Research Article

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# A preliminary analysis of intonation patterns in Ecuadorian Cuencano Spanish

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**Abstract:** *El Cantado Cuencano* "Cuencano singing" constitutes the hallmark of Cuencano Spanish: a widely spoken Andean dialect in the Ecuadorian province of Azuay. This colloquially described "singing" makes Cuencano Spanish one of the most distinct dialects of Ecuador. The aim of the present study is to provide a preliminary analysis of intonation patterns from common utterance types in this under documented dialect. A sample of 550 utterances from 11 categories that included declarative statements, yes/no questions, exclamative statements, wh-questions, imperatives, lists, conditionals, tag-questions, interjections, negative statements, and vocatives was collected from five male and five female participants. The tokens were analyzed acoustically and labeled using the Spanish Tones and Break Indices system (Sp_ToBI). Results reveal the presence of a tritonal pitch accent (PA), labeled as L + H* + L and the extensive use of bitonal PAs (namely, L + H*). These three phenomena mark the singing quality of Cuencano Spanish and make it stand out from the dialects of Ecuadorian Spanish.

**Keywords:** Ecuador, Azuay, Cuenca, intonation, ToBI, SP_ToBI, autosegmental metrical, acoustic phonetics

## 1 Introduction

The variety of Spanish spoken in the city of Cuenca, located in the Southern Andean region of Ecuador, is one of the most distinct Andean dialects spoken in the country. It is colloquially known as *el Cantado Cuencano* "Cuencano singing" and it is marked by its distinctive sing-song characteristics, which define the Cuencano accent. While the dialect is frequently referenced by Ecuadorians whenever Cuenca is mentioned in conversation, to date it has only been described impressionistically in the scientific literature. According to Encalada Vásquez (2016), historical interactions between Spanish and local indigenous languages (primarily, Cañari and Quichua[1]) that took place around *Tomebamba*[2] may have been the impetus for the dialectal phenomenon.

Although the intonation of other varieties of Ecuadorian Spanish, such as Quito Spanish (O'Rourke, 2010) and Chota[3] Spanish (Lipski, 1987), has been studied, there are currently no empirical or acoustic

1 The Quechuan languages spoken in Ecuador are generically referred to as "Quichua" or "Kichwa."

2 *Tomebamba* was the name of the city occupied by the *Cañari* culture during the precolonial period and the place where the modern-day city of Cuenca was founded.

3 The word Chota is the name of a valley located in the northern Ecuadorian highlands in the province of Pichincha, which is predominantly inhabited by Afro-Ecuadorian people. The Spanish spoken in this area is known as "Chota Spanish."

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studies that contribute to the analysis of the intonation patterns found in Cuencano Spanish.[4] Therefore, we aim to provide such an analysis with a preliminary acoustic description using the Tones and Break indices (ToBI) labeling framework (Silverman et al., 1992) in its Spanish version (Beckman et al., 2006). We also intend to answer the question "What are the most salient intonation patterns found across a sample of 11 types of utterances in Ecuadorian Cuencano Spanish?" In addition, we also aim to put forth empirical evidence that helps to support or refute the impressionistic claims about the characteristics of the *Cantado Cuencano*. At the same time, this study also provides a preliminary description of basic intonational patterns in Cuencano Spanish with an analysis of the most common intonation patterns found across 11 utterance types.

# 2 Cuencano Spanish

The first group of Spanish colonizers to arrive in what is now the city of Cuenca did so in 1,557 and settled in the Inca-Cañari city of Tomebamba (Encalada Vásquez, 2007). Figure 1 highlights the area occupied by the *Cañaris* prior to the Inca and Spanish conquests.

Therefore, it is thought that the variety of Spanish spoken in Cuenca developed over time as a result of contact between the Spanish dialect brought from Andalucía and Murcia by the colonizers and the Cañari and Quichua languages spoken in the region (El libro que recoge todo un mestizaje lingüístico 2019; Encalada Vásquez, 2016). As argued in Encalada Vásquez (2016), even though Quichua was imposed by the Incas as the majority language when they invaded the Cañaris, the Spanish Crown imposed that the Cañaris under the Inca empire maintain their autochthonous practices and continue to use their own minority language. However during the Bourbon reforms of the XVIII century CE, Spanish was declared as the only official language. Consequently, it is thought that the intonation innovations in Cuencano Spanish are linked to the dialect brought by the Spanish and its subsequent acquisition by L1 speakers of Quichua and Cañari.

Unfortunately, little is known about the Cañari language, except for impressionistic observations based on historical accounts and the strong presence of the Cañari culture in the area. While the Cañari language subsequently fell out of use, due to pressures exerted by the two dominant languages (Encalada Vásquez, 2016), its presence is often referenced as one of the few differences that might have set Spanish intonation in Cuenca to evolve in a different direction from other dialects of Spanish spoken in the Andean highlands. However, the influence from the Cañari substrate is still conjecture at this point as research is lacking in this area.

## 2.1 Cuencano Spanish phonetics and phonology

The Spanish from Cuenca is similar to that of the central highlands, particularly Quito Spanish. Nonetheless, Lipski (1994) makes the following phonemic distinctions regarding Cuencano Spanish pronunciation:

- Unstressed vowel reduction is much more pronounced, e.g., *¿¡Qués pues!?*/kespəs/- [kesps] "really!?"
- Fricativization of <r-/-rr-> ([r]) to [z̪] and <tr> produced as [ʧ], [tr] or even [tɹ] are more noticeable, *carro* [ˈka.z̪o] "car," *trigo* [ˈtri.go] "wheat."
- <y> remains as [ʎ], *calle*/ˈka.ʎe/"street" instead of weakening to /ʒ/, which is common in other Ecuadorian highland dialects of Spanish.

With regard to prosody, one of the most distinctive intonational patterns of the Cuencano dialect is the tendency to displace the pitch accent (PA) to one of the previous syllables, specifically the pretonic syllable, regardless of the stress classification of a given word (Toscano-Mateus, 1953). This trait is frequent in Cuencano Spanish and has been impressionistically described as *esdrujulización* ("accent retrocession"),

4 Brenda Stelter Froemming at the University of Wisconsin–Madison is currently working on an acoustic analysis of declarative utterences in Cuencano Spanish.


**Figure 1:** Map that highlights the preconquest Cañari territory based on Encalada Vásquez (2016).

which is defined as the displacement of the PA to a previous syllable. *Esdrujulización* is one of the main traits that distinguishes the Cuencano accent from that of other Ecuadorian dialects (e.g., Costal, Amazonian, and Northern Andean) (Candau de Cevallos, 1970; Cuesta y Cuesta, 1983; Icaza Coronel, 1934; Toscano-Mateus 1953). Examples of *esdrujulización* are monosyllabic words such as *si*/ˈsi/"yes" or *Luis*/luis/ "Louis" being pronounced with an extra syllable, *si-i*/ˈsi.ʔi/, *Lu-is*/ˈlu.ʔis/; contrary to what is common in northern Andean cities, such as Quito, some two-syllable words such as the interjection *¡Hele!*/el.ˈʔe/"huh!" maintain their penultimate stress and are pronounced as the *¡Hele*/ˈeʔle/; words like *cafesito*/ka.fe.ˈsi.to/ "little coffee or diminutive of coffee," on the other hand, are pronounced with a double accent as *cafecito*/ ˈka.fe.ˈsi.to/; *acasito*/a.ka.ˈsi.to/"diminutive of here" is pronounced as a word with preantepenultimate stress *acasito*/ˈa.ka.si.to/(Encalada Vásquez, 2016).

These examples show that there is displacement or accent retrocession produced by means of lengthening of vowels and tonal variation. It is not something that is done deliberately but rather something that Cuencanos do in natural speech. In addition, it has been argued that this accent displacement is extensible to the intonation phrase (IP) domain, where certain syllables found in words that would not normally be stressed sometimes carry a PA giving the pitch contour a more defined sinusoidal shape (Encalada Vásquez, 1998).

It should be noted that the sing-song characteristic is not exclusive to Cuencano Spanish, as this phenomenon has been documented in languages and dialects around world. However, Encalada Vásquez (2016) argues that due to the possible influences from Cañari and Quichua, the sing-song effect is strikingly salient in this dialect, making it one of the most easily distinguishable dialects in Ecuador.

## 2.2 Autosegmental metrical frameworks

The AM theory, developed by Ladd (1996); Pierrehumbert (1980); Pierrehumbert and Beckman (1988); and Pierrehumbert and Hirschberg (1990), treats intonation as a well-defined linear sequence (string) of tones (high and low) including both relevant and unimportant events. The substantial variations in the pitch contour are either PAs (pitch targets in terms of direction) or edge tones (phrase and boundary tones [BTs]), whereas non-variable events are typically deemed mere transitions. The PA that takes place in the last position before a BT (nuclear position) within an utterance is referred to as nuclear accent (see Beckman, 1996). This is a general pattern that applies to Spanish declarative sentences in broad focus contexts. Conversely, prenuclear PAs are those found in any position within the utterance other than the nuclear position.

## 2.3 Spanish ToBI

Spanish ToBI (Sp_ToBI) is a labeling system for the prosodic annotation of Spanish spoken corpora used to describe the intonation, phonetics, and prosody of the language. The original Spanish ToBI version was devised by Beckman, Díaz-Campos, McGory, and Morgan (2006). Some modifications to the original system were made over time that extended its scope in an effort to get closer to the original researchers' goal of developing an Sp_ToBI that can be used to work with a wider diversity of Spanish dialects (Aguilar et al., 2009). In one such modification, Estebas Vilaplana and Prieto Vives (2008) added three innovations to the tonal inventory of the original Sp_ToBI. They provided evidence for the existence of an L* PA, three varieties of bitonal rising tones (L* + H, L + H*, L + >H*), and the presence of bitonal and tritonal BTs (rise or fall in pitch that occurs at the end of utterances or at the end of intonational phrases [IPs]) (Vilaplana and Prieto, 2008). In 2015, Hualde and Prieto published two important papers that further advanced the development and standardization of Sp_ToBI, in addition to ToBI representations in other languages (Hualde and Prieto 2015a, 2015b). Hualde and Prieto (2015b) argued for a two-tier representation: one with a broad phonetic transcription and a second with a phonological representation. However, our goal with this preliminary analysis is to establish trends in the Cuencano dialect and present basic intonation patterns. Therefore, we have opted to use a conventional single tier as per O'Rourke's (2010) study of Ecuadorian Andean Spanish.

In addition, Prieto Vives (2014) postulated the existence of a tritonal PA, L + H* + L in Catalan, which has been subsequently used to describe pitch contours identified in Argentinian Spanish in contradiction statements, narrow focus statements, statement of the obvious, exclamative statements, and counter-expectational yes–no questions (see Gabriel et al., 2010 for an extensive overview). We argue for a tritonal PA in Cuencano Spanish as well in Section 4.1.

An example of the application of the Sp_ToBI system to Andean Latin American dialects can be found in the work of O'Rourke (2010). Her aim was to determine the basic final intonational patterns common to Ecuadorian Andean Spanish dialects, specifically Quito Spanish. To do so, she analyzed a total sample of 142 utterances (broad statements, narrow focus statements, bias statements, exclamative statements, yes–no questions, wh-questions, vocatives, and requests) produced by two speakers, one female and one male from Quito, Ecuador. O'Rourke's (2010) conclusions support previous work by Argüello (1978) regarding the final intonation patterns of wh-questions and imperative questions, which she found to have M%/HH% and HH% BTs, respectively. She also refers to the fact that utterance final devoicing was present in her sample as had been previously described in Argüello (1978).

Regarding other varieties of Ecuadorian Spanish, O'Rourke (2010) explains that the main differences are in the final intonation of yes–no questions and wh-questions, which is not as high as indicated in previous descriptions of Ecuadorian Spanish, such as Argüello (1978). The author also concludes that the bitonal H + L% BT is frequently used in Ecuadorian Andean Spanish in a considerable number of utterances among which we can find biased questions and echo wh-questions.

Although the Sp_ToBI framework is already functional and has been used to work with a variety of dialects, it is still a developing system that can be improved and modified to include more details and cover more Spanish dialects (see efforts made by Hualde and Prieto, 2015b). These modifications will help crystalize the main objective of Spanish ToBI, which is to be used to create a large public corpus of Spanish utterances that can contribute to both future research and the proper understanding of the prosody of the language.

The Spanish ToBI framework is similar to the other ToBI systems in that it also derives from the original English ToBI. As in the other ToBI varieties, the typical Sp_ToBI representation includes an image of the utterance waveform, spectrogram, and f0 contour, and a standard but flexible number of tiers: orthographic, phonetic transcription/syllables, tones, break index (BI), and miscellaneous.

# 3 Methodology

The data for this research project were collected in the city of Cuenca, Ecuador. The final sample comprises 550 total utterances. These tokens are classified into 11 types of utterances based on O'Rourke's (2010) study of Quito Spanish; therefore, they are not exactly in line with other studies of more geographically removed Spanish dialects. The 11 types of utterances consist of yes/no questions, wh-questions, declarative statements, imperatives, conditionals, exclamations, interjections, vocatives, negative statements, lists, and tag-questions. Fifty samples of each utterance type were collected from ten speakers (five women and five men). Utterances were produced in a semi-spontaneous manner, based on prompted conversations between two speakers with non-controlled responses. The prompts were given in both oral and written forms by a confederate speaker.

The tokens were recorded using the application *Easy voice recorder* on a Samsung 8 (S8) phone with an in-built microphone recording at 44,100 Hz in WAV format. Quality control checks were made to ensure the f0 contours were salient and that noise levels were minimal.

## 3.1 Participants

All of the participants were between the ages of 20 and 27 and were either working professionals or pursuing university degrees. All participants self-identified as middle class and all had at least a level secondary of education. All the participants were born and raised in Cuenca, Ecuador. Hence, they are familiar with the local culture and their accent and intonation correspond to what is popularly known as the *Cantadito Cuencano*.

## 3.2 Data collection

Recordings took place in a quiet space, isolated from as much background noise as possible to gather quality data. At the beginning of each interaction, demographic data were gathered, including the participants' age, education, their parents' place of origin, their travel history, and languages spoken. During each session, the participant was given a list of utterances along with their specific contexts and asked to produce them in the most natural way possible. The participants read the sentences out loud and reacted to the prompts given to them to produce a semi-spontaneous response.

(1) Elicitation of the vocative token "*¡Angie!*"

Context: You just saw a female friend passing by from a distance and shouted to her to grab her attention.

### 3.3 Data format and analysis

After importing the sound files into Praat (Boersma and Weenink, 2016), each utterance was extracted and saved in its own individual file. Then a text grid with four tiers (Utterance, Syllables, BI, and Tones) was assigned to each file for annotation. All annotations were made in Praat by the first author, as he is a native Spanish speaker who has lived in Cuenca for most of his life.

The first interval tier contained the textual representation of the utterance or sentence. The second interval tier was a syllable tier, which is useful to spot the PAs along the f0 contour. The third tier was the first of the two point tiers containing the break indices used in the ToBI system to designate rhythm and prosodic levels. Finally, the fourth tier corresponded to the tones that define the f0 contour, which have been labeled using the ToBI system. To account for gender differences, the pitch range was set at different values for men and women. For women, the default (75–500 Hz) was mostly used, although some female participants with particularly high-pitched voices required the range to be increased to 600–700 Hz. On the other hand, the optimum value for men was from 50 to 300 Hz. Finally, the f0 line was "smoothed" with a bandwidth of 10 Hz to remove micro-perturbations.

## 4 Intonation patterns in Cuencano Spanish

Sections 4.1 and 4.2 provide a general description of the PAs in relation to stress, focus, and other useful specifications, as well as the criteria for BT usage applied in this analysis. The core subsections (Sections 4.3–4.11) elaborate on the prosodic features (PAs and BTs) specific to the utterance types under analysis.

Three different tables will be provided in the following subsections and at the end of this section illustrating the PA patterns, the BTs, and the common nuclear configurations for Cuencano Spanish. In this way, the information analyzed and documented in this section about Cuencano Spanish intonation patterns and the answers for research question 1 "What are the most salient intonation patterns found across a sample of 11 types of utterances in Ecuadorian Cuencano Spanish?" are summarized and organized for quick consideration.

### 4.1 Results

In Spanish, as in other languages, PAs coincide with stressed syllables. Spanish words are classified according to the position of the syllable bearing the stress.[5] Thus, we have four main classifications:

- *Agudas* "final stress": These are words that carry stress on the last syllable (e.g., "*temblor*"/tem.ˈblor/ "tremor," *canción*/kan.ˈsion/"song").
- *Graves* "penultimate stress": These types of words are stressed on the penultimate or second to last syllable, such as *árbol*/ˈar.bol/"tree," *viejo*/ˈbie.xo/"old".
- *Esdrújulas* "antepenultimate stress": Words are classified as *esdrújulas* if the stress falls on the antepenultimate or third to last syllable (*pájaro*/ˈpa.xa.ro/"bird").
- *Sobreesdrujulas* "preantepenultimate stress": These words stress on more than three syllables to the last: *devuélvemelo*/de.ˈbuel.be.me.lo/"give it back to me".

Applying the stress classification above, it can be stated that PAs are distributed in different positions depending on the number of syllables in a word and which syllable takes primary stress. Furthermore, of all

5 This is the norm in Spanish; however, in Cuencano Spanish the accent is sometimes displaced to a previous syllable.

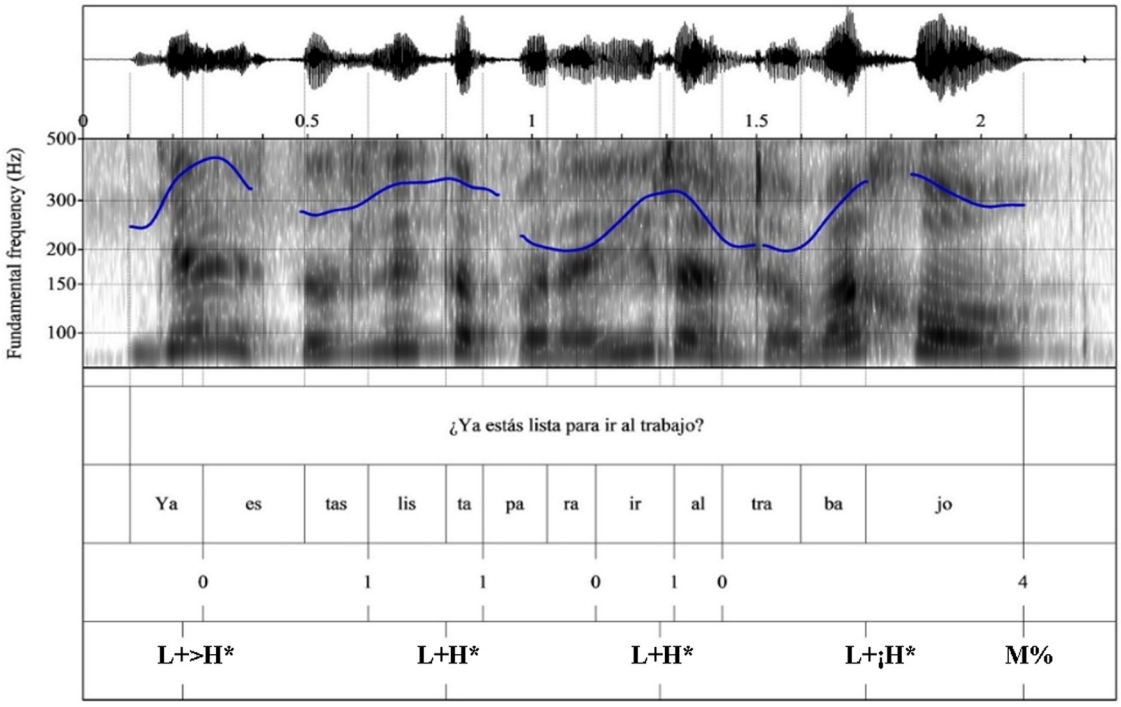



**Figure 2:** Waveform, spectrogram, and pitch contour for the yes/no question *¿Ya estás lista para ir al trabajo?* "Are you ready to go to work?" containing four bitonal PAs (One L + >H* on the first PW followed by two L + H* PAs, and a final upstepped nuclear L + ¡H* PA) and ending with an M% IPBT.

the PAs available in the Ecuadorian Andean Spanish inventory, the bitonal L + H* is by far the most prevalent. Almost every utterance in this sample was observed to have at least one bitonal L + H* PA in at least one of its prosodic words (PWs)[6] and can be found in both prenuclear and nuclear positions.

In Figure 2, the bitonal PA, L + H* appears in both nuclear (*trabajo* [tra.ˈba.xo] "work") and prenuclear positions (*ya* [ˈja] "yet," *lista* [ˈlis.ta] "ready" *ir* [ˈir] "go," respectively). It has been labeled positioning the L as close as possible to the beginning of the rise on the accented syllable. However, it is important to note that this low tone may start a few syllables ahead from the *tone bearing unit* (TBU), and that this is common in most instances of this PA (*es.tas lis.ta* [esˈtas ˈlista] "are you ready?"). It should also be mentioned that the H* tone is typically aligned with the peak of the accented syllable, or just beyond it (marked with ">"). After this PA is realized, there is frequently a decrease in scale observed on the posttonic syllable (*ir al* [ˈir al] "go to"), which may even continue onto the next syllable. In several cases (Figures 2, 7, 11, 14, 20, and 21), a PA increases in H scale surpassing the height of previous PAs in the utterance. In these cases, we mark the PA with "¡" to indicate upstep. In the majority of cases, upstep takes place on the nuclear accent; however, Figure 10 shows upstep on a prenuclear PA. The use of upstep in Cuecano Spanish corresponds to a similar pattern present in Argentinian Spanish: a dialect which is also characterized as distinctively melodic compared to other Spanish dialects (see Gabriel et al., 2010).

Additionally, we argue that one of the defining features of Cuencano Spanish intonation is the use of a tritonal PA, which displays a rising–falling pattern within a syllable (L + H* + L) (see e.g., *nadie* [ˈna.die] "no one" in Figure 3). This PA has been previously documented in Prieto Vives (2014) in her analysis of the intonation of Agurese Catalan, in which she describes this PA as a tritonal rise and fall on the accented syllable. Additionally, Gabriel et al. (2010) also propose a tritonal L + H* + L PA in Argentinian Spanish in utterances with a contrastive or emphatic reading. Both Prieto Vives (2014) and Gabriel et al. (2010) describe

**6** Primary and secondary PA(s) should not be confused with the concept of PA included in the ToBI system, as the latter is based on a tonal autosegmental classification independent from the specific stress rules of the language to which it is applied.

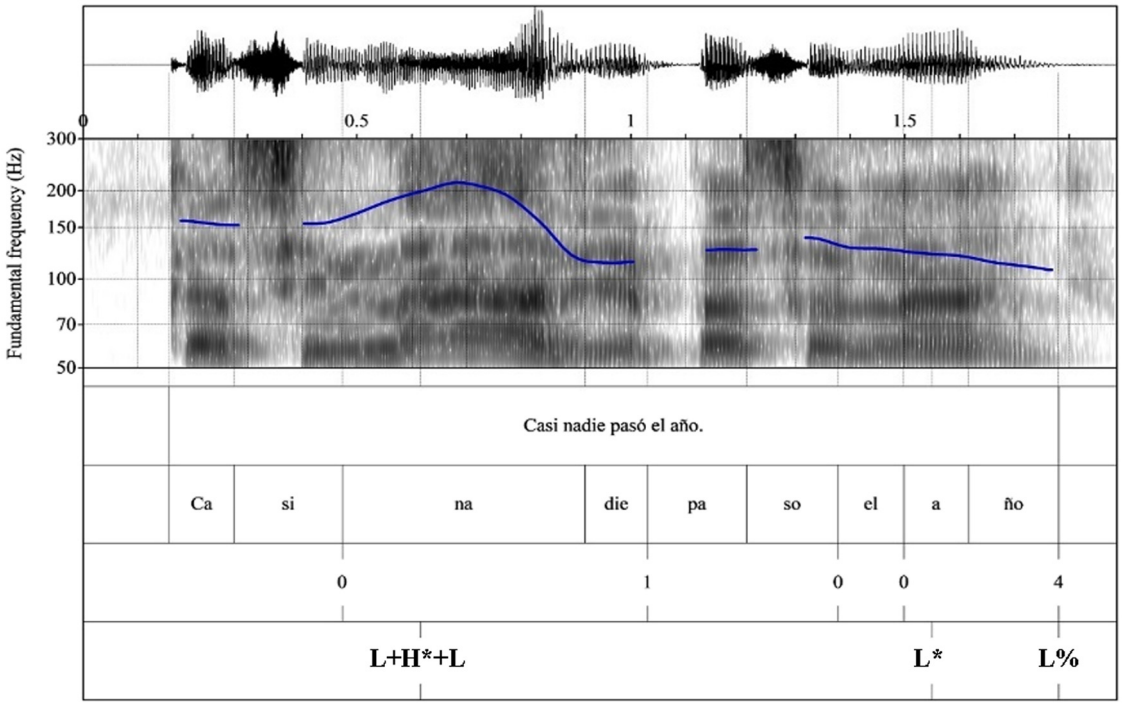


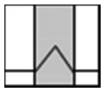

**Figure 3:** Waveform, spectrogram, and pitch contour for the narrow focus statement *¡Casi nadie pasó el año!* "Almost nobody passed the school year!" produced with a tritonal PA (L + H* + L) in prenuclear position and finishing with a low BT.

this PA as containing two low (L) targets separated by a high (H*) target that takes place within a metrically strong syllable. At the same time, Stewart (2015) describes a similar pattern in Media Lengua, an Ecuadorian Quichua-Spanish mixed language; however, he argues for an emphatic bitonal L + ^H* PA (where "^" marks emphasis) as such a distinction between L + ^H* and L + H* is primarily related to the degree of emphasis on a given PW making it grammatically non-contrastive, and therefore superfluous. A similar description appears in O'Rourke's (2010) Ecuadorian Andean PA inventory, which includes a second incomplete realization of the rise and fall tritonal pattern under the same L + H* label.

Considering these descriptions, we argue that the tritonal L + H* + L PA shows consistent differences in its realization compared to the bitonal L + H* PA in Cuencano Spanish. First, there is evidence of a final low (L) target taking place at the end of the accented syllable (see e.g., *nadie* [ˈna.die] "no one" in Figure 3). Contrarily, the bitonal PAs in Figure 2 show no evidence of a required fall. Second, the tritonal PA is strongly correlated with syllable lengthening suggesting the PW carrying L + H* + L is communicated emphatically. Given this special attention to emphasis, it is not surprising that the tritonal PA commonly appears in PWs within narrow focus statements. However, the tritonal PA is not restricted to this utterance type and can be found on PWs that are emphasized for semantic, emotional, or stylistic purposes. Figure 3 shows a narrow focus statement in which the negative pronoun *nadie*/ˈna.die/"nobody" has been emphasized as a result of the speaker being asked to imagine a situation in which "*Nobody* passed the school year!" and thus expresses disappointment. Note that the fall-rise-fall pattern is restricted to the syllable in which it is realized and that the vowel (/a/) is by far the longest segment not only in this utterance but also in any other utterance in our figures that carries a regular L + H* PA.

Note that although Spanish has words that carry a secondary PA, they are rare. These words typically fall into the category of the *sobresdrújulas* (similar to antepenultimate stress) and are most likely adverbs of manner, such as *fácilmente*/ˈfa.sil.men.te/"easily," *pacíficamente*/pa.ˈsi.fi.ka.men.te/"peacefully," etc. Due to their rarity, no tokens containing such words were elicited in the sample under analysis. Table 1

**Table 1:** PA inventory for Cuencano Spanish

| | |
|---|---|
| Monotonal Pas | |
|  | This PA is phonetically realized as a low plateau at the baseline of the speaker's range. It can be found in prenuclear position in every utterance type in our sample, and in nuclear position in broad focus statements, imperatives, wh-question, and lists. |
|  | This PA is phonetically realized as a high plateau at a high point in the speaker's range. It does not show any visible pitch contour before it. It can appear in prenuclear position in yes/no questions and imperatives in our sample, and in nuclear position in yes/no questions, information seeking wh-questions, and some exclamative statements. |
| Bitonal Pas | |
|  | This PA is phonetically realized as a rise on the accented syllable with the peak located before or at the end of this syllable. The falling movement of the pitch typically continues over the posttonic syllable. It appears in virtually every single utterance in our sample in both prenuclear and nuclear positions. |
|  | This PA is phonetically realized as a rising pitch movement on the tonic syllable that continues over the next syllable. It typically appears in prenuclear position in yes/no questions and imperatives in this research database and rarely in nuclear position. |
|  | This PA is phonetically realized as a rise on the accented syllable with a visibly high peak located before or at the end of this syllable. It typically occurs in nuclear position on PWs carrying emphasis. |
|  | This PA is phonetically realized as a drop that starts from a high position at the onset of the accented syllable and typically finishes at the end of this syllable. It is found in prenuclear and nuclear positions in broad focus statements, such as declarative statements, vocatives, imperatives, etc. |
| Tritonal Pas | |
|  | This PA is phonetically realized as a complex rise-fall within the accented syllable. It appears in both nuclear and prenuclear positions in narrow focus or emphatic statements. |
|  | This PA is phonetically realized as a complex rise-fall on the accented syllable with a visibly high peak located before or at the end of this syllable. It appears in both nuclear and prenuclear positions in narrow focus or emphatic statements. |

illustrates the inventory of PAs observed in this analysis of Cuencano Spanish intonation. They have been classified into monotonal, bitonal, and tritonal PAs. Descriptions are based on Spanish ToBI.[7]

## 4.2 BTs

The criteria for BI levels comprise three points. (1) BI level 4 will be used exclusively to indicate intonational phrase boundary tones (IPBTs) at the end of the IP. (2) Intermediate phrase boundary tones (ipbts) will be designated by BI level 3 only when the pause dividing the utterance is perceived, e.g., a clear disruption in the IP's flow. (3) It has been considered superfluous to use levels 2 and 4 to mark phrasing within utterances, which will therefore not be used for this purpose. As a result of the analysis, three IPBTs (L%, H(!)H %, M%) were found in the sample for Cuencano Spanish. The ipbts, on the other hand, have been reduced to only two possible tones, L- and H- while the traditional SP_ToBI inventory also includes a middle tone M-, we simplify the notation as the basic L- and H-ipbts suffice to indicate where the pitch target is moving based on its relative position. Table 2 includes both the IPBTs and ipbts for Cuencano Spanish.

7 Some of the most common diacritic symbols in Sp_ToBI include "*," which indicates PAs and target of the movement; ">" shows that the tonal movement continues onto the posttonic syllable; "¡" represents a PA with an increase in H scaling (upstep); and "!" indicates a decrease in scale (downstep).

**Table 2:** BT inventory for Cuencano Spanish

| Intonational phrase BTs | |
|---|---|
|  | The L% is phonetically realized as a low prolonged tone or fall. It is found at the end of broad and narrow focus statements, imperatives, wh-questions, conditionals, vocatives, etc. |
|  | It is found at the end of broad and narrow focus statements, imperatives, wh-questions, exclamative statements, and some yes/no questions, etc. |
|  | The HH% is phonetically realized as a high rise. It is typically found at the end of yes/no questions, tag-questions, interjections, exclamative statements, and some echo wh-questions. It may also be found with slight downstep (H!H%). |
| Intermediate phrase BTs | |
|  | The L- is phonetically realized as a low tone or fall marking the end of the intermediate phrase. It may appear in conditional sentences, lists, vocatives, exclamative statements, and any other utterance that contains pauses or intermediate phrases.<br>The H- is phonetically realized as a high tone or rise marking the end of the intermediate phrase. It is typically found in conditional sentences, lists, vocatives, exclamative statements, and any other utterance that contains pauses or intermediate phrases. |

**Table 3:** Common nuclear configurations in Cuencano Spanish

| Common nuclear configurations in Cuencano Spanish | |
|---|---|
|  | Declaratives, imperatives, information seeking wh-questions, conditionals, vocatives, narrow focus statements, negative statements |
|  | Exclamative statement, negative statements, vocatives, information seeking wh-questions |
|  | Declaratives, imperatives, information seeking wh-questions, conditionals, vocatives, narrow focus statements |
|  | Exclamative statements, declaratives, imperatives, information seeking wh-questions, vocatives |
|  | Information and confirmation seeking yes-no questions, echo wh-questions, exclamative statements, tag-questions, vocatives |

Table 3 shows common nuclear configurations[8] identified in this study.

## 4.3 Statements

### 4.3.1 Broad focus declarative statements

Out of the 50 tokens analyzed in the declarative utterance category, 42 (84%) are broad focus statements. Seventeen (34%) out of 50 tokens have the H + L* PA in nuclear position, the rest exhibit an L* L% nuclear configuration (combination of the PA in nuclear position and the IPBT). Broad focus statements tend to

**8** By nuclear configurations we refer to the combination of the nuclear pitch accent and the IPBT (O'Rourke, 2010).

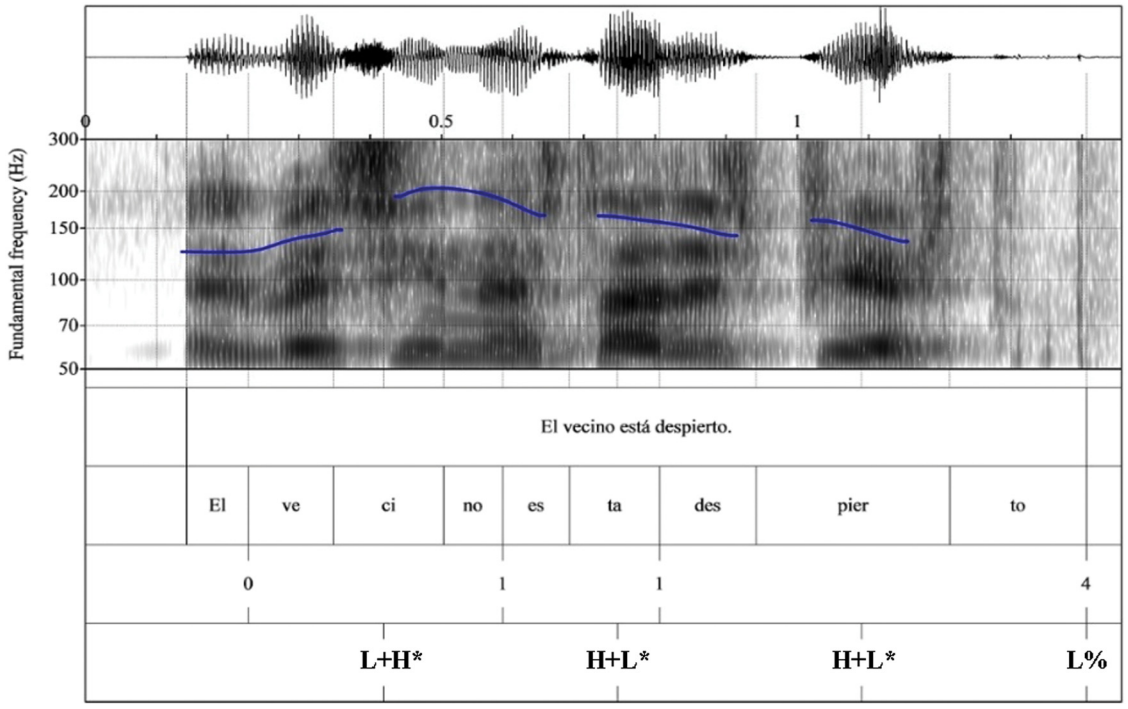



**Figure 4:** Waveform, spectrogram, and pitch contour for the declarative sentence *El vecino está despierto* "the neighbour is awake." that shows two prenuclear Pas (L + H* & H + L*) and a nuclear H + L* followed by an L% as occurs in many utterances of this type.

have a variety of PAs localized in different positions depending on the number of PWs conforming the utterance.

Figure 4 shows a declarative sentence with three PWs and three PAs (two prenuclear (*vecino* [be.ˈsi.no] "neighbour" & *está* [es.ˈta] "is") and one nuclear (*despierto* [des.ˈpier.to] "awake")). The first PA starts with a low (L) tone at the onset of the second syllable of *vecino*/be.ˈsi.no/"neighbour" and scales up to a high (H*) tone at the tonic syllable ([ˈsi]). It can be observed, however, that the rising contour is not entirely realized because of the adjacent voiceless segment (/s/). Then the pitch scales down to a low target on the first segment of *está*/es.ˈta/"is" and once again a voiceless segment creates a gap in the intonation contour. However, the tone does not scale up this time but rather stays at the same level until it reaches the accented syllable /ta/ from where it begins to drop. Therefore, this tone has been labeled as an H + L* bitonal PA. The drop continues over to the next PW (*despierto* [des.ˈpier.to] "awake") where another H + L* tone is identified in nuclear position.

This tone could also be interpreted as the second half of an underlying L + H* + L PA whose rise is not visible due to the voiceless segments in the pretonic coda ([des]) and onset of the tonic syllable ([pier]) of *despierto* [des.ˈpier.to] "awake." The utterance ends in an L% IPBT typical of declarative sentences and general statement IP intonation. A BI of 4 is placed at the end of the utterance under no visible pitch contour because of devoicing of the last syllable in the utterance, which was common in the sample.

### 4.3.2 Narrow focus negative statements

Thirty-six (72%) of the 50 negative statements were analyzed as narrow focus statements with an emphasis on the negator. In general, narrow focus statements typically exhibit a peak on the tonic syllable of the PW carrying the most emphasis. For instance, the negative particles and negative quantifiers particularly found in negative statements stand out for bearing prominent PAs in comparison to the rest of PWs in the

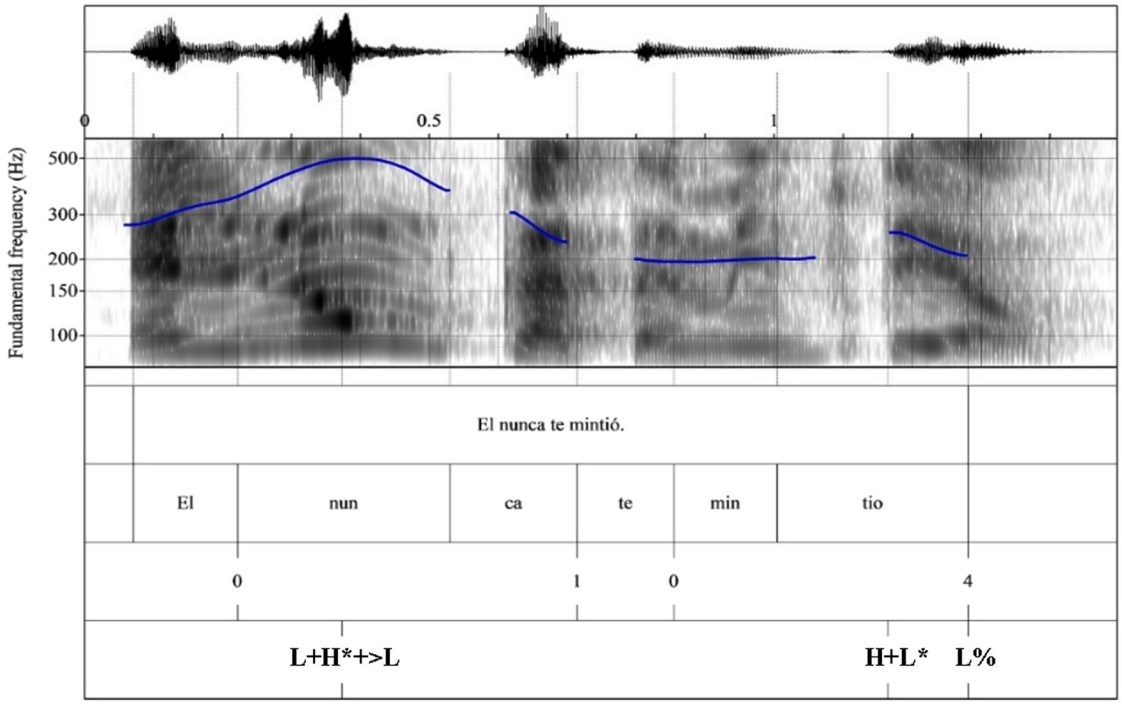



**Figure 5:** Waveform, spectrogram, and pitch contour for the negative statement *El nunca te mintió* "He never lied to you." produced with a tritonal L + H* + L PA in prenuclear position followed by a nuclear H + L* and finishing with a low IPBT.

sentence. This is observable with the PA marked as L + ¡H* + >L on first PW in Figure 5, which appears with a considerable increase in scale to the H target during the first syllable of the adverb *nunca*/ˈnun.ka/ "never," which begins to fall about halfway through the vowel and completes on the post-tonic syllable ([ka]).[9] The utterance becomes deaccented, except for a slight f0 rise on the ultimate syllable of *mintió*/ min.ˈtio/"lied" that peaks and falls along the diphthong in the second syllable, forming a less prominent H + L*. The utterance concludes with an L% IPBT.

In contrast, the image in Figure 6 also shows a negative statement with a scaled L + H* PA on the adverb *no*/no/"no" with a high target located toward the end of the vowel. The fall primarily begins on the following word (*les* [ˈles] "them") before becoming deaccented in the verb *compré*/kom.ˈpre/"I bought." The pitch then begins a gradual rise peaking on the first syllable of *nada*/ˈna.da/"nothing/anything" before concluding with an M% IPBT. In this example, there is no intermediate phrase and the focus is placed on both negative particles while the verb appears deaccented.[10]

## 4.4 Lists

The realization of L + H* PAs on each element in a list is a common cross-linguistic occurrence in lists. These patterns are represented in Figure 7 showing two instances of level 3 BIs with their respective L- phrasal tones (after *fuimos* [ˈfui.mos] "went" and Cuenca [ˈkuen.ka] "Cuenca"), illustrating not only a pause between elements of the list but also after the verb introducing them (another common cross-linguistic feature of lists). Regarding PAs, three prenuclear L + H* PAs are observed, one on the verb

**9** This PA is marked with ">" showing that the tonal movement continues onto the posttonic syllable; however, there does not appear to be any indication that this is systematically contrastive from PAs that conclude on the tonic syllable.

**10** Deaccented words or parts of the tonal string do not carry PAs as they are not relevant in terms of pitch movement.

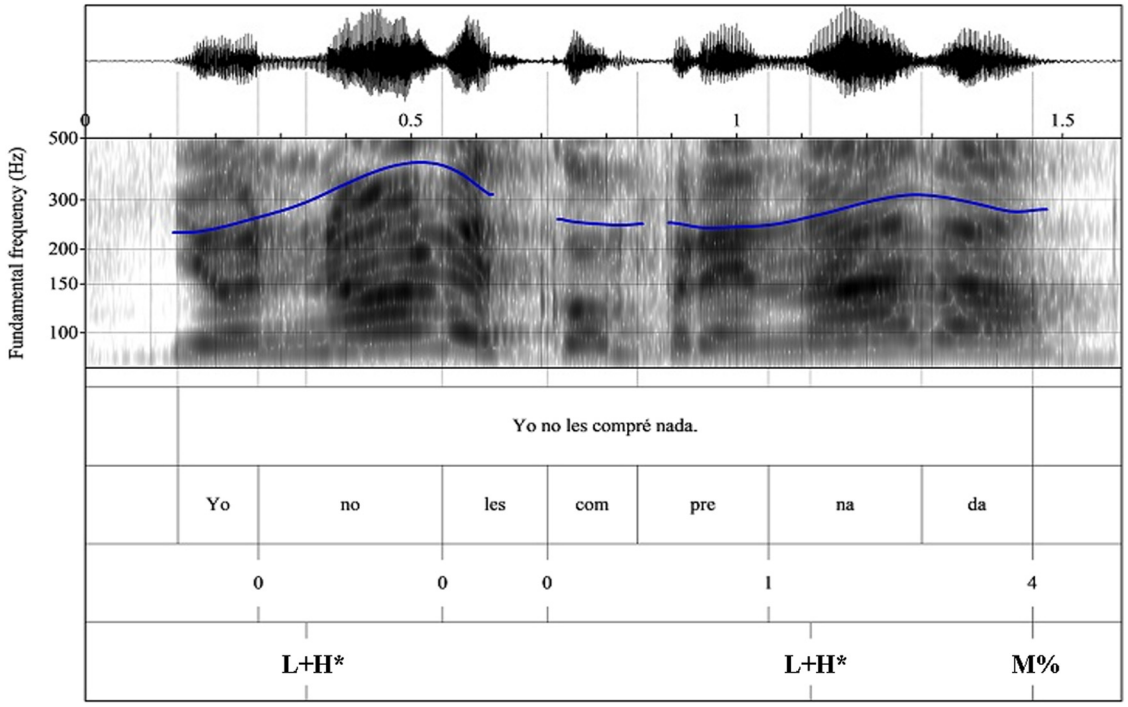



**Figure 6:** Waveform, spectrogram, and pitch contour for the narrow focus negative statement *Yo no les compré nada* "I didn't buy them anything." produced with an scaled L + H* PA in prenuclear position and finishing with a M% IPBT.

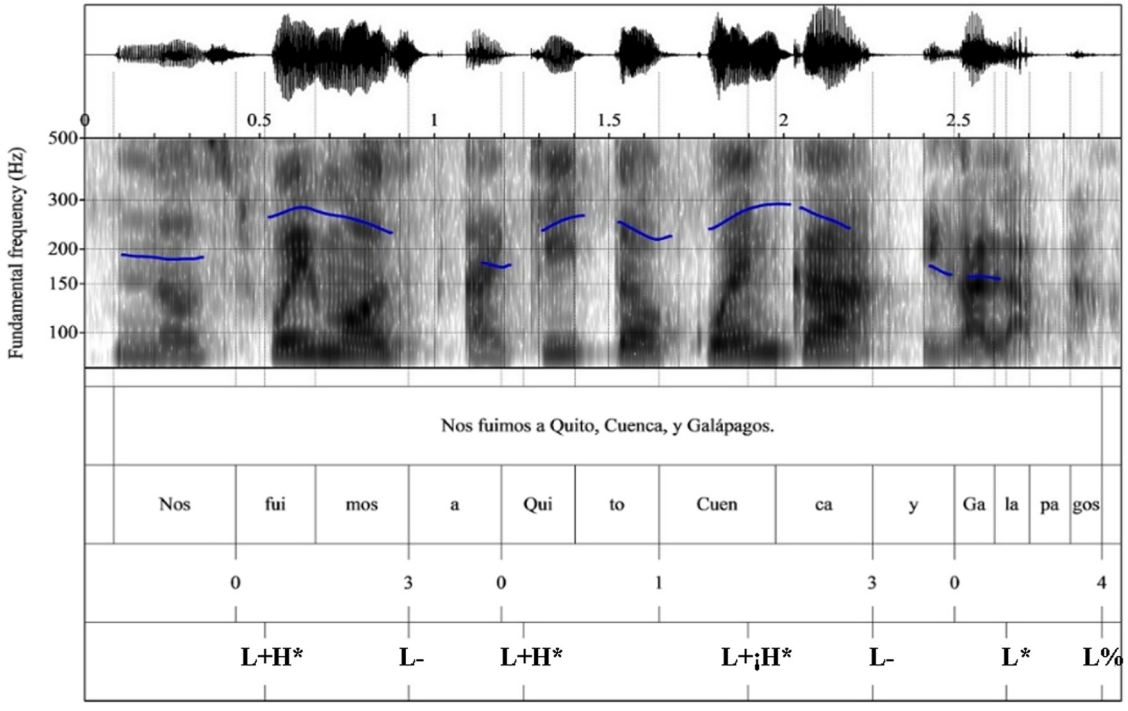



**Figure 7:** Waveform, spectrogram, and pitch contour for the list *Nos fuimos a Quito, Cuenca, y Galápagos* "We went to Quito, Cuenca, and Galapagos." produced with L + H* PAs in prenuclear position, two L- ipbts, and finishing with a L% IPBT.

*fuimos*/ˈfui.mos/"we went," *Quito*/ˈki.to/, and *Cuenca*/ˈkuen.ka/, with the latter showing upstep. A nuclear L* PA is evinced on the last element of the list, *Galápagos*/ga.la.ˈpa.gos/. Once again, we encounter

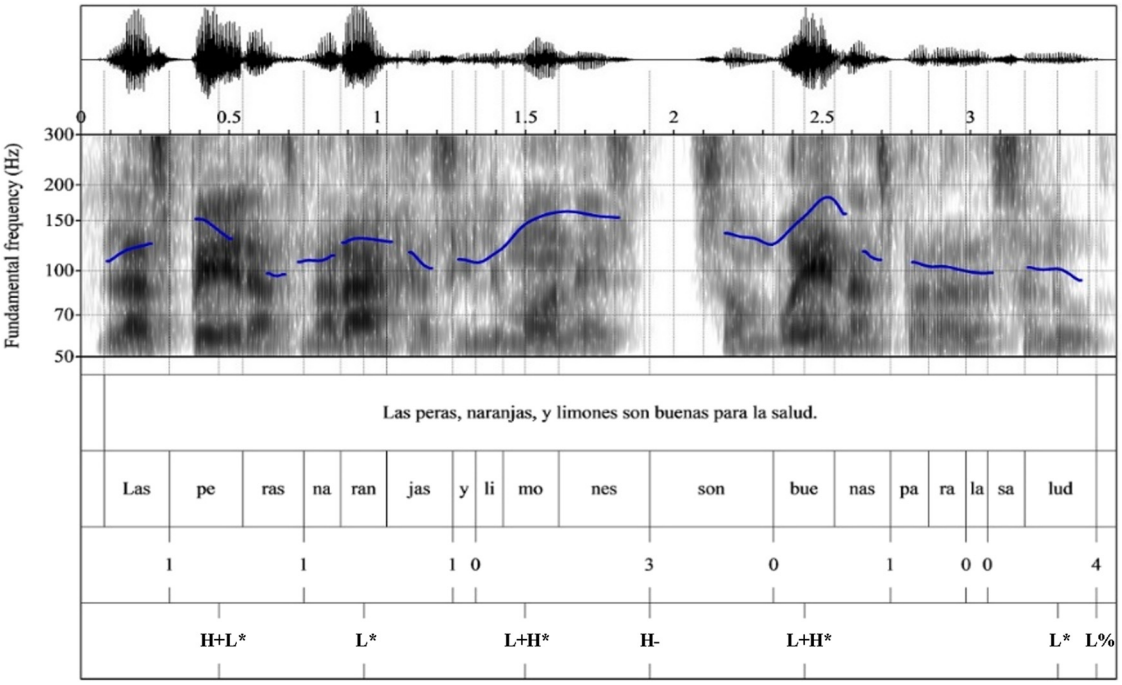



**Figure 8:** Waveform, spectrogram, and pitch contour for the list *Las peras, naranjas, y limones son buenas para la salud* "Pears, oranges, and lemons are healthy food." produced with an initial H + L* PA followed by a L* and a L + H* PA before a H- ipbt. This is followed by an upstepped L + H* PA, which deaccents the rest of the utterance before concluding with a L% IPBT.

devoicing at the end of the utterance. The last two vowels are devoiced, so much so that the last part of the word is barely audible, which explains why the L% BT appears after the visible pitch contour has ended.

Figure 8 provides an example of pitch reset after the L- ipbt whereafter a substantial increase in H scaling is observed on the first syllable of *buenas*/ˈbue.nas/"good," which carries an L + H* PA. This is followed by an L* PA in nuclear position (*salud* [saˈlud] "health") before the L% IPBT. In addition, we find two other bitonal and one monotonal PAs (H + L*, L*, and L + H*) in prenuclear position on the accented syllables of *peras*/ˈpe.ɾas/"pears," *naranjas*/na.ˈɾan.xas/"oranges," and *limones*/li.ˈmo.nes/ "lemons," respectively. Only one clear ipbt (H-) is present signaling the end of the intermediate phrase after the last element on the list (after *limones*/li.ˈmo.nes/"lemons").

## 4.5 Conditionals

Conditional sentences are similar to lists in that they also contain ipbts, especially when an *if* clause begins the utterance. This is observable in Figure 9, where the level 3 BI signals the end of the *if* clause with an L- ipbt (after *frío*/ˈfrio/"cold"). We also observe that the first relevant event in the f0 contour is an L + H* PA on the tonic syllable of *tienes*/ˈtie.nes/"you are." Next, a tritonal PA L + H* + L begins and ends on *frío*/ˈfrio/ "cold," signaling emphasis. Subsequently, the L- ipbt appears before the main clause, which is accented on the first verb *ven*/ben/"come" with an L + H* PA. The f0 then scales downward gradually with an audibly lower PA (L*) on the second verb *doy*/ˈdoi/"I give," followed by an even lower L* PA in nuclear position in the second syllable of *cobija*/ko.ˈbi.xa/"blanket." The utterance concludes with an L% IPBT. As with many of the tokens in the sample, devoicing can be seen at the end of the sentence. Thirty (60%) out of 50 tokens were produced with the *if* clause first and show the same characteristics as described in Figure 9.

Twenty tokens (40%) in the sample of 50 were produced with the second arrangement for conditional sentences; the main clause preceding the *if* clause. In this arrangement, a corresponding tonal configuration appears as shown in Figure 10. First, we only find PWs separated by level 1 break indices, which

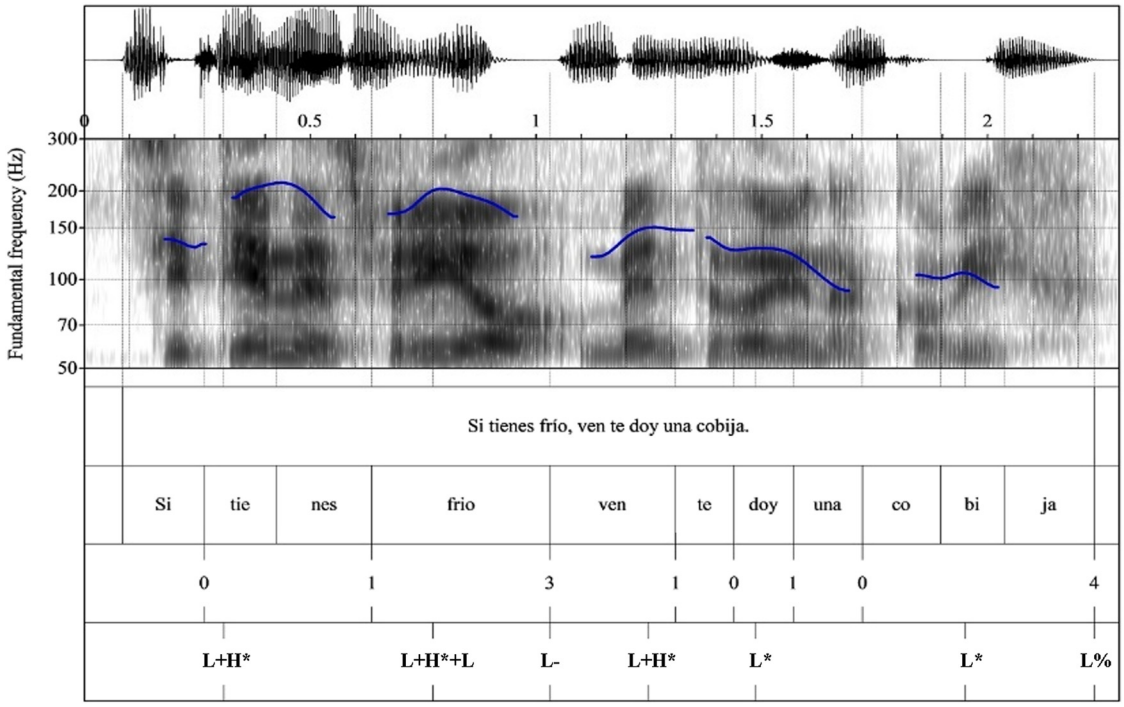



**Figure 9:** Waveform, spectrogram, and pitch contour of the conditional sentence *Si tienes frío, ven te doy una cobija* "If you are cold, come I give you a blanket." produced with an initial L + H* PA followed by a prominent tritonal L + H* + L PA before a L- ipbt. A bitonal L + H* PA follows the ipbt at which point the pitch contour subsequently drops to with two L* PAs before concluding with an L% IPBT.

indicates that there is no important disruption in the flow of the intonational contour. The IP begins with L + H* PA on the first syllable of the word *pónte*/ˈpon.te/"wear." This is followed by another bitonal PA on the second PW, *casaca*/ka.ˈsa.ka/"jacket," but this time with upstep (L + ¡H*) as its pitch height exceeds that of the previous PA. There is an additional L + H* PA in the prenuclear position on *tienes* [ˈtie.nes] "you are." After the /s/, the f0 reappears with an H + L* PA beginning on the/ɾ/of *frío*/ˈfrio/"cold." The utterance concludes with an L% IPBT.

## 4.6 Questions

### 4.6.1 Yes/no questions

Yes/no questions constitute the most basic type of questions found in the sample. Although the contexts in which they were produced are diverse, the 50 tokens for this category were divided into 30 information and 20 confirmation seeking yes/no questions. Each of the information seeking and confirmation seeking yes/no questions can make use of any of the PAs in the inventory of Cuencano Spanish and may even exhibit an L + >H* PA (though not commonly). Nearly all the information seeking yes/no questions also exhibit a final H% IPBT, though a limited number ended at M% IPBT. In addition, 8 (4%) of 20 confirmation seeking yes/no questions were found with an L% IPBT, similar to those found in statements.

Figure 11 displays a typical information seeking yes/no question. It reveals that the pitch contour starts at around 300 Hz (3 bark[11]) the neutral vocal range of the female speaker producing the utterance. Since it is a short utterance, only one PA is found in prenuclear position on *hablas*/ˈa.blas/"do you speak," realized as an

**11** Bark values are calculated from Hertz using Traunmueller (1990).

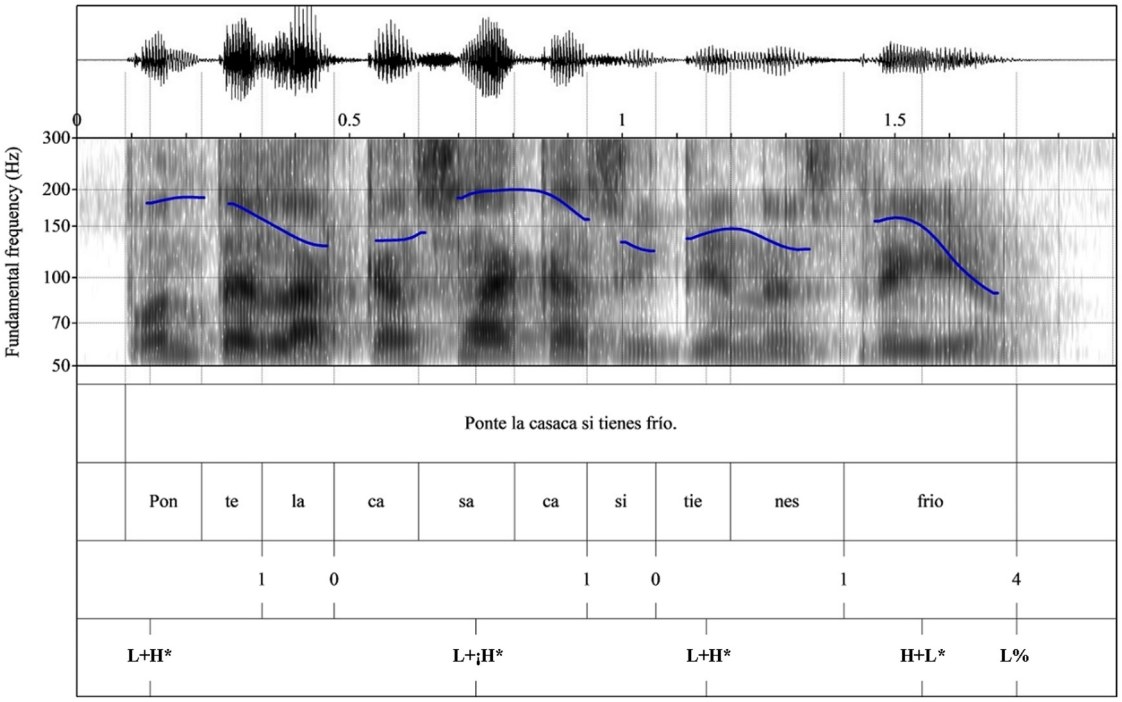



**Figure 10:** Waveform, spectrogram, and pitch contour for the conditional *Pónte la casaca si tienes frío* "Put on your jacket if you are cold." produced with three L + H* PA with the second showing upstep. The utterance concludes with an H + L* PA in nuclear position before an L IPBT.

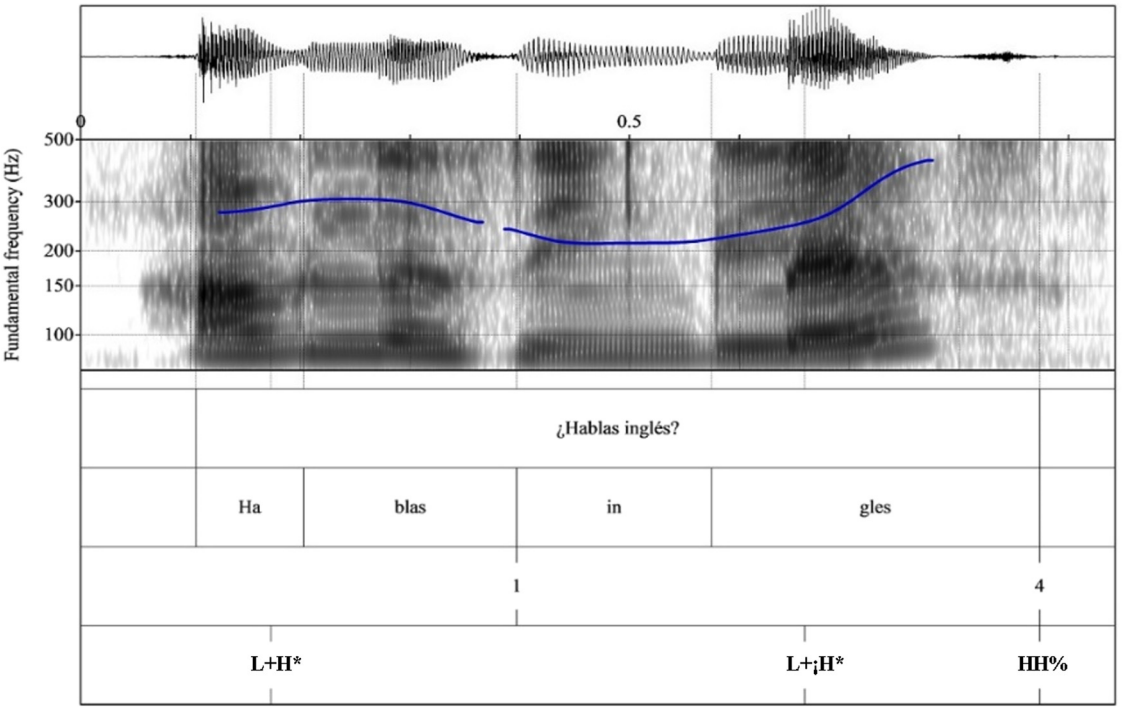



**Figure 11:** Waveform, spectrogram, and pitch contour for the yes/no question *¿Hablas inglés?* "Do you speak English?" produced with a prenuclear L + H* PA and an upstepped L + ¡H* PA in nuclear position, which concludes with an HH% IPBT.

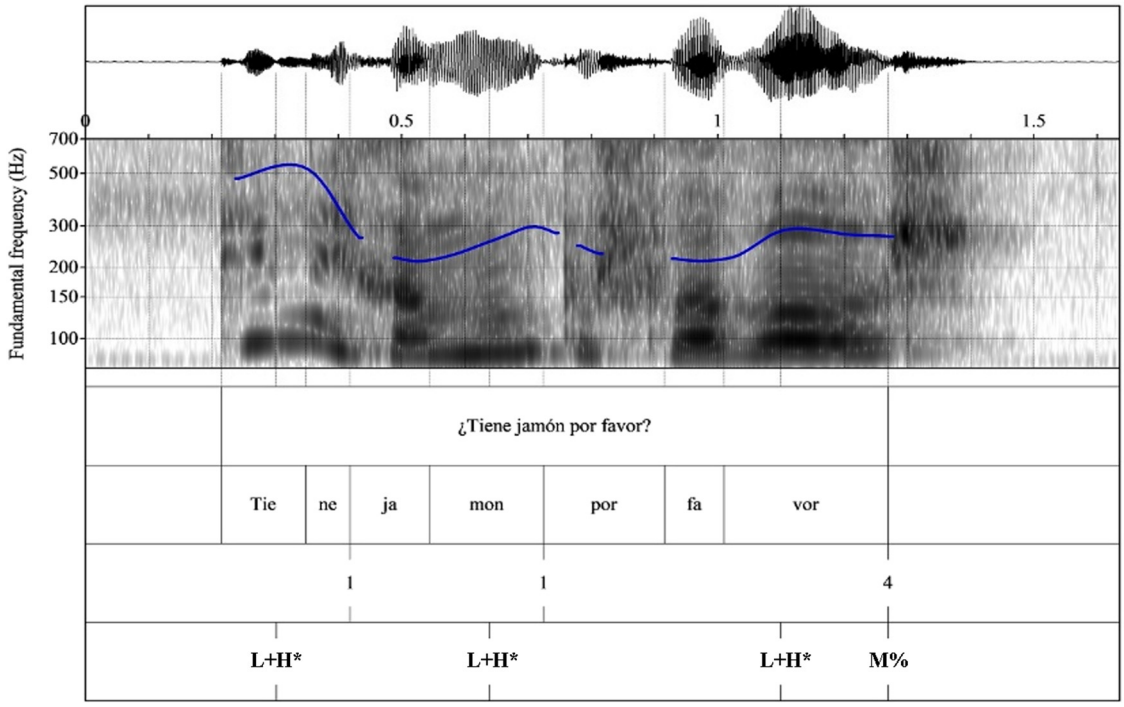



**Figure 12:** Waveform, spectrogram, and pitch contour for the yes–no question *¿Tiene jamón por favor?* "Do you have ham, please?" produced with two prenuclear L + H* PAs and one nuclear L + H* PA ending with an M% IPBT.

L + H* beginning just below the 300 Hz (3 bark) mark and ending just beyond the same value. The second PA shows the same bitonal configuration, but shows a substantial H scaling, reaching almost 500 Hz (4.9 bark), in nuclear position on the second syllable of *inglés*/in.ˈgles/"English." It is therefore marked with upstep (L + ¡H*); this increase in H scaling is commonly found in yes/no questions of the information seeking type.

Figure 12 shows that adding a pragmatic linguistic device conveying politeness, such as the phrase *por favor*/por fa.ˈbor/"please" at the end of information seeking yes/no questions can switch the standard HH% to an M% or even an L%, similar to that found in the intonational contour of information seeking wh-questions. However, it must be noted that O'Rourke's (2010) study on Ecuadorian Andean Spanish intonation demonstrated that the opposite is also possible. The H* target of the initial PA in the first syllable of *tiene*/ˈtie.ne/"do you have?" goes beyond 500 Hz (4.9 bark), showing a substantial difference in H scaling compared to the rest of the utterance. This tonal feature was not common at the beginning of yes/no questions in our data. However, this phenomenon is common within the highland region of Ecuador to which Cuenca belongs. Second and third L + H* PA are also observed on the ultimate syllable of *jamón*/xa.ˈmon/"ham" and on the ultimate syllable of *por favor*,[12] which leads to an M% IPBT when compared with the rest of the tonal array in this utterance.

### 4.6.2 WH-questions

#### 4.6.2.1 Information seeking wh-questions

The tonal configuration for information seeking wh-questions in Cuencano Spanish resembles that of the standard declarative statement, except that the first word of the utterance, oftentimes the question word,

12 Note the common fricativization of the trill' realized as either [r] or [ʐ] in the word *por favor*.

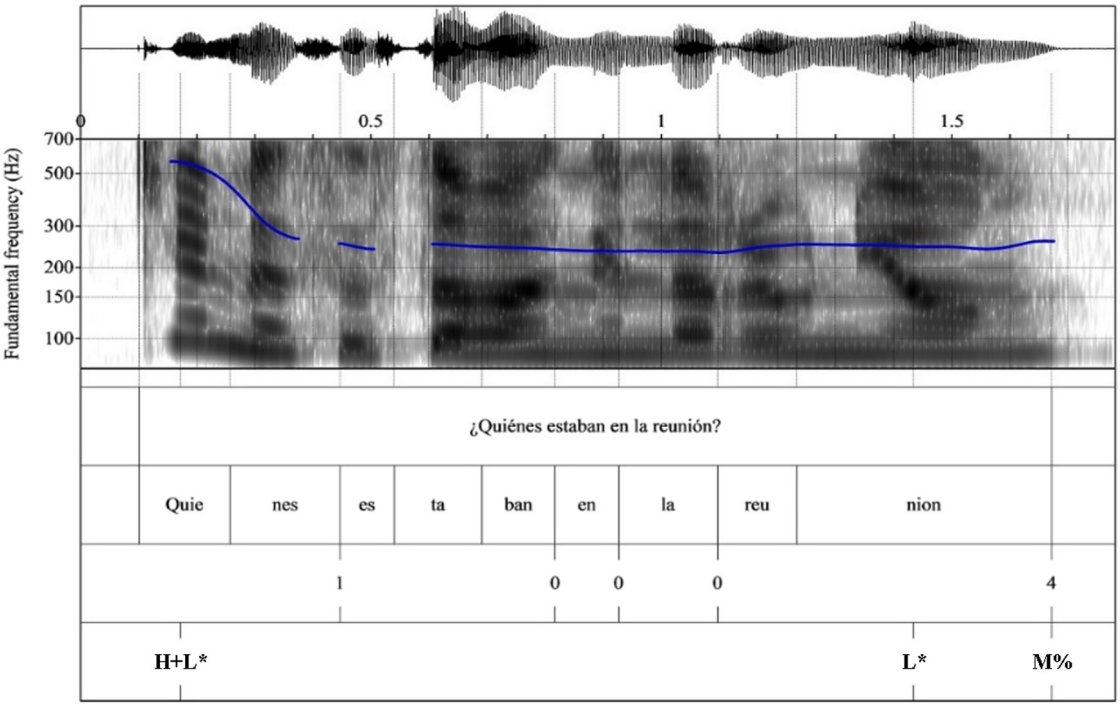



**Figure 13:** Waveform, spectrogram, and pitch contour for the information seeking wh-question *¿Quiénes estaban en la reunión?* "Who were in the reunion?" produced with a H + L* PA in prenuclear position, an L* PA in nuclear position, and concludes with a M% IPBT.

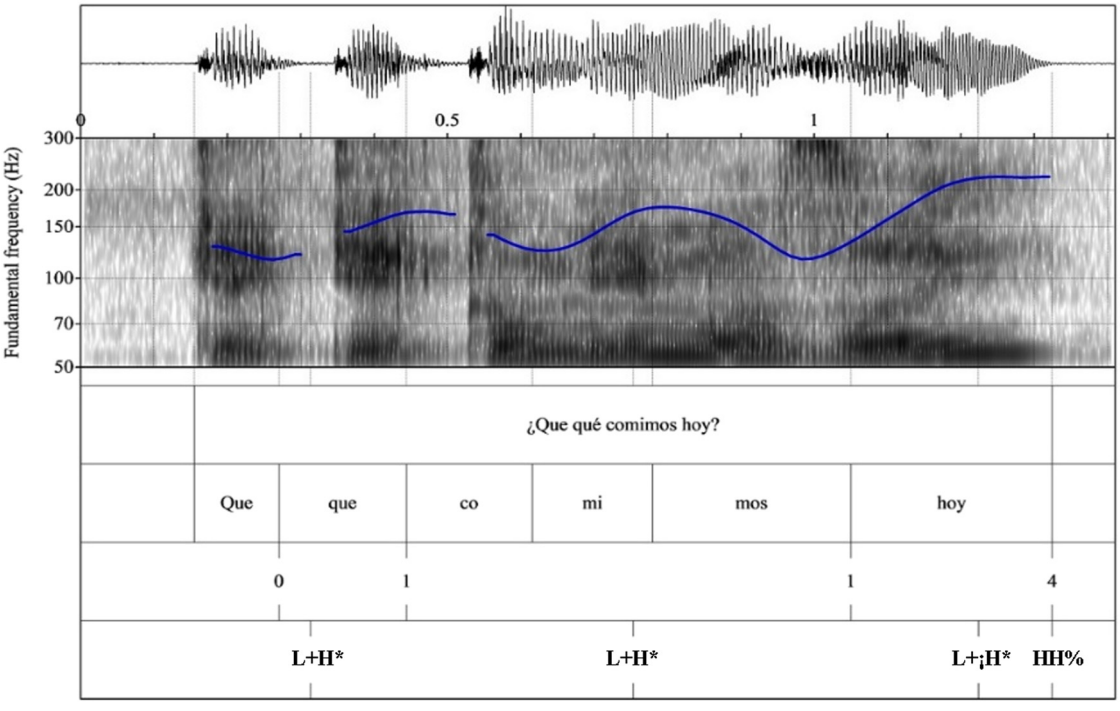



**Figure 14:** Waveform, spectrogram, and pitch contour for the echo wh-question *¿Que qué comimos hoy?* "What […] what we ate today?" produced with two L + H* PAs in prenuclear position and an upstepped L + ¡H* PA in nuclear position. The utterance concludes with an HH% IPBT.

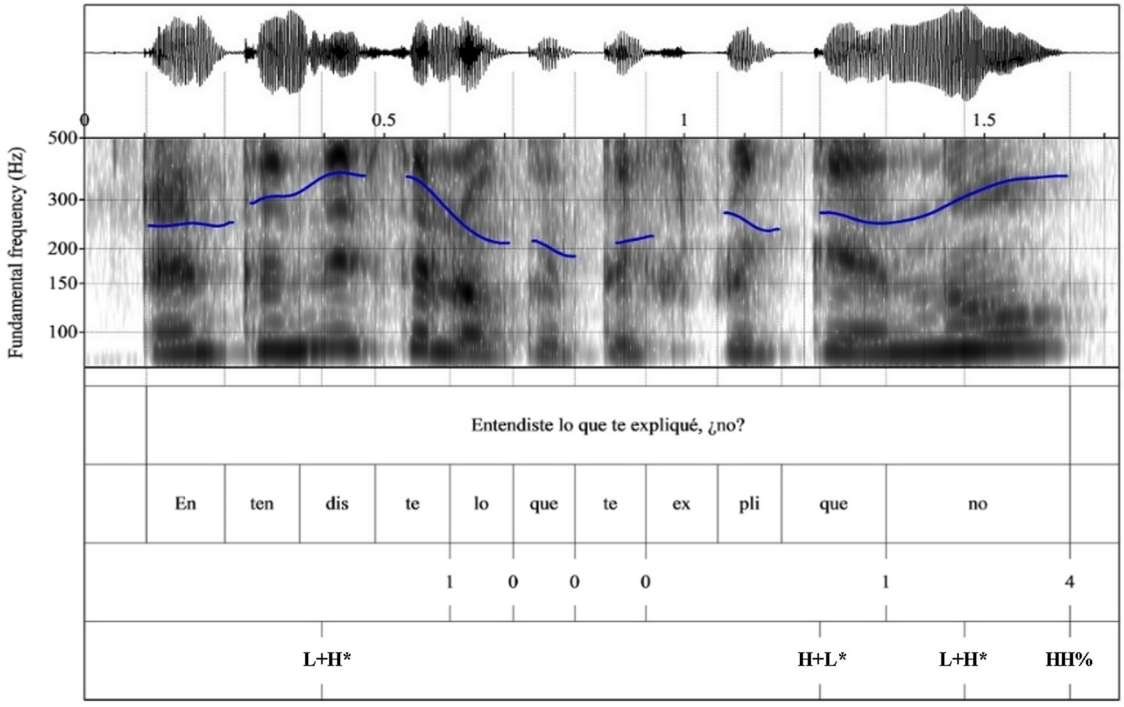



**Figure 15:** Waveform, spectrogram, and pitch contour for the information seeking tag-question *Entendiste lo que te expliqué, ¿no?* "You understood what I explained, didn't you?" produced with an H + L* PA surrounded by two L + H* PAs. The utterance concludes with an HH% IPBT.

tends to be marked with substantial H scaling PA. This is evident in Figure 13 with the H + L* PA marked on the question word *quiénes*/ˈkie.nes/"who," which begins above 500 Hz (4.9 bark) and falls to below 300 Hz (3 bark) on the tonic syllable ([nes]). The rest of the utterance becomes deaccentuated as observed with a single L* tone throughout *reunión*/reu.ˈnion/"meeting" and concludes with similarly low IPBT (L%). Thirty (60%) out of 50 tokens showed this same final intonation pattern, although not always with deaccentuation.[13]

#### 4.6.2.2 Echo wh-questions

An exception to the default prosodic patterns observed in wh-questions appears in echo wh-questions. In Figure 14, for example, we observe how the f0 contour appears with two L + H* PAs on *qué*/ˈke/"what" and *comimos*/ko.ˈmi.mos/"ate" in prenuclear position, followed by a nuclear L + ¡H* PA with upstep on *hoy*/ˈoi/ "today." This utterance concludes with an HH% IPBT, much like those typically found at the end of yes/no questions. In these tokens, the emphasis switches from the question word to the last PW in the utterance.

### 4.6.3 Tag-questions

Based on our analysis of the data, tag-questions can be divided into three categories with respect to their pragmatic purposes: (1) tag-questions that seek for confirmation (20 tokens, 40%), (2) information seeking tag-questions (20 tokens, 40%), and (3) those that aim to persuade the listener (10 tokens, 20%). However, the prosodic structure for each type is quite similar to a declarative-like structure but with an L + H* PA on the tag word (see *no* [ˈno] "no" in Figure 15). In each instance in our data, there is no subsequent fall after the tag word and the utterances ended in HH% IPBTs. For example, the yes/no answer-seeking tag-question

13 Deaccentuation refers to the loss of accent in some of the prosodic constituents, part of the f0 contour.

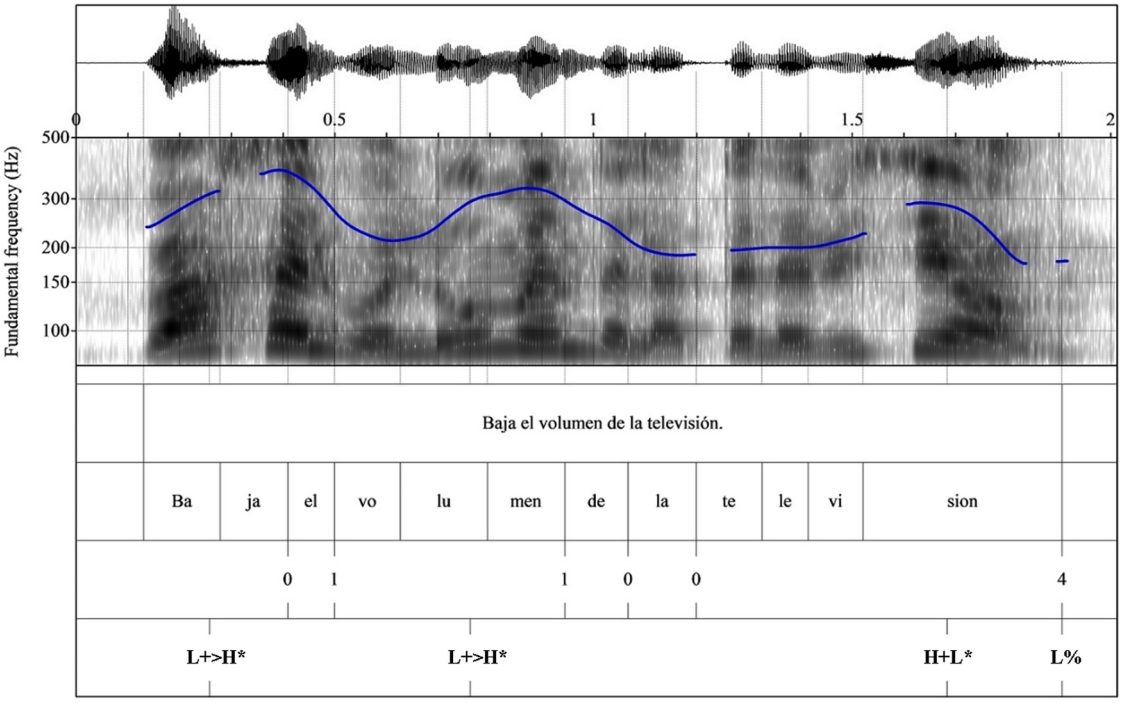



**Figure 16:** Waveform, spectrogram, and pitch contour for the commanding imperative *Baja el volumen de la television* "Turn down volume of the television." produced with two prenuclear L + >H* PAs and an H + L* PA in nuclear position. The utterance concludes with an L% IPBT.

in Figure 15 exhibits a set of tones that comprises one L + H* in prenuclear position at the beginning of the question in the word *entendiste*/en.ten.ˈdis.te/"did you understand?", an H + L* PA on *expliqué*/eks.pli.ˈke/ "explained," followed by the tag particle *no*/no/"no," which takes an L + H* that leads to an HH% IPBT. In this example, function words in utterance-medial position are deaccented (*lo que te* [ˈlo ˈke ˈte] "that what [I explained to] you").

## 4.7 Imperatives

### 4.7.1 Commands

Imperatives can be defined as a special type of statement mainly used to command or request something; 40 out of 50 imperative tokens in the sample are commands. In Figure 16, we find an imperative made up of three PWs uttered by a female speaker in a context of annoyance (*baja el* [ˈba.xa ˈel] "lower the," *volumen* [bo.ˈlu.men] "volume," & *de la television* [ˈde ˈla te.le. βi.ˈsion]). The f0 contour starts with a rise from below 300 Hz (3 bark) during the beginning of the first syllable in the verb *baja*/ˈba.xa/"turn down" that reaches its peak on the posttonic syllable ([xa]) at roughly 400 Hz (4 bark) (hence the use of ">"). The second accented word (*volumen*/bo.ˈlu.men/"volume") also bears the same L + >H* PA that extends to the posttonic syllable ([men]). The last PA appears with decreasing scale in nuclear position where the utterance subsequently concludes with an L% IPBT.

### 4.7.2 Requests

Five (10%) of the tokens were found to be imperative requests. In Cuencano Spanish, it is common to hear people soften a command by using scaling up their intonation. An example of this is observed in Figure 17

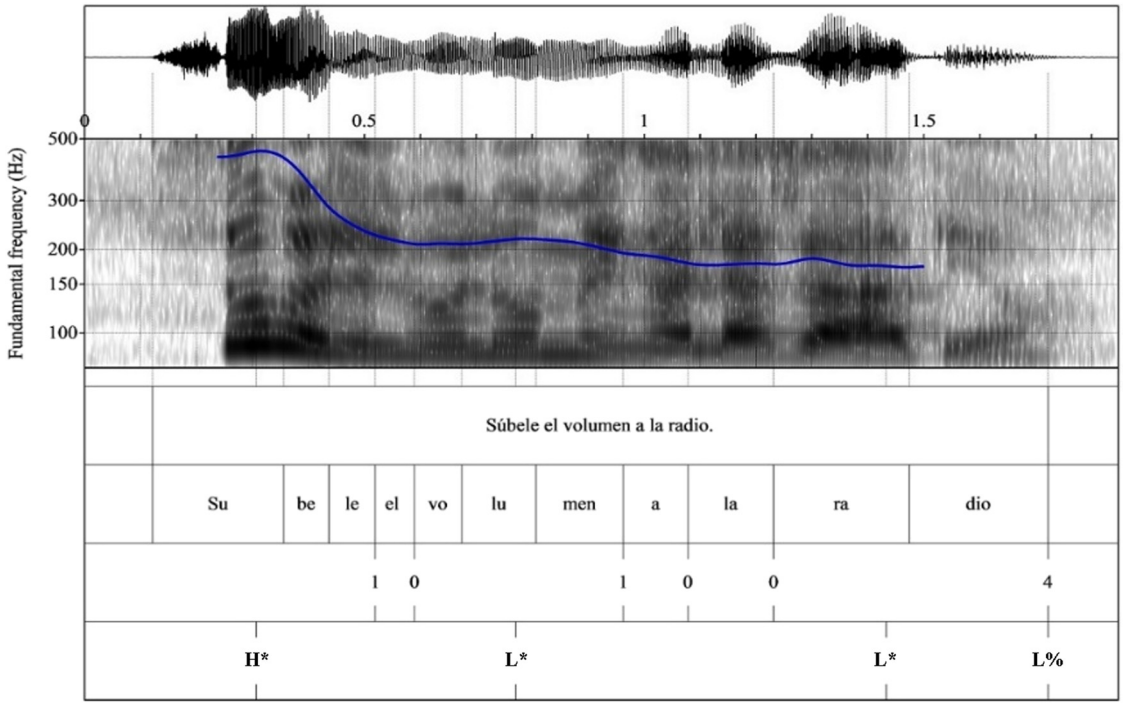



**Figure 17:** Waveform, spectrogram, and pitch contour for the imperative request *Súbele el volume a la radio* "Turn up the radio." Produced with an initial monotonal H* PA that deaccents the remainder of the utterance, which concludes an L% IPBT.

where a female participant is asking someone nicely to turn up the volume of the radio. In contrast with Figure 16, the speaker does not sound annoyed but rather amicable as she requests the volume to be turned up. This can be perceived by the substantial drop in pitch after the monotonal ¡H* PA in the first syllable of the word *súbele*/ˈsu.be.le/"turn up", and the subsequent two L* PAs in both *volumen*/boˈlu.men/"volume" and *radio*/ˈra.dio/"radio" that lead to L% IPBT to conclude the utterance. As the shape of the intonation contour appears flat after the first PA, it could be argued that this utterance gives the impression to be deaccented.

## 4.8 Vocatives

Utterances identified as vocatives in our data set were subcategorized into two types: (1) those that address the referent who is clearly present in the discourse and (2) those that call out to get the attention of the referent who is not yet present in the discourse. Both types are characterized by a longer duration of the PW taking the semantic role of vocative, compared to the rest of the PWs in the utterance; additionally, if there is additional information that follows the utterance, an L- ipbt appears after the vocative. It should also be noted that IPBTs are not affected by vocative intonation, i.e., if the information following the vocative is a yes/no question it will end high or mid (Figure 18b) and if it is a declarative, it will end low (Figure 18a). Additionally, these characteristics appear to remain consistent whether the vocative is utterance-initial or utterance-final. The two subtypes are set apart by the degree of prominence assigned to the PA. In the first type, there is a relatively flat pitch contour, possibly attributed to the lengthening of the PW; however, there is still evidence of a standard L + H* PA. In the second (Figure 19), the vocative is often used in isolation to get the referent attention, before elaborating on the request. Here, there is a greater change in the L + H* PA; however, it is still not substantial.

In Figure 18a, the utterance containing the vocative was produced by a female participant in the context of asking her partner to pass her a spoon. It can be observed how the pitch contour is relatively flat and

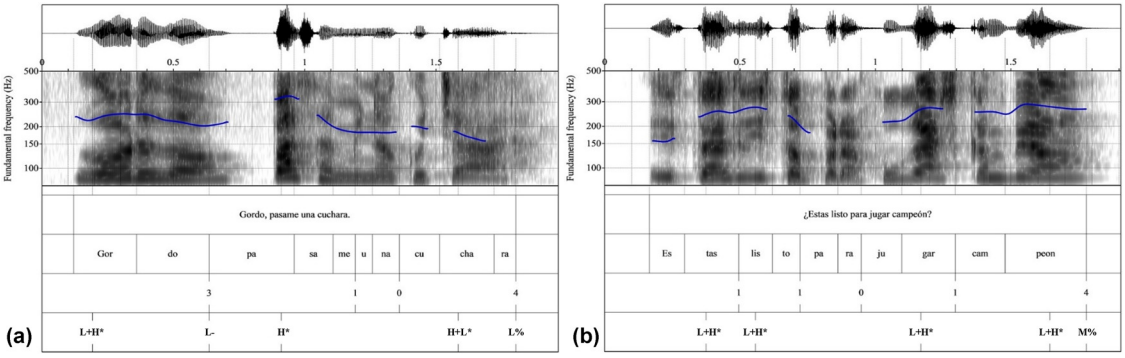



**Figure 18:** A represents the pitch contour for the vocative *Gordo, pásame una cuchara* "Honey, pass me a spoon." produced with an initial L + H* PA followed by a L-ipbt. The pitch then resets with an H* PA before an H + L* PA in nuclear position. The utterance in A concludes with an L% IPBT. B represents the pitch contour for the vocative question *¿Estás listo para jugar, campeón?* "Are you ready to play, champ?" produced with four L + H* PAs before concluding with a HH% IPBT.

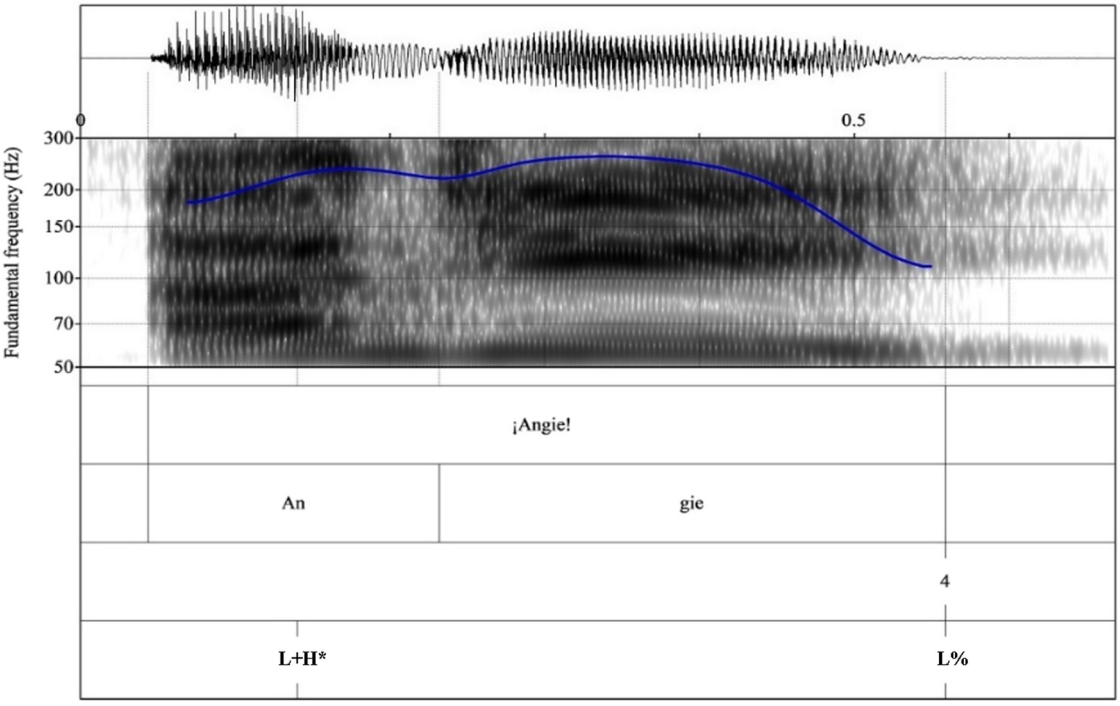



**Figure 19:** Waveform, spectrogram, and pitch contour for the vocative *¡Angie!* produced with an L + H* PA in nuclear position, which concludes with a L% IPBT.

elongated, apart from an inconspicuous L + H* PA on the first syllable of the term of endearment *gordo*/ˈgoɾ.do/"honey (lit. fat)." This is followed by an L- ipbt marking a pause after *gordo* [ˈgoɾ.do] "honey," after which an L + H* PA is realized on *pásame*/ˈpa.sa.me/"pass me." A third H + L* PA occurs in nuclear position in *cuchara*/ku.ˈʧa.ɾa/"spoon" as the f0 line drops toward the L% IPBT at the end of the declarative utterance.

Conversely, the pitch contour in Figure 18b begins below 200 Hz (1.95 bark) and exhibits four L + H* PAs (three prenuclear and one nuclear) realized on the underlined tonic syllables in the content words *Estás*/es.ˈtas/"are," *listo*/ˈlis.to/"ready," *jugar*/xu.ˈgaɾ/"play," and *campeón*/kam.ˈpe.on/"champ." In this example, the vocative is in utterance-final position and ends in an M% IPBT as it is a yes/no question. However, the characteristics of the vocatives in both Figure 18a and b are similar: longer duration and a flat f0.

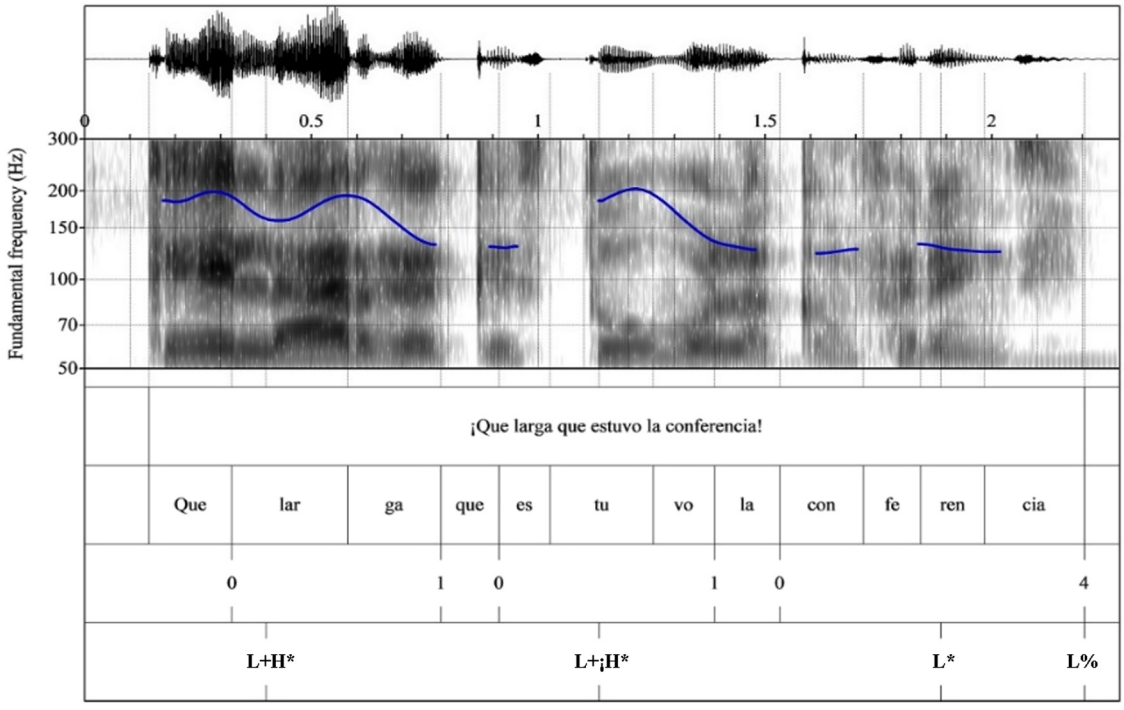



**Figure 20:** Waveform, spectrogram, and pitch contour for the exclamative *¡Qué larga que estuvo la conferencia!* "What a lengthy conference" produced with an initial L + H* PA followed by an upstepped L + ¡H* PA. The utterance concludes with an L* PA in nuclear position and an L% IPBT.

Figure 19 is an example of the second subtype of vocative found in the single-word utterance, *¡Angie!/* ˈan.ʤi/"Angie!." The vocative in the example contains a slightly more prominent L + H* PA on the tonic syllable ([ˈan]) compared to the vocatives in Figure 18. While the posttonic syllable ([ʤi]) also seems to be accented, it is most likely an effect of f0 lowering on the nasal-stop sequence rather than a second PA. The utterance concludes with an L% IPBT in agreement with previous findings in other Spanish dialects (see e.g., Terán and Ortega-Llebaria, 2017).[14]

## 4.9 Exclamative statements

Exclamative sentences are typically found with emphasis on one or more PWs. This is observed in Figure 20 where both the adjective *larga/*ˈlar.ga/"long" and the verb *estuvo/*es.ˈtu.βo/"was" are emphasized with an L + H* and an L + ¡H* PAs in prenuclear position. The third PW, *conferencia*/kon.fe.ˈren.sia/"conference," shows an L* PA in nuclear position on the accented syllable. The utterance ends with an L% IPBT. It could also be argued that this utterance is deaccented after the upstepped PA on [ˈtu]. Forty-three out of 50 tokens (86%) exhibit this tonal configuration.

Figure 21 shows a different situation where the words carrying the most emphasis appear in utterance-final position with a substantial H scaling with upstep on the L + ¡H* PA. Given that this PA is located in nuclear position, the utterance appears with question-like rising intonation (HH%), which would be expected from an exclamative utterance with a surprisal pragmatic context. It must be noted, however, that most of the tokens in the data have final falling intonation similar to statements. Moreover, the

**14** It should be noted that the Sp_ToBI website has some examples of vocatives and other utterances presenting a falling boundary tone or HL% as IPBTs in this work have been considered as not affiliated with words but with the edge of the IP. However, this labeling is an alternative to the one employed in the present study.

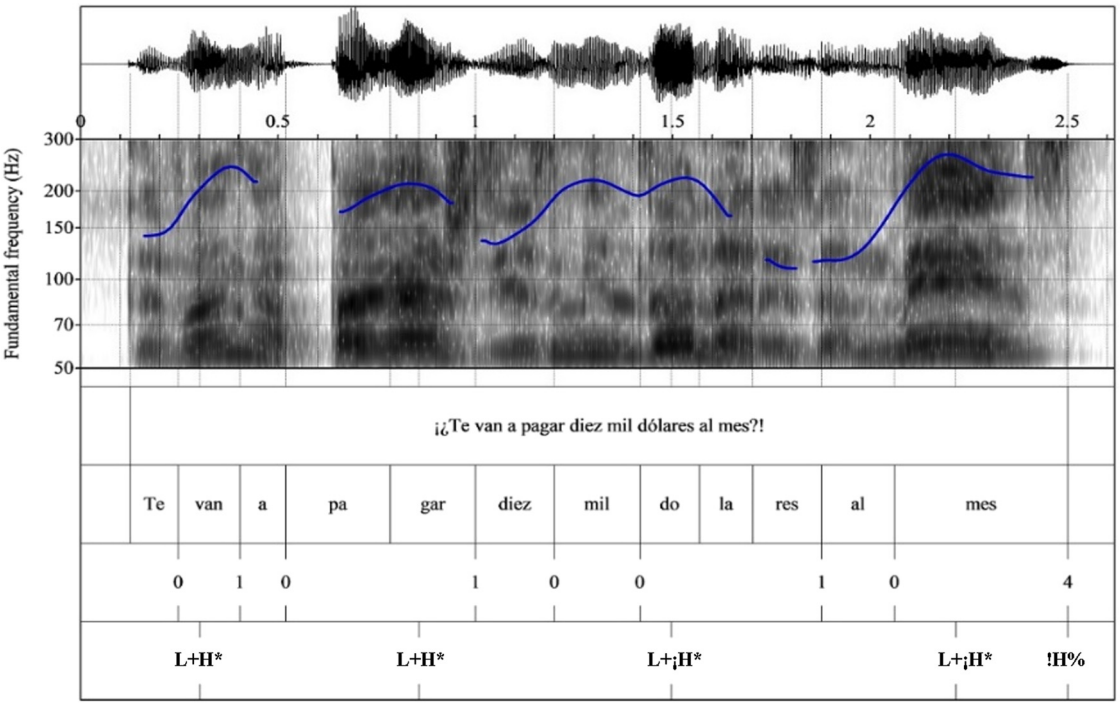



**Figure 21:** Waveform, spectrogram, and pitch contour for the exclamative surprisal *¡¿Te van a pagar diez mil dólares al mes?!* "They are going to pay you ten thousand dollars a month?!" produced with two L + H* PAs in prenuclear followed by two upstepped L + ¡H* PAs before concluding with a!H% IPBT with slight downstep.

utterance in question is long enough to include four additional bitonal PAs in prenuclear positions realized on each PW: *van*/ˈban/"they go," *pagar*/pa.ˈgar/"pay," *diez mil*/dies ˈmil/"ten thousand," *dólares*/ˈdo.la.res/ "dollars." A total of 7 out of 50 tokens (14%) were found with this overall tonal pattern.

### 4.10 Interjections

The most common interjections in Cuencano Spanish are expressions that have been borrowed from Quichua. They can be uttered either in isolation or accompanied by other words. These types of utterances tend to carry emotion due to the context in which they are produced. The example in Figure 22 displays a common Quichua origin interjection *¡astaray!*/as.ta.ˈrai/"Ouch, that's hot!," used frequently by Cuencanos in everyday speech. Interestingly, Quechuan languages are known for their fixed penultimate stress where the PA is also present, apart from interjections, which bear a PA on the ultimate syllable (Stewart, 2015). This exception also transfers to Ecuadorian Spanish in borrowed interjections from Quichua, and in this case, bears an L + H* nuclear PA and ends in an L% IPBT; a trend observed in 43 of 50 (86%) tokens (the remaining 7 (14%) end in an H% IPBT).

## 5 Discussion

This article is a preliminary description of Cuencano Spanish intonation. The results are summarized in Tables 1–3 and reflect findings of previous research on Ecuadorian Spanish Andean intonation (O'Rourke, 2010) and intonation in other dialects of Spanish (e.g., see Beckman et al., 2006). When comparing Cuencano Spanish to other dialects, the most salient features included the tritonal L + H* + L PA, which had not

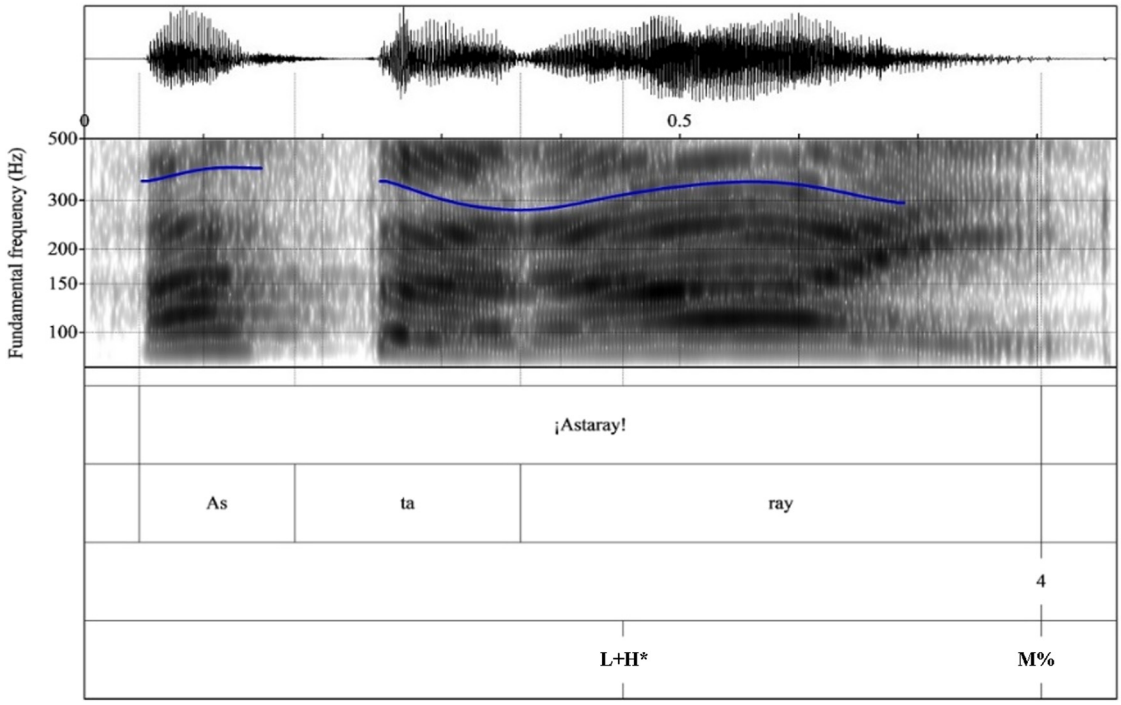



**Figure 22:** Waveform, spectrogram, and pitch contour for the interjection *¡Astaray!* (used to complain when someone touches something hot and burns him/herself) produced with an L + H* PA in nuclear position and concludes with an M% IPBT.

been identified in other varieties of Ecuadorian Spanish to date, along with the extensive use of the L + H* PA in almost every token in the sample. The particular use of these PAs also supports previous impressionistic claims documented in Cevallos and Carmen (1970), Encalada Vásquez (1998, 2007, 2016), Icaza Coronel (1934), Toscano-Mateus (1953), and the overall impression of Cuencano Spanish by speakers of other varieties of Ecuadorian Spanish, who are quick to point out that Cuencano Spanish clearly distinguishes itself due to its non-standard intonation. Moreover, the extensive use of the L + H* PA shows that Cuencano intonation has a distinctive sinusoidal, melodic characteristic (in prosodic terms, alternating highs and lows throughout an utterance) which matches the impressionistic descriptions in Encalada Vásquez (1998). This study also helps describe Cuencano "singing" not only in terms of frequent repetitive PAs and the tritonal PA but also in terms of an expanded pitch (f0) range, with dramatic shifts of over 200 Hz (3 bark) on a single pitch event. These factors in conjunction with *esdrujulización* give the dialect its salient singing quality, which does not occur in other dialects in Ecuador.

It should be noted that other Spanish dialects outside of Ecuador have also been described as being distinctively melodic. For example, Argentina Spanish (see Gabriel et al., 2010), specifically the dialect of Córdoba (see e.g., Berry, 2015; Requena, 2011), is colloquially known as the *tonada cordobesa* "the Córdoba tune" or as having a *cantito* "singing [quality]." Like Cuencano Spanish, Córdoba Spanish has also been described as having expanded pitch (f0) ranges; however, the realization is slightly different. Berry (2015) describes expanded pitch ranges in conjunction with pre-tonic lengthening and tonic shortening, whereas our data suggest expanded pitch ranges are in conjunction with tonic syllable lengthening (though we have not tested this quantitatively). In Córdoba Spanish, Berry also shows that the salient *tonada* characteristic appears uniquely on the pre-tonic syllable, whereas in Cuenca Spanish, the *cantadito* stems from the repetitive L + H* PAs on each PW throughout an utterance in addition to expanded pitch ranges used emphatically.

Regarding previous research conducted on other varieties of Ecuadorian Andean Spanish intonation, particularly O'Rourke's (2010) study of Quito Spanish, a number of differences can be observed. This is unexpected given both dialects' common origin in sixteenth CE colonial Spanish. However, of particular interest is the simplification of Cuencano Spanish intonation patterns compared to the dialect spoken in

Quito. Moreover, when compared with the PA and BT configurations found in Media Lengua (a Quichua-Spanish mixed language that makes use of Quichua intonation, and the only Quichua language with a ToBI-based description (see Stewart, 2015)), one could surmise that contact induced change with Quichua may have played a role in Cuencano Spanish prosody. With respect to PAs, first, both Media Lengua and Cuencano Spanish make frequent use of the L + H* PA in nearly every utterance type, whereas its usage in Quito Spanish is more restricted. Second, the tritonal PA in Cuencano Spanish and the L + ^H* PA in Media Lengua (akin to the tritonal PA in Cuencano Spanish) are both used for emphasis, while neither is documented in Quito Spanish. Third, the H + L* PA is used in both Cuencano Spanish and Media Lengua in vocatives, whereas its pragmatic usage is different in Quito Spanish (imperative wh-questions); a weak or lack of pragmatic relationship between PAs shared in both Spanish varieties (and not Media Lengua) is also documented in for H*, L*, L + >H* PAs. Moreover, the inventory of nuclear PA and BT configurations is substantially reduced in Cuencano Spanish and like in Media Lengua compared with Quito Spanish with H*M%, L*HH%, L*HL%, L + H*L% or L*HL%, L + H* M% lacking in both. The configurations that are shared in both Spanish varieties also show weak pragmatic relationships (L*L%, L + H* HH%). While this description is more of a meta-analysis, rather than a formal comparative analysis, there appear to be some interesting trends that should be further explored in future research.

However, the greater fluctuations in pitch movement as well as emphatic PAs in Cuencano Spanish suggest that either a number of innovations took place in the region or, more likely, the difference is a result of contact induced change or convergence. While direct evidence still lacks, the extensive use of the L + H* PA is also a defining feature of Ecuadorian Quichua intonation; a language which also makes use of a PA that might also be interpreted as a similar tritonal PA (see L + ^H* in Stewart, 2015 for Media Lengua, a Quichua-based mixed language). These observations help support the claim postulated by Encalada Vásquez (2016) that Cuencano Spanish intonation is likely influenced by Quichua, and the now extinct Cañari language. While future research could compare PAs and BTs in utterance types shared by Quichua spoken in and around Cuenca and Cuencano Spanish, establishing a link with Cañari language is clearly more difficult and the best evidence we might hope to come by would be inferences based on comparative analyses of Quichua and Ecuadorian Spanish dialects outside the original Cañari homeland with those in and around Cuenca to identify unshared intonation patterns.

As for the *Cantadito Cuencano*, Encalada Vásquez (2016) refers to the accent characteristics of Indigenous people speaking Spanish in the markets of Cuenca, which are often described as having the most marked *Cantado Cuencano* "Cuencano singing" intonation. The first author of this study, who is a native speaker of Ecuadorian Spanish and a long-time resident of Cuenca, also supports this observation and impressionistically describes their intonation patterns as stereotypical of Cuencano Spanish. In addition, the tritonal and bitonal PAs found in the sample correspond with the impressionistic observations of Cuencano Spanish and its singing quality.

Future research on topics such as *esdrujulización* or accent retrocession in relation to Ecuadorian Andean Indigenous languages and Colonial Ecuadorian Spanish would be useful to help clarify the origins of Quito Spanish, Cuencano Spanish, and other Ecuadorian Andean Spanish dialects. Through the identification of segmental and suprasegmental influences from Quichua and other Indigenous languages, we might be able to explain why and how Ecuadorian Spanish dialects have formed across the region over the last 500 years. While beyond the scope of the preliminary analysis, a study of Cuencano Spanish intonation with a wider variety of demographic variables, as well as other utterance types in various pragmatic contexts would greatly increase our understanding of the dialect.

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**Author contributions:** AP collected the data. AP and JS conducted the analysis and prepared the manuscript.

**Conflict of interest:** Authors state no conflict of interest.

**Data availability statement:** The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

## Abbreviations

| | |
|---|---|
| BT | boundary tone |
| IPBT | intonation phrase boundary tone |
| ipbt | intermediate phrase boundary tone |
| PA | pitch accent |
| PW | prosodic word |
| ToBI | tones and break indices |

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