TRANSCRIPTION OF INTONATION OF JEREZANO ANDALUSIAN SPANISH

UNA TRANSCRIPCIÓN DE LA ENTONACIÓN DEL DIALECTO JEREZANO DE ANDALUCÍA, ESPAÑA

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ABSTRACT

Dialect variation in intonation is a widely attested phenomenon in the cross-linguistic literature (see Warren 2005a) and also in the literature on Spanish (Prieto & Roseano 2010, Sosa 1999). Prieto and Roseano (2010) provide an edited volume on the transcription of Spanish intonation for ten different dialects of the language. Two of these chapters characterize the intonation of Spanish spoken in northern and central Spain, but no information is offered on varieties spoken in the southern Andalusia area. This paper is designed to fill this gap in the literature as it investigates the acoustic properties of a series of F0 contours produced in an intonation survey by nine speakers from Jerez de la Frontera, a coastal city located in the southwest province of Cádiz, Spain. Speech data were analyzed in Praat (Boersma & Weenink 2011) following the original Sp_ToBI transcription system (Beckman, Díaz-Campos, McGory, & Morgan 2002) and the revised system put forth in Estebas-Vilaplana and Prieto (2008). Results show that neutral and biased statements were communicated by the L* L% vs. L+H* L% contrast, respectively. Confirmation questions show a variety of patterns based on the speaker's belief of the proposition in question. Two configurations are possible for information-seeking wh-questions, H+L* L% and L+¡H* L%. Commands are the only pragmatic intent for which the M% boundary tone is used, and vocatives are characterized by L+H* HL% in neutral and marked intents. Although Jerezano Andalusian speakers share intonational characteristics with other varieties of European and American Spanish, there are important differences that motivate a thorough investigation of this language variety. Finally, dialect comparisons are provided to achieve a more comprehensive account of intonational variation in Spanish.

Keywords: *intonation, Sp_ToBI, Jerezano Andalusian Spanish, dialect variation.*

RESUMEN

La variación dialectal de la entonación es un fenómeno ampliamente corroborado en la literatura especializada en el análisis lingüístico de las lenguas (ver Warren 2005a) así como en múltiples publicaciones sobre el español (Prieto & Roseano 2010, Sosa 1999). Prieto y Roseano (2010) ofrecen un volumen editado sobre la transcripción de la entonación española de diez dialectos diferentes. Aunque dos de estos capítulos especifican la entonación del español peninsular en las zonas norte y central, no se aporta ninguna información sobre las variedades habladas en el sur de Andalucía. Este proyecto está diseñado para suplir esta carencia y de este modo,

ofrecer una investigación sobre las propiedades acústicas de una serie de contornos F0 producidos en una encuesta entonativa realizada por 9 hablantes de Jerez de la Frontera, ciudad localizada al suroeste de la provincia de Cádiz, España. Los datos de producción oral fueron analizados con Praat (Boersma & Weenink 2011) siguiendo tanto el sistema de transcripción para Sp_ToBI (Beckman, Díaz-Campos, McGory, & Morgan 2002), como el sistema revisado de Estebas-Vilaplana y Prieto (2008). Los resultados muestran que las afirmaciones neutrales y no neutrales se produjeron mediante el contraste L* L% vs. L+H* L% respectivamente. En cuanto a las preguntas de confirmación, éstas muestran una variedad de patrones basados en la creencia que el hablante tiene de la pregunta en cuestión. Sobre las preguntas QU (o pronominales), dos configuraciones resultaron posibles: H+L* L% y L+¡H* L%. Las órdenes resultaron ser la única intención pragmática para las que se usa la frontera tonal M%, y por último, los vocativos se produjeron mediante L+H* HL% en intenciones de habla neutrales y marcadas. Aunque los hablantes del acento jerezano del andaluz comparten características entonativas con otras variedades del español europeo y americano, hay diferencias importantes que motivan una investigación profunda de esta variedad. Por último, se proporcionan comparaciones dialectales con la intención de conseguir una explicación más completa de la variación entonativa del español.

Palabras clave: *entonación, Sp_ToBI, jerezano, español andaluz, variación dialectal*

1. INTRODUCTION

The goal of this paper is to present findings on the basic intonational tunes used in Jerezano Andalusian Spanish within the Sp_ToBI system of intonational labeling (Beckman et al. 2002, Estebas-Vilaplana & Prieto 2008). The Sp_ToBI system is based on the Autosegmental-metrical (AM) approach to intonational phonology (Goldsmith 1979, Gussenhoven 2004, Ladd 2008, Pierrehumbert 1980, Pierrehumbert & Beckham 1988). The AM framework posits intonational structure by means of two tones, L(ow) and H(igh), which may associate with metrically strong (i.e., stressed) syllables or utterances edges. Tones that associate with metrically strong syllables are called *pitch accents*, and their main function is to enhance the prominence of these syllables. Pitch accents may be further separated into two subtypes: nuclear pitch accents, which associate with the last stressed syllable of the utterance; and prenuclear pitch accents, which associate with all prior stressed syllables. Tones that associate with phrase edges can be of two types, *boundary tones* or *phrase accents*, and their main function is to delimit or mark

utterance boundaries (initial or final). As for labeling procedures, pitch accents are marked with a star diacritic (*) to indicate their association with metrically strong syllables, and boundary tones are marked with a percentage diacritic (%) to indicate their alignment with phrase edges. AM analyses of Spanish intonation are common in the literature (Beckman et al. 2002, Face 2002, Face & Prieto 2006/7, Henriksen 2012, in press, Hualde 2002, Sosa 1999).

In terms of the characterization of Andalusian Spanish at the segmental level, previous works have focused on syllable-final /s/-aspiration, merger of the /s/-/θ/ distinction, velarization of /n/, the fricative pronunciation of /č/, and weakening of trill /r/, to name a few relevant phenomena (see Alvar 1996:233-258 for general overview; see also Henriksen & Willis 2010). The fact that Andalusian Spanish would not exhibit variation at the intonational level is almost unexpected, given what has been reported for other Spanish dialects known to undergo processes of phonological innovation. We also know that that there is much inter-dialectal variation in Spanish intonation, so a reasonable hypothesis is that not all intonational patterns documented for speakers of Madrid Castilian Spanish (e.g., Estebas-Vilaplana & Prieto 2010) extend to the southern part of the peninsula. This paper is designed to fill this gap in the literature as it investigates the acoustic properties of F0 contours produced by nine speakers from Jerez de la Frontera, a coastal city located in the province of Cádiz, Spain[1].

There is much debate on the historic motivations leading to the modern differences between the Andalusian and Castilian varieties of Peninsular Spanish. Researchers point to the heavy Arab/Mozarab influence, repopulation from northwestern Spain, and linguistic drift as possible motivating factors for the phonological innovations of Andalusian Spanish (Penny 2001:118). The first Moorish capital in Spain was the Caliphate of Córdoba, lasting from the middle of the eighth century until the beginning of the eleventh century, and this marked the peak of Moorish domination and presence in the Iberian peninsula. This strong Arabic presence in the south may be argued as the basis for innovative Andalusian speech patterns, but the principal phonetic features of Andalusian Spanish appear to derive from rustic Castilian and Leonese dialects brought in by the reconquest (Narbona, Cano, & Morillo 1998:39). In fact, Narbona et al. (41) suggest that many of the linguistic

[1] The city of Jerez de la Frontera is located in southwest Spain, with a population of roughly 210,000 inhabitants. It is located in the coastal province of Cádiz, bordered by the Spanish provinces of Huelva, Sevilla, and Málaga, as well as the Atlantic Ocean, the Mediterranean Sea, and the Strait of Gibraltar. Cádiz is considered a *ceceo* area within the Andalusian Spanish continuum (Alvar 1996:250).

features of Andalusian Spanish arose in the late Middle Ages, after much of the Moslem population had decreased.

The phonetic features that define contemporary Andalusian Spanish developed at different times and in different regions of the southern part of the peninsula. The two most notable categories of phonetic change include merger of sibilants as *seseo*/*ceceo* and widespread weakening or loss of syllable- and word-final consonants (e.g., /s/-aspiration or deletion). These processes are commented as early as the writings of Antonio de Nebrija, Juan de Valdés, and Damasio de Frías (Mondéjar 1979). Studies of contemporary Andalusian Spanish phonetics and phonology include Gerfen (2002), Villena Ponsoda (2008), Ruiz-Sanchez (2008), Torreira (2006, 2007), and Parrell (2012). As for work on features of Jerezano Andalusian Spanish, we have data on *seseo*/*ceceo* (Carbonero, Álvarez, Casas, & Gutiérrez 1992, García-Amaya 2008) and trill weakening (Henriksen & Willis 2010). Unfortunately, information on the intonation of speakers from the Cádiz province is currently unavailable. In fact, to the best of our knowledge, there are limited findings on the intonational patterns for speakers of Andalusian Spanish generally (cf. Congosto Martín 2011). For this paper, we aim to determine the usefulness of the Sp_ToBI labeling systems, and the revisions of Estebas-Vilaplana and Prieto (2008) in particular, for this undocumented language variety.

In the present study, a new contribution to the description of Andalusian Spanish intonation is provided. To this end, we base our analysis on a corpus that includes varied syntactic structures with different pragmatic meanings. This allows for a broad initial approach to Andalusian Spanish intonation and opens questions for future research on more specific issues. A second contribution is to enrich our current knowledge of intonational variation in Spanish. With this objective, we use the findings of the chapters in Prieto and Roseano (2010) as a reference point for many dialectal comparisons. Specifically, the dialects investigated in Prieto and Roseano (2010) are Castilian, Cantabrian, Canarian, Dominican, Puerto Rican, Venezuelan Andean, Ecuadorian Andean, Chilean, Argentinean, and Mexican Spanish. An advantage of the Prieto and Roseano (2010) methodology is that all chapters are based on a common data collection protocol in which informants respond verbally to a series of controlled situations designed to elicit a wide range of intonational contours in a naturalistic setting. In this paper the methodological approach is very similar, and our goal is to put forth principled dialectal comparisons so that a more comprehensive understanding of pan-Hispanic intonation may be achieved.

Given these motivations, this paper is structured as follows. Section 2 is a summary of the data elicitation protocol and provides important characteristics

about the speaker sample. Section 3 introduces the inventory of pitch accents and boundary tones of Andalusian Spanish based on the proposals of Beckman et al. (2002) and Estebas-Vilaplana and Prieto (2008). In Section 4 we provide a description of the intonation patterns in different sentence types (e.g., statements, yes/no questions, wh-questions, etc.) containing various pragmatic meanings such as insistence, disbelief, obviousness, etc. The most noteworthy findings are summarized in Section 5, and we provide a brief cross-dialectal comparison with data found for other varieties of Spanish. Section 6 concludes and offers topics for future research.

2. MATERIAL AND METHODS

Six female and three male speakers of Jerezano Andalusian Spanish were recruited for participation in this study. Their ages were between 18 and 64, and the average age was 41. Age-based variation in intonation has been documented elsewhere (Warren 2005b, Warren & Britain 2000), but it was decided to recruit speakers from a broad age sample so that a wide variety of intonational contours could be gathered for this initial attempt to document Jerezano Andalusian Spanish intonation. All speakers were born and raised in Jerez de la Frontera and had lived the majority (or all) of their adult lives in the city when speech data were analyzed.

Two speaking tasks were implemented in the methodology. In the first task, nine speakers read aloud test sentences designed to elicit pragmatic contexts for different types of declaratives, interrogatives, exclamations, and vocatives. The intonation survey (i.e., discourse completion task) contained 69 test sentences, for a total 621 productions (69 sentences x 9 speakers) submitted to acoustic analysis. This was a questionnaire based on Prieto and Roseano (2010), developed first in Prieto (2001). Speakers read each pragmatic context in silence prior to reading aloud each test sentence[2]. The discourse contexts and test sentences are provided in the Appendix. It is important to mention that the questionnaire is centered on common everyday contexts and that the test sentences reflect realistic communicative answers. This is not always possible with standard laboratory practices, which may not take context into account and often use test words or

[2] Note that in the Prieto and Roseano (2010) methodology, informants were asked to respond aloud to the pragmatic contexts that were read to them. In the current study, subjects read the pragmatic contexts in silence and then read aloud the responses provided in the survey.

phrases that are uncommon in everyday speech (see Lickley, Schepman, & Ladd 2005 for discussion).

The second task was a follow-up questionnaire administered to examine two types of yes/no questions in further detail: inner negation confirmation yes/no questions, and outer negation confirmation yes/no questions. Following Armstrong (2010), this task was created to gain insight into the intonation of a wider variety of confirmation questions than what is offered in Prieto and Roseano (2010). Speaking procedures were identical in both tasks, although the second task was conducted one year after the first task. For the second task, speech data were elicited from three speakers only: two female speakers and one male speaker from Jerez de la Frontera.

Speech data were analyzed using the Praat acoustic analysis software (Boersma & Weenink 2011). The intonation labeling system was the Sp_ToBI system (Beckman et al, 2002) and its revised version (Estebas-Vilaplana & Prieto, 2008) based on the AM approach to intonational phonology (Ladd 2008, among others).

3. JEREZANO ANDALUSIAN SPANISH INTONATIONAL PHONOLOGY

In this section we present an inventory of the pitch accents and boundary tones observed in the Jerezano Andalusian Spanish corpus. For each accent, a schematic configuration is provided along with the Sp_ToBI label (Beckman et al. 2002, Estebas-Vilaplana & Prieto 2008).

3.1. The pitch accents

Beckman et al.'s (2002) Sp_ToBI system included three bitonal pitch accents for Spanish. Two accents were rising (L*+H with posttonic F0 peak and L+H* with a peak aligned at the end of the tonic syllable), and one was falling (H+L* with an F0 valley within the accented syllable). This proposal is in line with early analyses of Spanish rising accents that make a distinction between early and late rising peaks (Face 2002, Hualde 2003, Sosa 1999). Monotonal H* was also included for cases when no F0 valley was observed prior to the tonic syllable.

Estebas-Vilaplana and Prieto (2008) have since put forth a revised Sp_ToBI system. Two labeling innovations are of note. First, the revised Sp_ToBI adheres

to the three-way distinction in rising accents described in Face and Prieto (2006/7). The analysis of Face and Prieto (2006/7), based on findings of Face (2006), assumes the following three-way contrast: L*+H (low F0 throughout the tonic syllable with a posttonic rise); L+>H* (F0 rise on the tonic syllable with a posttonic peak); and L+H* (F0 rise and peak within the tonic syllable). In the present study we adhere to the three-way distinction proposed in Face and Prieto (2006/7), given the empirical findings on the three accent types in Castilian Spanish in particular (Face 2002, 2004, 2006). A second important innovation in the revised Sp_ToBI system is the introduction of L*, which phonetically contains a low valley throughout the tonic syllable. It is observed most commonly in broad focus statements and information-seeking yes-no questions.

Table 1 presents the pitch accents observed in the Jerezano Andalusian Spanish corpus. Based on the present analysis, it remains unclear whether the ¡L+H* configuration exhibited in narrow focus contradiction statements (see section 4.1.2.1) is an allotonic variant of L+H* or H*, thus it is not listed here. The L+¡H* accent is listed in Table 1 due to its productivity in the Jerezano corpus. For discussion of the upstep diacritic, see the Discussion section of this paper. Note also that H* has two phonetic possibilities. For wh-questions, prenuclear accents are high throughout the stressed syllable. For echo yes/no questions, F0 is rising after the prenuclear peak and continues to do so throughout the remainder of the utterance, as documented in Gussenhoven and Rietveld (2000) and Haan (2001) for Dutch[3].

3.2. The boundary tones

It is standard practice in the AM framework to assume a binary contrast based on monotonal boundary specifications: L% vs. H%. However, Estebas-Vilaplana and Prieto (2008) argue that bitonal boundary tones are also necessary within the labeling system. Their revised system allows for the possibility of bitonal nuclear accents followed by bitonal boundary movements posttonically. Complex boundary tones are documented widely in all chapters of Prieto and Roseano (2010), and these include configurations such as LH%, HL%, HH%, and LM%.

[3] Specifically, Haan (2001:112) describes the H*H% melody as: *following the high F0 target on the [preceding] accent, pitch remained level for a brief stretch; from this high target, the final rise took off*. This is what was observed for yes/no echo questions in the Jerezano corpus. See also Henriksen (2012) for further discussion on the H* accent in Spanish.

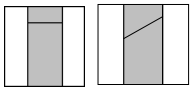
MONOTONAL PITCH ACCENTS		
	L*	This accent is phonetically manifested as a low steady tone throughout the tonic syllable, towards the bottom of the speaker's range. It is found in the nuclear position of broad focus statements and information-seeking yes/no questions.
	H*	This accent is phonetically manifested as a high with no preceding F0 valley at the baseline of the speaker's tonal range. It is also observed as continuous rising F0 after a L+H accent in echo yes/no questions.
BITONAL PITCH ACCENTS		
	L+H*	This accent is perceived as a rising pitch movement over the accented syllable, with the peak located at its end. It is commonly found in nuclear position of biased statements.
	L+¡H*	This accent is realized phonetically as a very steep rise to a peak located in the accented syllable. It is used in information-seeking wh-questions.
	L+>H*	Restricted to prenuclear position, this accent is interpreted as a rising pitch movement over the accented syllable; the peak is aligned with the posttonic syllable. It is observed commonly in broad focus statements.
	L*+H	This accent is realized as an F0 valley on the accented syllable with a subsequent rise on the posttonic syllable. It is found in prenuclear position of information-seeking yes/no questions.
	H+L*	This accent is manifested as a descending pitch movement over the accented syllable, low pitch being located right at its end. It is observed in neutral and imperative wh-questions.

Table 1. *Schematic representations of monotonal and bitonal pitch accents in Jerezano Andalusian Spanish.*

To exemplify, LH% is realized phonetically as an F0 valley throughout posttonic material followed by a rise. Estebas-Vilaplana and Prieto (2010) present additional evidence on the H% vs. HH% contrast in statements and disjunctive questions in Castilian Spanish. The mid level M% boundary tone was also posited to account for a half-rise or mid level plateau after the L+H* or H* pitch accents. There is cross-linguistic motivation to posit mid tones in sentence-final position, as in Greek (Arvaniti & Baltazani 2005) and German (Grice, D'Imperio, Savino, & Avesani 2005). In Greek, however, the label that is used is !H%, or a downstepped version of the H boundary tone. Beckman et al. (2002) and Estebas-Vilaplana and Prieto (2008) opt for the more transparent M% label in these cases. The use of the M% tone at the right periphery is productive in many of the varieties described in Prieto and Roseano (2010).

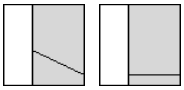
MONOTONAL BOUNDARY TONES		
	L%	L% is manifested as either low pitch near the speaker's baseline, or as a falling movement. It is observed at the end of statements and neutral and imperative wh-questions.
	M%	M% is perceived as relatively mid-pitch. In the Jerezano corpus this target is reached from a high point and is restricted to commands.
BITONAL BOUNDARY TONES		
	HL%	HL% is attested in vocatives. The descending movement is typically implemented on an extra-long syllable.
	HH%	HH% is phonetically realized as a sharp rise usually reaching the highest level of a speaker's range. It is observed in most yes/no question types.

Table 2. *Schematic representations of monotonal and bitonal boundary tones in Jerezano Andalusian Spanish.*

Table 2 presents the inventory of boundary tones used in the Jerezano Andalusian Spanish corpus. Jerezano Spanish presents two monotonal tones, L% and M%, and

two bitonal tones, HL% and HH%. The tritonal boundary tone (LHL%) proposed by Estebas-Vilaplana and Prieto (2008) for insistent requests has not been attested here. As will be discussed later, the M% boundary tone is highly restricted in Jerezano Spanish, unlike in Cantabrian Spanish where it is used extensively (López-Bobo & Cuevas-Alonso, 2010).

4. BASIC INTONATIONAL PATTERNS IN ANDALUSIAN SPANISH INTONATION[4]

4.1. Statements

4.1.1. Broad focus statements

Broad focus statements in Jerezano Andalusian Spanish are characterized by a L+>H* pitch accent in prenuclear position, indicating an F0 rise throughout the tonic syllable and a posttonic peak. F0 falls progressively after this peak throughout the remainder of the utterance. The low F0 on the nuclear syllable warrants a L* pitch accent, and this is followed by a L% boundary tone. A sample is given in Figure 1 for the utterance *Bebe una limonada* 'S/he drinks a lemonade'.

There is also evidence in the Jerezano corpus that the L* L% configuration applies in cases when multiple intonational units make up the utterance. Use of L* L% in statements coincides with what is observed for most varieties of Spanish, including Castilian Spanish (Estebas-Vilaplana & Prieto 2010), Argentinian Spanish (Gabriel, Feldhausen, Pešková, Colantoni, Lee, Arana, & Labastía 2010), and Mexican Spanish (de-la-Mota, Martín Butragueño, & Prieto 2010). One important exception is Dominican Spanish where statements are expressed by L+H* followed by a rising H% boundary tone (Willis 2010).

[4] Sound files will be uploaded as part of the project *Atlas interactivo de la entonación del español*, available at http://prosodia.upf.edu/atlasentonacion/.

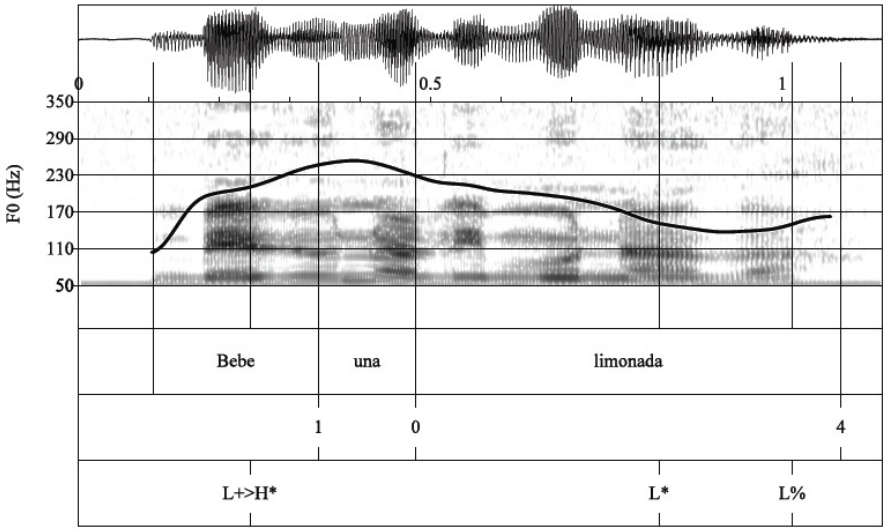


Figure 1. *Waveform, spectrogram, and F0 trace for the broad focus statement* Bebe una limonada *'S/he drinks a lemonade' produced with a L+>H* prenuclear accent and L* nuclear accent followed by a L% boundary tone.*

4.1.2. Biased statements

4.1.2.1. Narrow focus statements

The nuclear accent in Jerezano narrow focus correction statements differs from that of broad focus statements in that narrow focus exhibits a clear F0 peak within the bounds of the stressed syllable, thus L+H*. The F0 for a narrow focus statement is given in Figure 2 for the utterance *No, de limones* 'No, of lemons'. To produce this tune, speakers had to correct a wrongly stated previous item. Two intonational units are observed in the acoustic output. In the first unit, the word *no* is produced with a rising pitch accent L+H* followed by a fall to mid pitch, M-. The M- phrasal accent typically serves to mark continuation, which in this case is between the negative response and the correction to the interlocutor's previous mistake. In the second intonation unit, there is a rise and tonic peak on the focalized word followed by utterance-final low F0, thus L+H* L%. This configuration has been documented in all varieties of Spanish described in Prieto and Roseano (2010),

although other options may be possible (Estebas-Vilaplana & Prieto 2010). In the Jerezano corpus, all speakers used L+H* L%.

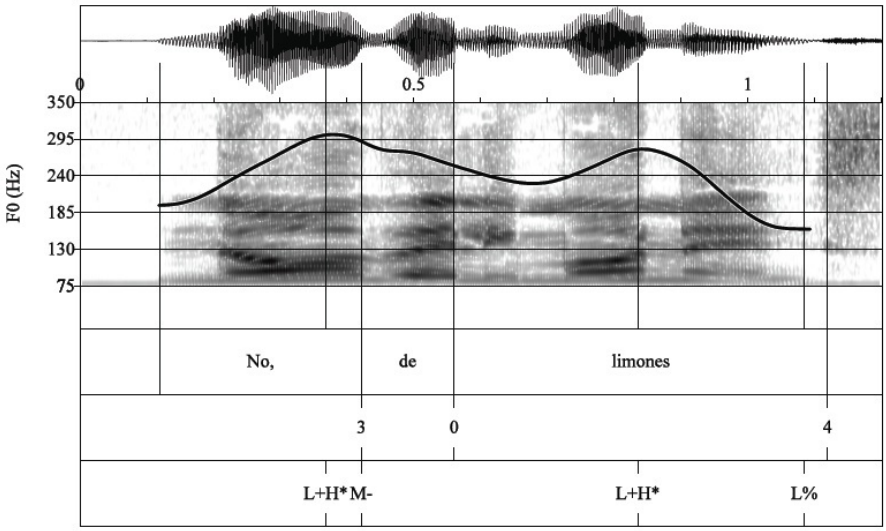


Figure 2. *Waveform, spectrogram, and F0 trace for the narrow focus correction statement* No, de limones *'No, of lemons' produced with a L+H* nuclear accent followed by a L% boundary tone.*

Narrow focus contradiction statements were analyzed as well. In this pragmatic context, the speaker affirms clearly that what s/he says is right. Of the nine Jerezano speakers, eight of these used the same nuclear configuration as in narrow focus correction statements, although with an upstepped L tone on the nuclear syllable, ¡L+H* L%, as illustrated in Figure 3 for the utterance *¡Que irán a Lima!* 'They are going to Lima!'. Prenuclear syllables contained the L+H* accent. One speaker used H* L% which did not contain an F0 minimum after the prenuclear rising accent. The (L)+H* L% pattern has been identified in varieties such as Venezuelan Andean Spanish, Ecuadorian Andean Spanish, Chilean Spanish, Argentinian Spanish, and Canarian Spanish. For Castilian Spanish and Mexican Spanish, L* HL% is documented in this context.

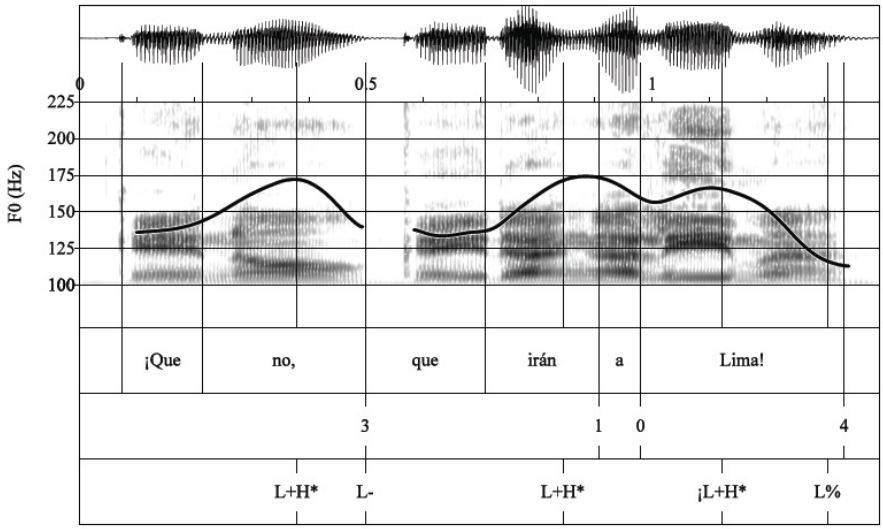


Figure 3. *Waveform, spectrogram, and F0 trace for the narrow focus contradiction statement* ¡Que irán a Lima! *'They are going to Lima!' produced with a ¡L+H* nuclear accent followed by a L% boundary tone.*

4.1.2.2. Exclamative statements

Exclamative utterances such as *¡Qué olor a pan tan bueno!* 'What a lovely aroma of bread!' were also elicited in the questionnaire. Alignment of nuclear F0 is within the tonic syllable for these utterances (L+H*), although in some cases there is upstep with respect to the previous peak (L+¡H*). In all cases F0 falls at the right edge of the utterance, thus the L% boundary specification. The prenuclear accents show L+H* and L*, as illustrated in Figure 4.

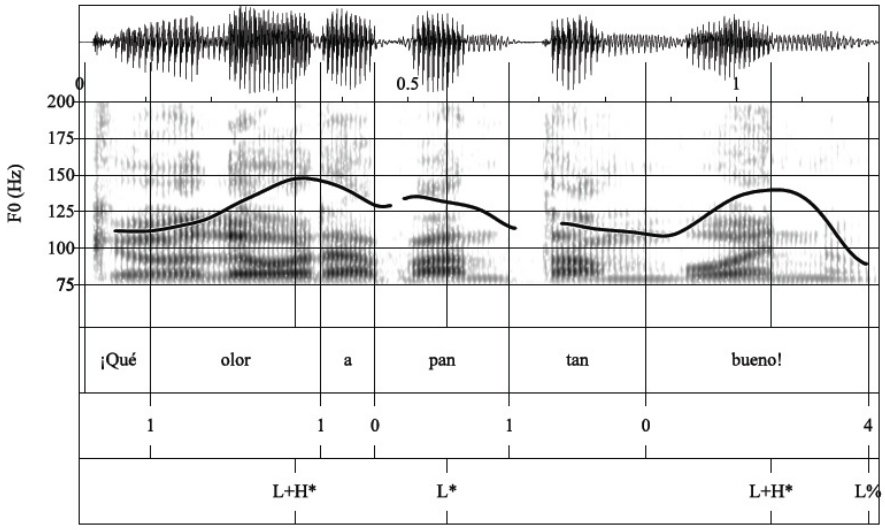


Figure 4. *Waveform, spectrogram, and F0 trace for the exclamative statement* ¡Qué olor a pan tan bueno! *'What a lovely aroma of bread!' produced with a L+H* nuclear accent followed by a L% boundary tone.*

4.1.2.3. Statements of the obvious

Figure 5 shows an example of a statement of the obvious for *¡Sí, mujer, de Guillermo!* 'Yes, woman, Guillermo's [of course]!'. In these statements the speaker communicates obviousness and certainty to the interlocutor who is unaware of a piece of information that should be common knowledge. The sentence is uttered with two intonational units. In the first unit there is a rising pitch accent on the stressed syllable (L+H*) followed by a M- boundary tone, as in Cantabrian Spanish. In the second intonational unit there is another L+H* accent on the tonic syllable followed by a boundary fall, L%. This is the same nuclear pattern found in Argentinian Spanish, Venezuelan Andean Spanish, Ecuadorian Andean Spanish, and Chilean Spanish. Note that for varieties such as Castilian Spanish, the complex boundary tone LM% conveys obviousness. However, no such boundary tone was observed in the Jerezano corpus. Also in Castilian Spanish, there is a preference for a L- boundary tone after the first intonational unit.

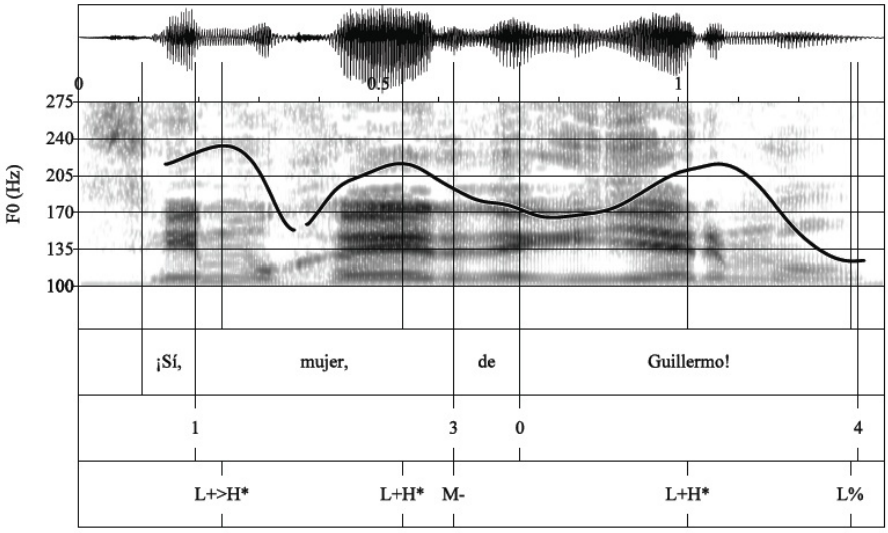


Figure 5. *Waveform, spectrogram, and F0 trace for the statement of the obvious* ¡Sí, mujer, de Guillermo! *'Yes, woman, Guillermo's [of course]!' produced with a L+H* nuclear accent followed by a L% boundary tone.*

4.1.2.4. Uncertainty statements

According to Navarro Tomás (1944), uncertainty statements in Spanish employ a final mid tone not typically observed in the intonational marking of other statement types. This M% tone has been attested for Castilian Spanish, Canarian Spanish, Venezuelan Andean Spanish, Chilean Spanish, and Argentinian Spanish. However, Jerezano speakers do not employ a unique configuration to communicate uncertainty statements. Figure 6 exemplifies an uncertainty statement for the utterance *Puede que no le guste el regalo que le he comprado* 'S/he may not like the present that I have bought him/her'. The most common nuclear tone is produced with the L+H* accent followed by boundary L%, as in many other biased statements for Jerezano speakers. Five speakers produced this L+H* L% configuration, whereas four other speakers produced L* L%, as was observed for broad focus statements.

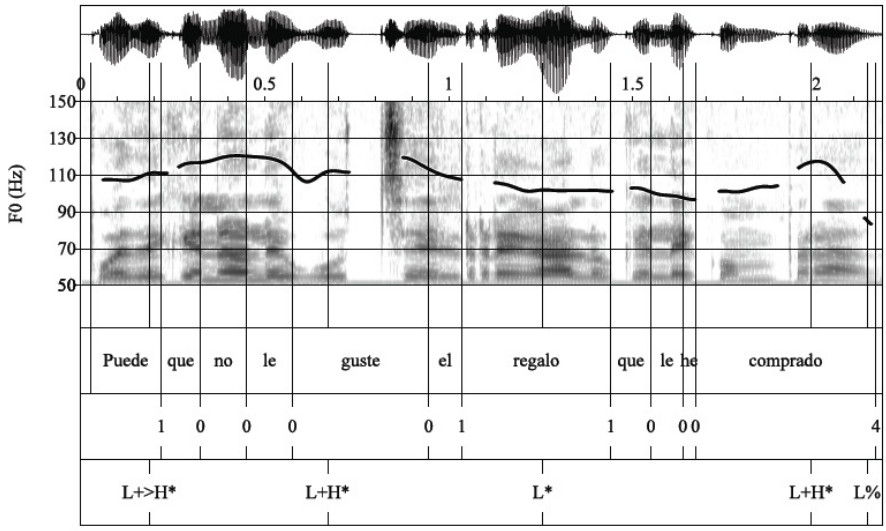


Figure 6. *Waveform, spectrogram, and F0 trace for the uncertainty statement* Puede que no le guste el regalo que le he comprado *'S/he may not like the present that I have bought him/her' produced with a L+H* nuclear accent followed by a L% boundary tone.*

4.2. Questions

4.2.1. Information-seeking yes/no questions

Contrary to statements, information-seeking yes/no questions in Jerezano Andalusian Spanish employ the L*+H prenuclear accent that has a low F0 on the stressed syllable and a posttonic rise. This is shown in Figure 7 for the utterance *¿Tiene mermelada?* 'Do you have any jam?'. After the prenuclear rise there is phonetic interpolation until the nuclear syllable which exhibits low F0, labeled as L*. Finally, HH% is proposed as the boundary specification to account for the sharp final rise. The L* HH% toneme for information-seeking yes/no questions is attested in many other varieties of Spanish, including Castilian Spanish, Cantabrian Spanish, Venezuelan Andean Spanish, and Chilean Spanish. Of note, one Jerezano speaker used an upstepped nuclear high accent followed by a boundary fall (¡H* L%), as in Canarian Spanish. Classical descriptions of question intonation in Spanish note that questions exhibit much cross-dialectal variability (Navarro

Tomás 1944, Quilis 1993, Sosa 1999), although individual variation has also been observed (Henriksen 2012, in press), so we cannot know how to account for the use of the boundary fall by this one speaker.

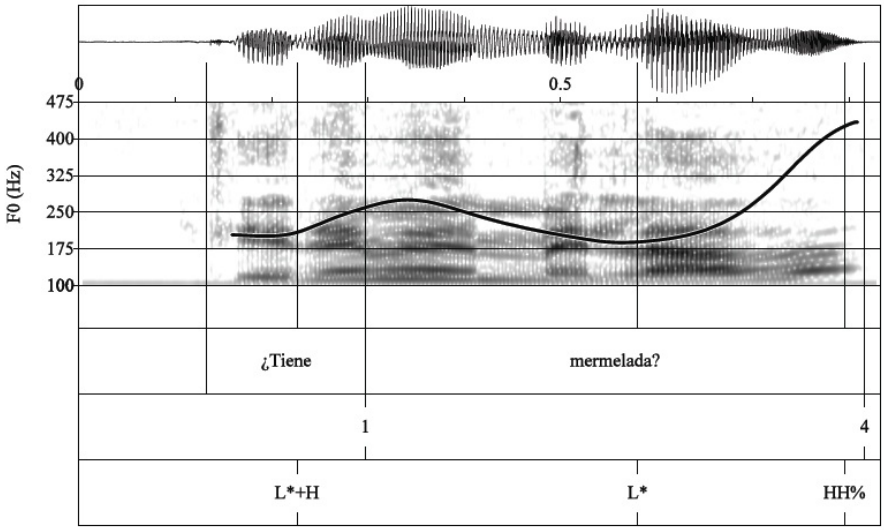


Figure 7. *Waveform, spectrogram, and F0 trace for the information-seeking yes/no question* ¿Tiene mermelada? *'Do you have any jam?' produced with a L* nuclear accent followed by a HH% boundary tone.*

4.2.2. Biased yes/no questions

4.2.2.1. Echo yes/no questions

Echo questions are used when the speaker does not fully understand what was just said in discourse. The intonation of echo yes/no questions is highly variable in Spanish. Some varieties prefer the same F0 contour used in information-seeking yes/no questions, but with a difference in pitch range (e.g., Cantabrian Spanish). Other dialects, however, employ a completely different nuclear configuration (e.g., Castilian Spanish). For Jerezano Andalusian Spanish, speakers follow the latter trend, specifically the nuclear configuration is H* followed by the HH% boundary

tone, as illustrated in Figure 8 for the utterance *¿(Que) son las nueve?* '(Are you saying) that it's nine o'clock?'. Note that the F0 descent after the initial rising accent is minimal, and that the rise begins at approximately the same F0 level as the previous H peak, continuing throughout the remainder of the utterance. Based on the findings of Prieto and Roseano (2010), it would seem that other dialects of Spanish do not use the H* HH% configuration to express echo yes/no questions.

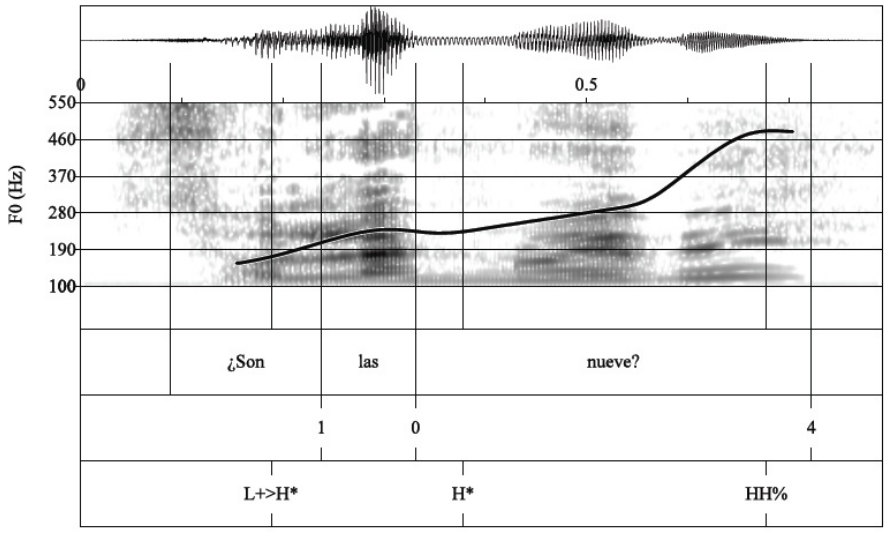


Figure 8. *Waveform, spectrogram, and F0 trace for the echo yes/no question* ¿(Que) son las nueve? *'(Are you saying) that it's nine o'clock?' produced with a H* nuclear accent followed by a HH% boundary tone.*

A second type of echo yes/no question has counterexpectational meaning. In this context the speaker does not believe the proposition previously uttered by the interlocutor. Six speakers produced the same configuration described for echo questions above, H* HH%. Figure 9 shows the F0 output for the sentence *¿Que Mario se presenta por alcalde?* 'Mario is running for mayor?'. Note that in this output there is little appreciable F0 descent after the H point of the rising accent on *presenta*, thus the accent H* is motivated for the nuclear syllable. For three other Jerezano speakers, the L+H* HH% configuration was observed.

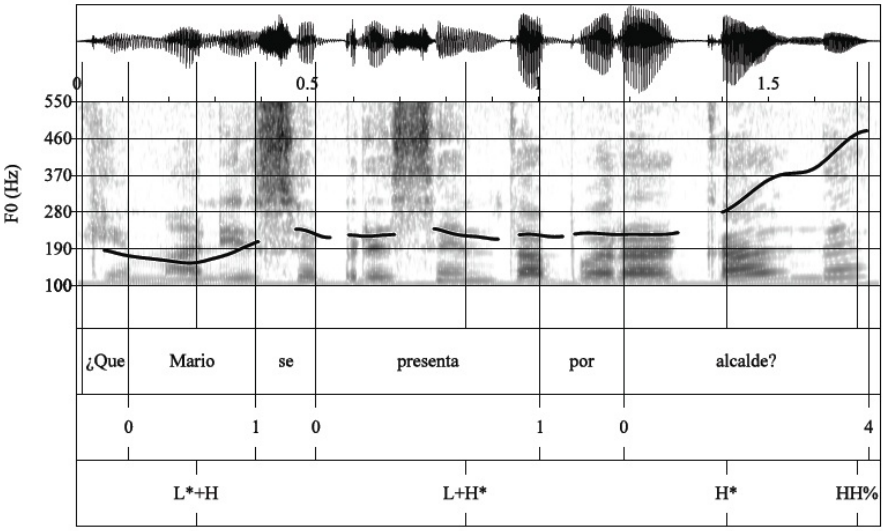


Figure 9. *Waveform, spectrogram, and F0 trace for the counter-expectational yes/no question* ¿Que Mario se presenta por alcalde? *'Mario is running for mayor?' produced with a H* nuclear accent followed by a HH% boundary tone.*

4.2.2.2. Imperative yes/no questions

Imperative yes/no questions are used to express commands. Figure 10 illustrates the F0 output for the utterance *¿Callaréis?* 'Will you be quiet?'. This sentence was produced with the nuclear L+H* HH% configuration. All speakers used this configuration, but one caveat is that the target utterance for this context contains one lexical word with ultimate stress. Clash effects (e.g., Henriksen 2012, Prieto 2005) may obscure the phonological status of the utterance-final rising gesture, and it may be necessary to create test sentences with penultimate or even ante-penultimate stress to verify the phonological status of the final rising gesture. Also, it was not possible to provide a label for the prenuclear accent, since the target utterance contained one stressed syllable only. Still, there is a clear rise that begins at the onset of the nuclear syllable and continues throughout the rest of the utterance, providing initial evidence for L+H* followed by HH%.

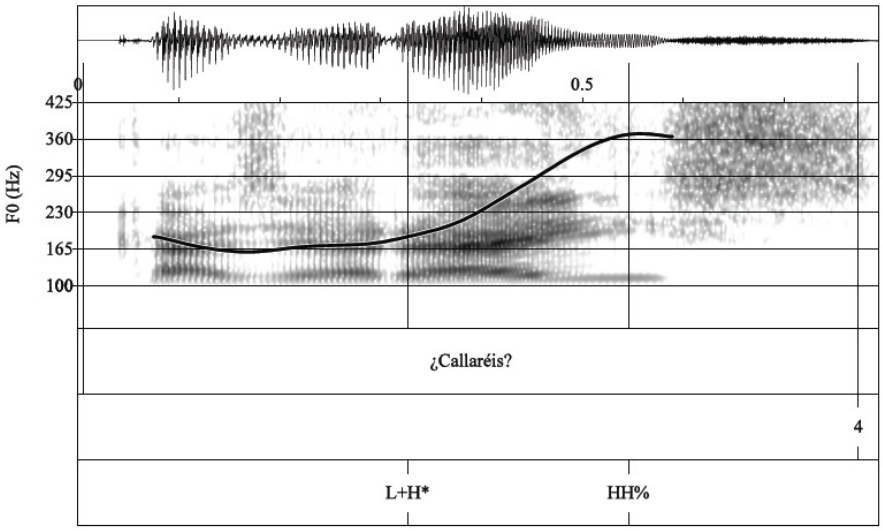


Figure 10. *Waveform, spectrogram, and F0 trace for the imperative yes/no question* ¿Callaréis? *'Will you be quiet?' produced with a L+H* nuclear accent followed by a HH% boundary tone.*

4.2.2.3. Confirmation yes/no questions

Confirmation questions are uttered when a speaker wants to make clear his/her understanding of certain information. Two main types can be used: a yes/no confirmation question with identical syntax from statements, or a tag question (e.g., *¿verdad?*, *¿no?*). For confirmation yes/no questions in Spanish, no single intonational configuration predominates cross-dialectally, although there is a tendency to use a nuclear configuration that is radically different from that of information-seeking yes/no questions. In Castilian Spanish, for example, speakers use L* HH% in information-seeking yes/no questions, but H+L* L% in confirmation yes/no questions (Estebas-Vilaplana & Prieto 2010). For Jerezano Spanish, there is no evidence that speakers use radically different contours in these two pragmatic contexts. In fact, for seven speakers, the same L* HH% configuration from information-seeking yes/no questions was used to communicate confirmation yes/no questions. This is illustrated in Figure 11 for the question utterance *¿Tienes frío?* 'Are you cold?'. For the two speakers who did not use the L* HH% configuration, ¡H* L% and L+H* HH% were observed. Of interest, the

speaker who produced ¡H* L% for information-seeking yes/no questions produced this same configuration in confirmation yes/no questions.

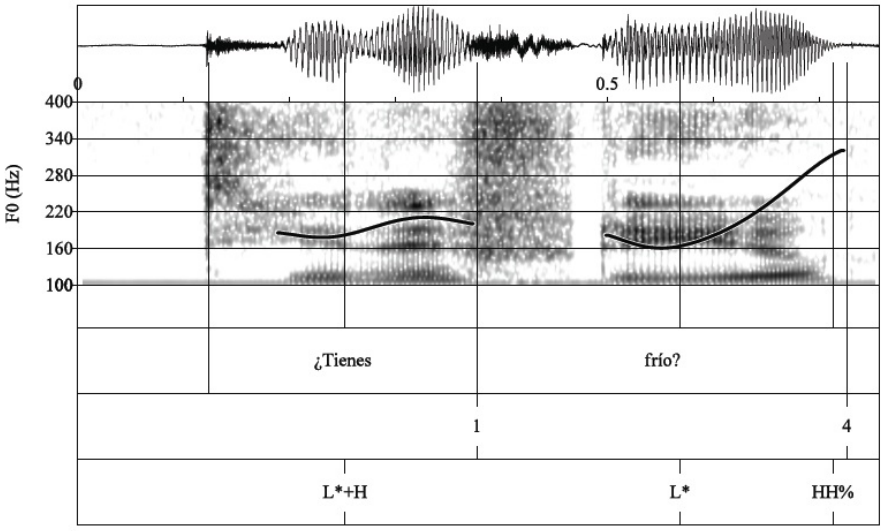


Figure 11. *Waveform, spectrogram, and F0 trace for the yes/no confirmation question* ¿Tienes frío? *'Are you cold?' produced with a L* nuclear accent followed by a HH% boundary tone.*

When the tag question *¿no?* is employed, L* HH% is used on the tag question. An example is given in Figure 12 for the utterance *¿Vendrás a comer, no?* 'You'll come to eat, right?'. Typically in these contexts there is a fall on the stressed syllable of the lexical word that precedes the tag question. The label for the nuclear fall is H+L*. We note that H+L* is observed for confirmation questions in dialects such as Castilian Spanish, Puerto Rican Spanish, and Chilean Spanish, but when no tag question is employed (see Armstrong (2012) for further information on Puerto Rican tag questions).

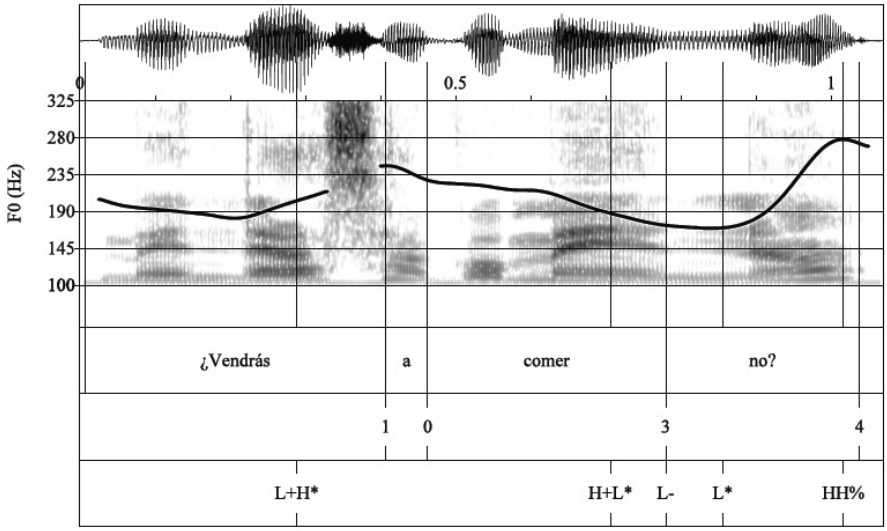


Figure 12. *Waveform, spectrogram, and F0 trace for the yes/no tag question* ¿Vendrás a comer, no? *'You'll come to eat, right?' produced with a L* accent followed by a HH% boundary tone.*

Impressionistic evidence (i.e., spontaneous conversations with Jerezano speakers) indicated that the L* HH% configuration is not used in consistent fashion to communicate confirmation questions and that other configurations may be possible when more information about the discourse context is available to the speaker. In this regard, Armstrong (2010) shows that a greater variety of F0 contours is observed for Puerto Rican Spanish confirmation questions when more detailed contexts are created. Following Ladd (1981), Armstrong devised contexts to elicit inner and outer negation confirmation questions. A similar follow-up questionnaire was created for Jerezano speakers to elicit inner negation and outer negation confirmation questions. Unlike the *¿Tienes frío?* test sentence used in the first questionnaire, inner and outer negation questions use negative syntax to confirm (either negatively or positively) the speaker's belief about the proposition in question.

When a speaker utters an inner negation question, it is to indicate that s/he had previously assumed the truth of the proposition (p), but due to contextual evidence has inferred that p is actually false. S/he uses negative question syntax to check this

new inference. To test the intonation for this pragmatic context, the test sentence *¿Entonces en este barrio no hay ningún restaurante vegetariano?* 'Then in this neighborhood there is no vegetarian restaurant?' was created. In the discourse context, the speaker is informed by the interlocutor that if s/he wants to have a vegetarian meal, they will have to go to another neighborhood. Thus, the speaker confirms the negation of the proposition (p = there is a vegetarian restaurant) to the interlocutor. Three speakers participated in this second task, and two produced L+H* HH% in this context (Figure 13), whereas the third speaker produced L* HH%.

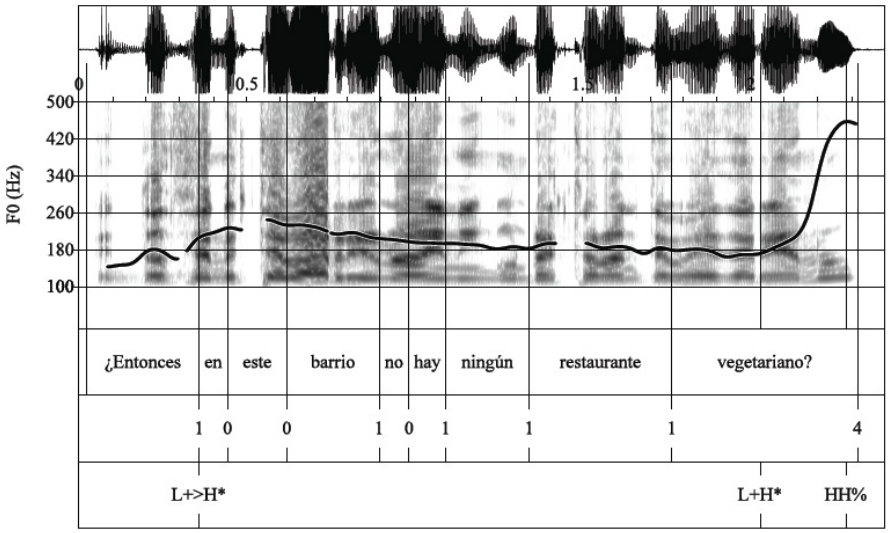


Figure 13. *Waveform, spectrogram, and F0 trace for the yes/no inner negation question* ¿Entonces en este barrio no hay ningún restaurante vegetariano? *'Then in this neighborhood there is no vegetarian restaurant?' produced with a L+H* accent followed by a HH% boundary tone.*

When an outer negation question is produced, the speaker believes the proposition and wants confirmation of the proposition. For this context the test sentence *¿No había por aquí un restaurante vegetariano?* 'Wasn't there a vegetarian restaurant around here?' was devised. The test sentence is uttered after the interlocutor asks

the speaker where in Seville s/he would like to eat lunch. The speaker recalls a vegetarian restaurant where s/he ate during the last visit to Seville, and upon responding to the question, solicits positive confirmation of the propositional content (p= there is a vegetarian restaurant near where they are standing), which is believed to be true. Three speakers uttered outer negation confirmation questions. Two speakers produced L+H* HH% (Figure 14), and one speaker produced L* HH%.

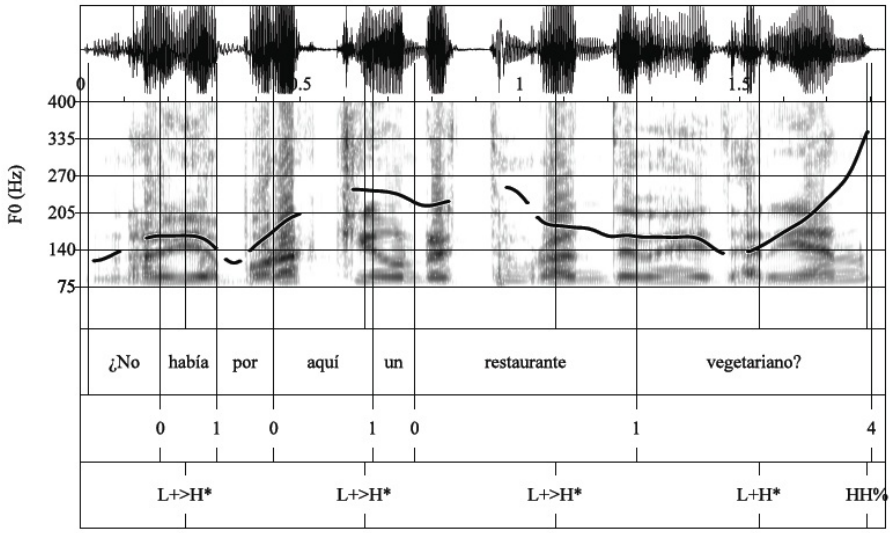


Figure 14. *Waveform, spectrogram, and F0 trace for the yes/no outer negation question* ¿No había por aquí un restaurante vegetariano? *'Wasn't there a vegetarian restaurant around here?' produced with a L+H* accent followed by a HH% boundary tone.*

These additional data on inner and outer negation questions show that the L+H* HH% configuration may be used in addition to L* HH% to make confirmations, in particular when negative syntax is used to confirm the speaker's belief about the proposition in question. A larger speaker corpus will be necessary to determine the nature of the variation between the L* H% and L+H* HH% configurations[5].

[5] Also, it may be worthwhile to examine pre-tonemic F0 gestures. Impressionistically, there seems to be a greater pitch range in the outer negation question.

To summarize this section, Jerezano Spanish favors high boundary tones in yes/no questions, with three available configurations: L* HH% (information-seeking and confirmation); L+H* HH% (imperative, inner negation confirmation, outer negation confirmation); and H* HH% (echo). Falling boundary tones were limited in the Jerezano yes/no question corpus. Recall that for Castilian Spanish L% boundary tones are common in echo questions, imperative questions, and confirmation questions (Estebas-Vilaplana & Prieto, 2010). For Puerto Rican Spanish, falling boundary tones are productive in almost all yes/no question intents, including negation questions (Armstrong 2010). The rising-falling vs. falling-rising distinction in yes/no questions may not be as productive in Jerezano Spanish as it is in other varieties of European Spanish (cf. Escandell-Vidal 1998).

4.2.3. Information-seeking wh-questions

As has been observed in other dialects of Spanish, information-seeking wh-questions are produced with two possible F0 nuclear configurations for speakers of Jerezano Spanish. Seven speakers produced a contour with a falling nuclear H+L* L% configuration, and two other speakers produced a contour with circumflex L+¡H* L%. It is not clear what factors motivate use of these two intonational forms, although Henriksen (2010) shows that they are stylistically motivated for speakers of Manchego Spanish. The H+L* accent is illustrated in Figure 15, and the L+¡H* accent is illustrated in Figure 16 for the utterance *¿Qué hora es?* 'What time is it?'[6]. Of note, all speakers used the L% boundary tone, as documented for statements (Navarro Tomás 1944, Quilis 1993).

[6] Note that the full extent of the fall gesture is not totally evident in Figure 16 due to the utterance-final voiceless fricative.

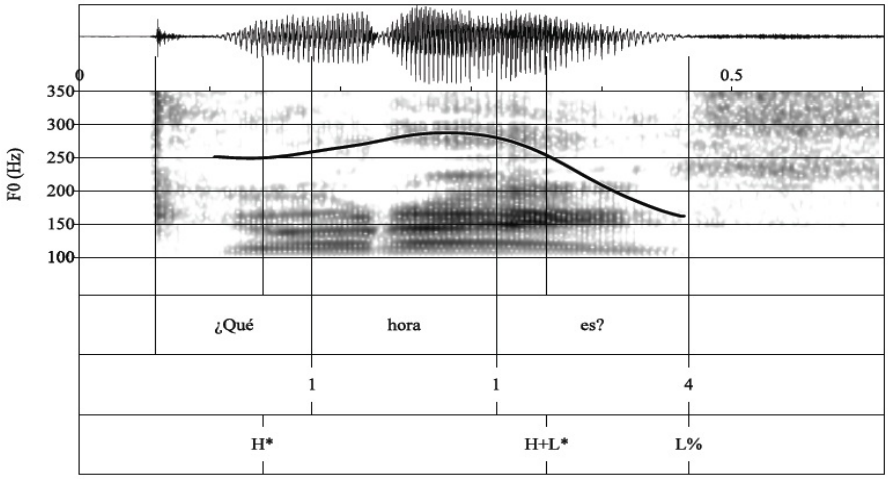


Figure 15. *Waveform, spectrogram, and F0 trace for the information-seeking wh-question* ¿Qué hora es? *'What time is it?' produced with a H+L* accent followed by a L% boundary tone.*

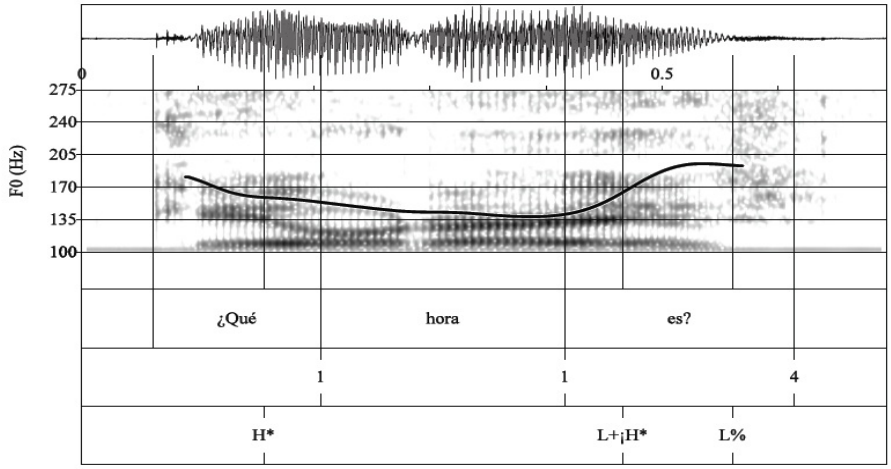


Figure 16. *Waveform, spectrogram, and F0 trace for the information-seeking wh-question* ¿Qué hora es? *'What time is it?' produced with a L+¡H* accent followed by a L% boundary tone.*

The H+L* nuclear configuration for information-seeking wh-questions has been attested in Castilian Spanish, Puerto Rican Spanish, Dominican Spanish, and Venezuelan Andean Spanish. The (L+)¡H* accent has been documented for Cantabrian Spanish and also Mexican Spanish. Henriksen (2009), Prieto (2004), and Sosa (2003) provide further data on cross-dialectal variation in Spanish wh-question intonation.

4.2.4. Biased wh-questions

4.2.4.1. Echo wh-questions

Biased wh-questions show much inter-speaker variation in the Jerezano corpus. Four intonational configurations are found for echo wh-questions: L+H* HH%; H+L* L%; L* HH%; L+(¡)H* L%. The most common toneme configuration is L+H* HH%, as illustrated in Figure 17 for the sentence *¿(Que) dónde voy?* '[Did you ask me] where I'm going?'. What is observed is an F0 valley at the onset of the nuclear syllable and a rising gesture throughout the rest of the utterance. It is of note that echo yes/no questions and echo wh-questions employ different nuclear configurations in Jerezano Spanish (H* HH% and L+H* HH%, respectively), in line with data for many other dialects of Spanish (the exceptions are Castilian and Puerto Rican Spanish). Also, different intonational configurations are shown for information-seeking and echo wh-questions in the Jerezano corpus, and this trend is observed for all other dialects examined in Prieto and Roseano (2010).

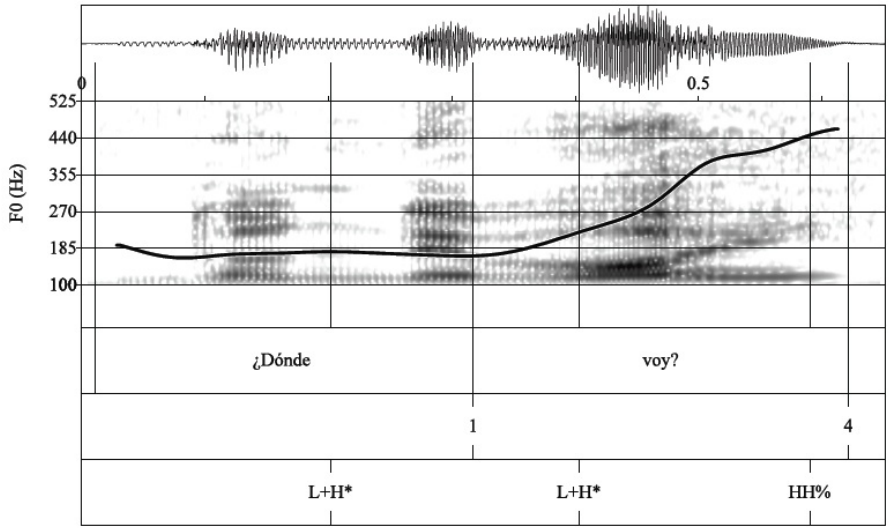


Figure 17. *Waveform, spectrogram, and F0 trace for the echo wh-question* ¿(Que) dónde voy? *'[Did you ask me] where I'm going?' produced with a L+H* accent followed by a HH% boundary tone.*

4.2.4.2. Imperative wh-questions

As with yes/no questions, wh-questions may be produced with imperative force to express commands. The imperative wh-question *¿Cuándo lo harás?* 'When are you going to do it?' is illustrated in Figure 18. The prenuclear syllable shows a rising accent with a tonic peak, L+H*, and the nuclear syllable shows a falling gesture, H+L*. Use of the L% boundary tone follows the same pattern for imperative wh-questions in all dialects documented in Prieto and Roseano (2010).

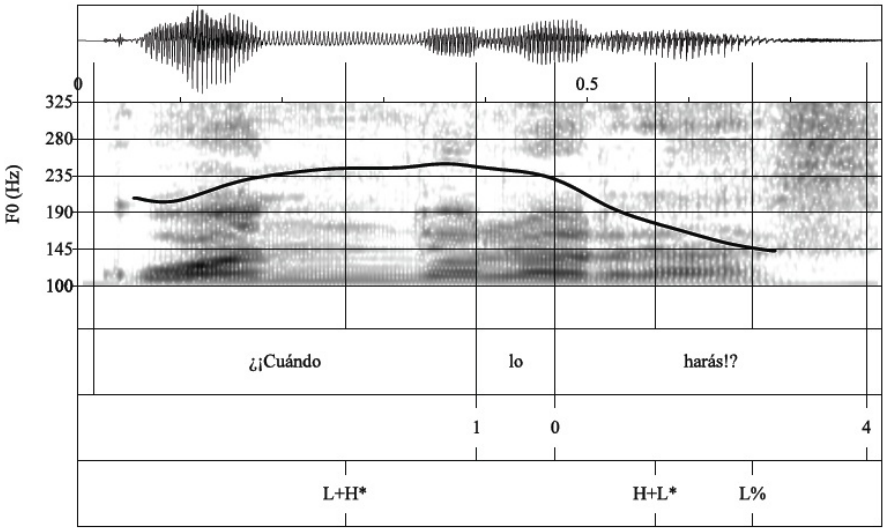


Figure 18. *Waveform, spectrogram, and F0 trace for the imperative wh-question* ¿Cuándo lo harás? *'When are you going to do it?' produced with a H+L* accent followed by a L% boundary tone.*

4.3. Imperatives: commands and requests

4.3.1. Commands

Commands are uttered when a speaker wants the hearer to perform the action described by the proposition. For Jerezano Spanish all speakers use the L+H* M% configuration to express commands, as illustrated in Figure 19 for the sentence *Ven aquí, por favor* 'Come here, please'. This configuration has been documented for Castilian Spanish, Chilean Spanish, and Dominican Spanish. Estebas-Vilaplana and Prieto (2010) note that the L+H* M% configuration is used for commands with stronger illocutionary force, whereas L* L% may be used for requests that are more gentle.

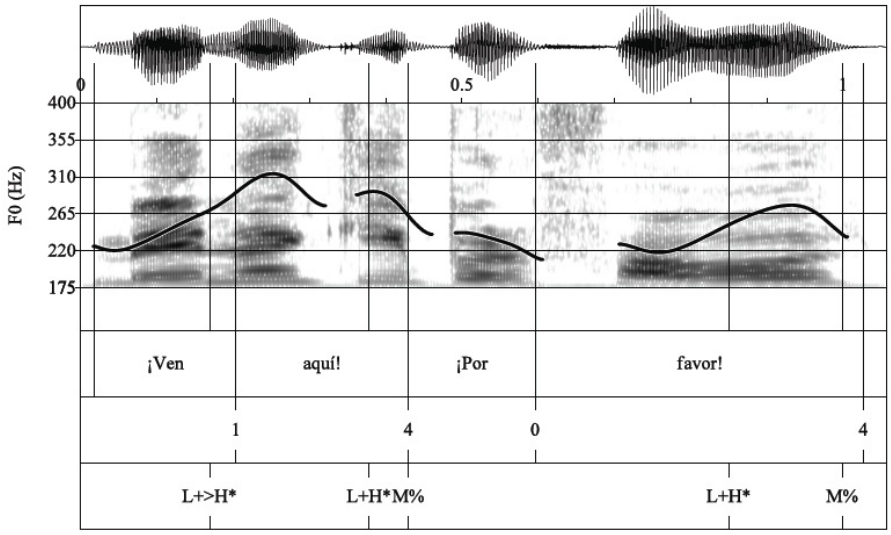


Figure 19. *Waveform, spectrogram, and F0 trace for the command* Ven aquí, por favor *'Come here, please' produced with a L+H* accent followed by a M% boundary tone.*

4.3.2. Requests

For requests the common nuclear configuration is L+H* followed by the L% boundary tone. This is illustrated in Figure 20 for the utterance *¡Va, vente!* 'Come on, come [with us]!'. Though the pitch range is broader in the last phrase (*vente*) than in the first (*va*), both units have the same tonal characteristics: L+H* L%.

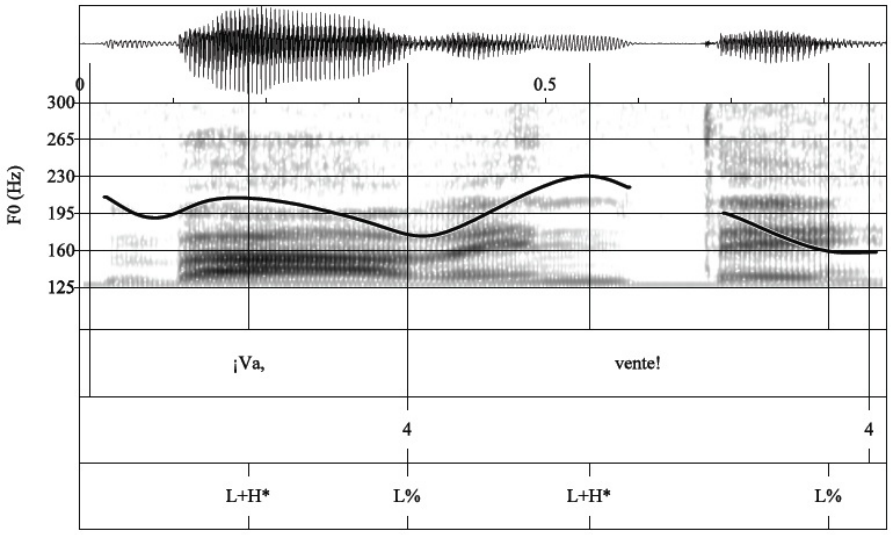


Figure 20. *Waveform, spectrogram, and F0 trace for the request* ¡Va, vente! *'Come on, come [with us]!' produced with a L+H* accent followed by a L% boundary tone.*

4.4. Vocatives

Many dialects of Spanish prefer a sustained mid pitch utterance-finally in the vocative calling contour. Two speakers in the Jerezano corpus produced this contour. Seven other speakers produced the L+H* HL% configuration, as illustrated in Figure 21 in which the speaker calls out the name *¡Marina!*. Note that the posttonic syllable contains high F0 which then begins to fall until the end of the utterance.

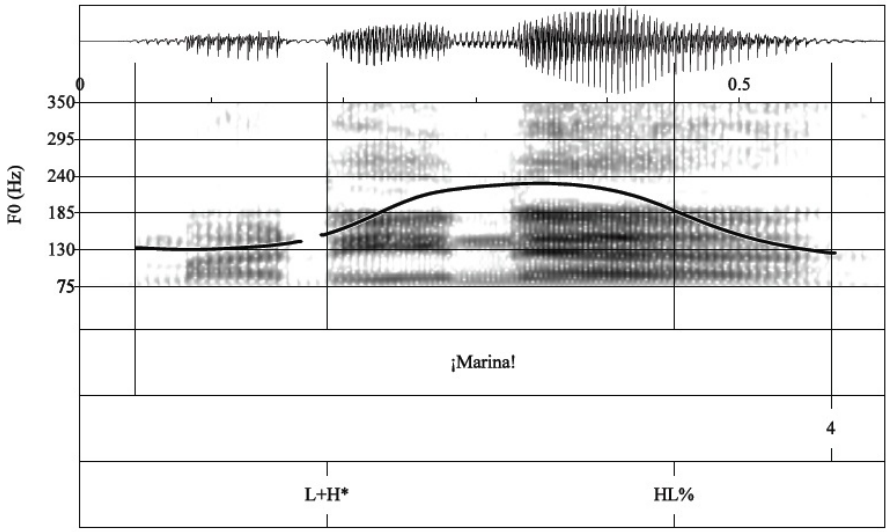


Figure 21. *Waveform, spectrogram, and F0 trace for the vocative calling contour* ¡Marina! *'Marina!' produced with a L+H* accent followed by the bitonal HL% boundary tone.*

Figure 22 is an example of a more marked vocative that conveys a nuance of insistence or imperativeness. In this case, the speaker calls out for Marina once more after she has not responded to the first call. For Jerezano speakers L+H* HL% is used in this context as well, although, of note, the tonic and posttonic syllables are considerably longer in the insistent vocative than in the neutral vocative. The L+H* HL% configuration for insistent vocatives is also observed in Castilian Spanish, Cantabrian Spanish, Canarian Spanish, Mexican Spanish, and Puerto Rican Spanish.

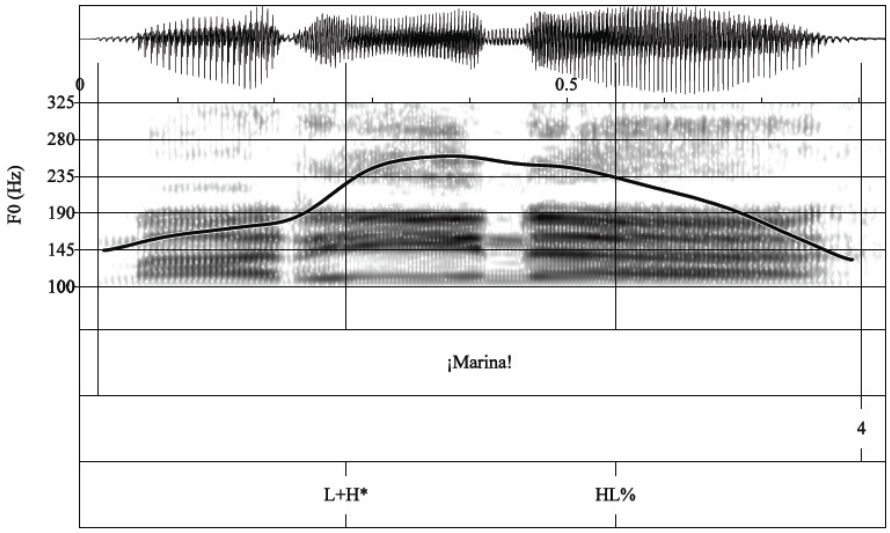


Figure 22. *Waveform, spectrogram, and F0 trace for the insistent vocative contour* ¡Marina! *'Marina!' produced with a L+H* accent followed by the bitonal HL% boundary tone.*

5. DISCUSSION

In this paper we have presented a Sp_ToBI analysis of the most common intonational tunes for a broad sample of pragmatic contexts for speakers of Jerezano Andalusian Spanish. Specifically, we have examined the intonation of statements, yes/no questions, wh-questions, imperatives, requests, and vocatives. We have also offered cross-dialectal comparisons for our findings, making reference especially to recent research that adheres to the original Sp_ToBI framework (Beckman et al. 2002) and its most recent revision (Estebas-Vilaplana & Prieto 2008). The outcome is that we provide useful information on the intonation of a previously undocumented variety of Spanish and also add knowledge to what is a growing field of intonational dialectology. As we summarize information from the cross-dialectal analysis in the paragraphs below, it will be relevant to understand the extent to which Jerezano Andalusian Spanish differs from Castilian Spanish, its closest documented dialect area. Given the dialect differences at the segmental level, we hypothesized that these two varieties

of Spanish would show differences at the prosodic or intonational levels as well. Until now, however, there was little empirical evidence on which to base such a claim.

Most generally, the results show that certain tonal configurations are recurrent across most dialects of Spanish, whereas others may be unique to Jerezano Spanish or to a limited number of dialect areas. In the case of broad focus and narrow focus statements, the recurrent finding is that L* L% and L+H* L%, respectively, are the most common cross-dialectal configurations. The L+H* L% pattern was especially common in the Jerezano corpus and was the preferred pattern for all biased statements (i.e., narrow focus statements, exclamative statements, statements of the obvious, and uncertainly statements). This was somewhat unexpected, since for statements of the obvious, for example, other dialects of European Spanish use L+H* LM%. The L+H* L% configuration in this pragmatic context has been documented elsewhere, namely for American varieties such as Dominican, Venezuelan Andean, Ecuadorian Andean, Chilean, and Argentinian Spanish. For uncertainty statements, Castilian and Canarian Spanish speakers use the final M% boundary tone, in line with the classical description of Navarro Tomás (1944). Jerezano speakers, however, behave like speakers of Cantabrian Spanish who produce L+H* L% in this context.

For information-seeking yes/no questions, the L* HH% melody observed in the Jerezano corpus is also documented for speakers of Castilian and Cantabrian Spanish. For echo and counterexpectational questions, the preferred Jerezano configuration is H* HH%, whereas for imperative questions, it is L+H* HH%. Based on the data of Prieto and Roseano (2010), it would seem that H* HH% is unique to Jerezano Spanish for echo yes/no questions. For confirmation questions, most Jerezano speakers used the same L* HH% configuration from information-seeking yes/no questions. This was somewhat unexpected, since most dialects discussed in Prieto and Roseano (2010) show radically different F0 contours to express information-seeking and confirmation yes/no questions[7]. Of interest, there is evidence from three dialects that information-seeking and confirmation yes/no questions do not necessarily employ different tonal configurations. Specifically, this result has been observed for Ecuadorian Andean Spanish (L* HH% (O'Rourke 2010)), Canarian Spanish (¡H* L% (Cabrera Abreu & Vizcaíno Ortega 2010)), and Puerto Rican Spanish (¡H* L% (Armstrong 2010)).

[7] One explanation for the present finding may be related to the scripted task that was used; recall that in Prieto and Roseano (2010), speakers were not provided with test sentences in written form and were asked to respond verbally to each discourse context.

A second questionnaire was created to determine what contours were used in more precise confirmation yes/no question contexts, specifically, inner negation (negative confirmation) and outer negation (positive confirmation) contexts. The finding was that an earlier rise start (L+H* HH%) may signal confirmation in these contexts, although there was evidence that L* HH% may be used as well. In Armstrong (2012), it was shown that a particular melody (H+L* L%) is used for outer negation contexts (and [+ belief] states) which is disallowed in inner negation contexts. In the present data, we find that one contour may be shared by inner and outer negation contexts, but there was little evidence that finer distinctions based on belief states are signaled by intonational means. The types of pragmatic distinctions that show categorical phonological differences may vary by language variety, as we have seen for languages like European Portuguese (Mata & Santos 2008) or Majorcan and Minorcan Catalan (Payà & Vanrell 2005). Clearly, L% boundary tones were not observed in the Jerezano yes/no corpus. One implication is that the rising-falling vs. falling-rising claim put forth in Escandell-Vidal (1998) may have little applicability to southern varieties of European Spanish.

Like many other dialects of Spanish, multiple intonational contours were found for information-seeking wh-questions. Falling H+L* L% was found in addition to circumflex L+¡H* L%. Of note, Castilian Spanish prefers the former pattern, whereas Cantabrian and Mexican Spanish prefer the latter. For echo wh-questions, the most common pattern was L+H* HH%. For imperative wh-questions, Jerezano speakers used H+L* L%. It is not immediately clear what additional prosodic correlates may be used to distinguish information-seeking from imperative wh-questions, as the same accent has been documented for both pragmatic contexts. One possibility is that a more expanded pitch range is used for imperative wh-questions; future work will help to elucidate this issue. Note that for Castilian Spanish, H+L* L% is used in imperative questions as well. It may be that in Castilian and in Jerezano Spanish, H+L* L% is used when the desire for a response is greater, and that an alternative pattern (L* HH% in Castilian and L+¡H* L% in Jerezano) is used to indicate less assertiveness on the part of the speaker[8].

[8] Along these lines, Ohala (1984) contends that rising pitch in questions is iconic and is a phonologized remnant of animal behavior such that a speaker should be subservient to his/her interlocutor when asking a question. To do so, humans may have emulated small, harmless creatures that have higher pitch in an effort to act smaller than they physically are when asking questions. This may help to support the hypothesis that configurations with high pitch are used (i.e., high final rise in L* HH% for Castilian Spanish and upstepped L+¡H* in Jerezano Spanish) when there is less assertiveness on the part of the speaker.

Requests, commands and vocatives were also analyzed. Requests showed the L+H* L% pattern, and commands showed the L+H* M% configuration. Commands were the only pragmatic context in which Jerezano speakers used the M% phrase-final boundary tone. Prieto and Roseano (2010:6) note that M% boundary tones are especially productive in Castilian Spanish. For Jerezano Andalusian Spanish, however, this is not the case[9]. The preference is to end utterances at either end of the tonal range (i.e., L% or HH%), limiting the use of mid tones at the right periphery. Complex binary boundary tones were also highly restricted in the Jerezano corpus. In fact, the only complex binary tone was HL%, used in neutral and insistent vocatives. Further inspection of the acoustic data revealed a greater amount of lengthening in the nuclear syllable of insistent vocatives. In this regard, Jerezano speakers behave more like Ecuadorian Andean Spanish speakers for whom HL% is the only complex boundary tone in the melodic inventory.

To summarize, a cross-dialectal comparison of nuclear and boundary tone configurations for four varieties of European Spanish is provided in Table 3. Data for Cantabrian Spanish are from López Bobo and Cuevas Alonso (2010), data for Castilian Spanish are from Estebas-Vilaplana and Prieto (2010), and data for Canarian Spanish are from Cabrera Abreu and Vizcaíno Ortega (2010).

	CANTABRIAN	CASTILIAN	JEREZANO	CANARIAN
BROAD FOCUS STATEMENT	L* L%	L* L%	L* L%	L* L%
NARROW FOCUS STATEMENT	L+H* L%	L+H* L%	L+H* L%	L+H* L%
CONTRADICTION STATEMENT	L+H* L%	L* HL%	¡L+H* L%	!H* L%
EXCLAMATIVE STATEMENT	L+H* L%	L+H* L%	L+H* L%	!H* L%
STATEMENT OF THE OBVIOUS	L+H* LM% L* HL%	L+H* LM%	L+H* L%	L+H* LM%

[9] Note that intermediate M- tones were observed in narrow focus correction statements and statements of the obvious.

UNCERTAINTY STATEMENT	L+H* L%	L+H* M%	L+H* L%	¡H* M%
INFO-SEEKING Y/N QUESTION	L* HH% H* HL%	L* HH%	L* HH%	¡H* L%
ECHO Y/N QUESTION	H* HL%	L+¡H* L%	H* HH%	¡H* L%
COUNTEREXPEC-TATIONAL Y/N QUESTION	L+H* HL%	L+H* HH% L+H* LH%	H* HH%	L* HH%
IMPERATIVE YES/NO QUESTION	H+L* M% L+¡H* M%	H+L* L%	L+H* HH%	¡H* L%
CONFIRMATION Y/N QUESTION	L+H* HL%	H+L* L%	L* HH%	¡H* L%
INFO-SEEKING WH-QUESTION	H+L* L%	L* L% L* HH%	L+¡H* L% H+L* L%	¡H* L%
ECHO WH-QUESTION	L+¡H* M%	¡H* L%	L+H* HH%	L* HH%
IMPERATIVE WH-QUESTION	!H+L* L%	H+L* L%	H+L* L%	L* L%
COMMAND	!H+L* L%	L+H* M%	L+H* M%	L+H* HH%
REQUEST	!H+L* L%	L* HL%	L+H* L%	H* L%
TENTATIVE VOCATIVE	L+H* M%	L+H* M%	L+H* HL%	L* (H*) M%
INSISTENT VOCATIVE	L+H* HL%	L+H* HL%	L+H* HL%	L+H* HL%

Table 3. *Cross-dialectal comparison of nuclear and boundary configurations for four dialects of European Spanish*

At this point, a few words are in line about the applicability to the Jerezano data of the Estebas-Vilaplana and Prieto (2010) Sp_ToBI revisions. A general result, consistent with the chapters of Prieto and Roseano (2010), is that the revised ToBI would seem to account for the wide array of intonational data that are attested. The

three-way contrast for rising pitch accents (Face & Prieto, 2006/7) was especially useful to describe prenuclear accents in unbiased statements (L+>H*), information-seeking yes/no questions (L*+H), and contrastive statements (L+H*)[10]. The construct of the complex boundary tone has also been of use, in particular for characterizing neutral and insistent vocative contours. An issue worth exploring for future analysis is why few complex boundary tones were observed in the Jerezano data. Note that in Castilian and Cantabrian Spanish, complex boundary tones are more productive, including LH% and LM%.

A final issue that warrants comment is the role of upstep and how to encode F0 differences in the Spanish intonational grammar. In the current analysis, the upstep '¡' diacritic was used in the wh-question melody (see section 4.2.3) for the L+¡H* label to indicate a peak that was higher than all other tonal gestures of that same melody. In fact, the level of the peak was almost as high as the HH% boundary tone for the same speaker in information-seeking yes/no questions. It should be made clear that the upstep label in the present analysis was employed to indicate a phonetic result and it remains to be seen whether the higher wh-question peak is of phonological consequence. In their discussion of the L+¡H* label, Estebas-Vilaplana and Prieto (2008) are mindful to explain that the phonological status of the higher peak remains unclear. One possibility is that it is the phonetic manifestation of an independent phonological entity (i.e., contrastive with L+H*); on the other hand, it may be considered a mere allotonic variant of L+H*. The upstep diacritic is used widely in the intonation literature (e.g., Beckman et al. 2002, Henriksen 2012, in press, Truckenbrodt 2002, Willis 2006/7), and currently there is no single definition on how it should be used in intonation labeling practices. For some researchers upstep characterizes a peak that is higher than previous H peaks in a particular F0 contour (Estebas-Vilaplana & Prieto 2010:23, Willis 2010:125). Other researchers, however, would seem to define upstep on paradigmatic terms, as a peak that is higher than otherwise typical occurrences of the accent in question (Gabriel et al. 2010:289)[11]. Along these lines, Willis (2006/2007) argues that L tones in Dominican Spanish yes/no questions may be upstepped as well, based on quantitative scaling differences when compared to L tones for statements. In Henriksen (2012), the upstepped ¡H% boundary tone is analyzed as a raised tonal level due to an adjacent nuclear H* which triggers higher

[10] Recall that Face and Prieto's (2006/7) proposal calls into question the notion that alignment necessarily implies association; in their view, tones are starred based on perception of the prominent syllable as high or low.

[11] Based on the figures provided in Gabriel et al. (2010), upstep could not be characterized relative to previous peaks. See, for examples, figures 4 and 23 of the Gabriel et al. chapter.

final scaling than when preceded by L*. Sosa (1999) adopts a similar view in his general analysis of yes/no question intonation in Spanish, positing an utterance-initial %H that triggers higher F0 compared to statements at a later part of the utterance.

Ultimately, researchers must be clear on whether higher scaling is understood as basic to the phonological inventory or as a predictable property of Spanish intonation. The problem that arises is that if evidence is found in favor of contrastive 'upstepped' tones, an additional level of phonological pitch scaling would be necessary to account for these facts. Related to this, Face (2011) proposes the construct of the *frame* as a mechanism for specifying pitch scaling contrasts in addition to L vs. H. Frames represent one of nine pitch scaling options (e.g., normal pitch scaling, raised high end, lowered high end, etc.), although of note, phonological contrasts are argued from a psycholinguistic perspective. Clearly, F0 differences have phonological consequences in Spanish intonation; researchers will need to be explicit about how their F0 data should be interpreted given the diversity of patterns in the language.

6. CONCLUSION

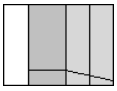
In this paper we have presented an analysis of the intonational patterns of speakers of Jerezano Andalusian Spanish, spoken in the southwest province of Cádiz, Spain. Speech data for three male and six female speakers were analyzed using Praat (Boersma & Weenink 2011) within the Sp_ToBI system of intonational labeling (Beckman et al. 2002, Estebas-Vilaplana & Prieto 2010). A follow-up questionnaire was created to test the intonation of negation confirmation questions for three additional speakers. A noteworthy finding for the intonation of statements is that neutral vs. biased intents are expressed by L* L% vs. L+H* L%, respectively. Also, it was shown for the first questionnaire that the same tonal configuration (L* HH%) marks information-seeking and confirmation yes/no questions. When more specific confirmation contexts were created, L+H* HH% was observed. For echo yes/no questions, H* HH% was the dominant pattern. Neutral wh-questions showed two patterns on the nuclear syllable: falling H+L* or rising L+¡H*. In both cases, the boundary tone was L%.

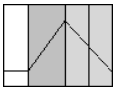
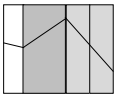
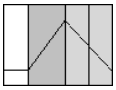
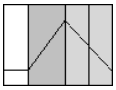
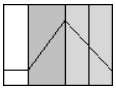
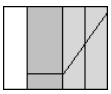
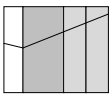
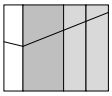
There was limited previous research on the intonation of Spanish spoken in the southern part of the peninsula. Perhaps the most noteworthy difference between Andalusian Spanish and Castilian Spanish is that right periphery mid boundary

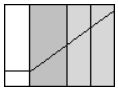
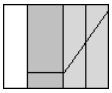
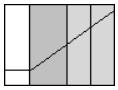
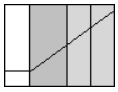
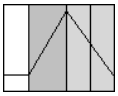
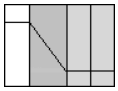
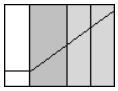
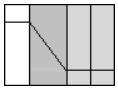
tones (M%) and complex boundary tones were minimally productive in the Jerezano corpus. In this regard, Jerezano Andalusian Spanish behaves more like Canarian Spanish. A general result, consistent with the chapters presented in Prieto and Roseano (2010), is that the revised ToBI for Spanish (Estebas-Vilaplana & Prieto 2008) accounts for the wide array of intonational data that are attested. As was addressed in the discussion, the issue of labeling practices in contexts of 'upstep' remains to be resolved.

Many opportunities for future research remain, given this initial attempt to characterize Jerezano Andalusian Spanish intonation. Perception studies may be particularly helpful to make clear whether the proposed phonological contrasts are borne out in the mind of the listener. It will also be especially useful to see how a single tonal configuration is produced under varied degrees of tonal pressure (e.g., Arvaniti & Ladd 2009, Arvaniti, Ladd, & Mennen 1998, 2000, Henriksen 2012, in press, Prieto 2005). Recall that for certain test sentences, oxytone words were used. Such prosodic contexts are helpful for providing preliminary labels, but from a phonological standpoint it is of interest to see how F0 contours behave under varying degrees of tonal pressure. Additionally, other speech varieties within the Andalusian Spanish dialect continuum may be worth pursuing, such as those spoken in the Eastern Andalusian provinces Almería, Granada, or Jaén. Research at the segmental level points to important differences between Western and Eastern varieties (Alvar 1996:252), and a question that arises is what are the additional intonational features that serve to distinguish these two varieties. Finally, there is the issue of interspeaker variation uncovered in the Jerezano corpus. Recall that for many pragmatic contexts multiple intonational forms were uncovered. In future work it will be insightful to understand the motivating factors underlying this variation, and it may be that social or stylistic factors must be taken into account (e.g., Henriksen 2009, 2010, Warren 2005b).

By way of concluding summary, the nuclear configurations of Jerezano Andalusian Spanish and their schematic representations are shown in Table 4.

STATEMENTS		
Broad focus statements	L* L%	

BIASED STATEMENTS		
Narrow focus statements	L+H* L%	
Contradiction statements	¡L+H* L%	
Exclamative statements	L+H* L%	
Statements of the obvious	L+H* L%	
Uncertainty statements	L+H* L%	
INFORMATION-SEEKING YES/NO QUESTIONS		
Information-seeking yes/no questions	L* HH%	
BIASED YES/NO QUESTIONS		
Echo yes/no questions	H* HH%	
Counterexpectational yes/no questions	H* HH%	

Imperative yes/no questions	L+H* HH%	
Confirmation yes/no questions	L* HH%	
Inner negation confirmation yes/no questions	L+H* HH%	
Outer negation confirmation yes/no questions	L+H* HH%	
WH-QUESTIONS		
Information-seeking wh-questions	L+¡H* L%	
	H+L* L%	
BIASED WH-QUESTIONS		
Echo wh-questions	L+H* HH%	
Imperative wh-questions	H+L* L%	

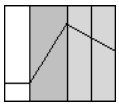
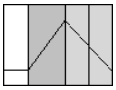
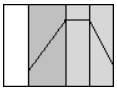
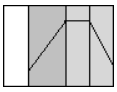
IMPERATIVES: COMMANDS AND REQUESTS		
Commands	L+H* M%	
Requests	L+H* L%	
VOCATIVES		
Tentative vocatives	L+H* HL%	
Insistent vocatives	L+H* HL%	

Table 4. *Inventory of nuclear pitch configurations in Jerezano Andalusian Spanish and their schematic representations.*

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APPENDIX 1. QUESTIONNAIRE

Broad focus declarative
Context: *Mira el dibujo y di lo que hace la mujer.*
Response: *Bebe una limonada.*

Narrow focus statement
Context: *Entras en una frutería y la frutera es un poco sorda.*
A. Quiero un kilo de limones
B. ¿De naranjas?
Response: *No, de LIMONES.*

Narrow focus contradiction statement
Context: *Una amiga y tú estáis hablando de unos amigos que se van a vivir al extranjero. Tú sabes segura que irán a Lima pero tu amiga piensa, también bastante segura, que irán a Bogotá. Dile, seguro, que no, que irán a Lima.*
Response: *¡Que no, que irán a Lima!*

Exclamative statement
Context: *Entras en una panadería y notas un olor a pan muy bueno. Díselo a la panadera.*
Response: *¡Qué olor a pan tan bueno!*

Statement of the obvious
Context: *Estás con una amiga y le cuentas que María, una amiga común, está embarazada. Ella te pregunta que de quién está embarazada y tú te extrañas mucho de que no lo sepa porque todo el mundo sabe que es de Guillermo, su novio de toda la vida. ¿Qué le dices?*
Response: *¡Sí, mujer, de Guillermo!*

Uncertainty statement
Context: *Te han encargado comprar un regalo para alguien que no conoces mucho y te da un poco de apuro no comprarlo bien. Dile a la persona que te lo ha encargado que igual no le gusta el regalo que le has comprado.*
Response: *Puede que no le guste el regalo que le he comprado.*

Information-seeking yes/no question
Context: *Entras en una tienda y pides al tendero si tiene mermelada.*
Response: *¿Tiene mermelada?*

Echo yes/no questions
Context: *Te dan la hora pero no acabas de entenderla. Piensas que te han dicho que son las nueve. Vuélvelo a pedir.*
Response: *¿(Qué has dicho que) son las nueve?*

Counterexpectational yes/no question
Context: *Te dicen que un compañero tuyo, Mario, se presenta por alcalde. No te lo crees y lo vuelves a preguntar.*
Response: *¿(Qué dices que) Mario se presenta por alcalde?*

Imperative yes/no questions
Context: *Tus nietos arman mucho alboroto y no te dejar oír la televisión. Les pides si se quieren callar.*
Response: *¿Callaréis?*

Confirmation yes/no questions
Context: *Sabes que fuera hace mucho frío. Entra alguien bien abrigado y le preguntas si tiene frío.*
Response: *¿Tienes frío?*

Confirmation tag yes/no questions
Context: *Jaime ha dicho que vendría a comer. Se lo preguntas para confirmarlo.*
Response: *Vendrás a comer, ¿no?*

Inner negation confirmation yes/no question
Context: *Estás de paseo en un barrio de Sevilla y tu prima te dice que si te apetece comer otra cosa que no sea carne, tenéis que ir a otro barrio.*
Response: *¿Entonces en este barrio no hay ningún resturante vegetariano?*

Outer negation confirmation yes/no question
Context: *Estás en Sevilla con tu prima y te acuerdas de que la última vez que estuviste comisteis en un restaurante vegetariano. Tu prima: ¿Dónde quieres que comamos?*
Response: *(pensando en el restuarante donde comisteis la última vez): ¿No había por aquí un resturante vegetariano?*

Information-seeking wh-question
Context: *Pide qué hora es.*
Response: *¿Qué hora es?*

Echo wh-question
Context: *Te han pedido dónde vas pero no sabes si lo has entendido bien. Pide si es esto lo que te han pedido.*
Response: *¿(Qué me has pedido) dónde voy?*

Imperative wh-question
Context: *Pides a tu hijo que te haga arreglo en la casa y no estás seguro que lo vaya a hacer ya que no es la primera vez que se lo pides. Pregúntale, medio enfadado, cuándo lo hará.*
Response: *¿Cuándo lo harás?*

Command
Context: *Estás en el parque con tu nieta, María, y se te escapa. Dile que venga, que no se aleje tanto de ti.*
Response: *¡Ven aquí, por favor!*

Request
Context: *Quieres ir al cine con un amigo. Te dice que tiene trabajo pero tú sabes que el trabajo lo puede dejar. ¿Cómo lo harías para convencerlo?*
Response: *¡Va, vente!*

Calling vocative
Context: *Entras en casa de una amiga tuya, Marina, pero al entrar no la ves. Llámala.*
Response: *¡Marina!*

Insistent vocative
Context: *Pasan diez segundos y no sale nadie. Vuelve a llamarla.*
Response: *¡¡Marina!!*