# Chapter 2

# Intonation of pronominal subjects in Porteño Spanish: Analysis of spontaneous speech

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Based on spontaneous data obtained in face-to-face free conversations, the present paper discusses the impact different information-structural functions have on intonational realizations of pronominal subjects (PS) in Buenos Aires Spanish (Porteño). The study applies the Spanish ToBI labeling system and examines its applicability to spontaneous speech. One of the questions addressed is whether PS with different functions have clear phonological correlates. It will be shown that intonation plays an important role in distinguishing topics from focus, but not in the interpretation of different types of topics. By means of an acoustic-phonetic analysis, the research also demonstrates that overt PS are not always emphatic or contrastive, as commonly asserted in previous, mostly theoretical, studies. Despite a high degree of variability found in the data, the paper argues for the need to use spontaneous material as well as further laboratory phonology techniques in the study of grammatical variation.

## 1 Introduction

Numerous recent studies in prosody research have investigated what effects information structure (IS) has on intonation and word order (see for Spanish, e.g., Face 2001; Gabriel 2010; Vanrell & Fernández-Soriano Forthcoming; Uth 2014 and many others). The first aim of the present paper is to contribute to the exploration of this interface, presenting and discussing intonational patterns of overt pronominal subjects (PS) with different pragmatic-discourse functions in Spanish, a typically null-subject language. The variety under study is the so-called

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*Porteño* Spanish, a variety characteristic of Buenos Aires, and the recordings were carried out in Argentina in 2008 and 2009. The second aim of this paper is to discuss the applicability of the Spanish Tones and Break Indices (ToBI) labeling system to spontaneous speech data.

To the best of my knowledge, the prosodic characteristics of pronominal subjects (PS) have not thus far been systematically studied for any spoken Spanish dialect, despite the huge interest in the expression or omission of PS in Spanish. The phenomenon has been studied from different perspectives, such as the Generative theory of language (see, e.g., Chomsky 1981; 1995; Rizzi 1986; Biberauer et al. 2010; for Spanish see, e.g., Luján 1999), variationist sociolinguistics (see, e.g., Silva-Corvalán & Enrique Arias 2001; Otheguy et al. 2007; Carvalho et al. 2015), or typological works (see, e.g., Dryer 2013). It is well known that Spanish is a language where null subjects are common and represent the unmarked variants of PS. This raises the question as to why prosodic or intonational aspects of PS should be studied in a typically null-subject language. Here a brief review of this issue is warranted (see also §2 for more details). Although traditional as well as generative grammarians usually assume that the PS must be realized in Spanish only if it signals focus, emphasis, or contrast, or if the verb form exhibits ambiguities, results from extensive variationist and corpus-based research demonstrate that Spanish-speakers very often express a PS in non-focal, non-contrastive, or non-ambiguous contexts. By means of an acoustic analysis, the findings of this paper will support the previous and extensive variationist research. As we will see, PS can have different functions in a discourse and their use is thus strongly linked to the IS, with some further intervening factors possible (see, e.g., Carvalho et al. 2015; Pešková 2015; for an overview). As Posio (2012: 14) points out, one theoretical as well as methodological complication arises from the fact that the (non)connection of *contrastivity* and *emphasis* to subject pronoun expression has been accounted for without considering any prosodic analysis. How exactly can *contrastivity* and *emphasis* be defined in terms of prosodic criteria? It seems that whereas *emphasis* is usually connected with focus in general, *contrastivity* refers either to contrastive topics or contrastive focus. So what is the role of prosody in distinguishing the various IS categories of the PS? Whereas experimental and empirical data are available on intonational aspects of focus in different languages, including several varieties of Spanish (for *Porteño* see, e.g., Colantoni & Gurlekian 2004; Gabriel et al. 2010; Feldhausen et al. 2011; Le Gac 2014), we know very little about the prosodic features of different kinds of topics in the various spoken dialects of Spanish and in spontaneous speech in general. Féry (2007) assumes that IS categories might have no invariant grammatical (phono-

logical, syntactical or morphological) correlates and that grammatical cues only "help speaker and hearer to sort out which element carries which information structural role" (Féry 2007: 161). Interestingly, Frascarelli (2007) shows that different IS categories (including PS) have clear intonational correlates in Italian. A one-to-one correspondence between intonation pattern and IS category would be very helpful in reconstructing IS in natural speech. Nevertheless, such a correspondence is not self-evident, given that natural languages are full of ambiguities and intonation is no exception. A phonological correlation in one language need not be present in another. As shown, for instance, in Frota & Prieto (2015), Romance languages and their dialects can differ considerably from each other with respect to their tonal inventories.

Since this volume deals with methodological issues, an essential question is which data and methods are suitable for studying the phenomenon under discussion, namely expression of PS and their connection to IS. So far, the IS and especially marking of (nominal) focus have been predominantly studied by means of sentences either formulated by an author or obtained by different experimental techniques such as picture-based elicitation in which speakers are asked to produce sentences in pre-constructed *question-answer* contexts (for *Porteño* see, e.g., Gabriel 2010). However, intonational realizations of IS categories can depend on the exact design of such experiments; in other words, different methods may yield rather different results (see Niebuhr & Michaud 2015, who underline that besides the tasks the selection of speakers can likewise play a very important role in speech data acquisition). One way to avoid the possibility of infelicitous intonation in laboratory data is to use spontaneous speech, which can provide important evidence for how speakers use the language in a natural context. The present study will use spontaneous speech data which stem from recorded undirected natural conversations, a method applied traditionally in sociolinguistic and variationist research (see, e.g., Labov 1984; Silva-Corvalán & Enrique Arias 2001). The main advantage of this empirical method is that it yields speech that is casual, informal, and as natural as possible (Silva-Corvalán & Enrique Arias 2001: 52). Not only do such data present an interesting source for the intonational patterns and different IS categories, but they are also crucial for studying the use of PS in a pro-drop language, because whether a PS is expressed or omitted is very much related to the discourse. However, since spontaneous conversations cannot be controlled for IS or the expression of PS in advance, one of the greatest challenges for a researcher using this "natural" data is to establish well-defined IS categories in order to be able to reconstruct the IS and to explain the expression of PS in it. A further question is whether and in what way intonation plays a role in reconstructing the IS in discourse.

Regarding the intonational analysis, the present paper applies the Spanish ToBI prosodic annotation system (Aguilar et al. 2009), which is based on the Autosegmental-Metrical model of intonation (Pierrehumbert 1980). Lately, ToBI has become popular not only among phonologists and intonationists but also among researchers from other fields of linguistics. ToBI is designed to be language-specific yet "universal" in the sense that a community of users apply the same set of conventions related to intonational research across languages (for a cross-linguistic ToBI proposal see Hualde & Prieto 2016). Despite its versatility, however, the application of ToBI labels has proved to be in some ways problematic because of concerns about subjective variations in the interpretation of intonation. Why can such discrepancies among ToBI labelers arise? One reason may be that interpreting the phonetic-phonology interface is especially complicated since it presents a notorious degree of variability across speakers and contexts, and this is likely to be even more the case in spontaneous speech. The present study thus suggests that separating the two tonal levels, phonetic and phonological (see Hualde & Prieto 2016 for a proposal in the same direction), can be very helpful for reducing ambiguity in spontaneous speech data, allowing us to better understand the phenomenon under study.

Another important issue involved in examining the intonation of spontaneous speech is the relationship between models of intonation derived from speech produced under controlled laboratory conditions and the very variable patterns we see in spontaneous speech. According to Bruce & Touati (1990: 37), it is essential to have "a fairly detailed model based on experience from studies of artificial, laboratory speech, in order to be able to extract interesting features of prosody from spontaneous speech" (Bruce & Touati 1990: 37; cf. Face 2003). Hence, the present study will test how closely the intonational patterns of IS categories based on laboratory-derived data match what we find in spontaneous speech data. For example, Face (2003) compared Spanish declaratives in laboratory-elicited and spontaneous speech and detected some phonetic differences in F0 rises through stressed syllables, F0 peak alignment, downstepping, and final lowering. But he concludes that considerable work remains to be done on the phonological analysis of intonation patterns found in spontaneous data and their relationship to pragmatic meaning (Face 2003: 129). The present research hopes to take a step closer toward determining such relationships for the phenomenon under study.

The outline of the paper is as follows. §2 reviews the research on PS in Spanish, necessary for understanding the complexity of the phenomenon under study, and shows why prosodic analysis can be important in any research on PS in a pro-drop language. §3 describes the methodology applied in this study and discusses

issues related to the application of the ToBI system. §4 presents the results of the study and makes a proposal for how the tonal variation found in the data could be explained. Finally, the paper ends with some concluding remarks in §5.

## 2 Importance of prosodic analysis

Let us begin this section with a very short example (1) from the data of the present study, by way of illustration.

(1) (¿La conoces?) Sí, la conozco un montón.
yes her know-1SG.PRES a lot
**Yo** con Ale fui al colegio desde que tengo cinco
I with Ale go-1SG.PAST to.the school since that have-1SG.PRES five
años.
years
'(Do you know her?) Yes, I know her very well. I went to school with Ale starting at age five.'

Note that the female speaker starts her response with a null subject (*Sí, Ø la conozco*), as we would expect, whereas the second sentence begins with an overt PS *yo* (in bold). A traditional explanation that the pronoun is overtly realized here for the purpose of ambiguity cannot be supported, as the PS appears with a non-ambiguous verbal form *fui* ('I went' / preterit). Interestingly, only 32% of all ambiguous verbal forms ($N$=514) appear with overt PS in the data examined in the present research, and their occurrence is connected mostly with other factors such as information structure.

Moreover, the context in (1) neither establishes any contrastive relationships to any other reference nor represents a switch-reference. By means of intonational analysis of the elements under discussion, the study will test (1) whether the PS found in the data are "emphatic", or "strongly stressed", as is generally assumed, and (2) whether the different informational-structural functions of overt PS exhibit prosodic correlates. The following two sections present the concept of the strongly stressed, emphatic PS, as well as other functions of the PS in discourse.

### 2.1 "Strongly stressed" PS

Spanish has lexical stress, which is phonologically contrastive and in most cases located on the penultimate syllable. The Spanish pronominal system includes

*pronombres tónicos* (stressed pronouns) and *pronombres átonos* (unstressed pronouns), sometimes described with the dichotomy strong vs. weak pronouns (e.g. *él* 'he-NOM' vs. *le* 'him-DAT'). The Spanish subject pronouns are strong pronouns (e.g. [no.ˈso.tros], 'we') and thus bear a stressed syllable exactly like lexical words (e.g. [ˈso.pa], 'soup').

Some studies assume that Spanish subject pronouns "are always strongly stressed" (Zagona 2002: 25). However, it is not clear if the notion *strongly stressed* refers here to lexical stress or pitch accent. The example offered by the author, however, seems to point indirectly to the latter (2).

(2) Estudiantes, no creo que falten.
students not think-1SG.PRES that lack-3PL.PRES
'Students, (I) don't think are lacking.' (Zagona 2002: 22, her example 46)

Zagona (2002: 22) explains that the word *estudiantes* ('students') here is a dislocated topic and is thus "not strongly stressed". Here we must specify that the word *estudiantes* is de-accented, but it must bear a lexically stressed syllable, because Spanish word stress is phonemic. Thus, Zagona's definition and example indirectly imply that PS can never be de-accented in Spanish.

Besides duration and intensity (not considered in the present study), the fundamental frequency (F0) is one of the most important acoustic correlates of stress in Spanish and an important element of intonation (Hualde 2005: 239–246). Metrically strong syllables ($\sigma$*) generally serve as "anchoring points for intonational pitch accents" in Spanish (Hualde & Prieto 2015: 358). As already formulated above, one of the questions that need to be addressed is whether we can rely on intonational properties to reconstruct the IS of overtly realized PS. In work on another Romance null-subject language, Cardinaletti & Starke (1999: 58) provide evidence that subject pronouns in Italian "can be prosodically unaccented". Another study on Italian by Frascarelli (2007: 695) connects *intonationally* strong pronouns with a rising tone, while weak pronouns are linked to a low ("destressed") tone. The former are interpreted as referring to aboutness-shift topics, while the latter refer to familiar topics. Furthermore, Frascarelli assumes that contrastive topics as well as focus are produced by a high tone.[1] The present paper on Spanish thus tends to be interested in verifying the relationship between

[1]Since methodological issues are one of the concerns of this paper, it might be pointed out that Frascarelli's generalizations are based on only 100 minutes of conversations, from which a total of 173 sentences have been extracted, and the distribution of different pitch accents and potential variation (due to the spontaneous nature of the data) in the corpus remains unclear.

different informational-structural functions of PS and their prosodic as well as syntactic (here: word order) correlates (see §3).

## 2.2 "Emphatic" and other PS

As already mentioned, many scholars assume that overt PS are always emphatic or contrastive in (consistent) null-subject languages (see, e.g., Luján 1999: 1311-1312 for Spanish; Fehrmann & Junghanns 2008: 199 for Czech, a West-Slavic null-subject language). For example, the study by Biberauer et al. (2010: 7) within the Minimalist approach claims that overt PS "tend to have (…) an emphatic interpretation" (3).

(3) Él habla español.
he speak-3SG.PRES Spanish
'HE speaks Spanish.' (from Biberauer et al. 2010: 7, their example 6b)

In my understanding of (3), the use of the capitalized pronoun HE in the English translation signals an emphatic reading in the sense that it is 'he' (and not another person) who speaks Spanish. However, this kind of *focal* (*emphatic*) reading would fail in an example like (1).

In the literature, many assumptions and misleading or absent definitions on "contrastiveness", "strongly stressed PS", and "emphatic pronouns" are based on constructed sentences but rarely supported by empirical data (the exceptions being sociolinguistic or variationist studies). Generally, *contrastivity* seems to refer to either contrastive topics or contrastive focus (sometimes no distinction is made), whereas *emphasis* is commonly connected with focus and the prosodic highlighting of one part of a sentence.[2]

We know from previous empirical research on focus marking in *Porteño* Spanish that focal (nominal) subjects in preverbal position are realized typically with a rising-falling pitch accent and usually have much longer duration than other realizations of pitch accents (Pešková et al. 2012: 383). However, example (1) clearly does not indicate a focalization of the overt PS, first, because the pronoun *yo* is not pronounced with a tonal target typical of focus (see §3), and, second, because it is dislocated and thus cannot be a focus in Spanish. Let us assume that the pronoun *yo* is a familiar topic since it maintains the same-reference in the conversation. If that is the case, the question is whether such familiar topics are produced systematically as a "phonologically weak (…) low tone" (Frascarelli 2007: 712). Though

[2]Emphasis is very often also equated with expressivity, affectivity, or emotionality (see, e.g., Pustka 2015).

Frascarelli's findings come from Italian, we could assume similar tendencies in typologically close Spanish.[3]

This paper assumes in total five IS functions of PS (Table 1), which have emerged from an extensive review of the use of PS and the need to carefully distinguish between the different possible roles of PS in discourse (see Pešková 2014; 2015, and studies cited there). These categories were proposed in order to explain the expression/omission of PS in Spanish.

Table 1: IS functions of PS

| Category | Form of the PS |
|---|---|
| PS as a Focus (F) | overt |
| PS as a Contrastive topic (Tc) | overt |
| PS as a Disambiguating topic (Td) | overt |
| PS as an Aboutness-shift (new) topic (Ta) | overt or null |
| PS as a Familiar (given) topic (Tf) | overt or null |

Focus, according to Krifka (2007: 18) "indicates the presence of alternatives that are relevant for the interpretation of linguistic expressions". Note that syntactic marking of a focal subject, that is, its placement in the rightmost position, is its important characteristic in Spanish (4).

(4) Focus (F)
Esto no lo digo **yo**, lo dice Transparency.
this not it say-1SG.PRES I it say-3SG.PRES Transparency
'It is not me who says this, it's Transparency.'

As for a contrastive topic, it is defined as an "aboutness topic that contains a focus" (Krifka 2007: 44). It mostly indicates a switch-reference and creates "oppositional pairs" (Chocano 2012: 143) (5).

(5) Contrastive topic (Tc)
En España la gente usa el pretérito perfecto mucho más.
in Spain the people use-3SG.PRES the pretétito perfecto much more

[3] Additionally, *Porteño* Spanish is known for its "Italian intonation" due to migration-induced contact. Similar intonational and rhythmic patterns have been demonstrated between this Spanish variety and different Italian dialects (see, e.g., Vidal de Battini 1964; Colantoni & Gurlekian 2004; Benet et al. 2012). This issue will not be explored here, however.

**Nosotros** usamos más el indefinido.
we use-1PL.PRES more the indefinido
'In Spain people use the pretérito perfecto much more. We use the indefinido more.'

The aboutness-shift topic introduces or reintroduces a new reference that does not contrast with any preceding element in the context. In example (6), the speaker is talking about cultural activities in Buenos Aires. Then she changes the topic and addresses the listeners directly. The overt pronoun *ustedes* signals here a switch-reference.

(6) Aboutness-shift topic (Ta)
¿Y **ustedes** qué conocen de acá?
and you what know-3PL.PRES from here
'And you, what do you know here?'

A familiar topic refers to given or previously mentioned information in a discourse (7). PS as familiar topics commonly have a null form; in the data of the present study only 11% of them had an overt form.[4]

(7) Familiar topic (Tf)
Mi hermano es un intelectual teórico-académico.
my brother be-3SG.PRES an intellectual theoretical-academic
Hizo un máster en politología y filosofía.
do-3SG.PAST a master in political.science and philosophy
'My brother is an academic intellectual. He did a master's in political science and philosophy.'

And finally, there is also a so-called disambiguating topic (8), i.e. an "aboutness-shift or familiar topic which is overtly realized in order to disambiguate referential and/or morphological ambiguities in contexts that lack semantic predictability" (Pešková 2014: 62).

[4]Some instances where it was not immediately clear whether a PS represented a contrastive topic (Tc) or non-contrastive topic (Ta or Tf) were resolved by means of a simple test whereby a different type of discourse marker or connector was added. Whereas phrases containing contrastive topic PS can be introduced by some contrastive (or contra-argumentative) connectors such as *en cambio* or *a diferencia* 'in contrast', phrases containing non-contrastive topics can only be introduced with a kind of explanatory connector which simply announces the subject in advance, such as *en cuanto a* 'regarding'.

(8) Disambiguating topic (Td)
[La ingeniería ambiental] tenía otro perfil que
the environmental engineering have-3SG.PAST another profile that
iba más con el perfil que **yo** me identificaba.
go.3SG.PAST more with the profile that I me identify.1SG.PAST
'Environmental engineering used to have a different profile that was more consistent with the profile I identified with.'

In this example, the verbal form *identificaba* is in imperfect, which presents syncretism between the first and third person singular in Spanish. The pronoun is used here to ensure a correct interpretation of the reference; without it, the hearer could interpret the sentence as 'the profile identified me' instead of 'I identified with the profile'. If the context provides semantic predictability and information is accessible to a listener, the expression of the PS in such cases is not necessary.

The following section presents the data examined in the present study and the methodology used in the transcription of the intonational properties of PS.

## 3 Data and methodology

### 3.1 Corpus

The data analyzed were obtained in the course of approximately 10 hours of free interviews recorded (for the most part) with a Marantz HD Recorder (PMD671) and Sennheiser Microphone (ME64) in Buenos Aires in 2008 and 2009. The interviewees were 18 males and 18 females (19–45 years old) with tertiary-level education, and all of them were monolingual speakers of *Porteño* Spanish. As for the length of the interviews, four interviews were one hour long each and the other interviews lasted 10–30 minutes.

The data were transcribed in a word processor document by two native Spanish speakers and checked by three different researchers. The resulting corpus comprised 118,514 words in total, of which interviewees produced 90,087, the remainder being produced by the interviewers. The material contained in total 10,748 finite (personal) sentences with PS, of which 967 sentences had overtly realized subject pronouns and were therefore used for the analysis on which this study is based.[5] It should be pointed out that 72 instances of overt PS in the corpus

[5]Typical Argentinean fillers or tags, where the PS is always present (e.g. *Mirá **vos***, lit. look you, 'Wow', 'I'll be darned!'), as well as cases where the subject appears without a predicate (e.g. *¿Fueron a Europa?* 'Did youPL go to Europe?' ***Yo**, a Italia, nada más.* 'Me, to Italy, nothing more.') were not considered.

had to be excluded because distracting elements such as laughter, creaky voices, overlapping turns, hesitations, or noises made acoustic analysis difficult or impossible. This illustrates one of the main disadvantages of using spontaneous spoken corpora for research. Moreover, spontaneous speech cannot be controlled in advance for the length and complexity of words or whole utterances, or for the use of PS and IS. Nonetheless, the selected method offers certainly a valuable source of (almost) natural speech and important data for the understanding of phenomenon under study: the use of PS in a discourse.

### 3.2 ToBI labeling

The present study was limited to two aspects of intonation. First, it described the tonal realization of pitch accents associated with a metrically strong syllable of the target word (the PS), and, second, it observed the existence of a boundary tone after the PS. In other words, it was examined whether the subject was produced by a low or a high tone (or combination of both) and whether it was separated or not from the rest of the sentence by a prosodic boundary. Other prosodic phenomena such as intensity, duration, rhythm and speech rate, or fluency were not considered.

The acoustic analysis was carried out using Praat (Boersma & Weenink 2017) and applying the Sp_ToBI labeling system for the tonal annotation (Aguilar et al. 2009; Estebas-Vilaplana & Prieto 2008; Prieto & Roseano 2010). As many studies have shown (most recently Hualde & Prieto 2015), there is considerable intonational variation among the different European and American varieties of Spanish. I thus followed the intonational inventory of *Porteño* Spanish as proposed by Gabriel et al. (2010; 2013) (see also earlier works by Toledo 2000; Kaisse 2001; Colantoni & Gurlekian 2004). This inventory is based on semi-spontaneous speech obtained by means of the so-called Discourse Completion Task, which has become standard in many intonational studies (see, e.g., Prieto & Roseano 2010; Frota & Prieto 2015; the (dis)advantages of this method are discussed by Vanrell et al. 2018, this volume).

Gabriel et al. (2010: 288–290) assume seven pitch accents for *Porteño* Spanish: a low tone (L*), a high tone (H*), three rising bitonal pitch accents (L+H*, L+¡H*, L+<H*), a falling tone (H+L*), and a rising-falling pitch accent (L+H*+L) (Figure 1):[6]

[6] A rising pitch accent with a shifted peak L+>H* has been replaced by an L+<H* in the latest proposals on Spanish ToBI (see Hualde & Prieto 2015). Similarly, the M% boundary tone used in former works has been changed to !H%. This study follows these new modifications. Moreover, the Spanish ToBI includes an L*+H (realized as a low tone on the tonic syllable followed by a rising movement on the posttonic syllable), which is very seldom encountered in *Porteño*.

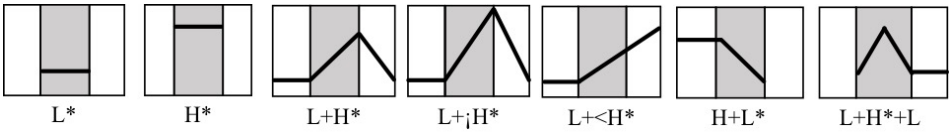


Figure 1: Inventory of pitch accents in Porteño Spanish (according to Gabriel et al. 2010).

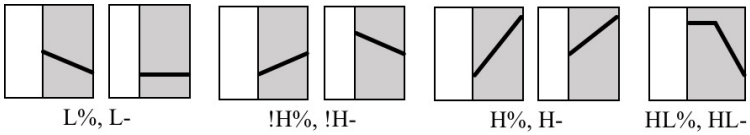


Figure 2: Inventory of boundary tones in Porteño Spanish (according to Gabriel et al. 2010).

The corpus subset containing PS was analyzed and all instances of pitch accents were duly noted. Next, each instance was examined to see if the subject was separated from the rest of the material by a boundary tone. Gabriel et al. (2010) assume three monotonal (L, H, downstepped-high !H) boundary tones and one bitonal (HL) boundary tone. All of them are attested at the end of intonational phrases (IPs) as well as at the end of intermediate phrases (ips) (Figure 2).[7]

As can be surmised, *Porteño* pitch accents as well as boundary tones have different distributional properties. For instance, the tritonal pitch accent L+H*+L is commonly found in the nuclear position, where it expresses emphasis or marks a focus (see Gabriel et al. 2010; Feldhausen et al. 2011). The realization of L+H* (formerly called "early peak") is typical of prenuclear accents in this variety, whereas the L+<H* (formerly called "late peak") is found sporadically in the *Porteño* data (see Pešková et al. 2012). Since pronominal subjects occur mainly in the prenuclear (sentence-initial) position (92% of the PS in the data of the present study), their tonal realization is expected to have an L+H* (with the peak located at the end of the accented syllable) or occasionally L+<H* (with the peak aligned with the postaccentual syllable).[8] Another possible prenuclear accent is a H*, found in different sentence types especially at the very beginning of utterances. Ad-

[7] Additionally, Gabriel et al. (2011) observe three boundary realizations H–, HL–, and LH– at the intermediate phrasal boundaries (break index 3) after subject (besides some other boundary cues such as pitch reset and pre-boundary upstep). These phonetic differences were not relevant for the present study.

[8] The pitch accent L+H*—associated with the PS in sentence-initial or preverbal position—was also found in the nuclear position when it was followed by an intermediate boundary tone (e.g. *Yo* [L+H* H–] *nunca hacía los deberes*, Figure 3).

ditionally, there are certain "intermediate" cases, where, for instance, the pitch movement is falling in the posttonic syllable but the peak is located in the onset of the nucleus of the same syllable. Is this still an L+H* or is it an L+<H*? According to the definition given by the Spanish ToBI system, it should be L+<H* (as the peak is located outside the accented syllable), yet the realization is perceived very differently from a typical L+<H* as described by Sp_ToBI. The rising pitch movement can also be either very brusque or very moderate. Nevertheless, all such pitch realizations were labeled L+H* in the present study. As a rich variation in pitch accents was attested in the data, the present study applied the Spanish ToBI labels using broad phonetic transcription (see Hualde & Prieto 2016) and in accordance with the following criteria. If a pitch accent associated with the PS was rising, it was labeled L+H* or L+<H* (depending on the pitch movement in the posttonic syllable). If the pitch accent had a high or a low plateau, it was labeled H* or L*, respectively. If the pitch accent was falling within the accented syllable, it was labeled H+L*. And finally, if the pitch accent had a rising-falling pitch contour within the stressed syllable, the label L+H*+L was used.[9]

The advantage of ToBI labels is that in principle they provide simplified representations of tonal events and are easy to read. However, several difficulties were encountered in applying the ToBI labels to spontaneous speech. By way of contrast, we first show in Figures 3 and 4 examples of the F0 contour for a rising pitch accent (L+H*) associated with the monosyllabic PS *yo* ('I') that conforms to the archetypical pattern: the rise starts at the onset of the syllable and ends at the end of that syllable; the difference between the minimal and maximal pitch is 80 Hz (6 ST) (Figure 3), and 100 Hz (7.5 ST) (Figure 4).

On the other hand, prosodic annotation proved more difficult for utterances from the corpus like *yo tomo mucho mate*, illustrated in Figure 5. Here the pitch reaches a high plateau (H) (166–162 Hz), but no preceding initial dip is observed or perceived clearly either, since the voiceless palato-alveolar fricative [ʃ] in the word *yo* ([ʃo]) causes gaps in the acoustic report and has no definite pitch.

[9] A reviewer has rightfully objected to the fact that prosodic annotation was carried out by only one person (the author) and therefore a subjective element may well have been present in the labeling. While this is true, the author is an experienced labeler of Argentinean intonation, and in this instance whenever ambiguous data were encountered they were discussed with other trained ToBI labelers (who were also experts in the Argentinean variety). Moreover, the results from previous research showed generally a high agreement between the trained labelers and give evidence to regard the ToBI systems as a standard reference for prosodic annotation (see Escudero et al. 2012 for Catalan ToBI; Feldhausen 2016 for Spanish ToBI). However, I do not rule out the possibility that such tests will be carried out on this data prior to any future research, not only for the ToBI labeling, but also for the IS categories proposed here.

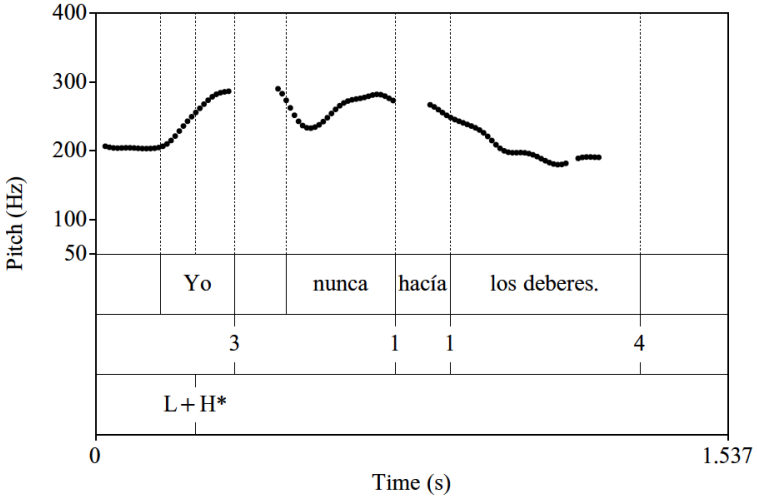


Figure 3: F0 contour of the utterance ***Yo*** *nunca hacía los deberes* ('I never did my homework'), with a rising pitch accent on the pronoun *yo*.

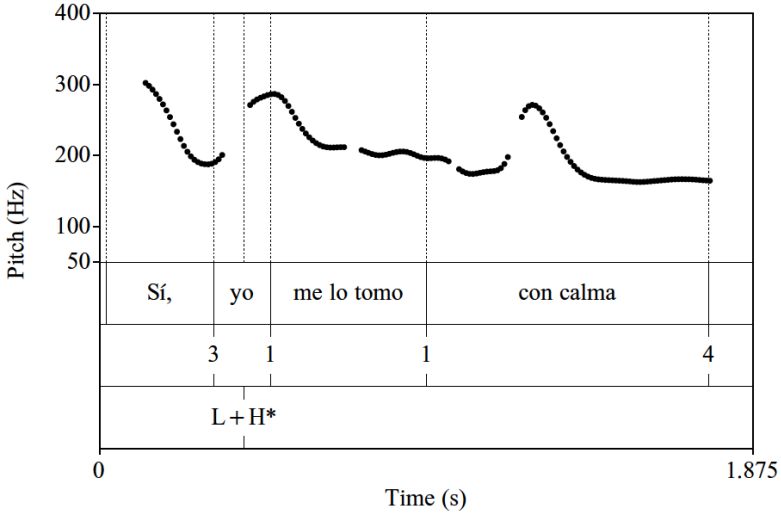


Figure 4: F0 contour of the utterance ***Yo*** *me lo tomo con calma* ('I take it easy'), with a rising pitch accent on the pronoun *yo*.

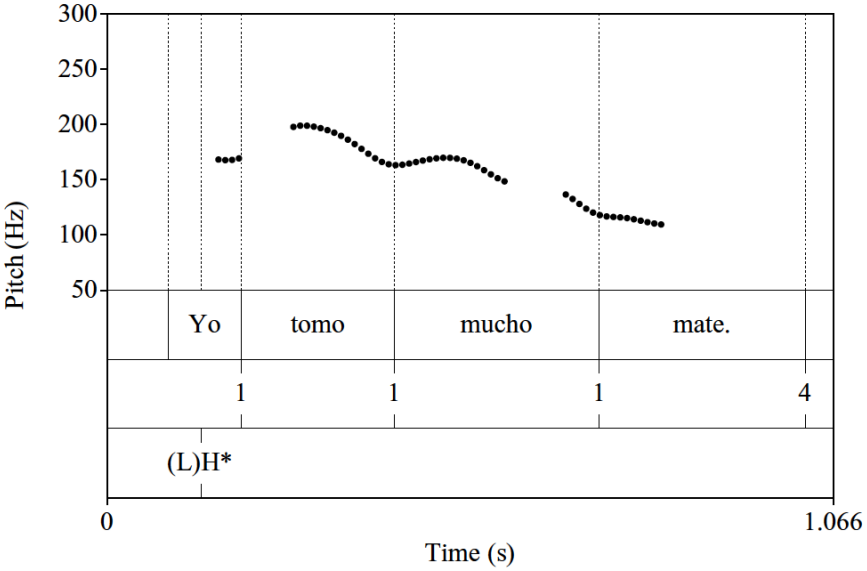


Figure 5: F0 contour of the utterance ***Yo*** *tomo mucho mate* ('I drink a lot of mate'), with a high pitch accent on the pronoun *yo*.

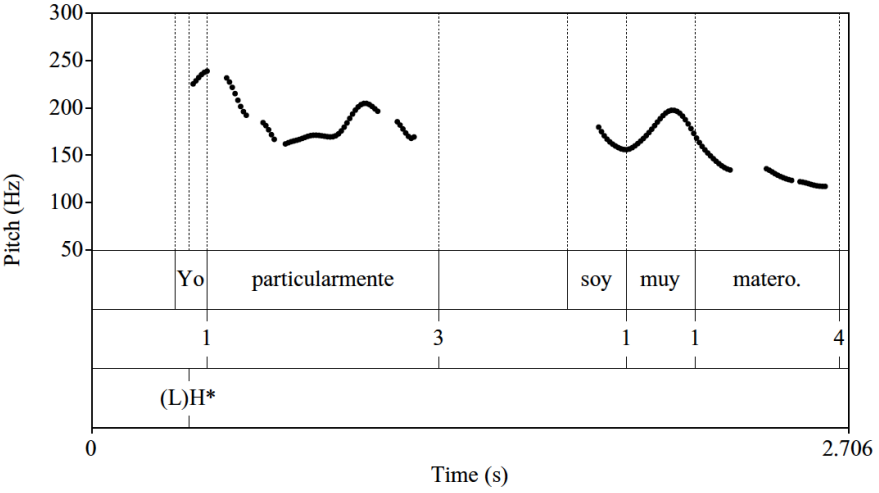


Figure 6: F0 contour of the utterance ***Yo*** *particularmente soy muy matero* ('I am particularly fond of mate'), with a very slightly rising pitch accent on the pronoun *yo*.

Besides voiceless segments, monosyllabic pronouns such as *yo* ('I'), *él* ('he'), or *vos* ('you') followed by another stressed syllable (such as ['ʃo.'to.mo]) represented another difficulty in the analysis of the spontaneous data. Such (tonal) clash contexts can trigger a timing reorganization and earlier peak placement of the accents involved, or reduction of the two underlying gestures, resulting in a single one (Prieto et al. 1995). This means that in such contexts the speaker does not implement both pitch accents phonetically or that the low target from the default L+H* is not realized overtly because it lacks phonetic material.

Figure 6 shows another example of the pronoun *yo* produced by the same speaker. In comparison to the previous example, we observe here that the first pitch accent on the monosyllabic pronoun *yo* displays a high pitch movement that is slightly rising (222–241 Hz; 1.4 ST). Again, there is no pitch movement in the voiceless consonant, but the short rising movement is clearly perceived. In music, for example, such a difference corresponds approximately to a difference between the notes A and B in the third octave. Is it a rising (L+H*) or just a high target (H*)? All the intermediate cases found in the data were somewhat tricky, but very similar to the variation one sees, for instance, in vowels, which can be observed by measuring their formants (frequency components). Vowels very often display a large dispersion and variability (which depend on the context, speech rate, etc.), and they may even overlap each other, making it impossible to draw clear boundaries between them. Considering all the difficulties, the present paper will argue that though the tonal event (Figure 5; Figure 6) is a H* from the phonetic perspective, it is an L+H* from the phonological perspective.

## 4 Results

This section presents results of the analysis of tonal realizations of the expressed subject with different discourse-pragmatic functions (*N*=976). It should be emphasized that the IS functions of overt PS were defined according to the preestablished categories, after the intonational properties of the overt PS were described. This step was necessary especially for identifying "emphatic" (here: focal) subjects. We will see that there are clear intonational differences between focus and topic: whereas preverbal focal PS as well as one third of the right-shifted focal PS in the present data set had a F0 rising-falling contour with its peak located within the accented syllable, the prevailing tonal realization of all types of topics was a rising tone. However, we also observed a high degree of variation regarding the type of pitch accents associated with topics.

The distribution of all overt PS in the corpus was as follows: Aboutness-shift topic (45%) > Familiar topic (31%) > contrastive topic (11%), Focus (8%) > Disambiguating topic (5%). These percentages clearly show that instances of the obligatory expression of PS (F, Tc, Td) were much less common than instances of the variable (i.e. omissible) PS (Ta, Tf).

## 4.1 Pronominal subjects as focus

Seventy-six subject pronouns expressing focus appeared in postverbal (clause-final) (*N*=43) or preverbal position (*N*=33) (Figure 7).[10] In both of these positions, the PS bear the nuclear accent. As all focal PS must be overtly realized in Spanish, different types of focus were not distinguished. However, the PS as a contrastive focus prevailed; in both preverbal and postverbal position.

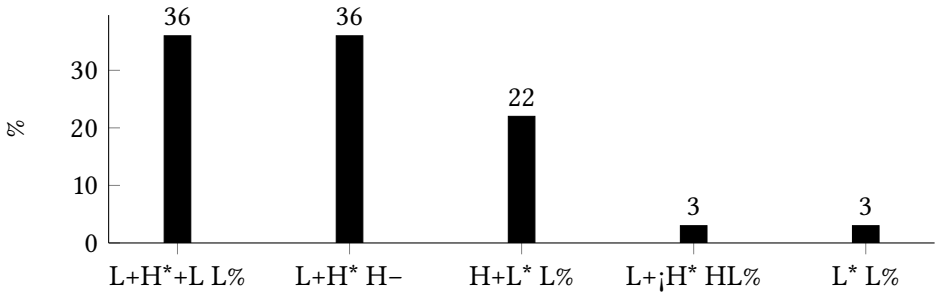


Figure 7: Percentages for different pitch accents of PS as focus (in postverbal position).

Figure 8 offers an example of the pronoun subject *nosotras* ('we-F') in postverbal and clause-final position.[11] The pronoun shows a typical tritonal pitch accent, which displays an arc pattern within the metrically strong syllable -*so*- and is characterized by and perceived as a rising-falling tonal movement.

Focal subjects in the data were realized as a tritonal (L+H*+L), a falling (H+L*), or a low (L*) pitch contour if they appeared at break index 4 (L%). If the subject

[10] Seven cases of preverbal focus and four cases of postverbal focus were excluded from the analysis.

[11] The context of this example was as follows:

(i) *No terminábamos de entender cuál era la línea, no solamente del colegio, sino la que teníamos que seguir* ***nosotras****.*
('We could not understand what the line was, not only in the school, but also the one WE had to follow.')

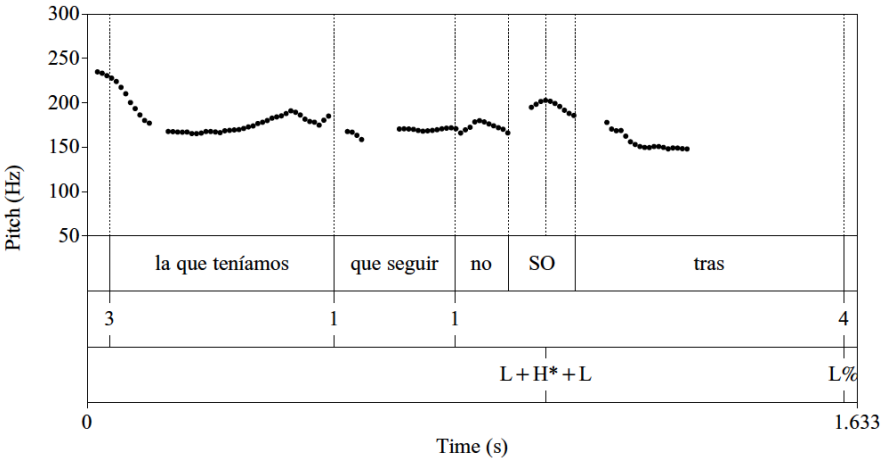


Figure 8: F0 contour of the utterance *la que teníamos que seguir* ***nosotras*** ('the one we had to follow') with a postverbal subject as focus (break index 4), realized with an L+H*+L (L%).

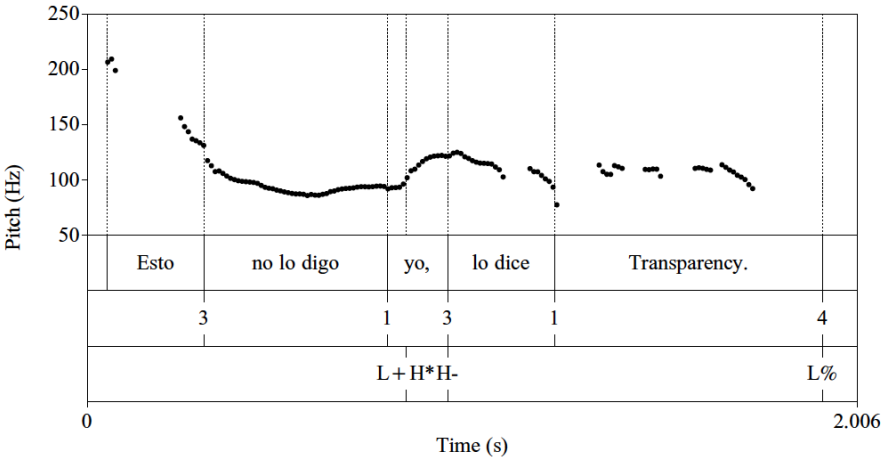


Figure 9: F0 contour of the utterance *Esto no lo digo* ***yo****, lo dice Transparency* ('It's not me who says this, it's Transparency') with a postverbal subject as focus (BI 3), realized with an L+H* (H–).

appeared at the end of an intermediate phrase (H–), it was realized as an L+H* (Figure 9).

As for the tonal configuration L+¡H* HL%, this pattern appeared in only one instance in the data set, the interrogative sentence *¿Te dijo **ella**?* (in the context *Who told you that?* '*Did SHE tell you that?*'). The boundary tone HL% is typical for yes-no questions in the variety under study (see Gabriel et al. 2010).

Since Spanish exhibits a greater flexibility in word order and the focus is usually shifted to the rightmost position of the sentence, it shows less "flexibility in the placement of the nuclear accent (or main phrasal stress)" (Hualde & Prieto 2015: 358). Nevertheless, the PS is realized with an L+H*+L (Figure 10) in cases of preverbal focus subject placement.[12] Only five such instances of focal preverbal subjects were found in the data.

Besides prosodic or syntactic marking of focus in Spanish, other strategies may be used to express focus, namely cleft constructions (e.g. ***Yo** soy quien te llamó*, 'It was me who called you') or focusing adverbs associated with the PS such as *también* ('also') or *por lo menos* ('at least'). In these cases, the subject is realized predominantly with a rising L+H* tone, which can but does not have to be separated by a high boundary tone from the rest of the material (H–) (Figure 11; Figure 12).

## 4.2 Pronominal subjects as Topics

Most overtly realized PS in the data were topics, with the following distribution: Ta ($N$=442), Tf ($N$=304), Tc ($N$=110), Td ($N$=44) (see Figure 13).[13]

All the types of topics clearly preferred the rising tone L+H*, which could occur

[12] The context of this example is as follows:

(ii) *Yo sí vivo en Buenos Aires y actúo en Buenos Aires y juego en Buenos Aires, no puedo hablar como entrerriano no por no estar orgulloso de mi pueblo sino para entrar en sintonía con la gente con la que **yo** estoy trabajando.*
('If I live and act in Buenos Aires and play in Buenos Aires, I cannot speak as a person from Entre Ríos, not because I'm not proud of my home town but rather so that I can get along with the people I am working with.')

At first glance, the second pronoun *yo* is omissible. However, the speaker wants to highlight the subject and this is made clear in the intonation, since the pitch movement shows a tritonal pattern on *yo* and subsequent postfocal deaccentuation (on *estoy trabajando*). For this reason, the pronoun *yo* is assumed to be a focus.

[13] Sixty-one PS expressing a topic were excluded from analysis due to poor sound quality.

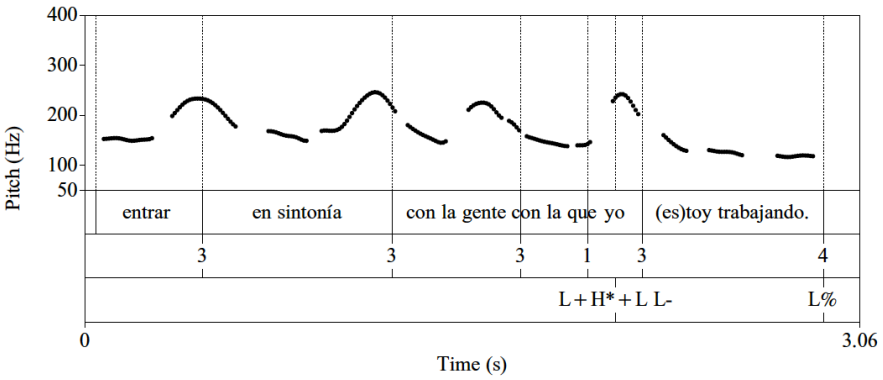


Figure 10: F0 contour of the utterance *para entrar en sintonía con la gente con la que* ***yo*** *estoy trabajando* ('to get along with the people who I am working with') with a preverbal PS as focus, realized with an L+H*+L (L–).

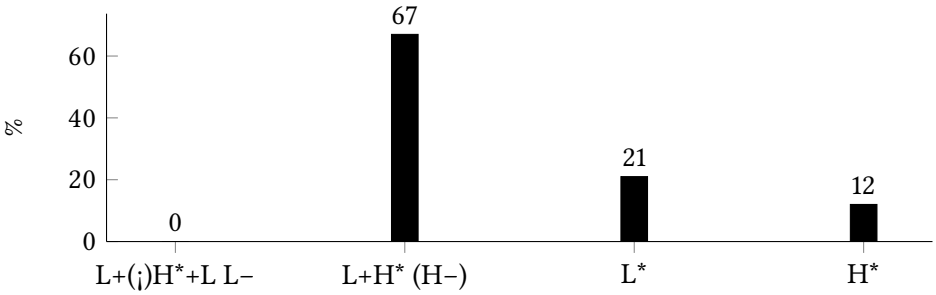


Figure 11: Percentages for different pitch accents of PS as a focus (in preverbal position).

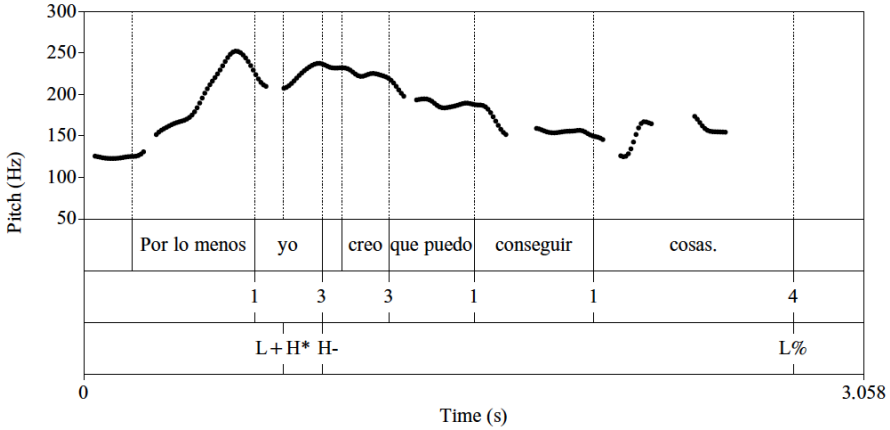


Figure 12: F0 contour of the utterance *Por lo menos **yo** creo que puedo conseguir cosas* ('At least I believe that I can achieve things') with a focusing adverb and a preverbal PS realized with an L+H* (H–).

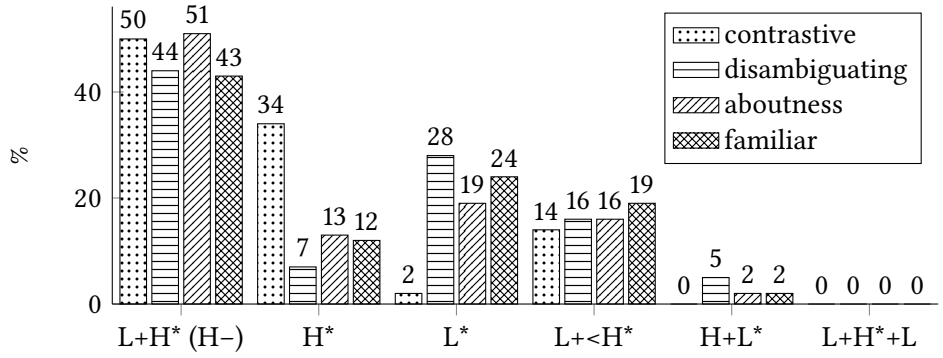


Figure 13: Tonal realizations of different types of topics.

optionally with a high boundary tone (H–) (Figure 14).[14] There were no significant differences between the topic types in terms of this pitch accent ($\chi^2(3)=4.324$, p=0.229). The findings that Spanish can also sometimes accent (i.e. realize a rising pitch accent on) old information (e.g. familiar topics) and that the words can lack a pitch accent in a prenuclear position are consistent with some previous studies (see, e.g., Cruttenden 1993; Face 2003).

We should specify that the boundary tone or pause after a subject-topic is not obligatory and thus does not represent any cue for distinguishing among different kinds of topics. It was attested in only 29% of the instances found in the present data set. However, the monosyllabic pronouns (*yo*, *vos*, *él*; 'I, you (informal), he') exhibited fewer boundary tones (14%) in comparison to "longer" pronouns (*nosotros*, *ustedes*, *ella*, *ellos*; 'we, you (formal), she, they') (49%).[15]

Another example of a topic with a typically rising pitch accent, associated with the metrically strong syllable of the PS, is illustrated in Figure 15.

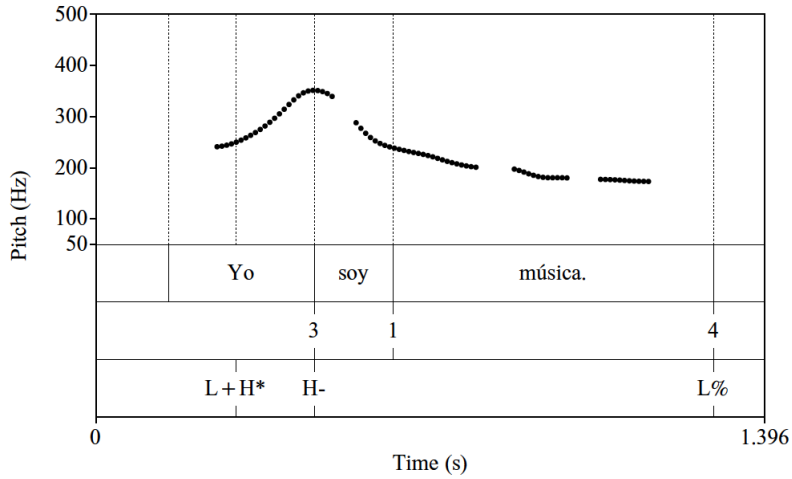


Figure 14: F0 contour of the utterance ***Yo*** *soy música* ('I am a musician') with a preverbal PS as a familiar topic, realized with an L+H* (H–).

[14]In this example, the speaker was answering the simple question *¿Qué hacés?* ('What do you do?'). Notice that the pronoun *yo* is very long and sharply rising; its function seems to correspond to an introductory discourse marker along the lines of "as for me".

[15]Feldhausen & Patin (2010) found that, similarly to pronominal subjects, left-dislocated objects are also not always marked with a boundary tone in *Porteño* Spanish. Other varieties of Spanish, however, may show a different picture. For example, Feldhausen (2016) shows that left dislocations (objects) in Peninsular Spanish require an obligatory boundary, independently of the length of the dislocated element. For prosodic marking in different Romance varieties see D'Imperio et al. (2005); Frota et al. (2007); and Feldhausen et al. (2010).

Further tonal realizations of PS as a topic were a high tone (H*), a low tone (L*), or a rising tone with a displaced peak (L+<H*). The falling tone (H+L*) was atypical and occurred only after a high boundary tone (Figure 16).[16]

Moreover, one difference between contrastive topics and other types of topics was observed. Whereas the second predominant pitch accent of contrastive topics was a high tone (Figure 17),[17] disambiguating, aboutness, and familiar topics preferred a low tone (Figure 18).[18] An L* almost never appeared with contrastive topics (2%). These two attested differences were statistically significant (H*: $\chi^2(3)=28.575$, $p=0.000$ and L*: $\chi^2(3)=16.260$, $p<0.001$).

Further results indicated that right-dislocated (familiar) topics were always realized as a low tone (L*) and separated by a low boundary tone (L–) from the preceding prosodic unit (Figure 19).

It should be noted that a boundary tone can be crucial for distinguishing focal PS from subject-topics, which are both realized as an L* in the rightmost position. This shows a complex relationship between the tonal events of a whole sentence. While the focus-domain is separated by a high tone (H–), the topic-domain is separated by a low tone (L–) from the preceding prosodic material.

And finally, there was another interesting tendency with regard to the peak position of PS when it was compared with pitch accents associated with other words within one prosodic unit. Pitch in the less accessible IS categories (F, Tc, Ta) reached the maximal point in one prosodic phrase more frequently than in the more accessible IS categories (Tf, Td). For instance, while the focal PS exhibited the highest pitch in 93% of cases, contrastive topic PS in 68%, and aboutness-shift topic PS in 43%, the pitch of PS as a familiar topic did so in only 33% of cases, and disambiguating topic in 37% (Figure 20). The fact that disambiguating topic was prosodically less "prominent" than focal subjects or contrastive topics supports the assumption that it represents a kind of familiar or aboutness-shift topic whose function is simply to undo referential ambiguities in (semantically unpredictable) contexts.

[16] In this example, as in other similar cases, we observe no pitch excursion (due to the falling interpolation). The label H+L* serves here a purely practical purpose, i.e., it helps to distinguish and systematize the contours encountered in the data.

[17] The context of this example is as follows:

(iii) *Sí, aparte a los extranjeros no les gusta amargo. A mí,* ***yo*** *lo tomo amargo.*
('Generally, foreigners do not like it [*mate*] bitter. As for me, *I* drink it bitter.)'

[18] Here we can assume that the word *yo* (in a prenuclear position) is simply unaccented. Again, the label L* serves here a largely practical purpose.

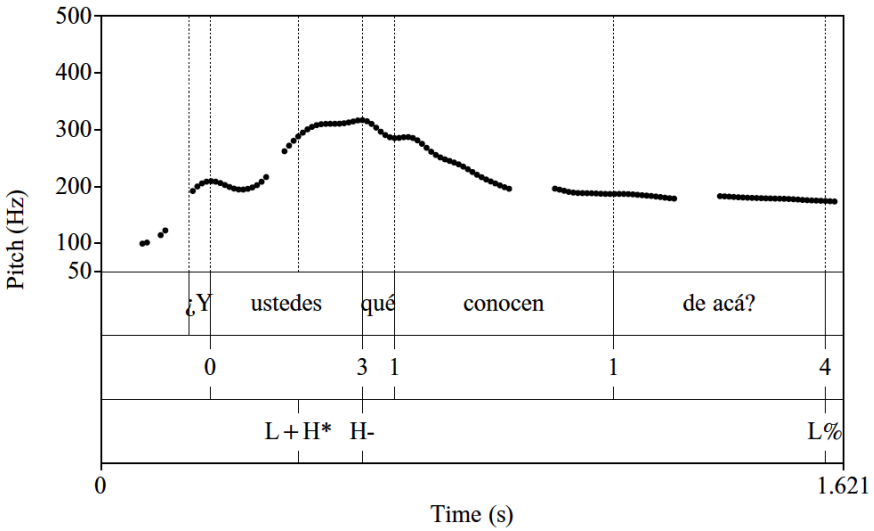


Figure 15: F0 contour of the utterance *¿Y* ***ustedes*** *qué conocen de acá?* ('And you, what do you know here?') with a preverbal PS as an aboutness-shift topic, realized with an L+H* (H–).

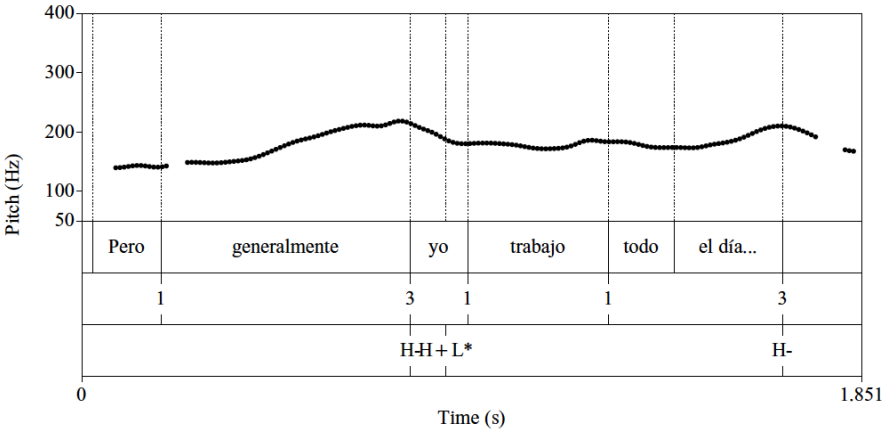


Figure 16: F0 contour of the utterance *Pero generalmente* ***yo*** *trabajo todo el día* ('But in general, I work all day long') with a preverbal PS as a familiar topic, realized with a H+L*.

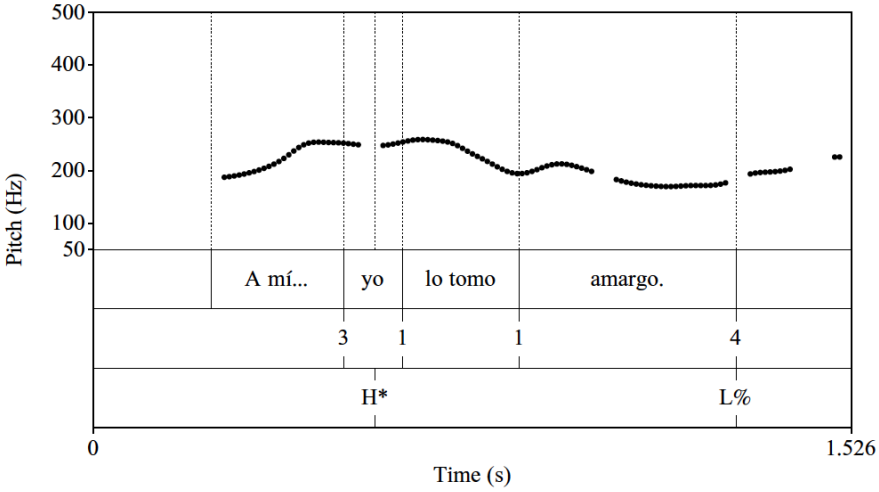


Figure 17: F0 contour of the utterance ***Yo*** *lo tomo amargo* ('I drink it bitter') with a preverbal PS as a contrastive topic, realized with a H*.

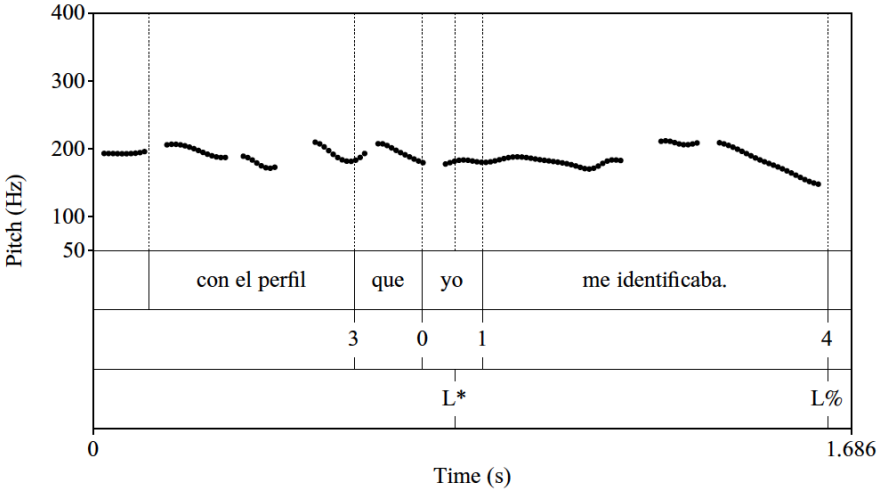


Figure 18: F0 contour of the utterance *con el perfil que* ***yo*** *me identificaba* ('with the profile that I identified with') with a preverbal PS as a disambiguating topic, realized with an L*.

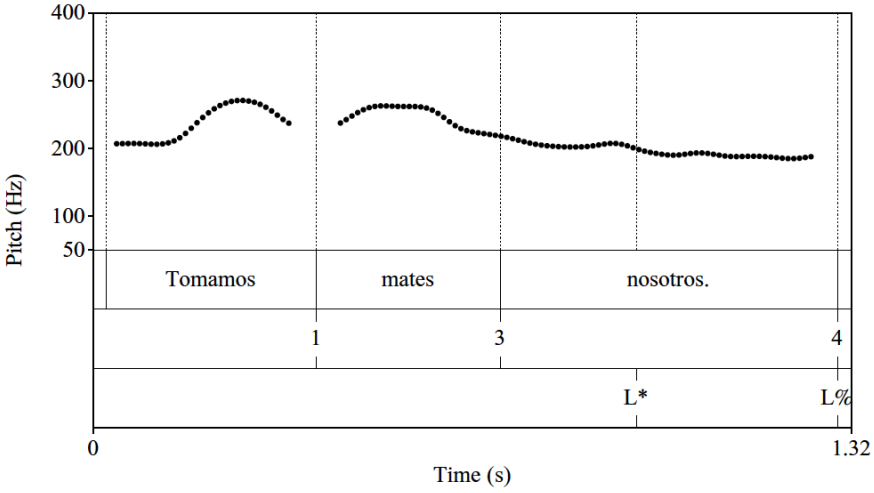


Figure 19: F0 contour of the utterance *Tomamos mates* ***nosotros*** ('We drink *mates*'; lit. 'Drink *mates* we') with a postverbal PS as a (familiar) topic, realized with an L*.

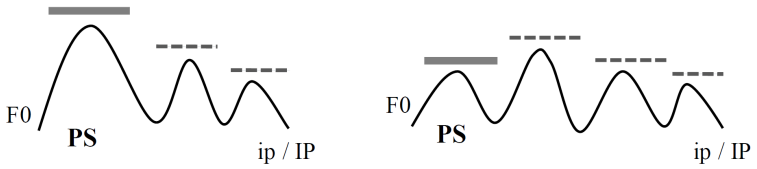


Figure 20: Schematic representation of a prosodic ip/IP unit with a preverbal PS with maximal pitch (left) and non-maximal pitch (right).

At this juncture, it is worth mentioning the study by Rello & Llisterri (2012), who measured different acoustic correlates of pronominal anaphora in ambiguous contexts in Spanish. They proposed that a prosodically prominent element should be more accessible for anaphoric reference than a non-prominent one. They found some important differences regarding the duration of pause (which is longer with more distant antecedents than with closer antecedents), as well as the duration of anaphoric pronouns (which are shorter with more distant antecedents). Additionally, the mean F0 range of the anaphoric pronoun is greater when there is a more distant (less accessible) than a closer (more accessible) antecedent. This patterns with the tendencies observed in the present study as well. Hence, further research is needed that examines not only F0 contours but also

other prosodic parameters such as duration, scaling, tonal level and span, and so on. But even with more in-depth phonetic analysis, the question would remain as to what the underlying phonological category is. How can tonal variation be explained and integrated into theories of the grammar of intonation?

As we observed, the present data, not surprisingly, exhibited abundant tonal (inter-speaker as well as intra-speaker) variation, especially in the preverbal non-focal position. I suggest that all the attested tonal realizations of the (preverbal) topics are phonetic realizations of the underlying tone /L+H*/, which represents a typical prenuclear and/or sentence-initial accent in this variety. The tonal variation can have various explanations: the pitch accent [L+<H*] was observed mostly in contexts where the subject was followed by a clitic pronoun; in the case of [H*], the leading tone was often unexpressed in contexts of tonal clashes or with voiceless consonants; and, finally, the [H+L*] was found systematically after a high boundary (H–) (seen in Figure 16). This example shows how phonetic realizations can undergo certain phonological processes such as assimilation, by which the pitch accent acquires certain features from another tonal event: here we see that as the metrically strong syllable occurs directly after a H–, the pitch accent associated with this syllable has a falling pattern affected by the preceding high F0. An abstract (tonal) analysis, taking into account the observed variation in linguistic data, is summarized in (9)[19] and (10)[20] (V = Verb).

(9) PS as a focus

| | | |
|---|---|---|
| | [L+H*+L] | / __ L– V (postfocal deaccentuation) |
| /L+H*+L/ → | [L+H*+L], [H+L*], [L*] | / V__ L% |
| | [L+H*], [L+¡H*] | / V__ H– or HL% |

(10) PS as a topic

| | | |
|---|---|---|
| | [L+H*], [L+<H*], [H*], [L*] | / __ V |
| /L+H*/ → | [H+L*], [H*] | / H–__ V |

Let us add that the different pitch accents may represent contrastive units in other contexts, but such contrasts can be neutralized, as can be commonly observed in segmental phonology (e.g. the difference between /r/ and /ɾ/ is neutralized in Spanish at the beginning of the word, where only [r] is possible). According to Hualde & Prieto (2016: 13), the occurrence of neutralization is "even

[19] Additionally, focal PS realized as L+H*, L*, or H* were found in cleft constructions or with focusing adverbs.

[20] The topics in postverbal position were predominantly realized with L* in declarative sentences.

greater in the intonational component. The proper understanding of neutralization phenomena is helped by the recognition of two levels of analysis in addition to surface phonetics."

At the end of this section, we will come back to the utterance *Yo tomo mucho mate* (Figure 5), a case where the speaker has insufficient phonetic material to implement two pitch accents. We saw that such tonal clashes make an analysis and generalization quite difficult. One methodological possibility for proving the association between a tonal category and a given IS-category would be (1) to change the material (e.g. use the three-syllable paroxytonic noun *Rodrigo* instead of the monosyllabic pronoun *yo*), (2) to place the new material in the exactly same context, and (3) to let the same speaker produce the sentence. After effecting these changes, the contour in Figure 21 is obtained.

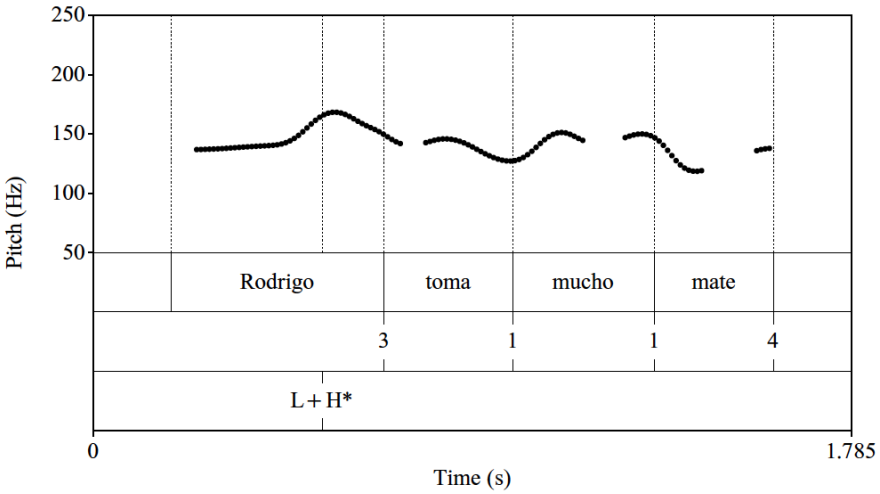


Figure 21: F0 contour of the utterance *Rodrigo toma mucho mate* ('Rodrigo drinks a lot mate'), with an L+H* rising pitch accent.

In this fashion, we could obtain evidence that the same speaker realizes the topic with a rising F0 movement during the $\sigma^*$ with the F0 peak located at its end (thus, L+H*). Nevertheless, this procedure would involve some sort of artificially prompted elicitation, with all that that implies for the authenticity of the intonational output. Another possibility would be to test by means of different perception experiments whether the two tonal events (set in appropriate contexts) represent contrast or not (see, e.g., Vanrell 2006; Feldhausen et al. 2011; Borràs-Comes et al. 2014). Hence, further empirical work is still needed, which

ideally would combine a corpus-based (i.e. quantity-based) approach with different experimental laboratory techniques to achieve a better understanding of the tonal categories in natural discourse.

## 5 Conclusion

The objective of the present paper was (1) to show how intonational analysis can enhance the study of PS with different IS functions in *Porteño* Spanish (a typically null-subject language), and (2) to discuss the applicability of the ToBI labeling system to the intonation of speech obtained from face-to-face free conversations, a traditional sociolinguistic method for studying spontaneous and informal speech.

The study proved by means of intonational analysis that overt PS are not perforce "emphatic" or "contrastive" categories, as is usually assumed in theoretical studies. Moreover, it was demonstrated that intonation together with syntax (here: word order) is relevant in distinguishing topics from focus (L+H* vs. L+H*+L), while contextual conditions play an important role in determining different types of topics. Both of the intonational patterns (L+H*, L+H*+L) found in spontaneous data fit the patterns that have been encountered in semi-spontaneous data on Argentinean Spanish in previous research. Besides the typical tritonal realization, focus can also have other tonal realizations in cases where it is expressed in cleft constructions or with a focal adverb. As for different kinds of topics, the results showed that the prevailing pitch accent is a rising L+H*, which may have various phonetic realizations, and that there seem to be no strictly consistent (in phonological terms) correlates for such topics in *Porteño* Spanish.

A second question explored in this paper was the suitability of the (Spanish) ToBI labeling system for describing the intonational properties of PS. We have seen and outlined some problems and limitations of the system, regarding especially the treatment of the phonetics-phonology interface in spontaneous data (see, e.g., Breen et al. 2012). Nonetheless, in spite of the difficulties presented (e.g. tonal clashes, voiceless segments, disfluencies, articulation rate etc.), ToBI can be considered an appropriate and useful tool for intonation modeling in spontaneous speech, as it allows the user to systematize tonal characteristics and detect patterns of categories in the data. The apparent limitation of the system may serve only as an opportunity for further innovative reanalysis and perhaps a refining of the labels with greater phonetic detail.

The observed (inter- as well as intra-speaker) variation, not only in the intonational properties of PS seen here but in the use of PS in general, has sometimes been regarded as either problematic or of little concern for some linguistic theories. But it is important to remember that we can still determine certain patterns across speakers despite such variation. This supports the idea "that structured linguistic variation is an intrinsic part of speakers' grammatical knowledge" (Carvalho et al. 2015: xiii).

Of course, the present study has left many issues unaddressed. Besides leaving out more phonetic details, it has not studied emotions, different degrees of expressive force, types of sentences, and other additional factors (such as evidentiality and epistemicity), which might also have an impact on intonational patterns. But I hope that the study has taken—if not an important, at least an interesting—step forward not only in the study of overtly realized PS in Spanish, but also in the study of spontaneous speech in general.

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