benito, Extremadura). This allows only a partial comparison, since the methods applied in the current work and in the studies within the AMPER

[320] Cf. Montero Curiel (2006: 10): "No es, por tanto, un verdadero dialecto en el sentido académico del término, sino más bien una modalidad lingüística que encierra en sus límites importantes tesoros idiomáticos, favorecidos por la cantidad de «islotes» que contiene."

[321] As mentioned in Chapter 2, the mother tongue of Olivenza's population at the beginning of the 19th century (i.e., at the time of the incorporation of Olivenza into Spain) was Portuguese.

Project are quite different; while the majority of the studies within the AMPER Project consider neutral contexts only, the present study examines both neutral and biased sentences. Furthermore, no underlying pitch accents or boundary tones are usually established when applying the AMPER methodology only. As for Standard European Portuguese, the reason to choose this variety instead of Alto Alentejo Portuguese for the prosodic comparison is a practical one: to my knowledge, there is no study which has systematically described the intonational properties of Alto Alentejo Portuguese within the AM approach. As in the case of the Spanish spoken in Extremadura, there are studies examining the intonation of Alto Alentejo Portuguese carried out within the AMPER Project (e.g., Coimbra et al. 2010; Moutinho et al. 2011)[322].

6.3.1 Prosodic phrasing of neutral SVO declarative sentences

According to the results of the analysis of the prosodic phrasing of the neutral SVO declarative sentences, the following phrasing patterns were attested in both the Olivenza Portuguese and the Olivenza Spanish data: (SVO)/(SVVO), (S)(VO)/(S)(VVO), (SV)(O)/(SVV)(O), (S)(V)(O)/(S)(VV)(O), and (SV)(VO). The frequency of these prosodic groupings amounted to 42.5%, 17%, 13%, 14.5%, and 13% in Olivenza Portuguese and to 32%, 39%, 17%, 10%, and 2% in Olivenza Spanish (cf. Table 5.3). The high variation in phrasing patterns found in the material is possibly due to the fact that semi-spontaneous speech is examined. Thus, effects such as planning the sentence or searching for the appropriate words may have played a role in the prosodic grouping of the IPs into ips.

As presented in Section 3.2.2 and in Table 6.1 above, the typical prosodic phrasing pattern of neutral SVO declarative sentences consisting of non-branching subjects and objects is (S)(VO) in Castilian Spanish and (SVO) in Standard European Portuguese (Elordieta et al. 2003; D'Imperio et al. 2005; Elordieta et al. 2005; Frota & Vigário 2007). Taking this into account, it can generally be said that Olivenza Portuguese and Olivenza Spanish display phrasing properties typical of both Castilian Spanish and Standard European Portuguese (i.e., (S)(VO) and (SVO))[323]. However, if only the occurrence of the (SVO) and (S)(VO) patterns in both contact varieties is compared, it can be seen that Olivenza Portuguese shows a clear preference for the 'Standard

[322] However, Cruz (2013) describes the intonational patterns of different sentence types (statements, yes-no questions, wh-questions, imperatives, and vocatives) in the Portuguese variety spoken in Castro Verde (Beja district, Baixo Alentejo) within the AM model. In the subsequent sections, I present some of her findings and show that Olivenza Portuguese patterns more alike with Standard European Portuguese than with the Portuguese variety spoken in Castro Verde.
[323] Cf. footnote 313.

European Portuguese' pattern (SVO)[324] (42.5% for (SVO) vs. 17% for (S)(VO)) and Olivenza Spanish slightly prefers the 'Castilian Spanish' pattern (S)(VO) (39% for (S)(VO) vs. 32% for (SVO)).

The high frequency of the (SVO)/(SVVO) grouping in the Olivenza Portuguese data allows us to suggest that Olivenza Portuguese seems to have shown the 'Standard European Portuguese' pattern (SVO) in a first step (i.e., before the intensive contact with Spanish after the incorporation of Olivenza into Spain in 1801). However, due to the advanced bilingualism (Spanish/Portuguese), the strong pressure of the dominant language Spanish (i.e., increasing intrusion of Spanish into different domains), and the limited use of Olivenza Portuguese in daily life (cf. Chapter 2 for a more detailed description; cf. also Matias 1984: 94-100, 2001; Carrasco González 1997, 2006; Sánchez Fernández 1997, 2000, 2006; Ossenkop 2013: 37-39), the Olivenza Portuguese intonational system appears to have changed over the course of time, since its current stage represents a merged or converged system containing both the 'Standard European Portuguese' phrasing pattern (SVO) and the 'Castilian Spanish' phrasing pattern (S)(VO). It can be assumed that the (S)(VO) pattern was adopted into the Olivenza Portuguese prosodic system via convergence[325] with Spanish. As a result of this convergence, two competing phrasing patterns (i.e., (SVO) and (S)(VO)) are found in the current variety of Olivenza Portuguese. The questions that arise here are: What is expected to happen in a system in which there are two patterns that express the same thing? Which of these two competing patterns is supposed to replace the other? While (SVO) is the most common pattern used by the bilingual speakers in Olivenza Portuguese, (S)(VO) is the pattern used with a higher frequency in the monolingual speech in Olivenza Spanish as well as the pattern used in the mass media[326], i.e., in Castilian Spanish (Baker & Jones 1998: 284; Ruiz Martínez 2004; Cutillas-Espinosa & Hernández-Campoy 2007; Graff 2008: 138). Consequently, the phasing pattern with which the bilingual Spanish/Portuguese speakers

[324] Interestingly, (S)(VO) is the most frequent phrasing pattern attested in the Portuguese variety spoken in Castro Verde (Beja district, Baixo Alentejo) (Cruz 2013: 47). Consequently, Olivenza Portuguese seems to pattern more alike with Standard European Portuguese than with Baixo Alentejo Portuguese concerning the prosodic phrasing of SVO declaratives.

[325] In the present work, I use the term *convergence* instead of *borrowing transfer* to refer to the integration of prosodic features from one language (or variety) into another. I follow Winford (2003: 63) in defining the term *convergence* as follows: "two languages can be said to have converged structurally when previous differences in grammar between them are reduced or eliminated either because one adopts structural features from the other as a replacement for its own, or because both adopt an identical compromise between their conflicting structures." The preference for the term *convergence* instead of *borrowing* is also related to the assumption that "borrowings in phonology have often been considered as strategies to fill so called 'structural gaps' in the recipient system" (Matras 2009: 222; cf. also Winford 2003: 55-56). However, the term *borrowing* has also been applied in numerous studies on suprasegmental contact-induced change to refer to the incorporation of foreign prosodic features into the system of a recipient language (cf. Matras 2009: 232 and the references therein).

[326] The intonation of the standard variety spoken in a country may have an impact on the intonation of regional varieties through the mass media (Barone et al. 2013).

are more commonly confronted seems to be (S)(VO), rather than (SVO), since Spanish is more frequently used in daily life than Portuguese (note that all speakers younger than 60 are monolingual in Olivenza, with Spanish as their L1; Matias 1984: 94-100, 2001; Carrasco González 1997; Sánchez Fernández 1997, 2000, 2006; Ossenkop 2013: 37-39). This could benefit the change in the degree of entrenchment[327] of the two competing patterns (SVO) and (S)(VO) in Olivenza Portuguese: if Olivenza Portuguese speakers receive an input in which (S)(VO) is the most frequent phrasing pattern, this could cause an increase in the usage of (S)(VO) in the Olivenza Spanish spoken by the bilingual Spanish/Portuguese speakers first and then in Olivenza Portuguese. In other words, the degree of entrenchment of (SVO) and (S)(VO) would be expected to change with fluctuation in their usage in Olivenza Portuguese, and as a consequence, (S)(VO) would be predicted to replace (SVO), if these speakers were not the last Olivenza Portuguese speakers[328]. Regarding Olivenza Spanish, it can be hypothesized that the presence of the phrasing pattern (SVO) in its current intonational system is the result of the imperfect learning of Spanish by the L1 monolingual Portuguese speakers (i.e., substratum transfer; cf. Thomason & Kaufman 1988: 38). Thus, (SVO) was transferred from Olivenza Portuguese in the course of the acquisition of Spanish as an L2 and can be seen as an instance of fossilization[329] of a pattern belonging to the learning continuum, i.e., to the learner’s interlanguage[330]. It can further be assumed that (SVO) was the typical phrasing pattern of simple SVO declaratives in the Spanish spoken by the bilingual Spanish/Portuguese speakers during a certain period of time. The fact that current Olivenza Spanish exhibits both patterns (i.e., (SVO) and (S)(VO)) can be seen as the result of the convergence between the intonational systems of the Spanish spoken by the bilingual Spanish/Portuguese speakers and the Spanish spoken by the Spanish settlers who came to Olivenza after 1801. The outcome of this convergence was a variety which displays a mixed system containing both phrasing patterns, the ‘Portuguese’ one (SVO) and the ‘Spanish’ one (S)(VO). The slight preference for (S)(VO) in the current Olivenza Spanish spoken by monolingual speakers suggests that the degree of entrenchment of (SVO) and (S)(VO) is changing. This, in turn, may be attributed to the influence of the standard variety, i.e., Castilian Spanish, (cf. footnote 326), which is the variety primarily used in the mass media (Baker & Jones 1998: 284;

[327] “*Entrenchment* is the degree to which you ‘know’ a linguistic element (be it a word, an expression or a syntactic pattern), determined in large part by the frequency with which you use it” (Backus 2004: 179; italics added; cf. also Section 3.4.1).
[328] Note that all speakers of Olivenza Portuguese are bilingual and older than 60.
[329] The term *fossilization* is proposed to “capture the phenomenon of a permanent adoption (regardless of age or amount of instruction) of idiosyncratic interlanguage features in a learner’s L2” (Matras 2009: 75; cf. also Section 3.4.1).
[330] *Interlanguage* “refers to points on the learning continuum” and is thus considered “an incomplete or deficient version of the target language” in traditional approaches (Matras 2009: 74).

Ruiz Martínez 2004; Cutillas-Espinosa & Hernández-Campoy 2007; Graff 2008: 138). As mentioned above, regional varieties often converge towards the standard variety (Labov & Harris 1986; Morera 1990: 128-138; Villena Ponsoda 2005, 2008; Morgenthaler García 2008: 291-322; Hernández-Campoy 2008, 2011; Barone et al. 2013, among others). Taking all this into account, it can be expected that (S)(VO) will one day replace (SVO) in Olivenza Spanish.

6.3.2 Durational properties of neutral SVO declarative sentences

The durational analysis of the neutral SVO declarative sentences revealed that: First, the nuclear and final syllables of inner ips after which no pauses were realized and the nuclear and final syllables of IP-final ips exhibited a similar duration in Olivenza Portuguese. Second, in Olivenza Spanish, the nuclear syllables of inner ips after which no pauses were realized and the nuclear and final syllables of IP-final ips also displayed similar durational properties. Considering these two findings, it can be said that the ip boundaries and the IP boundaries appear to not be far apart in prosodic strength in the contact varieties. The durational analysis has also shown that the presence of pauses after the end of inner ips reinforced the ip-final lengthening in both Olivenza Portuguese and Olivenza Spanish (note that the nuclear and final syllables of inner ips after which a pause was inserted were longer than the nuclear and final syllables of both inner ips after which no pauses were realized and IP-final ips).

As for the durational properties of other Spanish varieties, Rao (2010), for instance, shows that the presence of pauses at the end of inner ips[331] leads to a stronger lengthening in the Spanish spoken in Cuba, Ecuador, and Spain[332]. He suggests in addition that the IP boundaries and the (inner) ip boundaries (in Rao's terminology PPh boundaries) in the three varieties examined are "not far apart in prosodic strength" (Rao 2010: 77). In contrast, Standard European Portuguese behaves differently: (i) final lengthening is absent in the PhP[333]; (ii) inner IPs differ from outer IPs concerning the degree of final lengthening (note that final lengthening is stronger in outer IPs); and (iii) pauses are preferably inserted at the end of stronger IP-edges rather than at the end of weaker IP-edges (Frota 2000: 169-219, 2014; Cruz 2013: 25; cf. also Section 3.2.2).

The findings reported in this section suggest that the current varieties of Olivenza Portuguese and Olivenza Spanish pattern alike with the Spanish varieties described above rather than

[331] Rao (2010) uses the term *phonological phrase* (PPh) instead of *intermediate phrase* (ip). However, he indicates that both the phonological phrase and the intermediate phrase are similar (note that they are proposed to constitute the next lower level below the IP in the prosodic hierarchy; cf. Table 3.7).
[332] It is not mentioned which Spanish variety spoken in Spain is investigated.
[333] I adopt the abbreviations used by the respective authors (however, both PPh and PhP mean *phonological phrase*).

with Standard European Portuguese. The similarities between current Olivenza Portuguese and current Olivenza Spanish allow us to assume that the rules defining the prosodic strength of inner ips and IPs in Olivenza Portuguese and Olivenza Spanish seem to be the outcome of transfer and convergence processes between Portuguese and Spanish which took place in the course of the development of these two contact varieties.

6.3.3 Prenuclear pitch accents and tonal density

6.3.3.1 *Statements*

The results of the intonational analysis allowed us to establish L+>H* as an underlying prenuclear pitch accent in statements in both contact varieties. In turn, the L+H* prenuclear accent in Olivenza Portuguese and the L*+H prenuclear accent in Olivenza Spanish, which were also found in statements, were analyzed as free surface variants (or realizations) of the underlying L+>H* prenuclear accent. In addition, the H+L* prenuclear accent attested in the statements analyzed for both Olivenza Portuguese and Olivenza Spanish was interpreted as a phonetic realization of the underlying L+>H* prenuclear accent (cf. Section 5.1.1.2, Section 5.1.2, and Section 5.2.1). Concerning tonal density, it has been shown that 53% of the phrase-internal prenuclear accents occurring in the neutral SVO declarative sentences were deaccented in Olivenza Portuguese and 56% in Olivenza Spanish.

As for Castilian Spanish, L+>H* is said to be the typical realization of prenuclear accents in broad focus statements (Estebas-Vilaplana & Prieto 2008, 2010). As seen in Table 3.5, it is also found in contradiction statements. In Standard European Portuguese, the intonational contour of neutral statements usually consists of an initial peak produced on the first prosodic word, deaccented prosodic words in phrase-internal position, and a final fall realized on the last prosodic word within the IP (Frota 2014). As presented in Table 3.6 and Table 6.1, Frota (2003, 2014) offers three possible realizations of the initial peak: 1) as a pitch accent (H* or L*+H); 2) as an initial boundary tone (%H); 3) as a phrase-initial H tone. Regarding the phrase-internal domain, Frota et al. (2015) point out that only 17% of the IP-internal prosodic words bore a pitch accent in their data analyzed for Standard European Portuguese. In Castilian Spanish, while every content word is said to be pitch-accented in careful speech, deaccentuation is reported to be usual in casual styles (Hualde & Prieto 2015). For instance, Face (2003) investigated spontaneous speech and showed that approximately 70% of the accentable prosodic words appearing in prenuclear position bore a pitch accent in his data analyzed for Castilian Spanish. Considering the findings outlined in this section, it can be concluded that: First, Olivenza Portuguese and Olivenza Spanish pattern with Castilian Spanish in showing the L+>H* prenuclear accent in statements; in contrast, L+>H* is absent in European Portuguese (Frota 2014; Armstrong & Cruz 2014). Second, Olivenza Portuguese differs from Standard European Portuguese with regard to the use of prenuclear accents (predominant use of L+>H* in Olivenza Portuguese vs. use of H* and L*+H in Standard European Portuguese[334]). Third, Olivenza Portuguese and Olivenza Spanish are situated in an intermediate position concerning the tonal density: Castilian Spanish (ca. 30% of the the accentable prosodic words lack a pitch accent) < Olivenza Portuguese (53% of the phrase-internal prosodic words lack a pitch accent) ≈ Olivenza Spanish (56% of the phrase-internal prosodic words lack a pitch accent) < Standard European Portuguese (83% of the phrase-internal prosodic words lack a pitch accent)[335].

It can be assumed that in a first stage, i.e., before the intensive contact with Spanish, H* and L*+H were the prenuclear accents used in Olivenza Portuguese, similar to Standard European Portuguese (and the Portuguese variety spoken in Castro Verde, Baixo Alentejo) (Cruz 2013; Frota 2014). In a further stage, due to the same factors mentioned in Section 6.3.1 (i.e., the advanced bilingualism (Spanish/Portuguese), the strong pressure of the dominant language Spanish, and the limited use of Olivenza Portuguese in daily life), it can be suggested that the L+>H* prenuclear accent was integrated into Olivenza Portuguese via convergence with Spanish. This allows the assumption that all three pitch accents (i.e., H*, L*+H, and L+>H*) were used to mark prenuclear stressed syllables in Olivenza Portuguese at that stage. However, taking into account that L+>H* is the underlying prenuclear accent proposed for statements in current Olivenza Portuguese, it can be supposed that L+>H* received a higher degree of entrenchment and replaced H* and/or L*+H over the course of time. The realization of the underlying prenuclear accent L+>H* as L+H* in Olivenza Portuguese is more difficult to explain, since the L+H* pitch accent is also used as a focus/emphasis marker in all sentence types in current Olivenza Portuguese. However, looking at the use of prenuclear and nuclear accents in Standard European Portuguese, it can be noted that the L*+H pitch accent has two different functions. It is found as a prenuclear accent in different sentence types and as a focus marker realized on focused constituents in yes-no questions[336] (Frota 2014; cf. also Table 3.6 and Table 6.1). This observation allows us to assume the following: L+H* was adopted as a focus marker into the

[334] Both Standard European Portuguese and the Portuguese variety spoken in Castro Verde pattern together in exhibiting a similar realization of the initial peak (Cruz 2013; Frota 2014).
[335] Cruz (2013: 81-85) shows that the Portuguese variety spoken in Castro Verde tends to present a high(er) tonal density. The following percentages of deaccented IP-internal prosodic words were obtained from the analysis of three types of declarative sentences: 0%, 17%, and 44%. According to these results, Olivenza Portuguese appears to be closer to Standard European Portuguese than to the Portuguese variety spoken in Castro Verde.
[336] The same holds for the Portuguese variety spoken in Castro Verde (Cruz 2013).

Olivenza Portuguese intonational system via convergence with Spanish[337]. Similar to L*+H in (Standard) European Portuguese, L+H* may have received two different functions in Olivenza Portuguese (i.e., one as a prenuclear accent and one as a nuclear accent conveying focus/emphasis). As for Olivenza Spanish, it can be expected that the Spanish spoken by the bilingual Spanish/Portuguese speakers also displayed a system containing the pitch accents H* and L*+H in a first step (due to substratum transfer from Olivenza Portuguese). In a further step, the Spanish spoken by the bilingual Spanish/Portuguese speakers seems to have converged with the Spanish spoken by the Spanish settlers who came to Olivenza after 1801 and L+>H* is assumed to have replaced L*+H and/or H*. The predominant use of the L+>H* prenuclear accent in current Olivenza Spanish may also be attributed to the fact that L+>H* is the typical realization of prenuclear accents in (broad focus) statements in Castilian Spanish (Estebas-Vilaplana & Prieto 2008, 2010), which is the variety predominantly used in the mass media (Baker & Jones 1998: 284; Ruiz Martínez 2004; Cutillas-Espinosa & Hernández-Campoy 2007; Graff 2008: 138; cf. also footnote 326). The realization of the underlying prenuclear accent L+>H* as L*+H in statements in current Olivenza Spanish can be motivated in two different ways: First, it can be suggested that L*+H is an instance of a substratum transfer which occurred when the monolingual Portuguese speakers learned Spanish as an L2. Second, L*+H can also be seen as the outcome of the convergence between the intonational systems of the Spanish spoken by the bilingual Spanish/Portuguese speakers and the Spanish spoken by the Spanish settlers[338].

The similarities between the current varieties of Olivenza Portuguese and Olivenza Spanish with regard to the deaccentuation and the phonetic realization of the underlying prenuclear accent L+>H* as H+L* can be interpreted as the result of transfer and convergence processes between the varieties of Portuguese and Spanish spoken in Olivenza which occurred in the course of the development of these two contact varieties.

6.3.3.2 *Yes-no questions and wh-questions*

The pitch accents L+>H* and L+H* in Olivenza Portuguese and L+>H* and L*+H in Olivenza Spanish occurred with a similar frequency as IP-initial prenuclear accents in the information-seeking yes-no questions, the confirmation-seeking yes-no questions, and the information-seeking wh-questions. Due to these findings, no underlying prenuclear accents have been pro-

[337] Note that the L+H* pitch accent signals focus/emphasis in Castilian Spanish and many Spanish varieties (Estebas-Vilaplana & Prieto 2010; Prieto & Roseano 2010).
[338] It is worth mentioning that although L*+H is part of the intonational inventory of Castilian Spanish, it predominantly occurs in yes-no questions (Estebas-Vilaplana & Prieto 2010; cf. also Table 3.5 and Table 6.1).

posed for the yes-no questions and the wh-questions, either for Olivenza Portuguese or for Olivenza Spanish (cf. Section 5.2.1). Phrase-internal prenuclear accents were often deaccented in both contact varieties: In the confirmation-seeking yes-no questions, the deaccentuation of phrase-internal prosodic words amounted to 61% of the cases for Olivenza Portuguese and to 90% for Olivenza Spanish. In the information-seeking wh-questions, the deaccentuation of phrase-internal prosodic words amounted to 56% of the cases for Olivenza Portuguese and to 82% for Olivenza Spanish. When the phrase-internal prosodic words were not pitch-deaccented, the L+>H*, L+H*, or H+L* pitch accents occurred in the questions analyzed for Olivenza Portuguese and the L+>H*, L*+H, or H+L* pitch accents appeared in the questions examined for Olivenza Spanish (cf. Section 5.1.3, Section 5.1.4, Section 5.1.5, and Section 5.1.6).

As shown in Table 3.5, the L*+H prenuclear accent is used in information-seeking yes-no questions and confirmation-seeking yes-no questions in Castilian Spanish (cf. Estebas-Vilaplana & Prieto 2010; Gabriel & Kireva 2014a, among others). The prenuclear accents H* and L+>H* occur in the information-seeking wh-questions and the imperative wh-questions described by Estebas-Vilaplana & Prieto (2010)[339] (cf. also Table 3.5). Regarding Standard European Portuguese, the initial peak has the same realization in statements, yes-no questions, and wh-questions (i.e., it can be produced as a pitch accent (H* or L*+H), as an initial boundary tone (%H), or as a phrase-initial H tone; Frota 2014; Frota et al. 2015; cf. also Table 3.6). According to Frota et al. (2015), deaccentuation often takes place in Standard European Portuguese: only 29% of the phrase-internal prosodic words were pitch-accented in the yes-no questions examined and only 10% of the phrase-internal prosodic words were pitch-accented in the wh-questions analyzed. The comparison between Castilian Spanish, Standard European Portuguese, Olivenza Portuguese, and Olivenza Spanish shows that: First, the pitch accents L+>H* and L+H* in Olivenza Portuguese and L+>H* and L*+H in Olivenza Spanish are used to mark the prenuclear stressed syllables in questions. Second, Olivenza Spanish patterns with Castilian Spanish in exhibiting the L*+H prenuclear accent in yes-no questions and in displaying the L+>H* prenuclear accent in wh-questions. Third, Olivenza Portuguese differs from Castilian Spanish and Standard European Portuguese concerning the realization of prenuclear accents in yes-no questions and from Standard European Portuguese concerning the realization of prenuclear accents in wh-questions[340]. Fourth, according to the findings of Frota et al. (2015) and those of the present work, the tonal density is quite low in Standard European Portuguese, Olivenza Spanish, and Olivenza Portu-

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339 Torreira et al. (2014) investigated the tonal realization of information-seeking wh-questions in European Spanish and showed that L+>H* is the most frequent prenuclear accent occurring in their data.

340 The Portuguese variety spoken in Castro Verde patterns alike with Standard European Portuguese concerning the realization of the initial peak in yes-no questions and wh-questions (Cruz 2013: 65-69).

guese; in yes-no questions, 90% of the phrase-internal prosodic words lack a pitch accent in Olivenza Spanish, 71% in Standard European Portuguese, and 61% in Olivenza Portuguese[341]; in wh-questions, 90% of the phrase-internal prosodic words lack a pitch accent in Standard European Portuguese, 82% in Olivenza Spanish, and 56% in Olivenza Portuguese [342].

The use of the same prenuclear accents in different sentence types in the contact varieties (i.e., L+>H* and L+H* in Olivenza Portuguese and L+>H* and L*+H in Olivenza Spanish) may be interpreted as a 'Portuguese' feature: as seen in the previous section and in this section, the initial peak has the same realization in statements, yes-no questions, and wh-questions in Standard European Portuguese and the Portuguese variety spoken in Castro Verde (Baixo Alentejo). Thus, it can be assumed that Olivenza Portuguese maintained this 'European Portuguese' property of making use of the same prenuclear accents in different sentence types (though using other pitch accents than those attested in Standard European Portuguese and the Portuguese variety spoken in Castro Verde). If so, it can further be suggested that this strategy was adopted into the Olivenza Spanish intonational system via a substratum transfer from Olivenza Portuguese or via a convergence with Olivenza Portuguese (i.e., convergence between Olivenza Portuguese and the Spanish spoken by the bilingual Spanish/Portuguese speakers)[343].

6.3.4 Nuclear configurations

6.3.4.1 *Statements*

6.3.4.1.1 *Neutral statements* The underlying nuclear configurations of IPs proposed for the neutral SVO declarative sentences were: H+L* L% and L* L% for Olivenza Portuguese and L* L% for Olivenza Spanish. While both nuclear contours H+L* L% and L* L% occurred with a similar frequency in Olivenza Portuguese, L* L% was the most frequent nuclear configuration in the Olivenza Spanish data. It is worth mentioning that the H+L* L% nuclear contour was also found in Olivenza Spanish, but only in very few cases. Due to this, the H+L* nuclear accent was analyzed as a surface realization of the underlying L* nuclear accent; thus, H+L* L% can be seen as a surface realization of L* L% in Olivenza Spanish.

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[341] The Portuguese variety spoken in Castro Verde also presents a quite low tonal density. The following percentages of deaccented IP-internal prosodic words were obtained from the analysis of three types of yes-no questions: 78%, 66%, and 46% (Cruz 2013: 81-85).

[342] The Portuguese variety spoken in Castro Verde also shows a low tonal density. The following percentages of deaccented IP-internal prosodic words were obtained from the analysis of three types of wh-questions: 66.5%, 66%, and 75% (Cruz 2013: 81-85).

[343] However, each of these processes, i.e., the substratum transfer in the first scenario and the convergence in the second, is supposed to be followed by a further convergence process, namely, a convergence between the Spanish spoken by the bilingual Spanish/Portuguese speakers and the Spanish spoken by the Spanish settlers who came to Olivenza after 1801.

In Castilian Spanish, L* L% is the nuclear configuration used to mark broad focus statements (Estebas-Vilaplana & Prieto 2010; Hualde & Prieto 2015)[344]. Regarding Standard European Portuguese, H+L* L% is the nuclear configuration of neutral statements (Frota 2014). Considering this, the following can be concluded: First, both contact varieties and Castilian Spanish share the nuclear configuration L* L%. Second, Olivenza Portuguese shows nuclear configurations typical of both Castilian Spanish (i.e., L* L%) and Standard European Portuguese (H+L* L%)[345].

The findings presented above allow us to assume that Olivenza Portuguese showed the 'Standard European Portuguese' nuclear configuration H+L* L% in a first step (i.e., before the intensive contact with Spanish). Due to the same factors mentioned in the previous sections (i.e., the advanced bilingualism (Spanish/Portuguese), the strong pressure of the dominant language Spanish, and the limited use of Olivenza Portuguese in daily life), Olivenza Portuguese seems to have converged with Spanish and thus the L* L% nuclear contour has been adopted into the Olivenza Portuguese intonational system. In a first stage, it can be assumed that L* L% was a surface realization of the underlying nuclear contour H+L* L%. However, over the course of time, the degree of entrenchment of L* L% appears to have changed (note that the results of the intonational analysis have shown that both nuclear configurations H+L* L% and L* L% occur with a similar frequency in the data analyzed for Olivenza Portuguese). Consequently, the following can be assumed: in the intonational grammar of some Olivenza Portuguese speakers, H+L* L% seems to be the underlying nuclear configuration of neutral declaratives and L* L% its surface realization, while in the intonational grammar of other Olivenza Portuguese speakers, L* L% appears to be the underlying nuclear configuration of neutral declaratives and H+L* L% its surface realization. Based on this assumption, two underlying nuclear configurations, which convey the same pragmatic meaning, have been proposed for the neutral declaratives for the current variety of Olivenza Portuguese. However, this stage can be seen as an intermediate stage in the change in the intonational system of Olivenza Portuguese. It can be expected that one of these two speakers groups will become more numerous over the course of time. Since Spanish is the dominant language in Olivenza, the 'Spanish' nuclear configuration L* L% would be expected to replace the 'Portuguese' one in Olivenza Portuguese one day (if these speakers were not the

[344] The L+H* L% nuclear contour is also found in this sentence type (Robles-Puente 2011; Hualde & Prieto 2015). However, it is suggested that the L+H* nuclear accent perhaps indicates emphasis in such examples (Hualde & Prieto 2015).
[345] Although both nuclear configurations H+L* L% and L* L% are attested in the Portuguese variety spoken in Castro Verde (Cruz 2013: 65), the falling accent is said to be "a less frequent option" (Frota et al. 2015: 249).

last Olivenza Portuguese speakers[346]). A similar development may have occurred in Olivenza Spanish. The fact that first, L* L% is the underlying nuclear configuration of this sentence type in current Olivenza Spanish, and second, L* L% is realized as H+L* L% in very few cases may be interpreted as follows: In a first stage, H+L* L% was transferred from Olivenza Portuguese in the course of the acquisition of Spanish as a second language. Consequently, the Spanish spoken by the bilingual Spanish/Portuguese speakers is expected to have exhibited the nuclear contour H+L* L% during a certain period of time. In a second stage, the Spanish spoken by the bilingual Spanish/Portuguese speakers and the Spanish spoken by the Spanish settlers who came to Olivenza after 1801 converged. As a result of this convergence, two competing nuclear contours were present in the intonational system of Olivenza Spanish at that stage. It can be suggested that, during a certain period of time, in the intonational grammar of some Olivenza Spanish speakers, H+L* L% was the underlying nuclear configuration of neutral declaratives and L* L% its surface realization, while in the intonational grammar of other Olivenza Spanish speakers, L* L% was the underlying nuclear configuration of neutral declaratives and H+L* L% its surface realization, and in the intonational grammar of still other Olivenza Spanish speakers, L* L% was the only nuclear configuration used to convey neutral declaratives; the latter group is assumed to be a group of Spanish speakers who came to Olivenza after its incorporation into Spain. In a further stage, the degree of entrenchment of L* L% and H+L* L% seems to have changed, and H+L* L% became only the surface realization of the underlying nuclear configuration L* L% in this variety. It can also be hypothesized that this development has been facilitated by the influence of the standard variety Castilian Spanish (cf. footnote 326), which is the variety predominantly used in the mass media (Baker & Jones 1998: 284; Ruiz Martínez 2004; Cutillas-Espinosa & Hernández-Campoy 2007; Graff 2008: 138).

6.3.4.1.2 *Biased statements* Both contact varieties patterned together in marking focus and emphasis by means of the rising pitch accent L+(¡)H* (cf. contrastive focus statements, exclamative statements, and contradiction statements). Interestingly, a further nuclear accent used to signal focus/emphasis was attested in very few cases in Olivenza Portuguese, namely H*+L. Since, first, H*+L appeared with a very low frequency in the data examined, and second, the speakers who produced it also made use of the L+(¡)H* pitch accent, H*+L was considered a surface realization of the underlying nuclear accent L+(¡)H*. The underlying nuclear configurations of IPs proposed on the basis of the analysis of the contrastive focus statements, the exclamative statements,

[346] Cf. footnote 328.

and the contradiction statements were: L+H* L% (for both contact varieties), L+¡H* L% (for both contact varieties), and L+H* L% vs. L+H* HL% (Olivenza Portuguese vs. Olivenza Spanish), respectively.

Castilian Spanish and Standard European Portuguese differ with respect to the tonal marking of focus/emphasis. While L+H* is the pitch accent used to signal focus/emphasis in Castilian Spanish, H*+L is the tonal event marking focus/emphasis in statements in Standard European Portuguese (Estebas-Vilaplana & Prieto 2010; Frota 2014, among others). As shown in Table 3.5, Table 3.6, and Table 6.1, narrow focus statements (called also contrastive focus statements) exhibit the following nuclear configurations: L+H* L% and L* HL% for Castilian Spanish and H*+L L% for Standard European Portuguese (Estebas-Vilaplana & Prieto 2010; Frota 2014). The nuclear contours proposed for exclamative statements and contradiction statements for Castilian Spanish are L+H* L% and L* HL%, respectively (Estebas-Vilaplana & Prieto 2010). The comparison between the contact varieties, Castilian Spanish, and Standard European Portuguese reveals that: First, both Olivenza Portuguese and Olivenza Spanish pattern with Castilian Spanish in using the pitch accent L+(¡)H* to signal focus/emphasis. Second, Olivenza Portuguese speakers make use of the 'Standard European Portuguese' pitch accent H*+L[347] to express focus/emphasis (however, H*+L is considered a surface realization of the underlying L+(¡)H* nuclear accent). Third, Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish show the same nuclear configurations for narrow focus statements (contrastive focus statements in the present work) (i.e., L+H* L%) and exclamative statements (i.e., L+H* L% for Castilian Spanish and L+¡H* L% for the contact varieties). Fourth, Olivenza Spanish exhibits the same boundary tone as Castilian Spanish in contradiction statements (i.e., HL%).

Taking into account the occurrence of the H*+L pitch accent in the Olivenza Portuguese data analyzed for the present work, it can be hypothesized that in a first stage, i.e., before the intensive contact with Spanish, H*+L was the pitch accent used to express focus/emphasis in statements in Olivenza Portuguese. Due to the advanced bilingualism (Spanish/Portuguese), the strong pressure of the dominant language Spanish, and the limited use of Olivenza Portuguese in daily life, L+(¡)H* seems to have been adopted into the intonational system of Olivenza Portuguese via convergence with Spanish. The outcome of such a convergence is the presence of two competing items, which are used to express the same thing, in the respective system (i.e., H*+L and L+(¡)H* here). Similar assumptions to those described in the previous section can also be made here to explain the change in the intonational system of Olivenza Portuguese: It can be

[347] The Portuguese variety spoken in Castro Verde also expresses focus/emphasis in statements by means of the H*+L pitch accent (Cruz 2013: 76-77).

hypothesized that during a certain period of time, in the intonational grammar of some Olivenza Portuguese speakers, H*+L was the underlying nuclear accent used to convey focus/emphasis and L+(¡)H* its surface realization, while in the intonational grammar of other Olivenza Portuguese speakers, L+(¡)H* was the underlying nuclear accent used to express focus/emphasis and H*+L its surface realization. Considering the results of the present work (i.e., the low frequency of H*+L in the data examined and its co-occurrence with L+(¡)H* in the production of the speakers who use it), the L+(¡)H* pitch accent appears to have received a higher degree of entrenchment over the course of time. Thus, H*+L became a surface realization of the underlying nuclear accent L+(¡)H* in Olivenza Portuguese. In a further step, due to its low frequency, it would be expected that H*+L would disappear from the intonational system of Olivenza Portuguese. Regarding Olivenza Spanish, it can be presumed that the bilingual Spanish/Portuguese speakers marked focus/emphasis in statements by means of the 'Portuguese' pitch accent H*+L in a first stage (due to substratum transfer from Olivenza Portuguese). However, in a further stage, the Spanish spoken by the bilingual Spanish/Portuguese speakers and the Spanish spoken by the Spanish settlers who came to Olivenza after its incorporation into Spain seem to have converged. The result of this convergence was a variety which shows a mixed system containing both pitch accents, the 'Portuguese' one (i.e., H*+L) and the 'Spanish' one (i.e., L+(¡)H*). Over the course of time, L+(¡)H* appears to have received a higher degree of entrenchment and replaced H*+L in the intonational system of Olivenza Spanish.

As seen above, Olivenza Portuguese and Olivenza Spanish exhibit the same underlying nuclear configurations for contrastive focus statements (i.e., L+H* L%) and exclamative statements (i.e., L+¡H* L%). These contours can be interpreted as the result of transfer and convergence processes between Portuguese and Spanish which took place in the course of the development of the contact varieties Olivenza Portuguese and Olivenza Spanish.

6.3.4.2 (*Yes-no) questions*

6.3.4.2.1 *Neutral (yes-no) questions* Two underlying nuclear configurations of IPs were established for the information-seeking yes-no questions for both contact varieties: L* !HL% and L* H%. It has been shown that in Olivenza Portuguese and Olivenza Spanish, the underlying L* nuclear accent can be phonetically realized as L* or H+L* and the underlying !HL% boundary tone can surface as !HL% (i.e., as a compressed fall) or as L% (i.e., as a sustained low pitch). The underlying !HL% boundary tone was always produced on strongly lengthened IP-final syllables. This IP-final lengthening has been claimed to be a phonological feature used to mark interrogativity and to distinguish declarative from interrogative intonation in both contact varieties (note that the !HL% boundary tone surfaced more often in the Olivenza Portuguese data than in the Olivenza Spanish material and the lengthening of the IP-final syllables was stronger in Olivenza Portuguese than in Olivenza Spanish).

The nuclear configurations L* HH%[348] and H+L* LH% are used to express information-seeking yes-no questions in Castilian Spanish and Standard European Portuguese, respectively (Estebas-Vilaplana & Prieto 2010; Frota 2014, among others). Regarding the durational properties of this sentence type, such lengthening effects as those described for the contact varieties are not reported either for Castilian Spanish or for Standard European Portuguese[349] (cf. Fernández Planas & Martínez Celdrán 2003; Estebas-Vilaplana & Prieto 2010; Frota 2014; Frota et al. 2015, among others). However, Congosto Martín et al. (2010) have shown that both the Asturian spoken in Mieres and the Spanish variety spoken in Don Benito (Extremadura) also display a lengthening of the IP-final syllables in information-seeking yes-no questions and thus use duration to convey sentence modality contrasts (statements vs. yes-no questions). Taking into account the findings presented in this section, it can be concluded that: First, Olivenza Portuguese and Olivenza Spanish differ from both Castilian Spanish and Standard European Portuguese in exhibiting the nuclear configuration L* !HL%. Second, Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish share the rising nuclear contour L* H%[350]. Third, Olivenza Portuguese and Olivenza Spanish use duration to convey sentence modality contrasts (e.g., statements vs. information-seeking yes-no questions), in contrast to Castilian Spanish and Standard European Portuguese. Fourth, Olivenza Portuguese and Olivenza Spanish pattern with other varieties spoken in Asturias (Mieres) and Extremadura (Don Benito) in lengthening the IP-final syllables in information-seeking yes-no questions.

The observation that the underlying !HL% boundary tone, which is always realized on strongly lengthened IP-final syllables, is not attested in Standard European Portuguese, the Portuguese varieties spoken in Castro Verde (Baixo Alentejo) and Monforte (Alto Alentejo), and Castilian Spanish (Coimbra et al. 2010; Estebas-Vilaplana & Prieto 2010; Cruz 2013; Frota 2014, among others) leads to the questions: How can the presence of the !HL% boundary tone in the intonational grammars of Olivenza Portuguese and Olivenza Spanish be motivated? How can the use of a strong IP-final lengthening, which conveys sentence modality contrasts, in Olivenza

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[348] Hualde & Prieto (2015) propose the nuclear configuration L* H% instead of L* HH% for Castilian Spanish.
[349] Note that the Portuguese varieties spoken in Castro Verde (Baixo Alentejo) and Monforte (Alto Alentejo) also do not show a similar durational marking in information-seeking yes-no questions to those attested in the contact varieties spoken in Olivenza (cf. Coimbra et al. 2010; Cruz 2013).
[350] Cf. footnote 348.

Portuguese and Olivenza Spanish be explained? To answer these questions, I will refer to the study of Congosto Martín et al. (2010): As mentioned above, it has been shown that both the Asturian spoken in Mieres and the Spanish variety spoken in Don Benito (Extremadura) exhibit an IP-final lengthening in information-seeking yes-no questions that is used to convey sentence modality contrasts. Congosto Martín et al. (2010) suggest that the similarities between these two varieties spoken in cities which are approximately 600 km away from each other (i.e., Mieres and Don Benito) can be attributed to the historical contact between the varieties spoken in Extremadura and the Astur-Leonese varieties during the Reconquista and the subsequent repopulation of Extremadura by settlers coming from Northern Spain[351]. Considering this and the fact that the lengthening is more frequently applied and is stronger in current Olivenza Portuguese than in current Olivenza Spanish (cf. Section 5.1.3.1 and Section 5.3.2), it can be assumed that the IP-final lengthening is a feature of Olivenza Portuguese resulting from historical language contact (e.g., during the Middle Ages)[352], rather than an outcome of the contact between Spanish and Portuguese after the incorporation of Olivenza into Spain in 1801. If the second scenario were correct (i.e., if the IP-final lengthening was adopted into Olivenza Portuguese via convergence with Spanish after 1801), it would be expected that the lengthening would be stronger and more common in current Olivenza Spanish than in current Olivenza Portuguese, since Spanish was the dominant language during the language contact. However, this is not the case[353]. Thus, I hypoth-

[351] "Es evidente, que el devenir histórico influyó de forma determinante en el hablar de los habitantes de la parte occidental de la Península. La proyección lingüística del dominio lingüístico asturleonés con un foco inicial situado en la actual Asturias y una proyección lingüística hacia el sur que pasando por Extremadura llegaría hasta Andalucía occidental, primero con la Reconquista, después con la repoblación de las tierras por los habitantes del norte, creó un cúmulo de interferencias lingüísticas que afectaron y afectan a todos los planos de la lengua, fundamentalmente al léxico, aunque también al fónico y al morfosintáctico" (Congosto Martín et al. 2010: 53).

[352] Note that the territory of the current municipality of Olivenza was under the rule of the Kingdom of Castile and Leon between 1230 and 1297. Its incorporation into the Kingdom of Portugal was in 1297 (Torres Gallego 2007: 27-30). In addition, it is reported that it is important to distinguish between two different stages of contact between Portuguese and Spanish in Olivenza: language contact during the Middle Ages and language contact after the incorporation of Olivenza into Spain in 1801 (Matias 1984: 88f.; Carrasco González 1997; Ossenkop 2013: 38). Ossenkop (2013: 38) writes the following: "In Olivenza ist zu unterscheiden zwischen sprachlichen Kontaktphänomenen, die sich bereits im Mittelalter herausgebildet haben und auf die Zugehörigkeit des Ortes zum *Señorío de Alburquerque* zurückgehen […], darüber hinaus z.T. auch im Dialekt des portugiesischen Ortes Campo Maior zu finden sind, und solchen Merkmalausprägungen, die auf dem zunehmenden Einfluss der spanischen Kontaktsprache im 20. Jahrhundert beruhen." Interestingly, Matias (1984: 89) points out that both the stressed syllables and the phrase-final syllables are lengthened in the Portuguese variety spoken in Campo Maior: "Refiriam-se, com efeito, à entonação, que tem um cariz peculiar: as sílabas tónicas são muito prolongadas e pronunciadas num elevado tom de voz, e a última sílaba da frase como que se arrasta." Moreover, the author indicates that the speakers of Campo Maior Portuguese consider their variety different from other Portuguese varieties: "é uma fala camponesa"; "tirando Ouguela, na há por aqui igual; a nossa fala tem rabo." According to Matias (1984: 89), *rabo* 'tail' is used here to refer to the lengthening effects of the final syllables.

[353] If one assumes that the IP-final lengthening in Olivenza Portuguese is the result of the convergence between Olivenza Portuguese and one of the Spanish varieties spoken by the settlers who came to Olivenza after 1801, the following development should have occurred: After the integration of the IP-final lengthening into the intonational system of Olivenza Portuguese, the IP-final lengthening would receive its degree of entrenchment

esize that the nuclear configuration L* !HL% and the strong IP-final lengthening by which the underlying !HL% boundary tone is accompanied resulted from historical language contact before the incorporation of Olivenza into Spain. These patterns can be seen as prosodic features that distinguish Olivenza Portuguese from other European Portuguese varieties. Moreover, they can also be considered prosodic features which mark local identity[354]. As for the second underlying nuclear configuration proposed for the information-seeking yes-no questions (i.e., L* H%), it can be assumed that L* H% was adopted into Olivenza Portuguese via convergence with Spanish. However, after its integration, L* H% seems to have been adapted to the prosodic rules of Olivenza Portuguese, since similar to !HL%, H% is also produced on strongly lengthened IP-final syllables in current Olivenza Portuguese. Similar to the cases described above, it can be suggested that in the intonational grammar of some Olivenza Portuguese speakers, L* !HL% appears to be the underlying nuclear configuration of information-seeking yes-no questions and L* H% its surface realization, while in the intonational grammar of other Olivenza Portuguese speakers, L* H% appears to be the underlying nuclear configuration of information-seeking yes-no questions and L* !HL% its surface realization. Based on these assumptions, both L* !HL% and L* H% have been analyzed as underlying nuclear configurations in current Olivenza Portuguese. If Olivenza Portuguese were not a dying variety, it could be expected that L* H% would receive another pragmatic meaning or would replace L* !HL% over the course of time.

On the basis of the suggestions made above, the presence of the underlying nuclear configuration L* !HL% in the prosodic system of current Olivenza Spanish can be interpreted as the result of substratum transfer that occurred when the monolingual Portuguese speakers learned Spanish as an L2 after the incorporation of Olivenza into Spain. In a first stage, it can be expected that the Spanish spoken by the Spanish/Portuguese bilinguals exhibited the nuclear configuration L* !HL%, adopted via substratum transfer from Olivenza Portuguese, as the typical final contour of information-seeking yes-no questions. In a further step, it can be assumed that the Spanish spoken by the Spanish/Portuguese bilinguals and the Spanish spoken by the Spanish

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from three sources (i.e., from its use in the Spanish variety spoken by the settlers who 'brought' the lengthening to Olivenza (i.e., the source language), from its use in the Spanish spoken by the Spanish/Portuguese bilinguals, and from its use in Olivenza Portuguese). Thus, the only group which perhaps would not have used the lengthening at the time in question would be the group of Spanish speakers who came to Olivenza from other regions in which such lengthening effects were not present. However, such a situation would lead to the adoption of the IP-final lengthening by this last group in a further stage. Consequently, the IP-final lengthening would be expected to be stronger in current Olivenza Spanish than in current Olivenza Portuguese or at least similar concerning both strength and frequency.

[354] Both the !HL% boundary tone and the strong IP-final lengthening seem to fit in the description of the Olivenza Portuguese intonation provided by Sánchez Fernández (2006: 73): "Há uma consciência de «queda, deixar-se cair» ou de «cantar», da qual o falante entende ser própria e característica da região, sendo mais acusada na cidade de Olivença do que nas aldeias. Adverte-se mais nas orações interrogativas do que nas enunciativas [...]."

settlers who came to Olivenza after its incorporation into Spain converged. The result of this convergence is a mixed system containing both the 'Olivenza Portuguese' contour L* !HL% and the 'Spanish' contour L* H%. It can further be suggested that in the intonational grammar of some Olivenza Spanish speakers, L* !HL% is the underlying nuclear configuration of information-seeking yes-no questions and L* H% its surface realization, while in the intonational grammar of other Olivenza Spanish speakers, L* H% is the underlying nuclear configuration of information-seeking yes-no questions and L* !HL% its surface realization, and in the intonational grammar of still other Olivenza Spanish speakers, L* H% is the only nuclear configuration used to express information-seeking yes-no questions (this latter group is assumed to contain Spanish speakers who came to Olivenza after its incorporation into Spain and (some of) their descendants). Based on these suggestions, both L* !HL% and L* H% were established as underlying nuclear configurations for this sentence type for current Olivenza Spanish. The fact that the H% boundary tone was more frequently applied (than the !HL% boundary tone) in the Olivenza Spanish data allows the assumption that the current variety of Olivenza Spanish is converging towards the standard variety Castilian Spanish (cf. footnote 326), which is the variety predominantly used in the mass media (Baker & Jones 1998: 284; Ruiz Martínez 2004; Cutillas-Espinosa & Hernández-Campoy 2007; Graff 2008: 138). If this last assumption is correct, it could be expected that L* !HL% will disappear from the intonational system of Olivenza Spanish over the course of time.

The underlying nuclear configurations of IPs established on the basis of the analysis of the neutral disjunctive questions were H+L* L% for Olivenza Portuguese and H+L* L% and L* L% for Olivenza Spanish.

In Castilian Spanish, L* L% is the nuclear configuration of IPs proposed for disjunctive questions (Estebas-Vilaplana & Prieto 2010; cf. also Table 3.5 and Table 6.1). To my knowledge, this sentence type has not been described for Standard European Portuguese. Consequently, the comparison between the contact varieties and Castilian Spanish reveals that Olivenza Spanish shares a nuclear contour of IPs with Olivenza Portuguese (i.e., H+L* L%) and a nuclear contour of IPs with Castilian Spanish (i.e., L* L%).

On the basis of the comparison between the three varieties, it can be hypothesized that the nuclear configuration H+L* L%, attested in current Olivenza Spanish, is the outcome of substratum transfer that occurred when the Olivenza Portuguese speakers learned Spanish as an L2. It can be suggested that in a first step, the Spanish spoken by the bilingual Spanish/Portuguese speakers showed the H+L* L% nuclear configuration as a typical final contour of neutral disjunctive questions. However, the presence of two nuclear contours in the data analyzed for

Olivenza Spanish allows the assumption that the Spanish spoken by the bilingual Spanish/Portuguese speakers converged with the Spanish spoken by the Spanish settlers who came to Olivenza after its incorporation into Spain in 1801 (this latter variety is assumed to have exhibited L* L% as a typical final contour of neutral disjunctive questions). The outcome of this convergence is a mixed system containing both the 'Olivenza Portuguese' nuclear configuration H+L* L% and the 'Spanish' nuclear configuration L* L%. Such a scenario leads in turn to the following suggestions: in the intonational grammar of some Olivenza Spanish speakers, H+L* L% is the underlying nuclear configuration of neutral disjunctive questions and L* L% its surface realization, while in the intonational grammar of other Olivenza Spanish speakers, L* L% is the underlying nuclear configuration of neutral disjunctive questions and H+L* L% its surface realization, and in the intonational grammar of still other Olivenza Spanish speakers, L* L% is the only nuclear configuration used to convey neutral disjunctive questions (this latter group is assumed to contain Spanish speakers who came to Olivenza after 1801 and (some of) their descendants). Based on these assumptions, two underlying nuclear configurations, which express the same pragmatic meaning, are proposed for the neutral disjunctive questions for current Olivenza Spanish.

6.3.4.2.2 *Biased yes-no questions* The underlying nuclear accent established on the basis of the intonational analysis of the exclamative yes-no questions (with counterexpectational meaning) for both varieties was the one used to express focus/emphasis in statements (i.e., L+(¡)H*). Furthermore, two different underlying boundary tones were proposed for this sentence type: !HL% for Olivenza Portuguese and !HL% and L% for Olivenza Spanish. The underlying !HL% boundary tone was phonetically realized as a compressed fall (labeled with !HL%) or as a sustained high plateau (labeled with !H%); this boundary tone was always accompanied by a considerable lengthening of the syllable(s) on which it was produced. In contrast to !HL%, the low boundary tone attested in the data (i.e., L%) was not characterized by such lengthening effects. While only one underlying nuclear configuration of IPs was proposed for the exclamative yes-no questions for Olivenza Portuguese (i.e., L+H* !HL%), two underlying nuclear configurations of IPs were established for this sentence type for Olivenza Spanish (i.e., L+H* !HL% and L+¡H* L%).

In Standard European Portuguese, focused yes-no questions (i.e., yes-no questions in which one constituent bears focus/emphasis) are realized with the nuclear contours L*+H HL% (when the focused element occurs in an IP-final position) or L*+H LH% (when the focused element appears in a non-IP-final position) (Frota 2014; cf. also Table 3.6). Thus, L*+H is interpreted as a marker used to convey focus/emphasis in yes-no questions in this variety[355] (Frota 2014). As mentioned in Section 6.3.4.1.2, the L+H* pitch accent is the focus/emphasis marker in Castilian Spanish statements. Considering this, it can be concluded that: First, Olivenza Portuguese and Olivenza Spanish differ from Standard European Portuguese in that they display the nuclear accent L+(¡)H*, which is used in Castilian Spanish to signal focus/emphasis, rather than the Portuguese focus marker L*+H. Second, both contact varieties use the boundary tone !HL% and thus duration to convey sentence modality contrasts (cf. the nuclear configuration for exclamative yes-no questions L+H* !HL% vs. the nuclear configuration for contrastive focus statements L+H* L%), in contrast to Standard European Portuguese and Castilian Spanish, for which similar lengthening effects have not been reported in the literature (Estebas-Vilaplana & Prieto 2010; Frota 2014, among others). Third, Olivenza Spanish speakers use more than one nuclear contour to express this sentence type: L+H* !HL%, which involves a considerable IP-final lengthening, and L+¡H* L%, which is not characterized by the same lengthening.

The discussion concerning the presence of both the underlying boundary tone !HL% and the underlying nuclear accent used to signal focus/emphasis L+(¡)H* in the prosodic systems of the contact varieties under investigation was presented in Section 6.3.4.1.2 and Section 6.3.4.2.1 and will not be repeated here. The fact that the L+(¡)H* pitch accent is used to signal focus/emphasis in both statements and yes-no questions in Olivenza Portuguese may be seen as a simplification[356] of the Olivenza Portuguese intonational grammar (note that Standard European Portuguese and the Portuguese variety spoken in Castro Verde (Baixo Alentejo) make use of two different focus markers: one for statements (H*+L) and one for yes-no questions (L*+H); cf. Cruz 2013 and Frota 2014). The underlying nuclear configuration L+H* !HL% proposed for current Olivenza Portuguese and current Olivenza Spanish may be interpreted as the outcome of transfer and convergence processes between Portuguese and Spanish which took place in the course of the development of these two contact varieties. The fact that Olivenza Spanish speakers use the nuclear contours L+H* !HL% and L+¡H* L% to express exclamative yes-no questions and that both nuclear contours have been analyzed as underlying nuclear configurations, although they convey the same pragmatic meaning, may be explained as follows: The use of two different nuclear contours to express the same sentence type can be analyzed as the result of a convergence between the Spanish spoken by the bilingual Spanish/Portuguese speakers and the

[355] As for the Portuguese variety spoken in Castro Verde, focus/emphasis was expressed by means of the pitch accents L*+H and H+L* in focused yes-no questions. Thus, L*+H HL% and H+L* HL% are the nuclear configurations found in the data when the focused constituents occur in an IP-final position and L*+H … (H+L*) LH% is the contour attested when the focused constituents appear in a non-IP-final position (Cruz 2013: 77-78).
[356] As shown in Muysken (2013), the simplification is a common phenomenon in language contact situations.

Spanish spoken by the Spanish settlers who came to Olivenza after its incorporation into Spain. Similar to the sentence types described above for which two underlying nuclear configurations were proposed, it can be suggested that in the intonational grammar of some Olivenza Spanish speakers, L+H* !HL% is the underlying nuclear configuration of exclamative yes-no questions (with counterexpectational meaning) and L+¡H* L% its surface realization, while in the intonational grammar of other Olivenza Spanish speakers, L+¡H* L% is the underlying nuclear configuration of exclamative yes-no questions (with counterexpectational meaning) and L+H* !HL% its surface realization, and in the intonational grammar of still other Olivenza Spanish speakers, L+¡H* L% is the only underlying nuclear configuration used to express exclamative yes-no questions (with counterexpectational meaning) (this latter group is assumed to contain Spanish speakers who came to Olivenza after its incorporation into Spain and (some of) their descendants). Since, first, the L+H* !HL% nuclear contour receives its degree of entrenchment from its use in the Spanish spoken by the Spanish/Portuguese bilinguals and from its use in the Spanish spoken by some monolinguals in Olivenza nowadays[357], and second, some of the data presented and discussed in the previous sections allow the assumption that current Olivenza Spanish is converging towards the standard variety (i.e., Castilian Spanish), which is the variety predominantly used in the mass media (Baker & Jones 1998: 284; Ruiz Martínez 2004; Cutillas-Espinosa & Hernández-Campoy 2007; Graff 2008: 138), it can be hypothesized that the L+H* !HL% nuclear configuration will disappear from the intonational system of Olivenza Spanish over the course of time. The same hypotheses as those presented for the exclamative yes-no questions (with counterexpectational meaning) can be formulated for the exclamative echo yes-no questions (with counterexpectational meaning), for which one underlying nuclear configuration of IPs was proposed for Olivenza Portuguese (i.e., L+H* !HL%) and two for Olivenza Spanish (i.e., L+H* !HL% and L+H* H%)[358].

6.3.4.3 *Wh-questions*

Two underlying nuclear configurations of IPs were proposed for the information-seeking wh-questions for the contact varieties under discussion: H+L* L% and L* H%. The L* L% nuclear contour, which occurred in few cases in the data analyzed for Olivenza Portuguese and Olivenza Spanish, was considered a surface realization of the underlying H+L* L% nuclear configuration.

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[357] However, the bilingual speakers are all older than 60.
[358] Interestingly, one of the nuclear configurations used to express counterexpectational echo yes-no questions in Castilian Spanish is L+H* HH% (Estebas-Vilaplana & Prieto 2010; cf. also Table 3.5 and Table 6.1).

Castilian Spanish and Standard European Portuguese also display two different nuclear configurations for this sentence type (cf. Table 3.5, Table 3.6, and Table 6.1): L* L% and L* HH% for Castilian Spanish (Estebas-Vilaplana & Prieto 2010) and H+L* L% and H+L* H% for Standard European Portuguese (Frota 2002b; Frota 2014). However, each of these contours is said to convey different pragmatic nuances: The contours L* L% (for Castilian Spanish) and H+L* L% (for Standard European Portuguese) are considered the more neutral ones. As for the rising final contours, Estebas-Vilaplana & Prieto (2010: 35) point out that the L* HH% nuclear configuration in Castilian Spanish "expresses a nuance of interest and greater speaker involvement in the speech act" and Frota (2014: 22) indicates that the H+L* H% nuclear contour is "a variant of the wh-question contour, which adds additional politeness to the question." The comparison between the four varieties shows that: First, Olivenza Portuguese and Olivenza Spanish pattern with Standard European Portuguese in exhibiting the underlying nuclear configuration H+L* L%[359]. Second, the contact varieties and Castilian Spanish show a rising nuclear contour consisting of a low nuclear accent and a rising boundary tone (labeled with L* H% for Olivenza Portuguese and Olivenza Spanish and with L* HH% for Castilian Spanish).

Based on the observation that H+L* L% is one of the nuclear configurations used to express information-seeking wh-questions in current Olivenza Portuguese, it can be suggested that Olivenza Portuguese displayed the 'Standard European Portuguese' tonal marking before the intensive contact with Spanish after 1801. Furthermore, it can be hypothesized that L* H% (the second underlying nuclear configuration proposed for this sentence type) was adopted into Olivenza Portuguese via convergence with Spanish. Similar to L* L% and L* HH% in Castilian Spanish and to H+L* L% and H+L* H% in Standard European Portuguese, it can be assumed that while the H+L* L% nuclear contour is used to convey information-seeking wh-questions without an additional pragmatic nuance, the L* H% nuclear configuration is used to signal the greater interest of the speaker or to express additional politeness. As for Olivenza Spanish, it can be suggested that the H+L* L% nuclear configuration is the outcome of the imperfect learning of Spanish by the Portuguese monolinguals (i.e., substratum transfer). In other words, H+L* L% was transferred from Olivenza Portuguese in the course of the acquisition of Spanish as an L2. If so, it can be expected that the Spanish spoken by the bilingual Spanish/Portuguese speakers exhibited H+L* L% as the typical final contour of information-seeking wh-questions in a first step. In a further step, the Spanish spoken by the bilingual Spanish/Portuguese speakers and the Spanish spoken by the Spanish settlers who came to Olivenza after 1801 seem to have converged. The

[359] Information-seeking wh-questions can be produced either with the final contour H+L* L% or with the final contour L* L% in the Portuguese variety spoken in Castro Verde (Cruz 2013: 68-69; Frota et al. 2015).

result of this convergence is an intonational system containing both the 'Portuguese' nuclear configuration H+L* L% and the 'Spanish' nuclear configuration L* H%. Similar to Olivenza Portuguese, while the H+L* L% nuclear configuration seems to be used to convey information-seeking wh-questions without an additional pragmatic nuance, the L* H% nuclear contour appears to be used to signal the greater interest of the speaker or to express additional politeness. It should further be mentioned that the observation that the L* L% nuclear configuration, which is used to convey information-seeking wh-questions in Castilian Spanish, was attested in current Olivenza Spanish allows the assumption that current Olivenza Spanish is converging towards the standard variety, i.e., Castilian Spanish (cf. footnote 326), which is the variety predominantly used in the mass media (Baker & Jones 1998: 284; Ruiz Martínez 2004; Cutillas-Espinosa & Hernández-Campoy 2007; Graff 2008: 138).

6.3.4.4 *Imperatives*

The underlying nuclear configurations of IPs established on the basis of the intonational analysis of the commands were H+L* L% and L+H* L% for both Olivenza Portuguese and Olivenza Spanish. While the H+L* L% nuclear contour was assumed to be used to express a clear order, the L+H* L% nuclear contour was suggested to be used to signal emphasis.

Two different final contours for commands are proposed in the literature for Castilian Spanish: L+H* M% (Estebas-Vilaplana & Prieto 2010) and L+!H* L% (Robles-Puente 2011). In Standard European Portuguese, the focus accents H*+L (used in statements) and L*+H (used in yes-no questions) are attested in commands (Frota 2014; cf. also Table 3.6); thus, the following contours are possible: H*+L … (L*) L%, L*+H … (L*) L%, and H*+L L% (cf. Frota 2014 for a more detailed description)[360]. Taking into account the findings outlined in this section, it can be said that: First, both contact varieties display a nuclear configuration which contains the nuclear accent L+H* (thus, they pattern alike with Castilian Spanish and differ from Standard European Portuguese). Second, Olivenza Portuguese and Olivenza Spanish show the same nuclear configurations (i.e., H+L* L% and L+H* L%).

The similarities between current Olivenza Portuguese and current Olivenza Spanish concerning the tonal marking of commands can be interpreted as the result of transfer and convergence processes between Portuguese and Spanish which took place in the course of the development of these two contact varieties. The fact that Olivenza Portuguese makes use of the 'Spanish' focus/emphasis marker L+H* instead of one of the 'European Portuguese' focus markers

[360] The same contours are also found in the Portuguese variety spoken in Castro Verde (Cruz 2013: 69-71).

L*+H or H*+L can be seen as the outcome of the convergence between Olivenza Portuguese and Spanish (cf. the discussion in Section 6.3.4.1.2 and Section 6.3.4.2.2).

The underlying nuclear configurations of IPs proposed for the requests were L+H* HL% for Olivenza Portuguese and L* HL% for Olivenza Spanish.

L* HL% is said to be the nuclear contour used to express requests in Castilian Spanish (Estebas-Vilaplana & Prieto 2010). In Standard European Portuguese, L* L% is the nuclear configuration proposed for this sentence type (Frota 2014)[361]. Considering this, it can be concluded that: First, Olivenza Portuguese and Olivenza Spanish pattern together in displaying the boundary tone HL%. Second, Olivenza Spanish and Castilian Spanish show the same nuclear configuration (i.e., L* HL%). Third, Olivenza Portuguese and Standard European Portuguese exhibit different nuclear configurations.

The comparison between the four varieties allows the following assumptions: The use of the same boundary tone in current Olivenza Portuguese and current Olivenza Spanish can be analyzed as the outcome of transfer and convergence processes between Portuguese and Spanish which took place in the course of the development of the two contact varieties under consideration. The presence of the L* HL% nuclear configuration in the intonational system of current Olivenza Spanish may be interpreted as the result of the convergence between the Spanish spoken by the Spanish/Portuguese bilinguals and the Spanish spoken by the Spanish settlers who came to Olivenza after 1801. On the basis of the fact that both Olivenza Spanish and Castilian Spanish exhibit the same nuclear contour, it can be suggested that current Olivenza Spanish is converging towards the standard variety Castilian Spanish (cf. footnote 326), which is the variety predominantly used in the mass media (Baker & Jones 1998: 284; Ruiz Martínez 2004; Cutillas-Espinosa & Hernández-Campoy 2007; Graff 2008: 138).

6.3.5 Speech rhythm

6.3.5.1 *Statements*

According to the results of the rhythmic analysis of the statements (including neutral and biased statements), Olivenza Spanish showed intermediate scores for both the proportion of vocalic material (i.e., %V) and the durational variability of vocalic intervals (i.e., VarcoV and VnPVI) situated between those for Castilian Spanish and those for Olivenza Portuguese (i.e., Castilian Spanish < Olivenza Spanish < Olivenza Portuguese). However, the differences observed be-

[361] The L* L% nuclear configuration is also used to express requests in the Portuguese variety spoken in Castro Verde (Cruz 2013: 69-71).

tween the three varieties studied were not so large (cf. Table 5.12 and Table 5.13). The differences between Castilian Spanish and Olivenza Spanish were traced back to the following phonological properties: the higher elision of intervocalic consonants in Olivenza Spanish and the presence of non-systematic vowel reduction in Olivenza Spanish (this phenomenon is absent in Castilian Spanish; cf. Prieto et al. 2012). The differences between Olivenza Spanish and Olivenza Portuguese were explained by referring to the stronger lengthening of nuclear and final syllables of inner ips attested in Olivenza Portuguese, the age of the Olivenza Portuguese speakers, and the vowel reduction. Both the elision of intervocalic consonants and the lengthening of inner ips may lead to higher %V, VarcoV, and VnPVI values. As for the age factor, Pettorino et al. (2014) have shown that older speakers exhibit a lower speech rate and thus higher %V values than younger speakers. Furthermore, it should be mentioned that vowel reduction accompanied by durational reduction contributes to greater VarcoV and VnPVI scores and to lower %V scores (Prieto et al. 2012). In the data analyzed for both Olivenza Portuguese and Olivenza Spanish, the vowel reduction rarely correlated with a strong durational reduction. Finally, Castilian Spanish, Olivenza Spanish, and Olivenza Portuguese showed almost the same VarcoC and CnPVI values. The three varieties patterned alike concerning the durational variability of consonantal intervals, since deletion of unstressed vowels[362] rarely occurred in the data analyzed for Olivenza Portuguese.

Regarding Standard European Portuguese, it has been shown that it displays high %V scores similar to the ones for Castilian Spanish on the one hand and a great durational variability of both vocalic and consonantal intervals similar to those for stress-timed languages such as Dutch and English on the other (Frota & Vigário 2001; Vigário et al. 2003; Cruz & Frota 2013; Cruz 2013: 95-101)[363]. The great durational variability of vocalic intervals may be traced back to the presence of vowel reduction accompanied by durational reduction. The high durational variability of consonantal intervals may be attributed to the deletion of unstressed vowels.

The findings presented in this section allow the following assumptions: The rules regulating the reduction or centralization of unstressed vowels[364] (including durational reduction) seem to have been transferred from Olivenza Portuguese to Spanish when the Portuguese speakers learned Spanish as an L2 (i.e., via substratum transfer). It can additionally be suggested that these

[362] Deletion of unstressed vowels is typical of European Portuguese varieties (Parkinson 1988; Mateus & d'Andrade 2000: 18, 40-46; Frota & Vigário 2001; Vigário et al. 2003, among others). It yields consonant clusters, which in turn contribute to a greater durational variability of consonantal intervals (Frota & Vigário 2001; Vigário et al. 2003).

[363] The Portuguese variety spoken in Castro Verde is said to show similar rhythmic properties to those of Standard European Portuguese (i.e., it displays a high proportion of vocalic material and a great durational variability of consonantal intervals) (Cruz 2013: 95-102).

[364] Cf. Vigário (2003: 67f., 92 f.) for a detailed description of phenomena affecting unstressed vowels in European Portuguese.

rules were categorically applied in the L2 Spanish spoken by the Portuguese monolinguals in one of the first stages of the learning continuum and possibly in the Spanish spoken by the Spanish/Portuguese bilinguals in a first step. However, due to a further convergence between the Spanish spoken by the Spanish/Portuguese bilinguals and the Spanish spoken by the Spanish settlers who came to Olivenza after its incorporation into Spain, the rules stipulating vowel reduction and durational reduction became optional. Evidence for this is found in current Olivenza Spanish, which has a non-systematic vowel reduction which rarely correlates with a strong durational reduction. A comparable development probably occurred in Olivenza Portuguese: It can be presumed that Olivenza Portuguese showed a vowel reduction accompanied by a stronger durational reduction before the intensive contact with Spanish. However, due to convergence with Spanish, the rules regulating the reduction or centralization of unstressed vowels (including durational reduction) seem to have undergone a similar change to those described above for Olivenza Spanish (e.g., the durational reduction became optional). The quite similar durational variability of vocalic intervals attested in both Olivenza Portuguese and Olivenza Spanish speaks in favor of such an assumption. These similarities allow us to further suggest that Olivenza Portuguese and Olivenza Spanish adopted an identical compromise concerning the rules determining the durational properties of stressed and unstressed vowels due to transfer and convergence processes which took place in the course of their development. In addition, it can be hypothesized that the rules defining the deletion of unstressed vowels in Olivenza Portuguese changed after its convergence with Spanish. The observation that unstressed vowels were rarely deleted in the Olivenza Portuguese material and the fact that Olivenza Portuguese patterned with Olivenza Spanish and Castilian Spanish in displaying a similar durational variability of consonantal intervals reinforce this suggestion.

6.3.5.2 *Questions*

Similar to the statements, Olivenza Spanish exhibited intermediate %V, VarcoV, and VnPVI scores situated between the ones for Castilian Spanish and those for Olivenza Portuguese for the yes-no questions (including both neutral and biased yes-no questions). Although the distribution of the three varieties concerning the %V, VarcoV, and VnPVI values was the same for both statements and yes-no questions (i.e., Castilian Spanish < Olivenza Spanish < Olivenza Portuguese), there were considerable differences between the %V, VarcoV, and VnPVI scores for the statements and those for the yes-no questions for the contact varieties, in contrast to Castilian Spanish, which displayed similar %V, VarcoV, and VnPVI scores for both sentence types. The considerably high %V, VarcoV, and VnPVI values obtained for the yes-no questions for Olivenza Portuguese and Olivenza Spanish were traced back to the strong lengthening of IP-final syllables attested in this sentence type in the contact varieties. Evidence for this was provided by comparing the rhythmic scores for the yes-no questions both including and excluding the IP-final syllables: When the IP-final syllables were excluded from the counting, the %V, VarcoV, and VnPVI scores for both Olivenza Portuguese and Olivenza Spanish strongly decreased, in contrast to those for Castilian Spanish, which remained almost the same. Moreover, the contact varieties displayed quite similar rhythmic values when the IP-final syllables were excluded from the analysis. Note that the IP-final lengthening was applied more consistently and was stronger in Olivenza Portuguese than in Olivenza Spanish. As for the durational variability of consonantal intervals, Castilian Spanish, Olivenza Spanish, and Olivenza Portuguese patterned together in showing very similar VarcoC, CrPVI, and CnPVI scores. Regarding the rhythmic properties of wh-questions (including both neutral and biased wh-questions) and echo questions (including both echo yes-no questions and echo wh-questions), it should be mentioned that the strong IP-final lengthening, attested in these sentence types in Olivenza Portuguese and Olivenza Spanish, constituted the main rhythmic difference between the contact varieties and Castilian Spanish. Note that the IP-final lengthening occurred more commonly and was stronger in the Olivenza Portuguese echo questions than in the Olivenza Spanish ones. Considering the findings presented above, it can be said that Olivenza Portuguese and Olivenza Spanish use a strong IP-final lengthening to convey sentence modality contrasts (e.g., statements vs. yes-no questions), in contrast to Castilian Spanish, which does not use such a durational marking.

According to recent suprasegmental studies, Standard European Portuguese, the Portuguese variety spoken in Castro Verde (Baixo Alentejo), and the Portuguese variety spoken in Monforte (Alto Alentejo) do not show similar lengthening effects in interrogatives (yes-no questions and wh-questions) to those described for the contact varieties spoken in Olivenza (Frota 2000, 2014; Frota & Vigário 2001; Vigário et al. 2003; Coimbra et al. 2010; Cruz 2013; Cruz & Frota 2013, among others).

As mentioned in Section 6.3.4.2.1, the strong IP-final lengthening in Olivenza Portuguese is hypothesized to be the result of an earlier language contact, rather than an outcome of the contact between Portuguese and Spanish after the incorporation of Olivenza into Spain (cf. discussion on p. 228-230). If this hypothesis is correct, it can be suggested that the IP-final lengthening attested in Olivenza Spanish questions can be interpreted as the result of substratum transfer that occurred when the monolingual Olivenza Portuguese speakers learned Spanish as an L2. The fact that the lengthening is weaker and appears less frequently in Olivenza Spanish than in

Olivenza Portuguese when the yes-no questions and the echo questions are taken into account can be seen as the result of the convergence between the prosodic systems of the Spanish spoken by the bilingual Spanish/Portuguese speakers and the Spanish spoken by the Spanish settlers who came to Olivenza after 1801[365]. The observation that the contact varieties display a similar proportion of vocalic material and a similar durational variability of vocalic intervals when the IP-final syllables are excluded from the analysis of the yes-no questions seems to confirm the suggestion that Olivenza Portuguese and Olivenza Spanish adopted an identical compromise concerning the rules determining the durational properties of stressed and unstressed vowels (cf. previous section)[366]. The similarities between Olivenza Portuguese and the Spanish varieties concerning the durational variability of consonantal intervals (cf. yes-no questions) reinforce the assumption made above about the rules defining the deletion of unstressed vowels in Olivenza Portuguese (cf. previous section)[367].

6.3.6 Summary: The prosodic systems of current Olivenza Portuguese and current Olivenza Spanish

Considering the findings of the intonational analysis and the rhythmic analysis and the discussion presented in Section 6.3, it can be assumed that:

1. The prosody of the current variety of Olivenza Portuguese can be interpreted as the result of wholesale[368] convergence between the (Olivenza) Portuguese and the Spanish prosodic systems. In turn, this wholesale convergence can be analyzed as an instance of first language attrition, since it has been shown that numerous ‘Spanish’ prosodic features have replaced the ‘Portuguese’ ones in Olivenza Portuguese.

2. The prosody of the current variety of Olivenza Spanish can be interpreted as the result of both substratum transfer (that occurred when the monolingual Olivenza Portuguese speakers learned Spanish as an L2) and convergence processes (the convergence between the Spanish spoken by the bilingual Spanish/Portuguese speakers and the Spanish spoken by

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[365] That is, a variety which shows the strong lengthening converges with a variety which does not present a similar durational marking. The result of such a convergence is an optional (or less frequent) and weaker lengthening.
[366] The observation that Olivenza Portuguese and Olivenza Spanish display almost the same %V and VarcoV scores for commands also appears to corroborate this assumption.
[367] A further piece of evidence for this assumption is provided by the results of the rhythmic analysis of the imperatives, according to which Castilian Spanish, Olivenza Spanish, and Olivenza Portuguese present a similar durational variability of consonantal intervals.
[368] I use the term *wholesale convergence* in line with Matras (2009: 232).

the Spanish settlers who came to Olivenza after its incorporation into Spain in 1801, and the convergence between Olivenza Portuguese and the Spanish spoken by the bilingual Spanish/Portuguese speakers).

Figure 6.1 illustrates the assumptions made in 1 and 2: In a first step, the Olivenza Portuguese monolinguals learn Spanish as an L2. The next generations become bilingual (simultaneous or consecutive bilinguals). In a further step, the Spanish spoken by the Spanish/Portuguese bilinguals converges with the Spanish spoken by the Spanish settlers who came to Olivenza after 1801 and Olivenza Portuguese converges with the Spanish spoken by the Spanish/Portuguese bilinguals. Since Spanish was the prestige variety, both current Olivenza Portuguese and current Olivenza Spanish show more ‘Spanish’ prosodic features than ‘Portuguese’ ones (cf. Section 6.2 and Section 6.3).

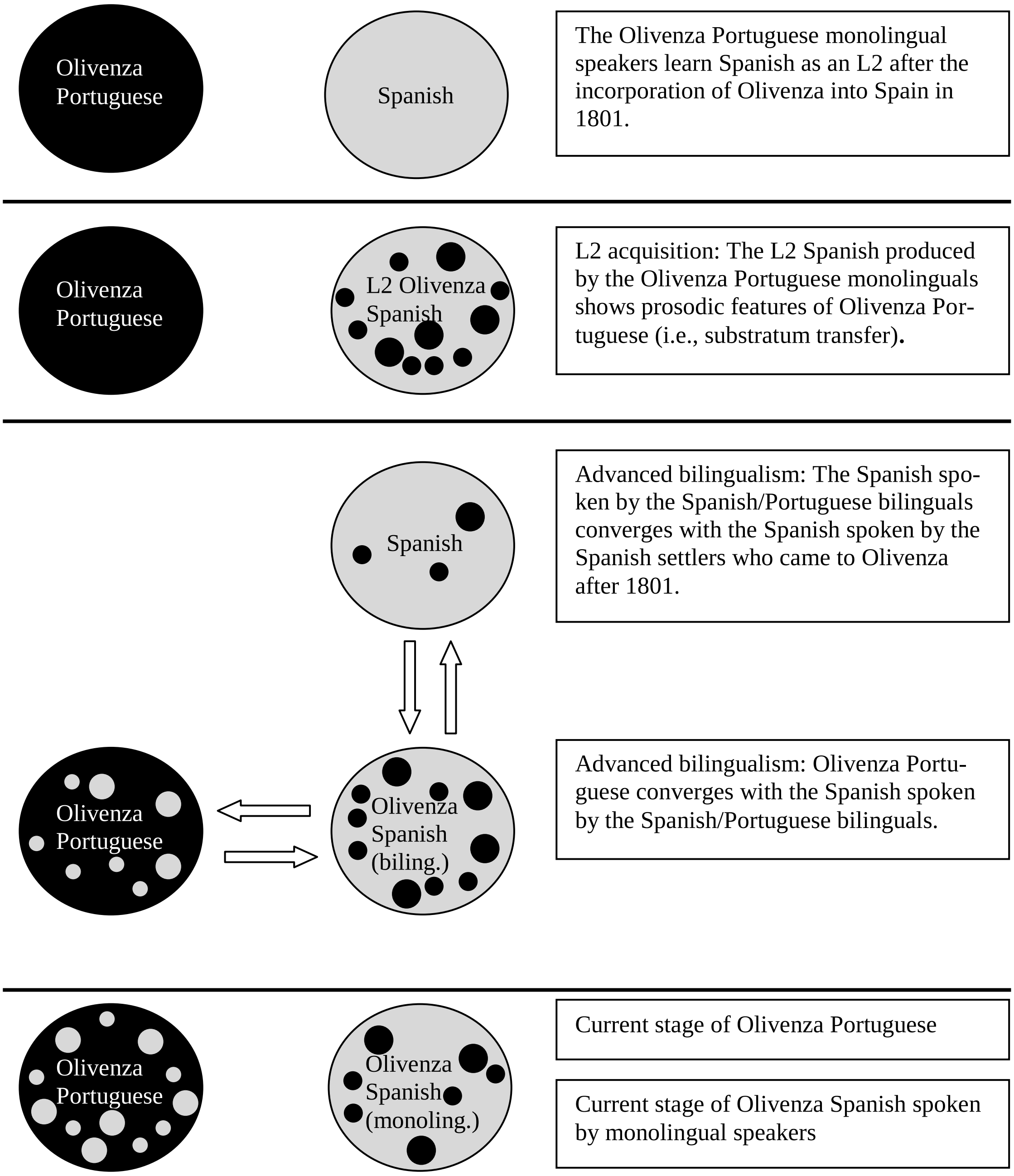

Figure 6.1. A schematic representation of the development of Olivenza Portuguese and Olivenza Spanish

6.4 Prosodic transfer and convergence: How does prosodic change work?

The results of the present study suggest that contact-induced prosodic change is crucially conditioned by social factors such as the strong pressure and the higher social status of the dominant language. In the case of the Spanish-Portuguese contact in Olivenza, they led to advanced bilingualism followed by a language shift towards Spanish (note that current Olivenza Portuguese is spoken only by bilingual speakers older than 60). The traces of the long-standing language contact can clearly be seen in current Olivenza Portuguese and current Olivenza Spanish. In what follows, I depict the steps which I assume Olivenza Portuguese to have gone through (cf. Section 6.3) and thus try to describe how contact-induced prosodic change resulting from convergence generally works:

1. Two varieties A and B are in contact (intensive and widespread bilingualism; language B is the prestige language).
2. Variety A adopts a prosodic feature X from variety B (e.g., a pitch accent, a nuclear configuration, a phrasing pattern, etc.). As a consequence, two competing features, X (the adopted one) and Y (the one belonging to the system of A before the incorporation of X), which are used to express the same thing, are found in variety A. In this first stage, it can be supposed that X will only be a surface realization of the underlying feature Y in variety A.
3. In a second stage, the degree of entrenchment of X (which is defined by the frequency with which X appears in variety A and variety B) will determine its further development in variety A. If X receives a high degree of entrenchment, it can be assumed that in the grammar of some speakers of variety A, X will be a surface realization of the underlying feature Y, and in the grammar of other speakers of variety A, X will become the underlying feature and Y its surface realization. This stage can be seen as an intermediate stage of the ongoing change, before one of the two groups becomes more numerous.
4. Since X is the feature which receives its degree of entrenchment from its use in variety A and from its use in variety B and X is the pattern adopted from the prestige language B, it can be expected that over the course of time, X will become the underlying feature and Y its surface realization in variety A.
5. Due to the higher degree of entrenchment of X, Y is expected to be realized less and less frequently in variety A.
6. Last, X will replace Y and Y will disappear from the prosodic system of variety A.

A quite similar development can be described for varieties which are suggested to be the result of substratum transfer followed by convergence processes. In the following, I present the steps which I assume Olivenza Spanish to have gone through (cf. Section 6.3) and thus try to depict how contact-induced prosodic change resulting from substratum transfer and convergence processes generally works:

1. A monolingual speaker group with a variety A as a mother tongue is required to learn variety B (language B has a high social prestige and is the variety used in administration, education, and church).
2. In a first step, the L2 variety of variety B will show prosodic features typical of variety A due to substratum transfer (i.e., imperfect learning in the course of SLA). An example: The speakers of the L2 variety use a prosodic feature X (e.g., a pitch accent, a nuclear configuration, a phrasing pattern, etc.), which has been transferred from their L1 (i.e., variety A), and the speakers of variety B use the prosodic feature Y to express the same thing.
3. In a second step, the children of the L2 speakers, which may be simultaneous or consecutive bilinguals, will also use the feature X, instead of the feature Y, when speaking variety B.
4. In a further step, it can be expected that the variety B spoken by the bilinguals will converge with the variety B spoken by the monolinguals. The result of this convergence may be the following: In the grammar of some speakers of variety B, Y is a surface realization of the underlying feature X, while in the grammar of other speakers of variety B, Y is the underlying feature and X its surface realization, and in the grammar of still other speakers of variety B, Y is the underlying feature and the realization of Y does not depend on external influences.
5. In a next step, the degree of entrenchment of X and Y (which is defined by the frequency with which X and Y appear in varieties A and B) will determine their further development in variety B. It should be mentioned here that variety A is assumed, first, to be influenced by the prestige variety B, and second, to have adopted features of variety B (among others perhaps the feature Y). Due to this, Y is expected to receive a higher degree of entrenchment.
6. Due to the higher degree of entrenchment of Y, X is expected to be realized less and less frequently in variety B.
7. Last, Y will replace X and X will disappear from the prosodic system of variety B.

6.5 Which kinds of prosodic features are usually transferred? Which kinds of prosodic features are more sensitive to convergence?

The results of the intonational analysis and the rhythmic analysis of Olivenza Portuguese and Olivenza Spanish and the summary of studies presented in Chapter 3 (cf. Section 3.4.3 and the references therein) allow us to suggest that all kinds of prosodic features can result from transfer and/or convergence processes. This, at least concerning prosody, confirms Thomason's assumption (2001: 61) that anything can be adopted by one language from another. The features which have been assumed to be the result of substratum transfer in the present study are: 1. phrasing patterns; 2. nuclear configurations of IPs (e.g., information-seeking wh-questions); 3. IP-final lengthening used to convey sentence modality contrasts (e.g., statements vs. yes-no questions); 4. vowel reduction. Regarding the features proposed to be the outcome of convergence in the present study, the following can be mentioned: 1. phrasing patterns; 2. prenuclear pitch accents; 3. nuclear pitch accents used to signal focus/emphasis; 4. nuclear configurations of IPs (e.g., neutral SVO declaratives, information-seeking yes-no questions, exclamative yes-no questions (with counterexpectational meaning), information-seeking wh-questions, etc.); 5. rules regulating the durational properties of stressed and unstressed vowels; 6. rules determining the deletion of unstressed vowels. Thus, the results of the present study seem to corroborate Matras's assumption (2009: 232) that prosody is highly susceptible to "wholesale convergence". However, considering the description of the change in the intonational system of Olivenza Portuguese due to the wholesale convergence with Spanish (cf. Section 6.3), it can be noted that some prosodic features appear to be more sensitive to change than others. Consequently, the following hierarchy can be given (the symbol '>' means 'more prone to change than'):

Prenuclear accents > Focus markers > Nuclear configurations > Prosodic phrasing > IP-final lengthening used to convey sentence modality contrasts

The IP-final lengthening attested in yes-no questions, wh-questions, and echo questions and used to convey sentence modality contrasts appears to have undergone the weakest change when we take into account the results of both the intonational analysis and the rhythmic analysis (i.e., taking into account the frequency and the strength of the IP-final lengthening in Olivenza Portuguese). The second prosodic pattern, which seems to display the next weakest converging tendencies, is the prosodic phrasing (note that first, the 'Spanish' phrasing pattern (S)(VO) is found only in 17% of the cases in the neutral SVO declaratives in Olivenza Portuguese, and second, the predominant phrasing pattern in the Olivenza Portuguese neutral SVO declaratives is the 'Standard European Portuguese' one, i.e., (SVO))[369]. Regarding the nuclear configurations,

[369] Cf. Section 6.2 and Section 6.3 for the references used for the comparison between Olivenza Portuguese, Castilian Spanish, Standard European Portuguese, and the Portuguese variety spoken in Castro Verde.

since there were examples of both maintenance of presumably original nuclear contours (e.g., H+L* L% in the neutral SVO declaratives and the information-seeking wh-questions) and adoption of nuclear contours of the contact language (e.g., L* L% in the neutral SVO declaratives), the nuclear configurations are proposed to be the next intonational pattern sensitive to convergence and thus to prosodic change. They appear to be followed by the focus marker(s) in this hierarchy: It has been assumed that Olivenza Portuguese adopted the ‘Spanish’ focus/emphasis marker L+(¡)H*. As shown in Section 5.1, the L+(¡)H* pitch accent was used in declaratives, questions, and imperatives to signal focus/emphasis in the current variety of Olivenza Portuguese. In contrast, the focus marker H*+L, conveying focus/emphasis in statements in (Standard) European Portuguese, was only found in very few cases in current Olivenza Portuguese and has therefore been analyzed as a surface realization of the underlying focus marker L+(¡)H*. Finally, due to the fact that neither of the ‘(Standard) European Portuguese’ prenuclear pitch accents (i.e., H* and L*+H) was systematically used in current Olivenza Portuguese, the prenuclear accents are suggested to be the prosodic features most sensitive to prosodic change in a situation of language convergence. Of course, this hierarchy is based only on the phonological convergence documented in Olivenza. Consequently, a cross-linguistic comparison is needed to confirm or reject the hierarchy proposed here.

CHAPTER 7

Conclusion

The present study investigated and described the intonation and the speech rhythm of Olivenza Portuguese spoken by bilingual speakers and Olivenza Spanish spoken by monolingual speakers. The results of both the intonational and the rhythmic analyses revealed that the contact varieties under consideration share numerous prosodic features and exhibit few differences. Regarding intonation, it was shown that Olivenza Portuguese and Olivenza Spanish use rising prenuclear accents (e.g., L+>H*) in all sentence types (when no deaccentuation takes place). In addition, the contact varieties pattern alike concerning the realization of the nuclear configurations of most of the sentence types analyzed (cf. neutral declarative sentences, contrastive focus statements, exclamative statements, information-seeking yes-no questions, disjunctive questions, interrogative enumerations, exclamative yes-no questions (with counterexpectational meaning), confirmation-seeking yes-no questions, information-seeking wh-questions, exclamative wh-questions, imperative wh-questions, echo yes-no questions, echo wh-questions, exclamative echo yes-no questions (with counterexpectational meaning), and commands; cf. Table 5.7 and Table 5.8). One of the peculiarities of Olivenza Portuguese and Olivenza Spanish is the use of strong lengthening effects to convey sentence modality contrasts (i.e., statements vs. questions); the two varieties use a phonological IP-final lengthening to mark interrogativity. This peculiarity is also reflected in the speech rhythm of the two varieties spoken in Olivenza: While Olivenza Portuguese and Olivenza Spanish pattern with Castilian Spanish in displaying quite similar VarcoV and VnPVI values for statements (cf. Table 5.13), this is not the case for interrogatives. Both contact varieties exhibit considerably higher %V, VarcoV, and VnPVI scores than Castilian Spanish for yes-no questions (cf. Table 5.17), wh-questions (cf. Table 5.22), and echo questions[370] (cf. Table 5.27). It was convincingly shown that these differences are predominantly due to the use of the strong IP-final lengthening in both Olivenza Portuguese and Olivenza Spanish (the lengthening being stronger and more frequently applied in Olivenza Portuguese than in Olivenza Spanish; cf. yes-no questions and echo questions). In contrast, Castilian Spanish does not use such a dura-

[370] For the echo questions, Olivenza Spanish differs from Castilian Spanish in displaying higher %V and VarcoV values on the one hand and patterns with Castilian Spanish in exhibiting quite similar VnPVI values on the other (cf. Table 5.27 and Section 5.3.4 for a more detailed description).

tional marking. As for the VarcoC, CrPVI, and CnPVI values, Olivenza Portuguese, Olivenza Spanish, and Castilian Spanish display a quite similar durational variability of consonantal intervals across the sentence types examined.

The comparison between the prosodic properties of Olivenza Portuguese, Olivenza Spanish, Standard European Portuguese, and Castilian Spanish showed that the contact varieties exhibit prosodic features typical of both Castilian Spanish and Standard European Portuguese on the one hand and properties which are not found in these standard varieties on the other (e.g., the phonological IP-final lengthening used to mark interrogativity and the underlying boundary tone !HL% used to express yes-no questions). Furthermore, it should be mentioned that Olivenza Portuguese and Olivenza Spanish show more ‘Castilian Spanish’ prosodic features than ‘Standard European Portuguese’ ones (cf. Table 6.1 and Section 6.2). On the basis of this comparison (cf. Section 6.3), it was suggested that: First, the prosody of current Olivenza Portuguese can be seen as the outcome of wholesale convergence between the (Olivenza) Portuguese and the Spanish prosodic systems. This wholesale convergence, in turn, can be interpreted as an instance of first language attrition, since numerous ‘Spanish’ prosodic features seem to have replaced the ‘Portuguese’ ones in Olivenza Portuguese. Second, the prosody of current Olivenza Spanish can be seen as the outcome of both substratum transfer (that occurred when the monolingual Olivenza Portuguese speakers learned Spanish as an L2 after the incorporation of Olivenza into Spain in 1801) and convergence processes (the convergence between the Spanish spoken by the bilingual Spanish/Portuguese speakers and the Spanish spoken by the Spanish settlers who came to Olivenza after 1801 as well as the convergence between Olivenza Portuguese and the Spanish spoken by the bilingual Spanish/Portuguese speakers). Based on the assumptions made about the prosodic systems of Olivenza Portuguese and Olivenza Spanish in Section 6.3, I depicted the steps which varieties resulting from language contact (i.e., from substratum transfer followed by convergence processes or from convergence only) appear to go through in Section 6.4. The change in the intonational system of Olivenza Portuguese that was described in Section 6.3 allowed the assumption that some prosodic features or patterns are more sensitive to change than others, and thus the following hierarchy was proposed (the symbol ‘>’ means ‘more prone to change than’): *Prenuclear accents* > *Focus markers* > *Nuclear configurations* > *Prosodic phrasing* > *IP-final lengthening used to convey sentence modality contrasts* (cf. Section 6.5).

The results of the prosodic analysis of Olivenza Portuguese and Olivenza Spanish and the discussion presented in Chapter 6 allow us to formulate the following questions which remain for further research and can be answered in follow-up studies:

1. Which prosodic cues are used to express imperative wh-questions in Olivenza Portuguese and Olivenza Spanish?
2. Which of the two competing underlying nuclear configurations proposed for some sentence types will replace the other in the variety of Olivenza Spanish spoken by the next generation(s)?
3. Will the next generation(s) continue to use the strong IP-final lengthening to convey sentence modality contrasts and to mark interrogativity in Olivenza Spanish?
4. Which is the future of Olivenza Spanish? Will it converge towards the standard variety or will it preserve its '(Olivenza) Portuguese' prosodic features to mark local identity?
5. Can the results of other studies on prosodic contact confirm the hierarchy given above (i.e., *Prenuclear accents* > *Focus markers* > *Nuclear configurations* > *Prosodic phrasing* > *IP-final lengthening used to convey sentence modality contrasts*)?

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Appendix

Intonation Survey (Olivenza Portuguese[371]):

Situations:

1. Declarative Intonation

1.1 Neutral statements

Neutral statements: Subject (topic) + Verb phrase (neutral focus)

1a2. Olha para o desenho e diz-me o que a Marina está fazendo. Começa a frase com 'a Marina', por favor!

A Marina está comendo tangerinas.

1a3. Olha para o desenho e diz-me o que a Marina está fazendo. Começa a frase com 'a Marina', por favor!

A Marina está tomando um refresco.

1a4. Olha para o desenho e diz-me o que a libélula está fazendo. Começa a frase com 'a libélula', por favor!

A libélula está pousada sobre a flor[i][372].

1a5. Olha para o desenho e diz-me o que a médica está fazendo. Começa a frase com 'a médica', por favor!

A médica está auscultando a menina.

Neutral statements: Subject + Verb (topic) + Direct object (neutral focus)

1a6. Olha para o desenho e diz-me para o que o médico está olhando.

O médico está olhando (para) a tangerina.

1a7. Olha para o desenho e diz-me para quem a Ângela está olhando.

A Ângela está olhando (para) o Danilo.

Declarative enumerations

1b1. Diz-me os dias da semana.

Segunda-feira, terça-feira, quarta-feira, quinta-feira, sexta-feira, sábado e domingo.

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[371] The survey was translated from Spanish into (Olivenza) Portuguese by Alba Herrero Núñez and María Luisa Saimero; they were born and raised in Olivenza and have lived there throughout their lives (with some brief interruptions). My special thanks to both of them. As can be seen in the survey and in the data presented in Chapter 5, Olivenza Portuguese shows lexical and morphosyntactic borrowings from Spanish.

[372] Olivenza Portuguese shows a word-final vowel epenthesis called *paragoge* (cf. p. 14).

1.2 Biased statements

Contrastive focus statements

1d1. Entras numa frutería para comprar tangerinas. Como a vendedora é um pouco surda, não te ouve bem, e, depois de lhe dizer[373] que querias um par de tangerinas, ela pergunta-te se são bananas, o que queres. Diz-lhe que não, que o que queres são tangerinas.

Senhora, eu não quero bananas, eu quero tangerinas!

Exclamative statements

1d2. Entras numa panadería e vês umas deliciosas rosquillas. Encantam-te. Diz-lho ao panadero.

Que boas!

1d4. Os[374] teus amigos convidam-te para comer e oferecem-te almôndegas. São as almôndegas mais deliciosas, as mais ricas que comeste na tua vida. Encantam-te. O que dizes?

Que boas! Me encantam!

Contradiction statements

1d3. Estás a falar com uma amiga de uns amigos que se querem comprar um andar e há um pouco de confusão sobre o lugar onde vão (a)[375] morar. Tu tens a certeza de que vão para Évora. A tua amiga diz-te que não, que vão para Mértola. Diz-lhe, convencida, que não, que eles vão (a) morar em Mértola.

Vão para Mértola!

2. Interrogative Intonation

2.1 Neutral (yes-no) questions

Information-seeking yes-no questions

2a1. Entras numa loja e perguntas se têm tangerinas.

Têm tangerinas?

2a2. Entras numa loja e perguntas se têm amêndoas.

Têm amêndoas?

2a3. Chamas o teu amigo Ronaldo em casa e perguntas se ele está.

Está o Ronaldo?

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[373] According to my corpus, Olivenza Portuguese patterns alike with Spanish concerning the clitic placement.
[374] According to my corpus, definite articles were often omitted in DPs with possessive pronouns in Olivenza Portuguese, in contrast to other European Portuguese varieties.
[375] According to my corpus, Olivenza Portuguese speakers often applied the periphrastic future with the particle *a* (cf. footnote 244).

2a4. Tentas chamar uma amiga tua que se chama Ramona, mas não está. Mais tarde voltas a chamar. Pergunta aos seus pais se já chegou.

Já chegou a Ramona?

Disjunctive questions

2b1. Compraste sorvete de mango e sorvete de amêndoa para o teu aniversário. Pergunta aos teus convidados se querem sorvete de mango ou de amêndoa.

Option 1: *O que querem/quereis? O sorvete de mango ou de amêndoa?*

Option 2: *Querem/Quereis um sorvete de mango ou de amêndoa?*

Interrogative enumerations

2c1. Um amigo teu precisa da tua ajuda para um trabalho. Tu podes ir na segunda-feira, na terça-feira ou na sexta-feira. Pergunta-lhe se quer que vás na segunda-feira, na terça-feira ou na sexta-feira.

Option 1: *Quando queres que vá? Na segunda-feira, na terça-feira ou na sexta-feira?*

Option 2: *Queres que vá na segunda-feira, na terça-feira ou na sexta-feira?*

2.2 Biased yes-no questions

Exclamative yes-no questions (with counterexpectational meaning)

2d1. O operário ia vir às 10, mas tiveste que sair para fazer a compra e deixaste a tua filha em casa para que o esperasse. Ao voltar, vês que o operário não está. Com muita surpresa, perguntas-lhe se ainda não veio.

Ainda não veio o operário!?

2d2. Acabas de jantar com um amigo e vês que ele para-se em frente a uma pastelaria. Pergunta-lhe, muito surpreendida/surpreendido, porque acabaram de jantar, se ainda tem fome.

Ainda tens fome!?

Confirmation-seeking yes-no questions

2d3. O Ronaldo prometeu vir (a)[376] jantar contigo. Pergunta-lhe para confirmar.

(Ronaldo), vens a jantar comigo?

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[376] According to my corpus, the verb *vir* ‘to come’ is used with the preposition *a* in such contexts in Olivenza Portuguese.

2d4. Convidaste a Marina para jantar. Acabam de jantar e perguntas-lhe se lhe apetece tomar uma copa de vinho.

(Marina), te apetece tomar uma copa de vinho?

2d5. Pergunta ao teu amigo Ronaldo se quer vir (a) tomar uma copa convosco.

(Ronaldo), queres vir a tomar uma copa connosco?

2d6. Pergunta aos teus sobrinhos pequenos se querem um sorvete de amêndoa.

(Meninos), querem/quereis um sorvete de amêndoa?

3. Interrogative Intonation

3.1 Neutral wh-questions

Information-seeking wh-questions

3a1. Tens que fazer uma viagem a Lisboa e queres comprar um presente para uma pessoa que não conheces e com a que queres ficar bem. Queres que um amigo te aconselhe e perguntas-lhe o que lhe levaria ele.

(O) que lhe comprarias?

3a2. Um amigo teu que se dedica ao aluguer de apartamentos conta-te que alugou uma casa que levava algum tempo sem alugar. Pergunta-lhe quem a alugou.

Quem a alugou?

3a3. Uma vizinha tua conta-te que veio o operário e como ela não tinha suficiente dinheiro, ele não pôde fazer o trabalho e disse-lhe que voltaria no dia seguinte. Pergunta à tua vizinha o que lhe vai (a) dizer quando ele volte.

(O) que lhe vais (a) dizer quando volte?

Information-seeking wh-questions with a peripheral element

3b1. Encontras um pacote na tua casa. Pergunta ao teu filho Ramiro quem o trouxe.

(Ramiro), quem trouxe este paquete/pacote?

Enumerations (successive wh-questions)

3c1. A tua filha diz-te que esta noite vai (a) sair. Pergunta-lhe onde vai, como vai e quando vai (a) voltar a casa.

Onde vais, como vais e quando vais (a) voltar[i]?

3.2 Biased wh-questions

Exclamative wh-questions

3d1. O teu irmão conta-te que o vosso primo deve muito dinheiro a um banco e vai pedindo mais empréstimos. Pergunta-lhe, surpreendida/surpreendido, porque sabes que ele deve muito, quanto dinheiro acabará devendo.

Quanto dinheiro vai (a) acabar devendo!?

Imperative wh-questions

3e1. Há um tipo raro no teu bairro que sempre te molesta e quando te encontra, nunca te deixa em paz. Hoje é já a terceira vez que te chama por telefone. Pergunta-lhe o que quer.

(O) que queres!?

3e2. Pedes ao teu irmão que te ajude numa coisa e não acreditas que o faça porque já lho pediste várias vezes e ainda não te ajudou. Pergunta-lhe, um pouco enojada/enojado, quando vai (a) dar-te uma mão.

Quando me vais (a) dar uma mão!?

4. Interrogative Intonation

Echo yes-no questions and echo wh-questions

4a1. Disseram-te que horas são, mas não o ouviste bem. Pensas que te disseram que são (as) nove. Volta a perguntar se são (as) nove.

São as nove?

4b1. Perguntaram-te onde vais, mas não sabes se te perguntaram isso. Pergunta se é isso o que te perguntaram.

(O que me perguntaste?) Onde/Donde vou?

Exclamative echo yes-no questions (with counterexpectational meaning)

4d1. Dizem-te que um amigo teu, o Ronaldo, se presenta para o posto de presidente. Não podes acreditar e voltas a perguntar muito surpreendida/surpreendido.

O Ronaldo (se presenta) para presidente!?

4d2. A tua vizinha conta-te que foi (a) comer a um restaurante e pediu coelho com cebola. Muito convencida, diz-te que lhe serviram gato em vez de coelho. Não podes acreditar. Pergunta-lhe, muito surpreendida/surpreendido, se de verdade lhe serviram gato.

Te serviram gato!?

5. Imperatives

Commands

5a1. Estás no parque com a tua sobrinha Lili. De repente, a Lili começa a correr e sai do parque. Assustas-te porque ao lado do parque há uma avenida por onde passam muitos carros. Diz-lhe que venha em seguida.

Lili, vem para cá!! / Lili, vem em seguida!!

Requests

5b1. Queres ir ao cinema com um amigo. Ele diz-te que tem que trabalhar, mas tu sabes que pode deixar o trabalho para outro dia. Como o convencerias? Diz-lhe que venha.

Vem comigo!!

Intonation Survey (Olivenza Spanish):

Situations:

1. Declarative Intonation

1.1 Neutral statements

Neutral statements: Subject (topic) + Verb phrase (neutral focus)

1a2. Mira el dibujo y dime qué está haciendo Marina. ¡Empieza la frase con ‘Marina’, por favor!

Marina está comiendo mandarina(s).

1a3. Mira el dibujo y dime qué está haciendo Marina. ¡Empieza la frase con ‘Marina’, por favor!

Marina está tomando una bebida.

1a4. Mira el dibujo y dime qué está haciendo la libélula. ¡Empieza la frase con ‘la libélula’, por favor!

La libélula está posada sobre la flor.

1a5. Mira el dibujo y dime qué está haciendo la médica. ¡Empieza la frase con ‘la médica’, por favor!

La médica está auscultando a la niña.

Neutral statements: Subject + Verb (topic) + Direct object (neutral focus)

1a6. Mira el dibujo y dime qué está mirando la médica.

La médica está mirando la mandarina.

1a7. Mira el dibujo y dime a quién está mirando Bárbara.

Bárbara está mirando a Manolo.

Declarative enumerations

1b1. Dime los días de la semana.

Lunes, martes, miércoles, jueves, viernes, sábado y domingo.

1.2 Biased statements

Contrastive focus statements

1d1. Entras en una frutería y resulta que la vendedora es un poco sorda. No te oye bien, y, después de decirle que querías un par de mandarinas, ella te pregunta si son limones, lo que quieres. Dile que no, que lo que quieres son mandarinas.

¡Señora, no quiero limones, quiero mandarinas!

Exclamative statements

1d2. Entras en una panadería y ves unas ricas rosquillas. Te encantan. Díselo al panadero.

¡Buenísimas!

1d4. Tus amigos te invitan a comer y te ofrecen albóndigas. Son las albóndigas más deliciosas, las más ricas que has comido en tu vida. Te encantan. ¿Qué dices?

¡Buenísimas! ¡Riquísimas!

Contradiction statements

1d3. Estás hablando con una amiga de unos amigos que se quieren comprar un piso y hay un poco de confusión sobre el lugar donde se van a vivir. Tú estás segura/seguro de que se van a vivir a Mérida. Tu amiga te dice que no, que ella está segura de que se van a vivir a Málaga. Dile, convencida/convencido, que no, que ellos se van a vivir a Mérida.

¡Se van a vivir a Mérida!

2. Interrogative Intonation

2.1 Neutral (yes-no) questions

Information-seeking yes-no questions

2a1. Entras en una tienda en la que nunca has estado antes y preguntas si tienen mandarinas.

¿Tienen mandarinas?

2a2. Entras en una tienda en la que nunca has estado antes y preguntas si tienen almendras.

¿Tienen almendras?

2a3. Llamas a casa de tu amigo Ronaldo y preguntas si está.

¿Está Ronaldo?

2a4. Intentas llamar a una amiga tuya que se llama Ramona, pero no está. Más tarde vuelves a llamar. Pregunta a sus padres si ya ha llegado.

¿Ha llegado Ramona?

Disjunctive questions

2b1. Has comprado helado de mango y de almendra para tu cumpleaños. Pregunta a tus invitados si quieren helado de mango o de almendra.

Option 1: *¿Qué quieren/queréis? ¿Helado de mango o de almendra?*

Option 2: *¿Quieren/Queréis helado de mango o de almendra?*

Interrogative enumerations

2c1. Un amigo tuyo te necesita para un trabajo. Tú puedes ir el lunes, el martes o el viernes. Pregúntale si quiere que vayas el lunes, el martes o el viernes.

Option 1: *¿Qué día quieres que vaya? ¿El lunes, el martes o el viernes?*

Option 2: *¿Prefieres/Quieres que vaya el lunes, el martes o el viernes?*

2.2 Biased yes-no questions

Exclamative yes-no questions (with counterexpectational meaning)

2d1. El obrero iba a venir a las 10, pero tuviste que salir para hacer la compra y dejaste a tu hija en casa para que lo esperara. Al volver, ves que el obrero no está. Con mucha sorpresa, le preguntas a tu hija si todavía no ha venido.

¿¡Todavía no ha venido el obrero!?

2d2. Acabas de cenar con un amigo y ves que él se para enfrente de una pastelería. Pregúntale, muy sorprendida/sorprendido, porque acabaron de cenar, si tiene hambre.

¿¡Todavía tienes hambre!?

Confirmation-seeking yes-no questions

2d3. Ronaldo prometió venir a cenar contigo. Pregúntale para confirmarlo.

(Ronaldo), ¿vienes a cenar conmigo?

2d4. Has invitado a Marina a cenar. Acaban de cenar y le preguntas si le apetece tomar una copa de vino.

(Marina), ¿te apetece tomar una copa de vino?

2d5. Pregunta a tu amigo Ronaldo si quiere venir a tomar una copa con vosotros.

(Ronaldo), ¿vienes a tomar un trago?

2d6. Pregunta a tus sobrinos pequeños si quieren un caramelo.

(Chicos), ¿queréis un caramelo?

3. Interrogative Intonation

3.1 Neutral wh-questions

Information-seeking wh-questions

3a1. Tienes que hacer un viaje a Madrid y quieres comprar un regalo para la persona que irá a buscarte, a la cual apenas conoces y con la que quieres quedar bien. Quieres que un amigo te aconseje y le preguntas qué le llevaría él.

¿Qué le comprarías?

3a2. Un amigo tuyo que se dedica al alquiler de apartamentos te cuenta que alquiló una casa que llevaba algún tiempo sin alquiler. Pregúntale quién la ha alquilado.

¿Quién la ha alquilado?

3a3. Una vecina tuya te cuenta que ha venido el obrero y como ella no tenía suficiente dinero, él no ha podido hacer el trabajo y le ha dicho que volvería al día siguiente. Pregunta a tu vecina qué le va a decir cuando él vuelva.

¿Qué le vas a decir cuando (él) vuelva?

Information-seeking wh-questions with a peripheral element

3b1. Encuentras un paquete en tu casa. Pregunta a tu hijo Ramiro quién lo trajo.

(Ramiro),¿quién trajo este paquete?

Enumerations (successive wh-questions)

3c1. Tu hija te dice que esta noche va a salir. Pregúntale dónde va, cómo va y cuándo va a volver a casa.

¿Dónde vas, cómo vas y cuándo vas a volver a casa?

3.2 Biased wh-questions

Exclamative wh-questions

3d1. Tu hermano te cuenta que vuestro primo debe mucho dinero a un banco y va pidiendo más préstamos. Pregúntale, sorprendida/sorprendido, porque sabes que él debe mucho, cuánto dinero acabará debiendo.

¿¡Cuánto dinero va a acabar debiendo!?

Imperative wh-questions

3e1. Hay un tipo raro en tu barrio que siempre te molesta y cuando te encuentra, nunca te deja en paz. Hoy es ya la tercera vez que te llama por teléfono. Pregúntale qué quiere.

¿!Qué quieres!?

3e2. Pides a tu hermano que te ayude en una cosa y no estás muy segura/seguro de que lo haga porque ya se lo pidiste varias veces y aún no te ha ayudado. Pregúntale, un poco enojada/enojado, cuándo te echará una mano.

¿!Cuándo me vas a echar una mano!?

4. Interrogative Intonation

Echo yes-no questions and echo wh-questions

4a1. Te han dicho qué hora es, pero no lo has oído bien. Crees que te han dicho que son las nueve. Vuelve a preguntar si son las nueve.

¿Son las nueve?

4b1. Te han preguntado a dónde vas, pero no sabes si lo has entendido bien. Pregunta si es eso lo que te han preguntado.

(¿Qué me preguntaste?) ¿(Que) a dónde voy?

Exclamative echo yes-no questions (with counterexpectational meaning)

4d1. Te dicen que un amigo tuyo, Ronaldo, se presenta para el puesto de alcalde. No te lo puedes creer y vuelves a preguntar con mucha sorpresa.

¿¡Ronaldo (se presenta) para alcalde!?

4d2. Tu vecina te cuenta que ayer fue a comer a un restaurante y pidió conejo con cebolla. Muy convencida, te dice que le sirvieron un gato en vez del conejo. No te lo puedes creer. Pregúntale, muy sorprendida/sorprendido, si de verdad le sirvieron gato.

¿¡(Que) te sirvieron gato!?

5. Imperatives

Commands

5a1. Estás en el parque con tu sobrina Lili. De repente, ella echa a correr y sale del parque. Te asustas porque al lado del parque hay una avenida por donde pasan muchos coches. Dile que venga en seguida.

¡¡Lili, ven aquí!! / ¡¡Lili, vuelve en seguida!!

Requests

5b1. Quieres ir al cine con un amigo. Te dice que tiene que trabajar, pero tú sabes que lo puede dejar para otro día. ¿Cómo lo convencerías? Dile que venga.

¡Venga, hombre, vente al cine!

<u>Intonation Survey (Castilian Spanish):</u>

Situations:

1. Declarative Intonation

1.1 Neutral statements

Broad focus statements

1a1. Te preguntan si prefieres peras o mandarinas. Tú respondes que mandarinas.

Mandarinas.

1a2. Mira el dibujo y dime qué está haciendo Marina.

(Marina) está comiendo mandarinas.

1a3. Mira el dibujo y dime qué está haciendo Marina.

(Marina) está tomando una bebida.

Declarative enumerations

1b1. Dime los días de la semana.

Lunes, martes, miércoles, jueves, viernes, sábado y domingo.

Statements with a peripheral element

1c1. Imagínate que acabas de conocer a alguien de San Juan y resulta que allí viviste muchos años. ¿Cómo se lo dirías?

(¡Eres de San Juan!) Yo viví muchos años allí.

1.2 Biased statements

Contrastive focus statements

1d1. Entras en una frutería y resulta que la vendedora es un poco sorda. No te oye bien, y, después de decirle que querías un par de naranjas, ella te pregunta si son limones, lo que quieres. Dile que no, que lo que quieres son naranjas.

¡Señora, no quiero limones, quiero naranjas!

Exclamative statements

1d2. Entras en una panadería y hueles unas ricas medialunas. Te encantan. Díselo al panadero.

¡Qué bien huelen esas medialunas!

1d4. Te invitan a un asado y es el más delicioso, el más bueno que has comido en tu vida. Te encanta. ¿Qué dices?

¡Buenísimo! / ¡Riquísimo! / ¡Qué buen asado!

Contradiction statements

1d3. Estás hablando con una amiga de unos amigos que se quieren comprar un piso y hay un poco de confusión sobre el lugar donde se van a vivir. Tú estás segura/seguro de que se van a vivir a San Juan. Tu amiga te dice que no, que ella está segura de que se van a vivir a San Rafael. Dile, convencida/convencido, que no, que ellos se van a vivir a San Juan.

¡Se van a vivir a San Juan!

Uncertainty statements

1d5. Un amigo te pide que compres un regalo para alguien que apenas conoces y tienes miedo de elegir algo no adecuado. Dile que puede ser que no le guste.

Puede ser que no le guste...

2. Interrogative Intonation

2.1 Neutral yes-no questions

Information-seeking yes-no questions

2a1. Entras en una tienda en la que nunca has estado antes y preguntas si tienen mandarinas.

¿Tienen mandarinas?

2a2. Entras en una tienda en la que nunca has estado antes y preguntas si tienen almendras.

¿Tienen almendras?

2a3. Llamas a casa de tu amigo Manuel y preguntas si está.

¿Está Manuel?

2a4. Intentas llamar a una amiga tuya que se llama Natalia, pero no está. Más tarde vuelves a llamar. Pregunta a sus padres si ya ha llegado.

¿Ha llegado Natalia?

2.2 Biased yes-no questions

Exclamative yes-no questions (with counterexpectational meaning)

2d2. Acabas de cenar con un amigo y ves que él se para enfrente de una pastelería. Pregúntale, muy sorprendida/sorprendido, porque acabaron de cenar, si tiene hambre.

¿¡Todavía tienes hambre!?

Confirmation-seeking yes-no questions

2d3. Juan dijo que venía a cenar. Le preguntas para confirmarlo.

(Juan), ¿vienes a cenar (conmigo)?

2d6. Pregunta a tus sobrinos pequeños si quieren un alfajor.

(Chicos), ¿queréis un alfajor?

3. Interrogative Intonation

3.1 Neutral wh-questions

Information-seeking wh-questions

3a1. Tienes que hacer un viaje a Montevideo y quieres comprar un regalo para la persona que te va a acoger, a la cual apenas conoces y con la que quieres quedar bien. Quieres que un amigo te aconseje y le preguntas qué le llevaría él.

¿Qué le comprarías?

3a2. Un amigo tuyo que se dedica al alquiler de apartamentos te cuenta que alquiló una casa que llevaba algún tiempo sin alquiler. Pregúntale quién la ha alquilado.

¿Quién la ha alquilado?

Enumerations (successive wh-questions)

3c1. Tu hija te dice que esta noche va a salir. Pregúntale dónde va, cómo va y cuándo va a volver a casa.

¿Dónde vas, cómo vas y a qué hora vas a volver a casa?

3.2 Biased wh-questions

Exclamative wh-questions

3d1. Tu hermano te cuenta que vuestro primo debe mucho dinero a un banco y va pidiendo más préstamos. Pregúntale, sorprendida/sorprendido, porque sabes que él debe mucho, cuánto dinero acabará debiendo.

¿¡Cuánto dinero va a acabar debiendo!?

Imperative wh-questions

3e2. Pides a tu hermano que te ayude en una cosa y no estás muy segura/seguro de que lo haga porque ya se lo pidiste varias veces y aún no te ha ayudado. Pregúntale, un poco enojada/enojado, cuándo lo va a hacer.

¿!Cuándo me vas a ayudar!?

4. Interrogative Intonation

Echo yes-no questions and echo wh-questions

4a1. Te han dicho qué hora es, pero no lo has oído bien. Crees que te han dicho que es la una. Vuelve a preguntar si es la una.

¿Es la una?

4b1. Te han preguntado a dónde vas, pero no sabes si lo has entendido bien. Pregunta si es eso lo que te han preguntado.

¿(Que) a dónde voy?/ ¿Me has preguntado a dónde voy?

Exclamative echo yes-no questions (with counterexpectational meaning)

4d1. Te dicen que un amigo tuyo, Juan, se presenta para el puesto de alcalde. No te lo puedes creer y vuelves a preguntar con mucha sorpresa.

¿¡Juan (se presenta) para alcalde!?

5. Imperatives

Commands

5a1. Estás en el parque con tu sobrina Natalia. De repente, ella echa a correr y sale del parque. Te asustas porque al lado del parque hay una avenida por donde pasan muchos coches. Dile que venga en seguida.

¡¡Naty, ven aquí!! / ¡¡Natalia, vuelve (en seguida)!!

Requests

5b1. Quieres ir al cine con un amigo. Te dice que tiene que trabajar, pero tú sabes que lo puede dejar para otro día. ¿Cómo lo convencerías? Dile que venga.

¡Venga, hombre, vente al cine!

Rhythmic analysis

Statements

%V, VarcoV, VarcoC, and PVI values for each speaker for the statements in Castilian Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	38.95	37.31	44.73	34.44	45.54	46.38	114	121
Speaker_2	42.47	54.11	49.03	43.59	43.98	48.95	76	82
Speaker_3	42.73	39.03	42.86	38.98	39.85	46.38	90	96
Speaker_4	40.41	39.94	42.07	32.67	40.94	42.47	104	114
Speaker_5	38.48	45.57	39.71	37.87	37.29	42.44	84	91
mean	**40.61**	**43.19**	**43.68**	**37.51**	**41.52**	**45.32**		
total							**468**	**504**

%V, VarcoV, VarcoC, and PVI values for each speaker for the statements in Olivenza Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	44.47	46.99	43.22	39.07	35.58	46.78	122	124
Speaker_2	45.68	52.21	45.5	37.22	39.88	48.61	162	164
Speaker_3	42.87	33.33	43.88	24.32	35.21	45.57	129	132
Speaker_4	45.01	52.28	39.3	41.98	33.25	38.86	120	120
Speaker_5	45.91	65.69	41.04	53.5	34.1	47.37	110	112
Speaker_6	42.06	45.82	41.05	44.07	43.57	48.71	111	113
Speaker_7	49.03	47.75	42.43	41.28	40.41	46.68	141	142
Speaker_8	47.54	50.66	46.73	47.05	38.22	43.25	114	114
Speaker_9	42.87	42.26	42.75	32.93	36.69	40.99	127	137
Speaker_10	41.37	39.87	43.1	29.34	41.16	48.24	115	121
mean	**44.68**	**47.69**	**42.9**	**39.08**	**37.81**	**45.51**		
total							**1251**	**1279**

%V, VarcoV, VarcoC, and PVI values for each speaker for the statements in Olivenza Portuguese

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	46.03	54.99	36.99	46.51	38.54	42.94	127	125
Speaker_2	48.48	50.29	40.05	45.13	44.67	44.4	121	116
Speaker_3	48.64	54.34	40.51	46.29	46.24	41.89	122	115
Speaker_4	47.18	52.81	42.64	39.83	44.04	47.45	124	114
Speaker_5	48.47	50.38	40.02	36.77	41.39	43.49	115	109
Speaker_6	48.15	55.48	48.49	44.5	57.23	49.08	136	128
Speaker_7	50.76	52.72	45.83	43.18	49.23	53.29	113	107
Speaker_8	50.11	49.03	36.29	40.65	41.94	47.13	142	136
Speaker_9	53.92	63.53	36.28	48.45	40.1	47.08	98	92
Speaker_10	49.47	36.83	46.69	30.5	47.93	47.64	94	90
mean	**49.12**	**52.04**	**41.38**	**42.18**	**45.13**	**46.44**		
total							**1192**	**1132**

Yes-no questions

%V, VarcoV, VarcoC, and PVI values for each speaker for the yes-no questions in Castilian Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	40.22	47.89	42.72	44.8	43.28	52.69	56	59
Speaker_2	41.53	43.94	34.15	40.69	31.62	43.69	50	54
Speaker_3	39.01	42.18	41.38	42.73	36.01	44.64	70	73
Speaker_4	39.65	46.69	39.37	40.55	40.22	47.54	82	81
Speaker_5	40.43	48.24	40.55	49.18	34.41	51.33	58	58
mean	**40.17**	**45.78**	**39.63**	**43.59**	**37.11**	**47.98**		
total							**316**	**325**

%V, VarcoV, VarcoC, and PVI values for each speaker for the yes-no questions in Olivenza Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	49.77	90.43	50.61	62.71	43.53	48.71	54	54
Speaker_2	49.72	59.49	42.94	56.99	40.4	50.18	59	59
Speaker_3	48.65	76.86	38.28	48.71	36.32	48.07	80	81
Speaker_4	42.94	54.75	38.66	54.02	34.55	51.31	71	70
Speaker_5	50.37	60.89	33.88	52.6	26.23	42.95	50	50
Speaker_6	46.85	62.83	48.15	57.86	39.63	47.64	63	63
Speaker_7	50.87	55.46	36.5	51.79	30.26	42.06	71	70
Speaker_8	50.22	64.65	44.42	69.94	42.43	50.91	79	78
Speaker_9	45.44	55	44.39	47.66	49.24	55.65	61	59
Speaker_10	47.21	49.19	41.46	43.89	37.56	50.57	57	54
mean	**48.2**	**62.96**	**41.93**	**54.62**	**38.01**	**48.81**		
total							**645**	**638**

%V, VarcoV, VarcoC, and PVI values for each speaker for the yes-no questions in Olivenza Portuguese

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	52.92	61.02	39.72	46.39	42.34	46.72	63	62
Speaker_2	54.51	78.37	37.28	65.76	36.53	43.02	56	57
Speaker_3	51.28	66.84	38.38	65.62	46.89	45.26	56	57
Speaker_4	50.13	47.29	35.51	46.14	29.3	37.74	61	61
Speaker_5	57.08	92.06	41.3	57.98	43.47	49.44	62	60
Speaker_6	45.6	69.61	33.65	55.12	43.05	40.41	64	65
Speaker_7	59.43	70.17	36.51	66.98	37.22	43.82	55	53
Speaker_8	58.49	111.07	32.89	61.3	34.16	38.13	55	57
Speaker_9	55.9	89.14	42.59	68.42	50.01	49.68	46	48
Speaker_10	53.08	76.6	46.23	62.28	48.97	54.16	71	70
mean	**53.84**	**76.22**	**38.41**	**59.6**	**41.19**	**44.84**		
total							**589**	**590**

Wh-questions

%V, VarcoV, VarcoC, and PVI values for each speaker for the wh-questions in Castilian Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	42.45	53.71	40.69	40.66	42.31	49.94	74	75
Speaker_2	40.42	54.71	37.68	49.85	39.21	47.78	40	44
Speaker_3	40.04	56.61	34.22	39.33	25.2	32.95	46	50
Speaker_4	43.3	49.92	36.9	42.4	30.15	36.32	55	58
Speaker_5	40.3	54.02	39.61	44.94	30.41	41.26	44	48
mean	**41.3**	**53.8**	**37.82**	**43.43**	**33.46**	**41.65**		
total							**259**	**275**

%V, VarcoV, VarcoC, and PVI values for each speaker for the wh-questions in Olivenza Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	51.19	85.08	41.47	60.94	35.35	43.11	49	48
Speaker_2	52.15	68.91	46.28	55.47	36.17	46.42	70	67
Speaker_3	50.69	71.05	41.96	66.09	34.7	43.17	60	59
Speaker_4	47.51	58.01	39.65	44.37	29.74	43.21	59	57
Speaker_5	44.52	62.78	40.47	58.69	33	45.54	49	52
Speaker_6	46.68	55.82	45.28	59.18	40.07	45.3	49	50
Speaker_7	51.67	58.65	30	51.74	28.85	34.87	65	62
Speaker_8	56.37	73.43	41.71	65.54	30.02	40.23	64	59
Speaker_9	48.95	59.07	45.61	40.93	44.71	52.24	54	53
Speaker_10	45	48.61	38.79	37.56	33.7	44.29	45	46
mean	**49.47**	**64.14**	**41.12**	**54.05**	**34.63**	**43.84**		
total							**564**	**553**

%V, VarcoV, VarcoC, and PVI values for each speaker for the wh-questions in Olivenza Portuguese

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	52.61	64.41	44.59	50.71	45.42	54.61	54	52
Speaker_2	53.79	79.64	50.32	57.31	43.04	42.77	51	52
Speaker_3	53	56.47	39.17	50.49	43.2	41.67	51	47
Speaker_4	48.92	58.1	63.43	55.91	64	55.6	47	45
Speaker_5	56.9	103.09	42.31	54.75	31.86	39.98	51	51
Speaker_6	48.92	67.84	37.32	55	40.85	38.78	56	55
Speaker_7	54.34	61.72	39.99	52.45	38.68	42.39	56	55
Speaker_8	48.13	59.05	46.01	48.28	50.69	52.38	54	53
Speaker_9	53.03	67.33	51.16	58	57.23	56.35	50	49
Speaker_10	54.04	74.89	36.99	60.59	37.51	45.76	42	43
mean	**52.37**	**69.25**	**45.13**	**54.35**	**45.25**	**47.03**		
total							**512**	**502**

Echo questions

%V, VarcoV, VarcoC, and PVI values for each speaker for the echo questions in Castilian Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	40.31	63.93	44.02	53.54	51.25	55	24	24
Speaker_2	46.75	57.6	57.73	53.28	42.76	58.91	22	21
Speaker_3	44.36	65.53	49.79	61.7	43.98	51.11	18	17
Speaker_4	48.04	48.66	49.06	44.46	38.24	37.95	15	16
Speaker_5	44.5	67.71	40.46	66.75	45.55	55.86	20	19
mean	**44.79**	**60.69**	**48.21**	**55.95**	**44.36**	**51.77**		
total							**99**	**97**

%V, VarcoV, VarcoC, and PVI values for each speaker for the echo questions in Olivenza Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	61.68	91.98	44.88	89.01	49.43	53.4	10	10
Speaker_2	51.88	59.83	47.05	61.57	42.8	56.19	18	18
Speaker_3	50.34	89.13	46.89	51.96	51.23	69.1	26	26
Speaker_4	46.19	57.46	42.66	40.72	39.3	60.32	27	27
Speaker_5	50.01	77.58	46.41	52.52	28.97	40.19	20	20
Speaker_6	46.37	60.83	53.23	52.09	57.35	61.71	20	19
Speaker_7	50.09	63.65	58.78	68.35	35.91	47.54	23	23
Speaker_8	50.71	72.52	55.88	57.14	41.12	51.1	19	18
Speaker_9	48.96	57.85	43.68	49.39	38.24	45.63	21	21
Speaker_10	44.6	51.86	44.97	43.83	45.08	59.36	20	20
mean	**50.08**	**68.27**	**48.44**	**56.66**	**42.94**	**54.45**		
total							**204**	**202**

%V, VarcoV, VarcoC, and PVI values for each speaker for the echo questions in Olivenza Portuguese

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	49.05	102.92	47.32	73.78	60.09	47.24	18	18
Speaker_2	55.01	104.71	21.49	57.15	22.15	23.58	22	22
Speaker_3	50.77	77.68	49.23	77.06	74.26	66.75	24	24
Speaker_4	47.85	94.6	69.15	54.53	66.61	50.43	21	20
Speaker_5	59.39	119.64	42.01	62.86	41.86	52.07	23	22
Speaker_6	43.2	75.65	43.7	48.68	50.09	54.18	38	38
Speaker_7	55.26	92.68	31.18	94.23	36.57	32.2	15	14
Speaker_8	56.7	95.73	37.95	90.35	39.91	47.01	23	23
Speaker_9	59.87	100.99	52.04	67.53	61.78	68.14	15	13
Speaker_10	64.34	105.19	32.5	66.8	35.29	43.67	15	14
mean	**54.14**	**96.98**	**42.66**	**69.3**	**48.86**	**48.53**		
total							**214**	**208**

Imperatives

%V, VarcoV, VarcoC, and PVI values for each speaker for the imperatives in Castilian Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	42.17	46.29	40.6	38.45	50.39	52.97	28	28
Speaker_2	51.04	67.54	27.53	40.06	30.06	34.67	9	9
Speaker_3	44.74	39.14	31.78	34.43	32.26	48.31	20	20
Speaker_4	40.36	28.17	38.1	32.62	50.1	54.72	10	11
Speaker_5	47.36	46.48	41.66	49.2	44.27	49.29	9	8
mean	**45.13**	**45.52**	**35.94**	**38.95**	**41.42**	**47.99**		
total							**76**	**76**

%V, VarcoV, VarcoC, and PVI values for each speaker for the imperatives in Olivenza Spanish

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	51.96	51.65	23.91	52.91	27.13	33.96	9	9
Speaker_2	51.87	41.68	42.07	40.92	42.37	48.58	28	27
Speaker_3	54.1	98.08	30.67	70.05	31.27	35.75	15	14
Speaker_4	40.15	56.73	52.52	43.06	55.07	66.97	18	18
Speaker_5	38.81	43.13	43.8	34.87	34.68	54.88	15	16
Speaker_6	44.68	44.19	49.7	46.05	64.23	66.15	12	12
Speaker_7	45.82	33.5	32.87	39.1	38.44	33.92	12	12
Speaker_8	59.03	93	40.06	59.84	46.06	51.56	9	9
Speaker_9	47.37	39.9	39.33	42.56	42.93	47.81	27	27
Speaker_10	40.88	24.84	22.23	25.09	20.27	28.53	22	22
mean	**47.47**	**52.67**	**37.72**	**45.44**	**40.24**	**46.81**		
total							**167**	**166**

%V, VarcoV, VarcoC, and PVI values for each speaker for the imperatives in Olivenza Portuguese

	%V	VarcoV	VarcoC	VnPVI	CrPVI	CnPVI	intV	intC
Speaker_1	54.47	51.36	31.07	48.46	40.84	43.45	19	19
Speaker_2	56.12	51.95	30.11	54.35	34.18	35.65	16	16
Speaker_3	54.82	60.24	34.25	70.07	50.27	48.02	16	15
Speaker_4	46.99	41.46	50.69	41.63	50.64	47.83	21	19
Speaker_5	48.92	74.56	39.73	72.19	48.3	45.38	17	17
Speaker_6	39.37	39.11	32.33	58.57	40.51	35.07	12	12
Speaker_7	62.16	86.22	28.05	51.81	34.14	37.73	17	15
Speaker_8	52.36	44.73	33.39	52.65	50	48.91	13	13
Speaker_9	49.2	52.55	36.91	59.06	46.61	44.61	19	18
Speaker_10	49.67	45.41	48.27	49.71	53.85	44.43	24	23
mean	**51.41**	**54.76**	**36.48**	**55.85**	**44.93**	**43.11**		
total							**174**	**167**