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Prosody as a cue for syntactic dependency. Evidence from dependent and independent clauses with subordination marks in Spanish.

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Abstract

Insubordination studies often refer to some prosodic features of insubordinated constructions but, to date, no systematic research has been carried out on the effects of insubordination on prosody. This paper analyzes the prosody of both independent and semi-dependent clauses, with subordination marks, using a corpus of 1,230 utterances. The data show that while subordinate and elliptical clauses that can recover the elided clause show prosodic markings of continuation (rising boundary tones), insubordinated clauses do not. In a word, the level of dependence of a grammatical construction with subordination marks is reflected in its prosody.

Highlights

- Elliptical clauses in Spanish show continuation rises as a mark of syntactic dependence
- Insubordinated clauses do not show prosodic continuation marks
- Intonation is the linguistic feature, which allows us to distinguish between insubordinated clauses and other semi-dependent clauses

1. Introduction

It is well known that intonation can shed light on syntactic events. In particular, when it comes to the creation of prosodic units (phrasing), previous studies support the idea that prosody marks syntactic boundaries. In this paper, the current knowledge about intonational phrase marking is extrapolated to establish a link with the notion of syntactic dependence. This is exemplified by the behavior of prosodic cues in clauses that show different degrees of independence (i.e. subordinate, elliptical and insubordinate clauses).

To date, insubordinated clauses have been said to share the same formal lexical marks as subordinate clauses (Evans, 2007). However, non-lexical markers of insubordinated clauses, such as intonation, have never been systematically studied and compared to those of dependent clauses. This paper aims to shed light on the role of intonation as a formal cue in distinguishing between insubordinated and subordinate clauses.

In fact, as we shall discuss in the following paper, our data indicate that prosody can provide reliable clues for distinguishing insubordination and other semi-independent uses of subordinate clauses. Specifically, we argue that syntactically dependent (i.e., elliptical) constructions have rising intonation patterns, while syntactically independent (i.e., insubordinated) clauses show falling patterns. In other words, intonation acts as an acoustic cue for the level of syntactic dependence of a construction in Spanish.

This paper is organized as follows. Section 1.1 presents the different degrees of independence that we will be dealing with. Section 2 describes the prosodic features that, according to the literature, mark syntactic boundaries. Section 3 puts forward the hypothesis of this paper, namely that each degree of dependence has an expected prosodic behavior. Section 4 describes some methodological aspects, namely the corpus and the labeling system (Sp_ToBI). Section 5 outlines the different intonational contours found for elliptical (3.1) and independent (3.2) clauses. Finally, in Section 6, an interpretation and discussion of the data is offered along with the conclusions in Section 7.

1.1. Syntactic dependence: ellipsis and insubordination

In 2007, Evans made a typological account of different grammatical constructions that, despite showing subordination marks, act as independent clauses in discourse. He proposed a historical explanation for this phenomenon. In his opinion, such clauses had, at some point, been subordinate clauses and later acquired syntactic independence through a process of grammaticalization based on ellipsis. According to Evans (2007), constructions gain independence progressively and this process can be divided into four distinct stages (Figure 1).

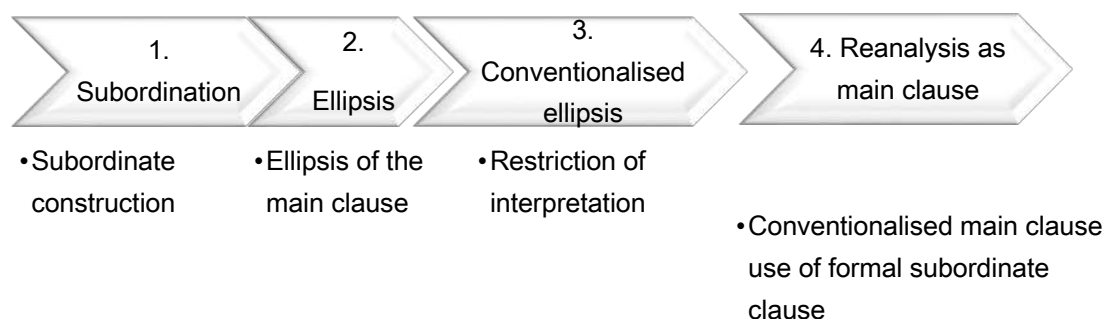


Figure 1. The stages of the process of insubordination (adapted from Evans, 2007).

The diachronic path to insubordination, put forward by Evans (2007), was the first to be proposed and has since attracted some criticism. Over the last decade, in fact, different authors have suggested alternative models to explain how the insubordinate stage is achieved. One of the most notable models of this kind is based on Mithun's (2008) work. According to her research, the developmental path of insubordinated clauses consists of: an extension of dependency from the sentence domain – subordination– to the discourse domain –insubordination– without the need for a hypothetical ellipsis stage (Mithun, 2008). Following this, D'Hertefelt and Verstraete (2014) suggested that a dependency shift would give a better account of the development of insubordination in Germanic complement constructions.

Moreover, Van Linden and Van de Velde (2014) argued that Evans' (2007) hypothesis does not explain why the speakers would produce an ellipsis. Furthermore, alternate claims state that throughout the insubordination process one can find additional semi-insubordinate stages in addition to those suggested by Evans (2007) (i.e., ellipsis and conventionalized ellipsis) (Sansiñena et al., 2015).

However, the formal elements that are usually considered to determine the degree of dependence of a construction are grammatical, syntactic, and pragmatic but not prosodic. This paper will attempt to fill this gap by completing the description of the formal marking of insubordinated clauses through additional prosodic properties. Moreover, we will aim to distinguish between insubordinate and other semi-dependent uses of subordinate clauses by using intonation to predict the degree of clausal dependence.

2. The state of the art: the continuation rise and “suspended” intonation as cues for syntactic levels of dependence.

Syntactic events can be reflected in prosody. The prosodic phenomenon that is most clearly associated with syntax is phrasing, which is a set of prosodic strategies used to mark syntactic non-final boundaries. More generally, phrasing is said to group together the parts of an utterance (Frazier et al., 2006). Although prosodic phrasing is commonly found across languages certain strategies can be language-specific. In fact, the acoustic features commonly used to obtain phrasing are pitch marks (pitch reset, distinctive pitch contours, which may vary from one language to another...), but also lengthening and pauses.

As far as common cross-linguistic features are concerned, it is generally accepted that all languages have intonational phrases (IP) (Jun, 2005). These, in very broad terms, can be thought of as the prosodic units formed by complete utterances. Below the IP level, there are different prosodic units, whose edges are transcribed in prosodic studies by means of Break Indices (BI) (Beckman and Elam, 1997). For the purposes of this paper, only two prosodic levels will be examined: the intonational phrase or IP (transcribed with a level-4 BI) and the intermediate phrase or ip (transcribed with a level-3 BI). Lower-level prosodic units, such as prosodic words (BI 1) and clitics (BI 0) are not relevant to our purposes.

How we phrase varies both within and across languages. Nonetheless, there is a common intonational strategy to encode intermediate phrase boundaries in several world languages (Chen, 2007; Gussenhoven and Chen, 2000), Spanish among them (Beckman et al., 2002): the continuation rise. A continuation rise is a rising tune

traditionally associated with right-edge syntactic boundaries. Semantically, it conveys a meaning of incompleteness.

Cross-linguistically, rising pitch contours are common prosodic markers of uncertainty (Gussenhoven and Chen, 2000; Safarova, 2006; Savino et al., 2002), either in the form of a question or a tentative statement. Moreover, they can also be perceived as more polite (Rietveld et al., 2002). Since continuation rises appear at syntactic boundaries, they have been described as intonational cues of “continuation” (Delattre et al., 1965) and “incompleteness” of non-final clauses (Bolinger, 1984). This is why they have usually been understood as cues for “forward-looking” (Pierrehumbert and Hirschberg, 1990). High pitch has also been reported to serve as a turn-keeping strategy in Standard British English (Beattie et al., 1982) and, similarly, as a marker for turn-holding in Southern British (Wichmann and Caspers, 2001) and Dutch (Caspers, 2003).

In all the above-mentioned cases, the first assumption is that a continuation rise suggests that there is more to come in discourse and, therefore, has the capacity to trigger an inference in the listener (Safarova, 2006). Assuming this, different authors see continuation rises as indicators of courtesy, uncertainty or signs of turn-taking depending on the triggered inference.

From a phonetic point of view, a continuation rise is an F0 rise at the right edge of a constituent. It can also appear together with a pause or a segmental lengthening. In the literature it has been described as a turn-internal rise. In languages, such as English and Dutch, the position of the rise (i.e. turn-internal or final) is the only difference between a question and a continuation rise, seeing as both contours are acoustically identical (Caspers, 1998)¹. Therefore, one would expect a continuation rise to appear at the end of intermediate phrases only and not as a final boundary tone, since the contour of a continuation rise, in a final position, could be interpreted as a question.

Although a continuation rise always implies an F0 rise, the phonetic production of a continuation rise is quite heterogeneous. There may be different kinds of rising movements and both high and low rising patterns have been found (Caspers, 1998; Post, 2000; Selting, 2007; Wichmann and Caspers, 2001). This is why the continuation rise is usually generically described as a “non-falling movement”. Continuation rises not only differ cross-linguistically but also within a single language. In British English, for example, there are two possible contours for a continuation rise and in Dutch and German there are three. Besides, despite all three languages sharing the H*L H% pattern, they show different levels of preference for it (Chen, 2007).

The continuation rise in Spanish has been analyzed mainly in the context of phrasing, given that it is marked through intonation by means of a continuation rise and frequently accompanied by lengthening and the occasional pause (D’Imperio et al., 2005). The typical contour of the continuation rise in Spanish has been described, in earlier studies, as a high-stressed syllable followed by a high-boundary tone (H* H%) (Sosa, 1999, p. 125). Subsequent studies showed that the continuation rise could also be implemented as a rise in the stressed syllable and a final mid tone (L+H* !H%) (Estebas-Vilaplana, 2009; Estebas-Vilaplana, E., Gutiérrez et al., 2015). Nevertheless, the Spanish continuation rise is usually identified simply using a high boundary tone (H-), given that the phonetic implementation of the pitch accent can change according

¹ In other languages, e.g., German, it has been suggested that question and continuation contours are indeed different, despite sharing the same tonal targets, because they have a different shape (Dombrowski and Niebuhr, 2010).

to the position of lexical stress (Toledo, 2007). Other research has shown two variants of the continuation contour, referred to as the “continuation rise”, and *sustained pitch* (Frota & D’Imperio, 2007). These are similar to those found in closely-related romance languages, where the continuation rise may take more than one phonetic shape (Feldhausen, 2010).

On the whole, the only consensus is that the continuation rise in Spanish is characterized by “a continuous F0 rise from the last stressed syllable until the break” .

In Spanish, according to the literature, continuation contours (traditionally called *tonemas continuativos* (Sosa, 1999, p. 125) are found at the end of the first clause in complex sentences, at the right edge of left-dislocated constituents and in non-final list elements (Figure 2). In all of these cases, the right edge of the element that is marked by a continuation rise is not sentence-final but rather constitutes an intermediate phrase (ip). The complete intonational phrase (IP) consists of one or more non-final constituents, which display a continuation contour, and a final constituent, which has a conclusive falling intonation pattern.

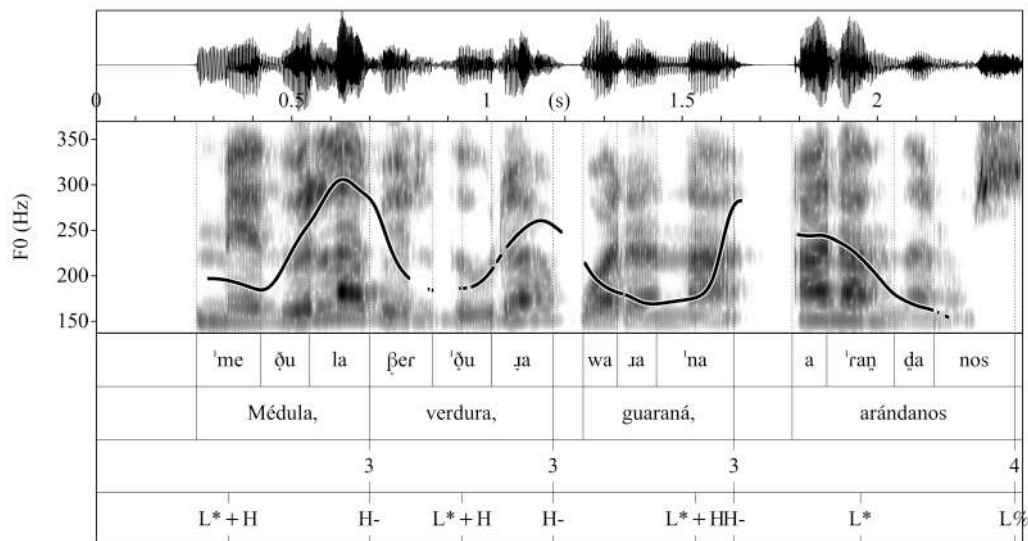


Figure 2. Waveform, spectrogram, pitch contour and Sp_ToBI notation of the declarative list “Médula, verdura, guaraná, arándanos” or ‘bone marrow, vegetables, guarana and cranberries’ showing continuation rises in the first three elements of the list.

Continuation rises can also be found in sentence-final positions, where they can have either a continuation or a dialogical/interactional role (Portes et al., 2007). In Spanish, continuation rises can be found in final positions in what have traditionally been called *oraciones suspendidas* or suspended statements (Navarro Tomás, 1944; Sosa, 1999). The word *suspendidas* was proposed to explain conditional clauses where the apodosis was elided due to its “unnecessary status”; seeing as its comprehension relies on context (Seco, 1973). The omission of the apodosis could be explained by the attribution of added pragmatic meaning to the sentence, in the form of courtesy and/or irony. Sosa's (1999) phonological proposal for suspended patterns in final positions is H*+H L%. In this pattern, the trailing tone of the pitch accent and the boundary tone cancel each other out, thus producing the phonetic implementation as a sustained pitch

(referred to as, suspended intonation (Sosa, 1999, p. 130). This complex phonological explanation has not been further explored in later literature. Hence, in this paper, it is assumed that suspended patterns (i.e., final continuation rises) do not need to be explained differently from classic intermediate continuation rises, i.e., L*+H H%. This assumption is endorsed by the general understanding that, in Spanish, any contour that appears in an intermediate phrase can also appear in the final position of the intonational phrase (Estebas-Vilaplana and Prieto, 2008).

3. Hypothesis: degrees of dependence and expected prosodic behavior

Using the literature presented in the previous section, this section puts forward the expected prosodic behavior of different clause types in Spanish, as a function of their stage in the insubordination process: subordinate, elliptical, conventionalized elliptical and insubordinate (Evans, 2007).

Complex sentences consist of at least two clauses with one being syntactically dependent on the other. The prosody of complex sentences has been described in Spanish in the work of Navarro Tomás (1918, p. 220). From an intonational point of view, a complex sentence consists of two intermediate intonational groups (ip). The first clause (regardless of whether it is the main clause -matrix- or the subordinate one) ends with a continuation rise, while the second clause can end with any of the possible nuclear configurations available in Spanish (Figure 3). In other words, if the subordinate clause appears first, the listener uses the continuation rise as a hint for the existence of a subsequent second clause (the matrix in Figure 3).

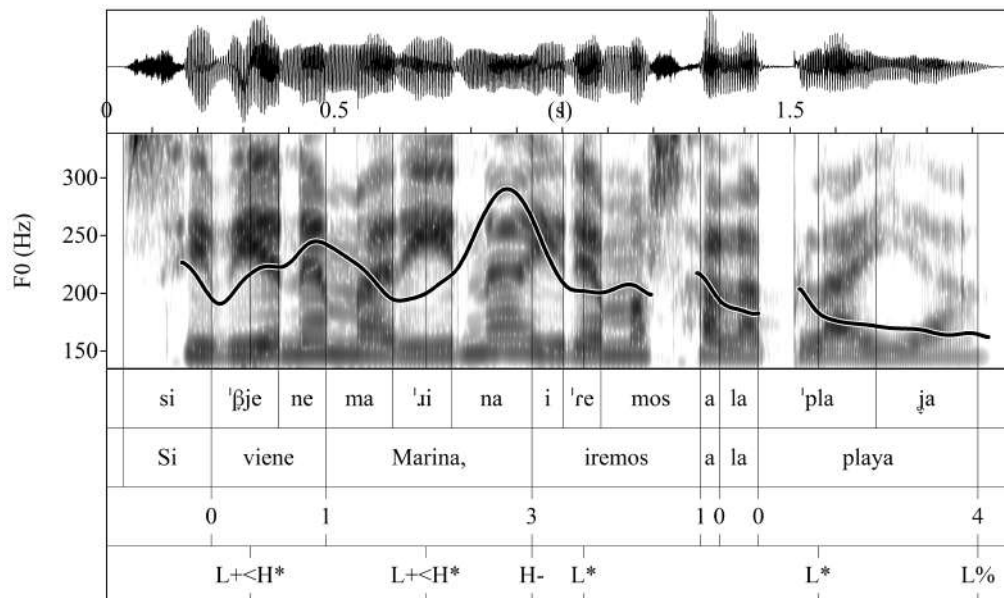


Figure 3. Waveform, spectrogram, pitch contour and Sp_ToBI notation of the complex sentence: *Si viene Marina, iremos a la playa* 'If Marina comes, we will go to the beach', which consists of two ips. The first ip ends with a continuation rise and the second ip displays the usual nuclear, falling configuration of broad focus statements.

As seen in the literature review in Section 2, there should be no difference between the prosody of elliptical and conventionalized elliptical clauses. Both are, in fact, the result of an elision of a main clause that the listener can recover by means of conversational inference. Therefore, they are expected to finish with a continuation rise. The difference between these two types of ellipses lies in the matrix clause that can be recovered. In a prototypical ellipsis the recovered matrix can be any main, grammatically acceptable, clause compatible with the context. In contrast, in a conventionalized ellipsis, the listener can only recover a matrix that is compatible with the pragmatic meaning of the construction.

Insubordinated clauses are the final conventionalized stage of the construction. In this stage, the old subordinate clause behaves as the main clause, i.e., as an independent clause. Until now, researchers have considered the main difference between elliptical and insubordinated clauses to be that: in insubordinated clauses, the original main clause cannot be reconstructed (Evans, 2007) or grammatically recovered by the listener. This criterion is semantic-pragmatic. However, to date, no formal criterion exists to distinguish elliptical and insubordinate clauses, which *appear to be formally subordinate clauses* (Evans, 2007:367). Evans (2007), himself, tentatively suggested that the formal difference between elliptical and insubordinate clauses may lie in prosody.

The prosody of insubordinated clauses has never been studied in depth, although, a few remarks on the prosody of some insubordinated constructions have been made (Evans, 2007; Kawanachi, 2010; Schwenter, 2015). However, according to Evans' (2007) criterion for distinguishing between elliptical and insubordinated clauses (i.e., the possibility of recovering the main clause by means of a conversational inference), systematic prosodic differences between the two types of clauses can be anticipated. If the clauses are no longer elliptical, acoustic cues of continuation should disappear, given that the elided material is unrecoverable. Hence, if two clauses have the same lexical content but a different degree of dependence, the only formal difference between them should lie in their prosody. In this paper, we present the results of an experiment comparing the intonation of elliptical and insubordinated clauses in Spanish.

4. Methodology

In order to analyze the prosody of clauses at different stages of the insubordination process, as proposed by Evans (2007), we created and recorded an *ad hoc* corpus that contains three elliptical clauses and three insubordinated clauses (all of them containing almost only voiced segments, so that F0 can be analyzed easily). In the next sections, the constructions that have been selected for the corpus and the characteristics of the corpus itself are explained.

4.1. Materials

As previously stated, the corpus consists of three elliptical constructions and three apparently similar insubordinated constructions. In order to compare the results

of elliptical and insubordinated clauses, the chosen elliptical clauses are formally very similar to independent constructions (Table 1).

Elliptical and insubordinated clauses share the same introductive particles: *si*, *como* and *para que*, which are used to introduce adverbial subordinate clauses in Spanish. *Si* is the prototypical conjunction in conditional clauses, *como* is a conjunction for causal clauses that appears before the main clause and *para que* is the prototypical conjunction for final clauses (Montolío, 1999a; Narbona, 1990). Therefore, all of them can introduce an adverbial subordinate sentence. In the case of *si* and *como*, the prototypical position of the subordinate clause is after the main clause (“SI clause + main clause”, “COMO clause + main clause”). *Para que* clauses, on the other hand, usually appear after the main clause (“main clause + PARA QUE clause”).

All of the insubordinated clauses, which we deal with in this paper, have a refutative meaning. In other words, they introduce an argument that rejects the previous argumentative orientation of discourse.

The elliptical clauses, which we study, are monoclausal subordinate clauses (and the elided clause is recoverable). They have different pragmatic functions but, unlike non-elliptical clauses, which have the same function, they have been described as more polite and less certain (Narbona, 1990).

Example	Construction	Degree of independence
1a	<i>si</i> + V indicative	Elliptical
1b	<i>si</i> + V indicative	Independent
2a	<i>como</i> + V indicative	Elliptical
2b	<i>como si</i> + V imperfect/ subjunctive pluperfect	Independent
3a	<i>para que</i> + V subjunctive present	Elliptical
3b	<i>para que</i> + V subjunctive present	Independent

Table 1. A syntactic schema of the analyzed constructions and their degrees of independence.

In the next few pages, we will summarize the most important features of the constructions included in this study, as well as, provide some examples extracted from online corpora. A detailed grammatical explanation of such constructions is out of the scope of this paper and has already been put forward by Gras (2011).

The members of the first pair of constructions (1) are formally identical as far as their segmental content is concerned². Both constructions are finite clauses, introduced by the particle *si* ‘if’, and contain a verb in an indicative tense. Nevertheless, while grammarians consider the first clause (1a) to be elliptical (Bello, 1988), the second (1b) clause is considered to be an independent clause with a refutative meaning (Gras, 2011; Montolío, 1999b; Schwenter, 2015, 1998).

In example (1a), mother (B) and daughter (A) are arguing about the daughter’s future job. (A) would like to become a hairdresser and (B) does not agree with her choice because she believes that the job in question does not provide enough money.

²All of the examples in this section follow the notation systems used in the corpora that they have been extracted from. A complete key can be found on their websites (see References).

The daughter replies that the hair salon where she would like to work caters only to the rich and (B) finally gives up and reacts with an elliptical *si*-clause. This clause does not need an apodosis because the interlocutor can easily infer that: “if you think that way, I cannot do anything about it”.

(1a) A: a esta peluquería van los ricos, no van los pobres.

[only rich people go to this hairdresser, not the poor.]

B: pues ya está bien to(do)/// yo ya no sé/// **si piensas de esa forma**↑

[Well, ok then... I don't really know... **SI you think that way**...

L: ((pues que eso es lo que quiero))

[Well, that is what I want] (Val.Es.Co 2.0, 6, 200-208)

In (1b) two friends are talking about a TV series. One of them (A) says that she likes one of the characters in the series and the other friend (B) disagrees. (A) insists and (B) expresses her disagreement by means of a *si*-clause. In this case, the *si*-clause is used by (B) to introduce a piece of information (“he was twisted”) that speaker A seems not to have taken into account. This construction is thus used to reject (A)’s statement that “I had a thing for him”. So a possible paraphrase of the utterance in bold could be: “I do not understand why you did like him, because he was twisted”. Crucially for the aims of this paper, differences in pitch contour between these two constructions have been noted before (Montolío, 1999b; Schwenter, 2015) but they have never been described in depth.

(1b) A: a mí me molaba un puña(d)o§

[I had a thing for him]

B: §¡qué bestia!

[Brutal!]

A: síi tía↓

[Yes, dude]

B: [¡pero si era un retorcido!]

[But SI he was twisted]

(Val.Es.Co 2.0, 26, 91-93)

The second pair of sentences is introduced by *como* ‘as’, a conjunction that usually introduces a subordinate causal clause. The elliptical construction is, thus, a suspended causal clause. The independent clause is introduced by *como si* and contains a verb in imperfect subjunctive or pluperfect subjunctive, which presents an *argument as non-real* (Gras, 2011).

In (2a) the same mother as in (1a) explains to her daughter that her cousin has found a better job thanks to her degree. The suspended *como*-clause introduces the reason why she has found a better job.

(2a) B: ((tu prima no lo sé))/// estaba en el bar del tío Mano- del tío Manolo↑ se ha salido↑/// y se ha colocao **como tenía administrativo**↑// (())

[your cousin, I don't know, she was in uncle Manolo's bar, she quit, and found a job, **COMO she had an administrative diploma...**]

A: pue bien pa' ella

[Good for her]

(Val.Es.Co 2.0., 6, 200-208)

(2b) is an extract from a novel where a lover complains about a person that is saying lies about him. In the first example, the character of the novel uses the construction (in bold) to state that he is not courting another girl. In the second, he reiterates the same idea by saying that he does not like anyone other than his interlocutor. So, by means of this construction, the character is stating that what his counterpart had previously heard is not factual, thereby contradicting his interlocutor's beliefs.

(2b) - Con el pretexto de la grabación te dijo cosas que no hubiera contado frente a mí. **¡Como si yo pretendiera a Bikina! ¡Como si me gustara alguien aparte de ti!**

[Under the excuse of the recordings, he said things he would not have said in front of me. **COMO SI I courted Bikina! COMO SI I liked someone other than you!**]

(Davis, M. Corpus del español; Gustavo Sainz, Gazapo)

The last two constructions are introduced by *para que* 'for', the usual final clause conjunction. In example (3a) that exemplifies the elliptical clause, three people are looking at their pay stubs. Two of them (B and C) received extra money that had been deducted from their salary 3 years ago, due to a Spanish spending cut. When speaker (A) who did not receive the extra money (A) says that he will ask for it, (C) agrees using the construction in bold. (C) implies that (A) should ask for the money, because otherwise the government will keep it. So, speaker (C) maintains the final meaning of the subordinate clause and elides the main clause that would be in the form of advice "it would be better if you ask for the money".

(3a) A: ¿Cuánto te han devuelto?

[How much did you get back?]

B: 100 euros

[100 euros.]

A: Pues lo voy a pedir.

[Right, I will ask for it, too.]

C: Sí, sí. **Para que se lo queden ellos...**

[Yes, yes. **PARA QUE they keep it**]

(3b), on the other hand, shows the insubordinated "*para que* + subjunctive present" clause. In (3b), speaker (A) volunteers to go with (B) to his farm, but then adds that in the event of rain, he will not go. The speaker uses this construction to introduce a non-desirable possible scenario (Gras, 2011, p. 505)- "that it will rain" to reject a previous interjection of "going to the estate".

(3b) B: otra vez tío me tengo que ir a la finca
 [Once again, dude, I have to go to my estate]
 A: a qué/
 [What for?]
 A: te acompaño/
 [Do you want me to come with you?]
 B: me acompañas a la finca/
 [Will you come to the estate with me?]
 A: tiramos de pico y pala% qué hay que hacer/
 [We will use a picks and shovels, what do we have to do?]
 B: sabes picar?
 [Do you know how to hoe?]
 A: sí% siempre que no salgan cosas dentro de casa te acompaño
 [Yes, if nothing comes up at home, I will come with you]
 A: pero si hace mal tiempo no
 [But if the weather is bad, I won't go]
 A: si sale ahíííí tiempo (xxx) si sale ahí tiempo (xxx) pues entonces-
 [If it turns out the weather there (xxx) if it turns out the weather there (xxx)
 then³]
 A: **para que empiece a llover ahí bajo** la lluvia nooooo
 [**PARA QUE it starts raining**, there under the rain, no]
 (COLAm, mashe3-03, example used in Gras, 2012:504)

This corpus was designed in such a way that the six possible sentences described above occur equally often. In order to reliably study the intonation of the utterances, the characteristics of the sentences used in the corpus needed to be somewhat controlled.

First, we controlled sentence length (or the length of its constituents) because this could affect phrasing (Elordieta et al., 2003). For this reason, the corpus of our study only contained sentences with either 2 (verb and object) or 3 constituents (subject, verb and object).

The second aspect that we controlled for was accentual position because this could affect the alignment of pitch targets. It is well known that Spanish has 3 prototypical types of lexical accents. All three were included in object positions: two

³ This utterance was also unintelligible in Spanish.

(oxytone and proparoxytone) in the subject position and one (paroxytone)⁴ in the verb position

The third control was related to the voicing of the segments. In order to obtain a continuous pitch contour, the corpus only contained voiced segments, with the exception of those lexical items that were obligatory due to the elicited construction (e.g., *si*, *como*, *para* and *porque* contain unvoiced consonants) The chosen lexical items were the first names *Álvaro* and *Maribel* as subjects. The verb was always *merendar* ‘to eat in the afternoon’ in the required tense and mood and the objects were *médula* ‘bone marrow’, *verdura* ‘vegetables’ and *guaraná* ‘guarana’. Finally, the complements for *si*-clauses were *en Lérida* ‘in Lérida’, *en Granada* ‘in Granada’, and *en Malibú* ‘in Malibu’.

Subject	Verb	Object	Complement
Álvaro	merendar	médula	en Lérida
Maribel		verdura	en Granada
		guaraná	en Malibú

Table 2. Segmental material included in the corpus.

As a result, we obtained six possible sentences for each construction. Each sentence was uttered 3 times by each speaker. Furthermore, for independent *si*-clauses some extra utterances were included. 1) Utterances with different constituents: CC+V+O. 2) Utterances with an oxytone verb, and 3) utterances without the marker *pero* ‘but’. Hence, the *si*-clauses corpus contained 11 possible utterances in comparison with the six usual utterances seen in the other corpora. In total, the entire corpus contained 1230 utterances.

4.2. Speakers, recordings and data elicitation

The utterances of our corpus comprised of 1230 sentences, were performed by 10 native speakers of Peninsular Spanish who had an average age of 24.6 ($\sigma=2$) years. These speakers were from different areas of the country, in order to detect possible dialectal differences in the prosody of the constructions studied in this paper. Two speakers (one male, one female) were from Madrid, the center of the country; therefore, they spoke Castilian Spanish, which is also the main model of standard Peninsular Spanish. Four of them (two male, two female) were from Barcelona (Spanish spoken in Catalonia), in the east. Finally, four of them (two male, two female) from the most important city in Southern Spain, Seville (Andalusian Spanish). These three cities were chosen because they represent the most important geographical varieties of Peninsular Spanish.

⁴ The reason why we decided to have two different types of accents in the subject was that, by comparing the position of the F0 peak, it allowed us to check whether the construction consisted of one intermediate phrase or two intermediate phrases (ips). If the peak of the L+<H* pitch accent associated with an oxytone subject was aligned with the stressed syllable there would be two ips, whereas if it was aligned with the posttonic syllable there would be only one ip.

According to a description of the intonation of Peninsular Spanish (Prieto and Roseano, 2010), in Madrid there is one documented prosodic system (i.e., the system of Castilian Spanish, which coincides with standard Spanish), whereas in other regions of Spain, two different prosodic systems coexist: a local one and a standard or standard-like one. In regions such as Northern Spain or Andalusia, the local prosodic variants coexist with the standard variants of Castilian Spanish (Prieto and Roseano, 2010; Henriksen and García-Amaya, 2012). In Barcelona, the Castilian standard variety coexists with the Catalan patterns described in (Prieto and Cabré, 2013).

This is why, in order to analyze non-Castilian Spanish varieties, a new variable needed to be taken into account: standard vs. traditional speakers. As a consequence, the number of speakers was multiplied by two for both Seville and Barcelona: two standard speakers (one male, one female) and two traditional speakers (one male, one female). In order to check whether the speakers from Seville and Barcelona spoke the local or the standard variety of Spanish we ran a pre-test to analyze the intonation they used pre-data collection. This test used a set of sentence types that, according to the literature (Prieto and Roseano, 2010), allow us to distinguish between the local and the standard intonational varieties (biased statements, yes-no questions, vocatives and contrastive focus statements).

Thus, in our corpus, Spanish from Southern Spain (one of two important dialectal areas of Spain, along with Northern Spain) is represented by four speakers from Seville. Two of them were representative local speakers (traditional speakers) and the other two, despite being natives of the same survey point, used an intonation that was closer to the standard intonational patterns (thus defining them as standard speakers). In Barcelona, a bilingual city where Spanish is used along with Catalan, the four speakers were bilingual Catalan-Spanish. Two of them identified themselves as Catalan-dominant and, for this reason, used the same patterns as those used in Catalan (i.e., traditional speakers). Meanwhile, the other two defined themselves as Spanish-dominant and used the same intonational patterns as the ones used in Madrid (i.e., standard speakers).

The recordings were made with a Marantz PDM60 recorder and a SHURE SM58 microphone. The files used for the analysis were encoded in PCM and sampled at 22050 Hz.

In order to elicit the utterances, we used a variation of the classic Discourse Completion Task (DCT) (Blum-Kulka, 1980). In this method, the researcher prompts the informant with a situation and the lexical content of a sentence that he/she is expected to produce (Elvira-García et al., 2015). The speaker listens to the context, reads the sentence that appears on a PowerPoint slide, and when the slide disappears, he/she performs the expected utterance using the intonation he/she would use in that context. The conversation in (4) offers an example of how the interaction between the interviewer and the informant takes place.

- (4) A: As you know, I am going to ask you a question and you have to react to my question using the sentence you see on the screen. Listen to the context, which I will explain to you and then read the sentence that will appear on the screen. Once the sentence on the screen has disappeared, look at me and say the sentence in the same way that you would in real life. Here is the context: Imagine that we are talking about a common friend, Lorena. You know for sure

that Lorena eats vegetables in the afternoon. Imagine that I ask you “Did you know that Lorena eats chocolate every afternoon?”

[A PowerPoint slide appears on the screen with an image of a girl eating vegetables and the sentence *¡Si merienda verdura!* ‘SI she eats vegetables’. The informant mentally reads the sentence].

B: *¡Si merienda verdura!* ‘SI she eats vegetables’.

The data obtained using this method can thus be considered semi-spontaneous or acted speech.

4.3. Data analysis

The data were analyzed with the autosegmental metrical (AM) model (Pierrehumbert, 1980), a level-based approach that considers intonation to be a succession of high and low tones, anchored to prominent syllables. Specifically, we used the Sp_ToBI transcription system (Hualde and Prieto, 2015; Prieto and Roseano, 2010), that makes use of 4 tiers for the transcription of the intonation of any utterance. The first and second tiers contain word-by-word and segmental phonetic transcriptions of the utterance. The third tier shows the degree of prosodic separation among the prosodic units (by means of so-called Break Indices). The fourth tier is the most interesting for the purposes of this paper and contains the intonational transcription.

The Sp_ToBI system transcribes two types of intonation events: pitch accents and boundary tones. Pitch accents are anchored to the stressed syllable and a star (*) marks the tone that coincides with the stressed syllable. Boundary tones are related with the edge of an intermediate phrase (ip), marked with a dash (-), or with the end of an intonational phrase (IP), marked by a percent sign (%). ToBI systems label intonational events depending on the height of the pitch, high (H) or low (L). In Spanish, as in many other languages, two more levels have been attested, in addition to the classical high and low levels used in Pierrehumbert’s (1980) model: an extra-high level for pitch accents (¡H) and a mid-level for boundary tones (!H) (Hualde and Prieto, 2015). The peninsular Spanish system includes monotonal (T*) and bitonal accents (T*+T and T+T*). As for boundary tones, three types exist: monotonal (T%), bitonal (TT%) and tritonal (TTT%). The combination of the last pitch accent of an utterance and the following boundary tone is usually called nuclear configuration, which in Spanish usually contains the most important intonational information (i.e., sentence-type).

In order to provide an objective transcription, we used an automatic transcriber of intonation (Elvira-García et al., 2015b). The automatic prosodic transcription was then thoroughly checked by the first author of this paper.

5. Results

This section presents the phonological transcription of the nuclear configuration of elliptical and insubordinated constructions. The data are divided in two parts. The first part shows results for elliptical constructions, while the second part contains the results for insubordinated constructions. In each part, the results are presented through

dialect. All of the results are represented graphically in percentages out of the total amount, within the type of sentence considered.

5.1. Elliptical constructions

As seen in Figure 4, in the variety of Spanish spoken in Madrid, elliptical constructions show mainly (51% of cases studied) the nuclear configuration L+H* H%, exemplified in Figure 5. This pattern is characterized by a rise in the last stressed syllable and a rising boundary tone. In the literature, this pattern in the final position has been described only as a surprise yes-no question (Estebas-Vilaplana and Prieto, 2008). However, it is the same pattern that the literature reports in non-final positions: the continuation-rise pattern (see Section 2).

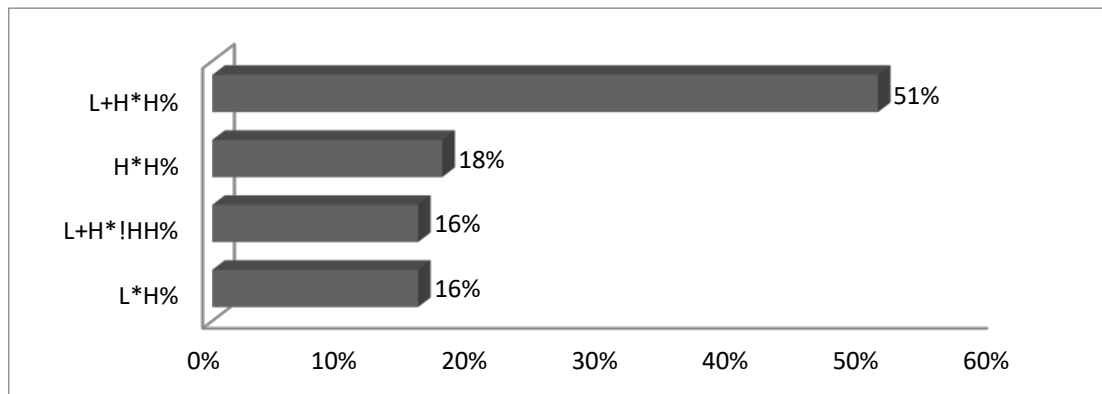


Figure 4. Percentages of occurrence of nuclear configurations for Madrilenian elliptical clauses (n=108).

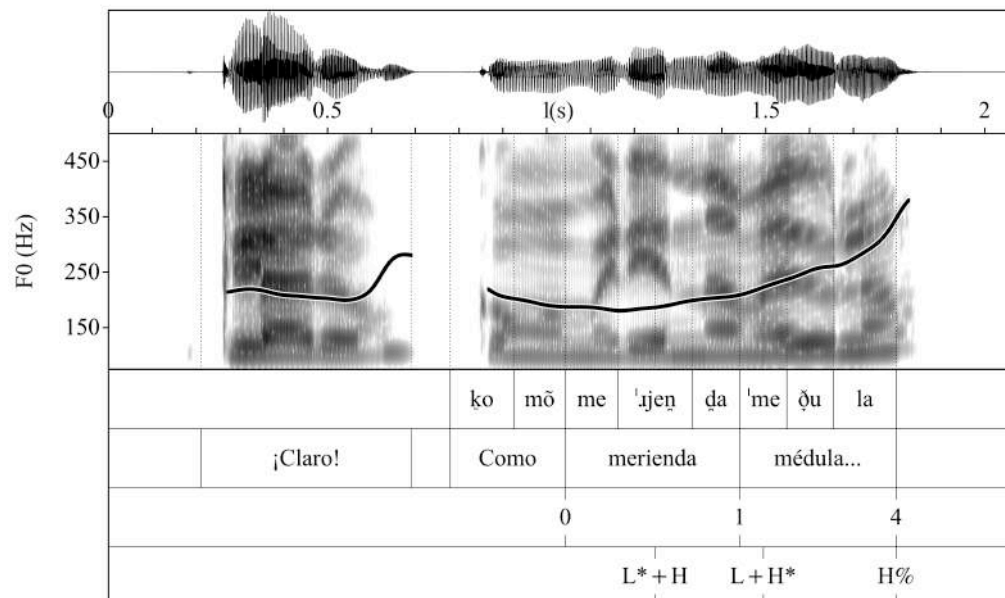


Figure 5. Waveform, spectrogram, pitch contour and Sp_ToBI notation of the elliptical clause "¡Claro! Como merienda médula..." 'Of course! COMO (s)he eats bone marrow'.

In addition to this pattern, three more nuclear configurations have been shown, none of which exceed 20% of cases. 18% of the utterances showed an H* H% pattern,

which is acoustically very similar to the one explained before: a pattern produced with a high stressed syllable and a rising boundary tone. The main difference is found in the prenucleus, whereby this pattern shows a high plateau (slightly rising) during the whole prenucleus. In other words, this is an example of a classical suspended contour and the only one that had been described in final position (Sosa, 1999, p. 130). L* H%, which has been described both as a yes-no question pattern and as a continuation rise, was also found in 16% of the cases. Finally, the L+H* !HH% nuclear configuration, which according to Benet Parente (2002, p. 121) is presumably a more emphatic continuation rise, was also found in 16% of cases.

The first choice of Barcelonan speakers is the H* H% contour (43% of cases), exemplified in Figure 6, followed closely by L+H* H% (38% of cases). Furthermore, we also find the same two minority patterns as those seen in Madrid, at even lower case percentages: L* H% (12%) and L+H* !HH% (8%) (Figure 7).

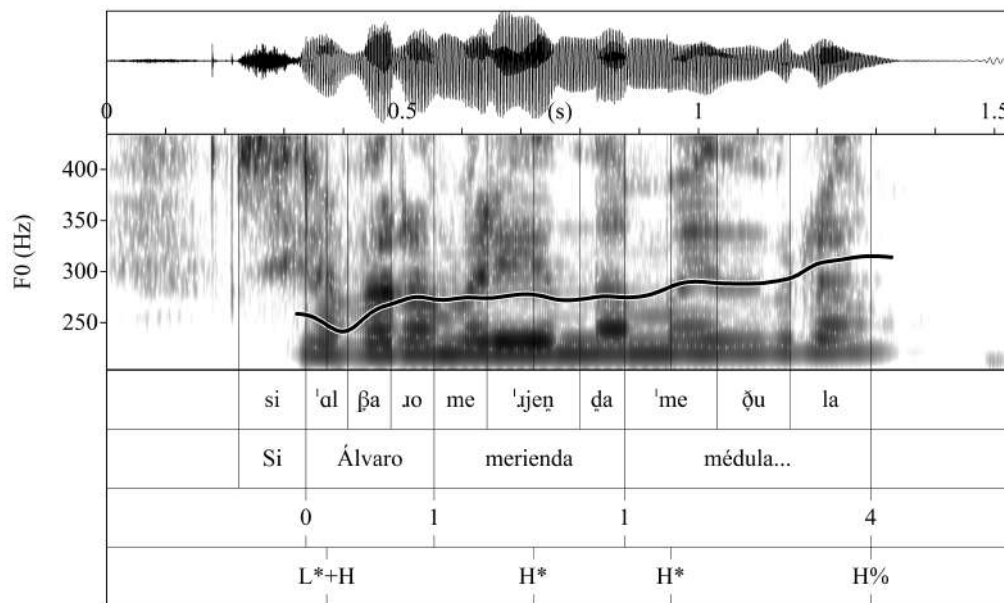


Figure 6. Waveform, spectrogram, pitch contour and Sp_ToBI notation of the elliptical clause “Si Álvaro merienda médula...” ‘Si Álvaro eats bone marrow...’.

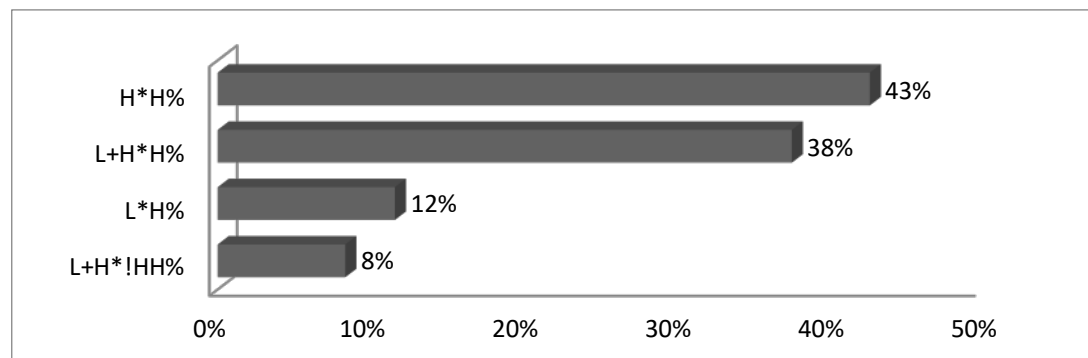


Figure 7. Percentages of occurrence of nuclear configurations for Barcelonan elliptical clauses (n=216).

Sevillian speakers showed the same preferences as those observed in Madrilénians: L+H* H% was the first choice (56%) and H* H% was the second (27%), whereas L* H% (10%) and L+H* !HH% (7%) were much less frequent (Figure 8).

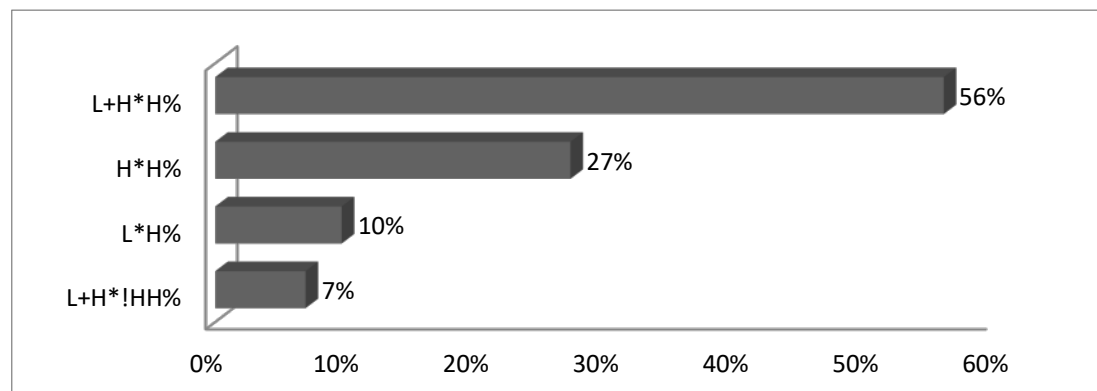


Figure 8. Percentages of occurrence of nuclear configurations for Sevillian elliptical clauses (n=216).

On the whole, all locations showed the same four rising patterns of elliptical constructions (H*H%, L+H*H%, L*H% and L+H*!HH%). Additionally, L+H* H% or H*H% were the preferred choices at any given survey point, whereas L* H% and L+H*!HH%, despite being found in the three survey points, were definitely less frequent. The sociolect spoken by the informants in Seville and Barcelona (i.e., whether the speaker is traditional or standard) did not have any effect on the appearance of different contours. For the purposes of this study it is crucial to point out that all these patterns are non-falling and, therefore, consistent with the concept of the continuation rise, as seen in Spanish (see Section 2).

5.2. Insubordinated constructions

As for insubordinated constructions, in Madrid we found three different intonational patterns (Figure 9). The most common was L* HL% (46%), characterized by a low nuclear stressed syllable and a final rising-falling movement (see Figure 10 for an example). This pattern has been described as the usual pattern for contradiction statements when the speaker also wants to imply a meaning of obviousness (Estebas-Vilaplana and Prieto, 2008). The second pattern, L+H* L% (43%), consists of a rising stressed syllable and a final fall, and has been reported as the usual contour for narrow focus statements, imperatives and exclamatory sentences (Estebas-Vilaplana and Prieto, 2008). Lastly, L* L% was produced in 11% of the cases and was the default pattern for broad-focus statements in Castilian Spanish.

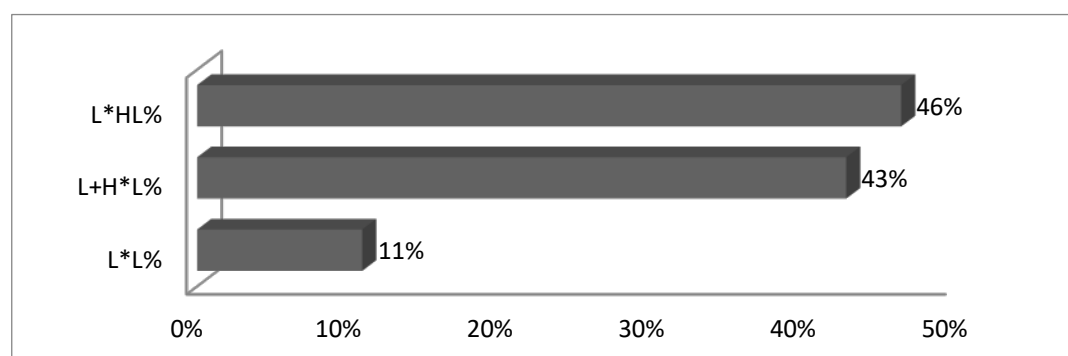


Figure 9. Percentages of occurrence of nuclear configurations for Madrilenian insubordinated clauses (n=138).

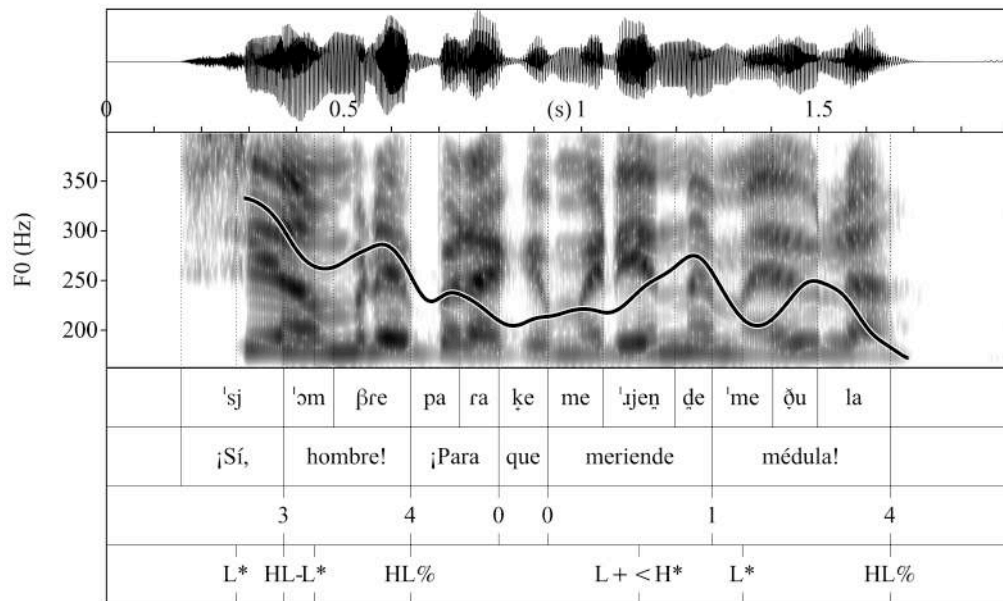


Figure 10. Waveform, spectrogram, pitch contour and Sp_ToBI notation of the insubordinated clause "¡Sí, hombre! ¡Para que meriende médula!" 'PARA QUE (s)he eats bone marrow'.

Barcelona shows roughly the same pattern of percentages as those seen in Madrid (Figure 11). However, another pattern was found in Barcelona, consisting of a falling stressed syllable and a low boundary tone, H+L* L% (Figure 12). This pattern has been used to describe imperative questions in Castilian Spanish (Estebas-Vilaplana and Prieto, 2010), i.e., directive speech acts that take the form of a question, e.g., *¿Queréis callar?*, or literally, 'Do you want to shut up?'. However, none of the constructions in this study were questions. A more plausible explanation is that the speakers were using Catalan patterns that have been related to categorical statements (Prieto and Cabré, 2013). Thus, the speakers were using a dialectal pattern of what has been referred to as a traditional variety in Section 4.2.

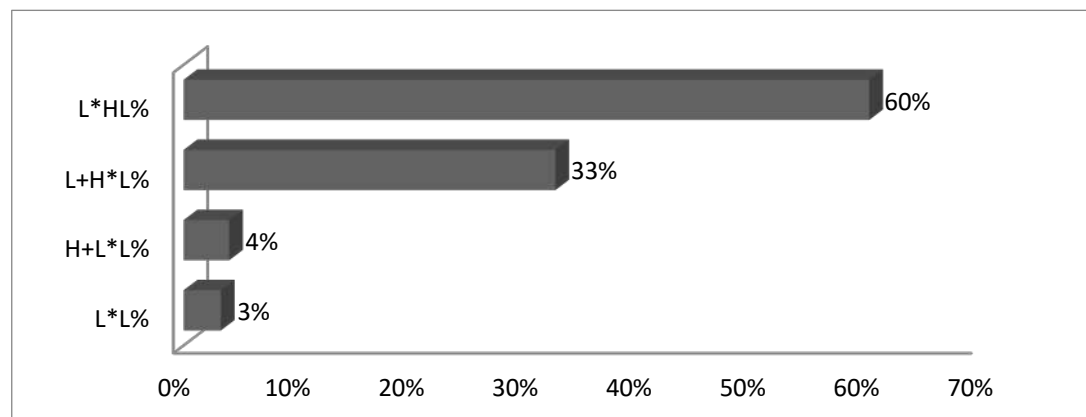


Figure 11. Percentages of occurrence of nuclear configurations for Barcelonan insubordinated clauses (n=276).

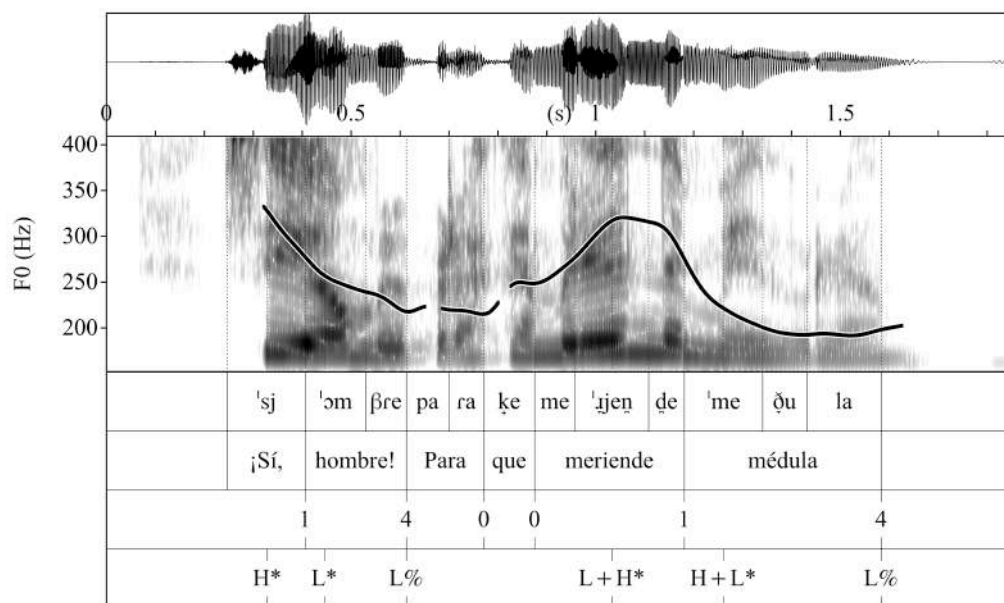


Figure 12. Waveform, spectrogram, pitch contour and Sp_ToBI notation of the insubordinated clause “¡Sí, hombre! Para que meriende médula...” ‘PARA QUE (s)he eats bonemarrow’.

The situation in Seville is quite different from the ones described above for Madrid and Barcelona (Figure 13). In fact, the most frequent pattern in Seville was a non-standard (i.e., traditional) one: ¡H* L% (54%), which is not documented elsewhere in our corpus. Phonetically, ¡H*L% can be described as an F0 rise in the stressed syllable (after a high plateau) and a falling movement in the final unstressed syllables (Figure 14). This pattern has been described as the usual contour seen in the varieties of Spanish spoken in Galicia, the Canary Islands and the Caribbean where it is used to express yes-no questions (Armstrong, 2010; Vizcaíno Ortega, F., Cabrera Abreu, M., Dorta, J., and Hernández Díaz, 2007). However, in Seville, we found this pattern in statements, where it encodes a meaning of counter-expectation.

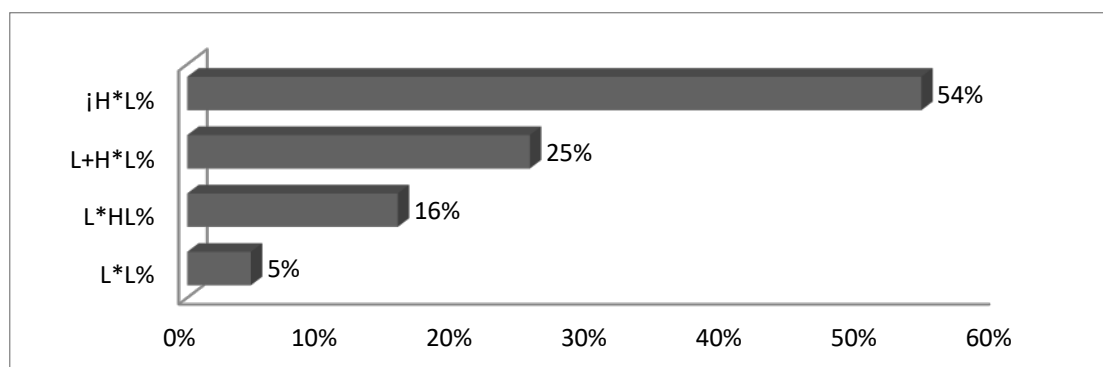


Figure 13. Percentages of occurrence of nuclear configurations for Sevillian insubordinated clauses (n=276).

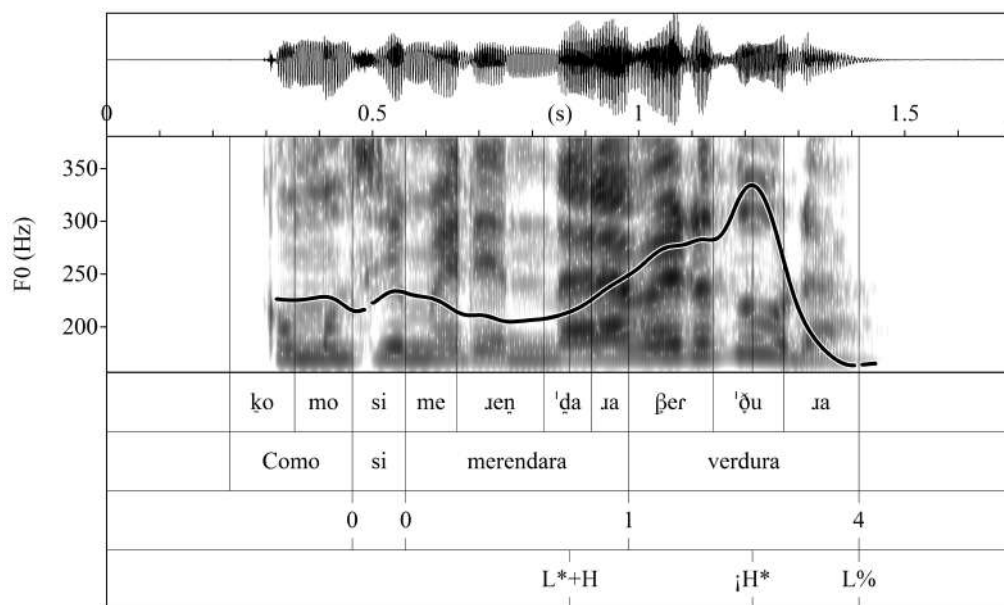


Figure 14. Waveform, spectrogram, pitch contour and Sp_ToBI notation of the insubordinated clause “¡Como si merendara verdura!” ‘COMO SI (s)he ate vegetables’.

On the whole, in Madrid and Barcelona, the most common nuclear configuration for insubordinate clauses was L* HL% (roughly 50% of cases), often described as the typical contour for statements with a pragmatic meaning of obvious contradiction (Estebas-Vilaplana and Prieto, 2010). Next, in order of importance, was L+H*L% (roughly 40% of occurrences), which has also been described as typical for narrow focus and contrastive focus statements. After that, L* L% was found, which is the default contour for broad focus statements.

In addition, two traditional/dialectal patterns were observed: 1) ¡H* L%, a pattern for contrastive meaning used in Seville (where it was the most common one), and 2) H+L*L% in Barcelona, expressing a categorical statement. It is important to note that traditional patterns are produced only by speakers that have been classified as sociolinguistically more traditional or local (see Section 4.2), whereas standard patterns are produced by both traditional and standard speakers.

5.3. Summary

The summary of both insubordinated and elliptical intonational patterns can be seen in Figure 15.

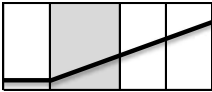
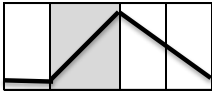
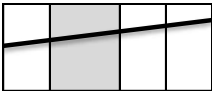
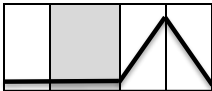


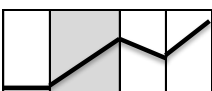

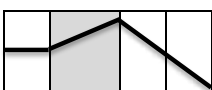
Eliptical clauses			Insubordinated clauses		
Pitch contour	Transcription	%	Pitch contour	Transcription	%
	L+H* H%	48%		L+H* L%	32%
	H*H%	31%		L*HL%	40%
	L*H%	12%		L*L%	5%
	LH*!HH%	9%		H+L* L%	2%
				iH* L%	22%

Figure 15. Summary of the documented patterns (schematic pitch contours and Sp_ToBI transcription) classified by dependence stage and percentage of appearance in the corpus.

As stated in Section 2, the usual phonetic description of a continuation rise is that of “non-falling” intonation. In this study, we have found four contours that phonetically implement a continuation rise (see Figure 15). All four patterns are possible in all survey points and all of them are used by both standard and traditional speakers. The most common patterns are L+H* H% (48%) and H* H% (31%). For the aim of this study, it is crucial to point out that all these patterns end with an H tone.

As far as insubordinated clauses are concerned, there are three standard patterns that can be found in all dialects. Out of these, L* HL% (40%) and L+H* L% (32%) are the most frequent, while L* L% (5%) is less recurrent. Moreover, two traditional/local patterns are found in Barcelona (H+L* L%) and in Seville (iH* L%). For the purpose of the subsequent discussion we underline that all contours found in insubordinate clauses end with an L tone.

6. Interpretation and discussion

In order to ease the data interpretation, we have classified the contours into two groups: contours that are traditionally associated with continuation rises (that is non-falling contours) and contours that are not (otherwise known as falling contours⁵).

⁵The classification does not take into account whether the last movement is produced between the pitch accent and the boundary tone or in the boundary tone (i.e., rising-falling contours are categorized as falling).

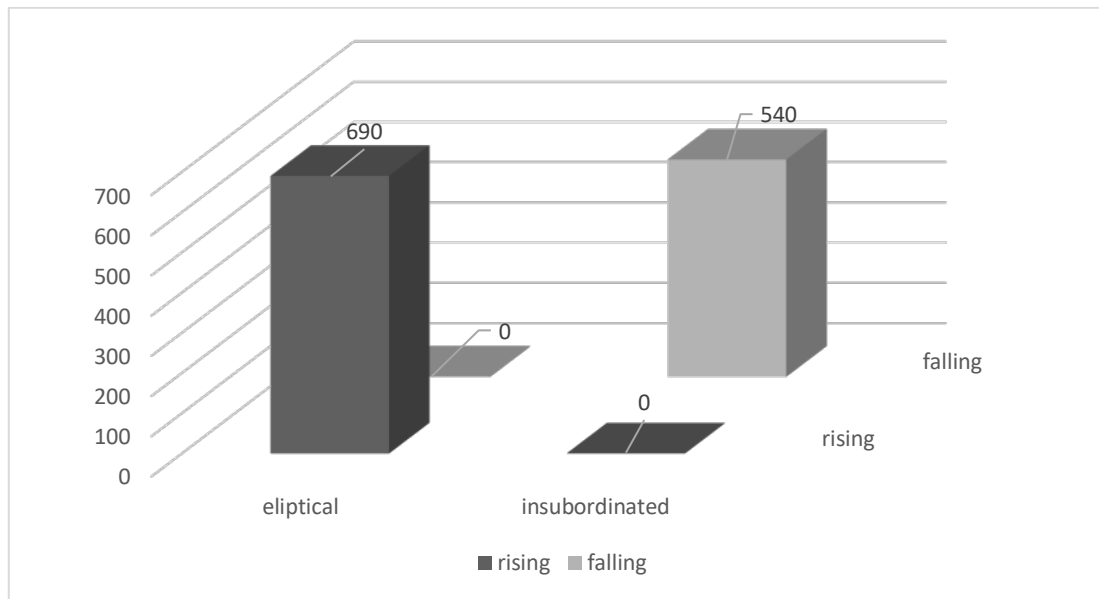


Figure 16. Falling and rising patterns for the two degrees of independence.

As seen in Figure 16, there is a perfect correlation between rising patterns and elliptical clauses as well as between insubordinated clauses and falling patterns⁶. The fact that the continuation rise serves as a trigger for conversational inferences (Safarova, 2006) explains why it shows up in elliptical clauses. However, insubordinated constructions also imply an inference (a presupposition). So, even though continuation rises trigger inferences, they only appear in constructions where the elided clause can be recovered. Since the possibility to recover them has been described as evidence of syntactic dependency, the intonation of a sentence can be understood as an indicator of its degree of (in)dependence. In this context, describing continuation rises as markers of syntactic dependency give a more accurate picture of their implications for both syntax and pragmatics.

The data collected in this paper propose intonation as a cue for dependency, insofar as changes in dependency imply changes in the intonational contour. However, these results also provide additional support for the insubordination theory. The intonation of the studied insubordinated constructions in Spanish is congruous with Evan's (2007) ellipsis theory. As we have seen in Section 3, subordinate clauses have two intonational groups, which correspond to their clauses. In this stage, the intonation of the first clause is a continuation rise. According to Evans (2007), the following stage is the ellipsis of the second clause. Thus, it seems reasonable that the elliptical clause keeps the prosodic features of the subordinate clauses, in this case, in the form of a continuation rise. However, a conclusion about the relationship between the elliptical and insubordinated clauses cannot be drawn from this study. In order to verify this hypothesis, non-prosodic research would be necessary.

Therefore, although this study does not contradict the ellipsis theory, alternative pathways to the development of insubordinated clauses remain possible.

In Figure 17, we present in detail the correspondence between the degrees of dependence and their prosodic behaviors.

⁶ The unnecessary statistical results of the data would prove significant $\chi^2(1, 1230) = 1230, p=0$.

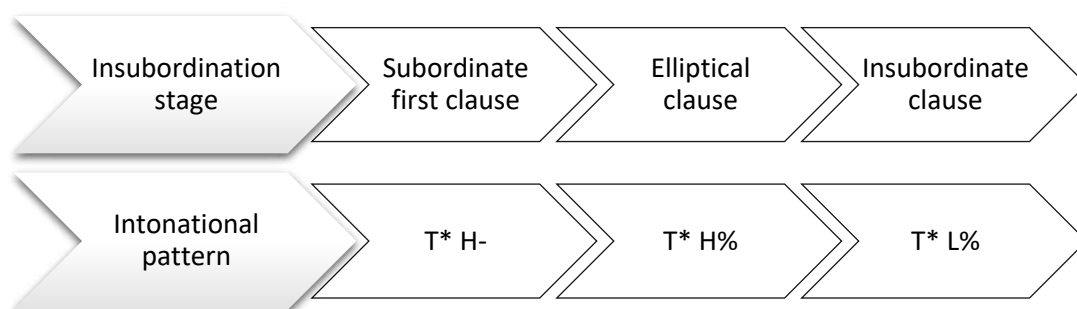


Figure 17. Evans' (2007) insubordination schema and attested prosodic behavior. *T* stands for any possible tone.

As mentioned in Section 1.2, there is more than one possible path from subordination to insubordination. Even within the same language, different constructions can follow different paths to achieve syntactic independence. For example, on the one hand, in Spanish, the independent *si*-clause (included in this study) has traditionally been described as a perfect example of the ellipsis theory, given that a presupposition is needed in order to understand the construction (Evans, 2007; Gras, 2011; Schwenter, 2015). On the other hand, the independent *que*-initial clause has been described as a discourse-connective clause that would rely on contextual dependency⁷ (Gras and Sansiñena, 2015; Sansiñena, 2015, p. 138).

On the basis of the present knowledge of insubordinated structures, the most plausible explanation is that only insubordinate clauses, where there is a presupposition involved in the correct understanding of the sentence, follow the prosodic schema that we have put forward. This is because only constructions relying on a presupposition would need a continuation rise in order to be understood. If this hypothesis were true, it would mean that only prototypical suspended sentences (with continuation rises) could evolve into insubordinated sentences. Subsequently, if there were a unique path to insubordination, elliptical clauses that do not have a continuation rise (that are not suspended) would not be eligible to develop into insubordinated constructions.

7. Conclusions

Results indicate that the intonation of formally similar constructions differs according to differential degrees of independence (i.e., ellipsis and insubordination). Adverbial elliptical clauses present a rising boundary tone (H%), which appears also in the non-final clauses of complex sentences. On the other hand, insubordinated constructions use patterns that appear in final clauses: either the contour of broad-focus statements or one of the contours used to express contrastive focus. Therefore, intonation is a formal feature that can distinguish insubordinated clauses from other semi-dependent clauses. Specifically, in Spanish, intonation is a formal difference between insubordinated and adverbial, elliptical clauses.

This paper serves to explain the use of “prima facie” in Evans' (2007) definition of insubordination where: *the conventionalized main clause use of what, on prima facie grounds, appear to be formally subordinate clauses* (Evans, 2007:367). In Spanish,

⁷ Contextual dependent clauses have not been included in this study.

insubordinated clauses only share formal, lexical markers with subordinate clauses, but do not share intonation, given that insubordinate clauses can differ prosodically from their subordinate counterparts. In sum, whereas subordinate and elliptical clauses use intonation as a syntactic marker and, hence, display a continuation rise, in insubordinated clauses intonation needs to be understood both as a syntactic marker and a pragmatic marker.

More generally, the results of this paper support the notion that intonation can contribute to syntactic studies and, hence, it should be included in formal descriptions of grammatical constructions. This paper specifically underlines that intonation should effectively be taken into account when analyzing the syntactic level of (in)dependence of a grammatical construction.

8. Funding

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