Spanish Intonation of Hungarian Learners of Spanish: Yes or No Questions

BADITZNÉ PÁLVÖGYI KATA

Tesis doctoral
presentada en 2012 en la University of Eötvös Loránd de Budapest

Dirigida por la Dra. **Dolors Font-Rotchés**
Laboratori de Fonètica Aplicada (UB)

Biblioteca Phonica, 15 - 2012

Referencia bibliográfica:
Baditzné Pálvögyi Kata (2012): *Spanish Intonation of Hungarian Learners of Spanish; Yes or No Questions.* Biblioteca Phonica, 15. www.ub.es/lfa

BADITZNÉ PÁLVÖLGYI KATA

“SPANISH INTONATION OF HUNGARIAN LEARNERS OF SPANISH: YES-OR-NO QUESTIONS”

PhD. Dissertation
University of Eötvös Loránd, Budapest
2012

Acknowledgements

First of all, I would like to express my gratitude to my supervisors, László Varga, and Dolors Font-Rotchés.

Special thanks are due to Professor László Varga, of Eötvös Loránd University, Budapest, who dedicated long hours to meticulous readings of different versions of my dissertation, beginning with my first drafts in 2008, provided me with invaluable comments and raised my sensitivity to intonational phenomena. I am sorry I have not been able to incorporate all his insightful suggestions into this work.

I would also like to thank Dolors Font-Rotchés, of the Universitat de Barcelona for her generosity and enthusiasm with which she helped me to understand the intonational analysis that I refer to as the Cantero—Font-Rotchés approach, taught me to use various elements of their analysis, gave me material difficult to access, and encouraged me from 2006 onwards to carry out the present work.

I am also grateful to Francisco José Cantero Serena, for his hospitality and helpfulness, and for clarifying various aspects of his framework to me.

Needless to say, I am alone the responsible for any error in this work.

And last but not least, I thank all my family who supported me while I was writing this dissertation.

Abstract

The present dissertation is a comparative study of the intonation of yes-no questions in Hungarian and Spanish. Based especially on my own corpora, I examine the realization of the main accent in utterances, pitch range, and the intonational patterns applied. First, these aspects will be investigated in a Spanish corpus (Corpus 1) then in a Hungarian corpus (Corpus 2) and after that, I will make hypotheses about the ways Hungarians pronounce Spanish yes-no questions. These predictions then will be validated by means of a corpus containing Spanish yes-no questions produced by Hungarian learners of Spanish (Corpus 3). My predictions were the following:

(a) As the place of main accent in an utterance depends on lexical stress, and lexical stress placement obeys different rules in the two languages, it is predictable that Hungarian learners of Spanish will not produce Spanish main accents according to the Spanish norms. (b) Hungarian uses a narrower pitch range than Spanish, thus, the Spanish yes-no interrogatives produced by Hungarian learners are expected to have a narrower pitch range. (c) The intonation contours applied will be investigated in 3 subgroups of yes-no questions: ordinary yes-no questions, echo yes-no questions and yes-no questions followed by a vocative. Ordinary yes-no questions in Hungarian are typically accompanied by rising-falling contours, whereas in Spanish, by rising ones; Hungarian echo yes-no questions have several main accents, each triggering a rise-fall contour, while in their Spanish counterparts there is one main accent in these cases, with a characteristically rising pattern. Yes-no question + vocative sequences contain two intonation units in both languages, but in Hungarian the yes-no interrogative conserves its rising-falling melody, and the vocative is accompanied by a fall, unlike in Spanish, where both contours are rising, and the final vocative is given the higher rise. Based on these observations, the prediction is that Hungarians will transfer their Hungarian intonational patterns to Spanish yes-no questions, which may be found unacceptable by Spanish listeners.

My hypotheses will be validated by the analysis of the Spanish yes-no interrogatives of Hungarian students, which will cast light on those areas of intonation which should be given more attention in Spanish language teaching in Hungary.

Index

Chapter 1 Introduction

1.1 Introduction

This dissertation is a comparative study of Spanish and Hungarian yes-no question intonation. The choice of the topic, "Spanish intonation of Hungarian learners of Spanish: yes-or-no questions", is justified because of the following facts:

- I am interested in second language teaching, and as Spanish is the mother tongue of more than 300 million people in the world, it should be given more attention in Hungary as well.
- Hungarian-Spanish interlanguage (the Spanish of Hungarian learners) has not been widely investigated until now. As a correct pronunciation, including correct intonation, forms part of the communicative competence, I consider the teaching of intonation necessary in language classrooms, especially as Spanish course books usually neglect this area.

The present chapter introduces some basic concepts related to intonation and explains the main aims of this dissertation.[1] These aims include: (a) establishing three intonational corpora: a corpus of Spanish yes-no questions (Corpus 1), a corpus of Hungarian yes-no question (Corpus 2) and a corpus of Spanish yes-no questions produced by Hungarian learners of Spanish (Corpus 3), (b) analyzing these corpora in the analytical framework elaborated by Cantero (2002) and Font-Rotchés (2007), (c), improving − when possible − the existing description of Spanish or Hungarian intonation, (d) predicting areas where Hungarian learners of Spanish might encounter problems in the intonation of Spanish yes-no questions and drawing the attention of Spanish language teachers to these problems.

After presenting the structure of this work, I explain the choice of the analytical framework, and give a concise outline of the history of intonation research.

1.2 Some basic concepts

Intonation is identifiable as a subset of prosodic devices. The prosodic devices include pitch patterns, pitch range, pitch register, stress, volume, tempo, voice quality and pause. Broader definitions of intonation cover all the prosodic devices, but most scholars reduce the scope of

[1] Parts of this chapter were also discussed in Pálvölgyi (2003).

intonation to the use of pitch variations (pitch patterns, pitch range and pitch register, the most important among them being pitch patterns), on condition that the use of pitch is relevant at the level of utterances (and not at the level of words). Even these restricted definitions agree that pitch variation interrelates with other prosodic devices, especially stress and pause (Varga 2002:20).

Intonation, according to Cruttenden (1997:7), entails the occurrence of recurring pitch patterns, all of which are used with a set of relatively consistent meanings on utterances. O'Connor—Arnold (1961, 1973:1) recognize three basic features which characterize intonation: (a) it is **significant**, i.e. utterances differing only in respect of intonation may, as a result, differ from each other in meaning; (b) it is **systematic**, i.e. there is a limited set of pitch patterns in any language that are used to produce definite meaningful effects; it is possible to describe these recurring patterns and to give rules that govern their use; (c) it is **characteristic**, i.e. the pitch patterns of one particular language do not necessarily produce the same effect in other languages.

Intonation is closely related to **accent**. Stress and accent are not equivalent terms; stress means syllabic prominence achieved by non-intonational means (i.e. by loudness and duration), whereas accent refers to syllabic prominence in which pitch is involved as well (Cruttenden, 1997:13).

1.3 The structure of this work

The present work is a comparative study, examining similarities and differences in Spanish and Hungarian intonation. The particular purpose of this thesis is to point out the areas where Hungarian intonation differs from and coincides with Spanish intonation in yes-no questions.

In order to compare two languages from an intonational point of view, one has to apply the same methodology. Thus, after a short revision of intonation theories in this chapter, Chapter 2 will present the analytical framework used in this study: the intonational model worked out by Cantero—Font-Rotchés (2009) and Font-Rotchés—Cantero (2009). Chapter 3 will focus on the inventory of Spanish intonation patterns based on this approach, while Chapter 4 will deal with the inventory of Hungarian intonation patterns, based on Varga (2002a). Chapter 5 will concentrate on Spanish, and Chapter 6 on Hungarian yes-no interrogative intonation.

There are certain features of Hungarian intonation which, if transferred to another language, may change the intended meaning, or sound foreign or unacceptable. I will focus on

this area in the realization of yes-no questions in Chapter 7 (predictions) and Chapter 8 (validation of the predictions).

The three Appendices contain the three corpora which serve as a background for the present study.

1.3.1 The areas of research

It is often claimed that Hungarian yes-no questions have a typical rising-falling contour, which is not characteristic of the yes-no questions of other languages and is not perceived as such by speakers of other languages (cf. Kassai 1991, 1995).[2] I will examine whether its transfer actually occurs in the case of Spanish, and whether in Spanish this would be an unacceptable solution. Also, I will examine if Hungarians produce the typical Spanish yes-no question intonation, which is characteristically rising. It is not expected that Hungarians would produce rising contours in yes-no questions as in Hungarian the final rise has limited applicability in yes-no questions (cf. 6.3).

In this work, I will concentrate on three types of yes-no questions, all with a characteristic Hungarian intonational pattern: ordinary yes-no questions, echo yes-no questions and combinations of a yes-no question + a vocative. It will be examined whether or not these typical Hungarian solutions are transferred to the Spanish utterances in these cases, and if so, whether they sound ungrammatical in Spanish.

I will not only look at intonational patterns used in yes-no interrogatives, but also at other factors pertaining to intonation, such as accent-realization and pitch range. As Hungarian is a language of fixed lexical stress[3], as opposed to Spanish, a free stress language, it is predictable that Hungarians will use their own accentual system when producing Spanish sentences. This will yield erroneous solutions, especially if the stress in question has a special intonational role in the utterance. As far as pitch range is concerned, Hungarians have a rather narrow pitch range at utterance level and also in inflections as compared to Spanish. Whether this narrower pitch range is present in Spanish yes-no interrogatives produced by Hungarian speakers will also be examined in this work.

The results will cast light on areas which need special attention in teaching Spanish intonation to Hungarian learners.

---

[2] Grice—Ladd—Arvaniti (2000:148), however, are of the opinion that the rising-falling question intonation of Hungarian is a manifestation of the *Eastern European Question Tune* (EEQT).

[3] The lexical stress is on the first syllable of the word.

1.4 The study of intonation: a brief historical survey

The following section will place the Cantero—Font-Rotchés analysis in the wider framework of the history of intonational research.[4]

1.4.1 Contour analysis and level analysis

There are two main traditional approaches towards the study of intonation: the **contour-based tradition** and the **level-based analysis**.

The traditional contour-based (or "musical") approach, mainly followed by British linguists, goes back to the second half of the 18th century, in which Steele's *Prosodia Rationalis* and Walker's *The Melody of Speaking Delineated; or Elocution Taught Like Music; By Visible Signs…* appeared.[5] This tradition characterized such works as Sweet (1892), Jones (1909, 1964), Palmer (1922, 1933), Armstrong—Ward (1926), Kingdon (1958), Schubiger (1958), Halliday (1967, 1970), O'Connor—Arnold (1961, 1973), Crystal (1969), Roach (1983, 1991), Tench (1996), Cruttenden (1997), etc.

The level-based tradition, accepted widely by American structuralist linguists, including Pike (1945), Trager—Smith (1951), Hockett (1955) or Gleason (1961) represented intonation by usually four level pitches (marked at the beginning of the utterance and at points where a change to another pitch level takes place) and terminal junctures (indicating the melodic transition to silence at the end of each intonational unit).

The main difference between the two approaches, according to Bolinger (1972:51)[6] is that the contour-based analysis is **global** in the sense that it describes entire contours with their grammatical (and attitudinal) meanings, whereas the level-based tradition is **atomistic**, in the sense that it describes meaningless subunits which are related to intonation in the same way as phonemes are related to words. In other words the American level-based approach tries to reduce the enormous variability of intonational phenomena to a relatively small set of "pitch" phonemes.

The two approaches can express the same pattern of intonation by different means (cf. (1a), (1b)):

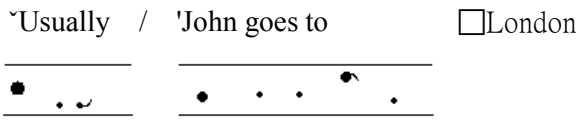
---

[4] This brief survey of intonation research is based on Pálvölgyi (2003), Cantero (2002), Font-Rotchés (2007), Llisterri et al. (2003), Prieto (2002, 2003), Sosa (1999).

[5] There are manuals of elocution and pronunciation including remarks on intonation from as early as the sixteenth century as well (Cruttenden 1997:26).

[6] Cited in Prieto 2002:129.

(1a) contour-based analysis:[7]



(1b) level-based analysis:[8]

^{3}Usually^{1} // ^{2}John goes to ^{3}London^{1} # (Cruttenden 1997:39)

In the orthodox British tradition (e. g. Kingdon 1958), the inner structure of intonation unit is characterized by a **prenuclear part** (stretching from the beginning until the last accented syllable of the last word of the intonation unit, called the **nucleus**) and a **nuclear part** (starting from the nucleus and lasting till the end). The prenuclear part is further divisible into a **prehead** (the syllables before the first accent) and the **body** (spreading from the first accented syllable, called the **head**, to the nucleus). This structure is shown in Figure 1.1. The level-based tradition does not consider any inner structure for the intonation unit.

Figure 1.1: The orthodox structure of the intonation unit in the British School (the bracketed parts are optional)

(Prehead) + (Body) + Nuclear Part

The two traditional schools are both characterized by the predominant use of read corpora, ear-based analysis and manual representation. In Roach (1991) one can find helpful ideas for a correct recognition of the direction of the pitch movement, as it is not always easy to tell a rise from a fall either for an untrained ear.

Concerning these two approaches, two special cases must be mentioned: Bolinger, though American, was one of the most influential critics of the American structuralists' level analysis. In the British tradition, Brazil (1981) and Brazil et al. (1980) offered an innovative intonational analysis not at utterance but at discourse level. There were various attempts to conciliate the two traditional approaches, cf. for instance Daneš (1960), Vanderslice—Ladefoged (1972), Stockwell (1972), Quilis (1975), and Cruttenden (1997).

As for the Spanish followers of the British school, we must first mention the somewhat eclectic approach of N. Tomás (1944, 1966), whose structural description of the Spanish intonation unit mostly coincides with that proposed for the English intonation unit by British scholars. His work was very influential in the 20th century. There are a number of linguists

[7] The symbols (called "tonetic stress marks") reflect stresses and tonal movements. The slash in the example indicates the boundary between adjacent intonation units.

[8] The numbers indicate relative pitch height within the intonation unit: 4 here being the highest and 1 being the lowest. # stands for falling and // for rising terminal juncture.

adopting his guidelines, such as Alarcos Llorach (1950), Gili Gaya (1950), Alcina Franch y Blecua (1975), Gil Fernández (1988).[9] The American tradition has also influenced the study of Spanish intonation, see e.g. Bowen (1956), Silva-Fuenzalida (1957), Bowen — Stockwell (1960), Quilis (1981). Regarding Hungarian intonational studies, most of those that came to light before the 1980s belonged to the contour-based tradition, see eg. Deme (1962), Fónagy—Magdics (1967). The American type of structuralist levels analysis did not take root in Hungary, although Hetzron (1980) and Kozma—Szende (1981) came quite close to that kind of analysis.

1.4.2 The autosegmental approach

The level-based tradition served as an antecedent to the development of **autosegmental approaches** to intonation, which kept the use of levels in the guise of tones and added explicit mapping rules. The segmental or syllabic sequence constitutes the first tier of phonological representation, and the tones, another tier. The rules that connect the two tiers are referred to as "tune-text association rules" (Cruttenden 1997:56). The autosegmental approach characterizes works by e.g. Gussenhoven (1983, 2007), Pierrehumbert (1980), Beckman—Ayers (1994), Grice (1995) and Ladd (1996), etc., and is the dominant approach in intonational studies worldwide today, although it exists in varieties that differ in detail.

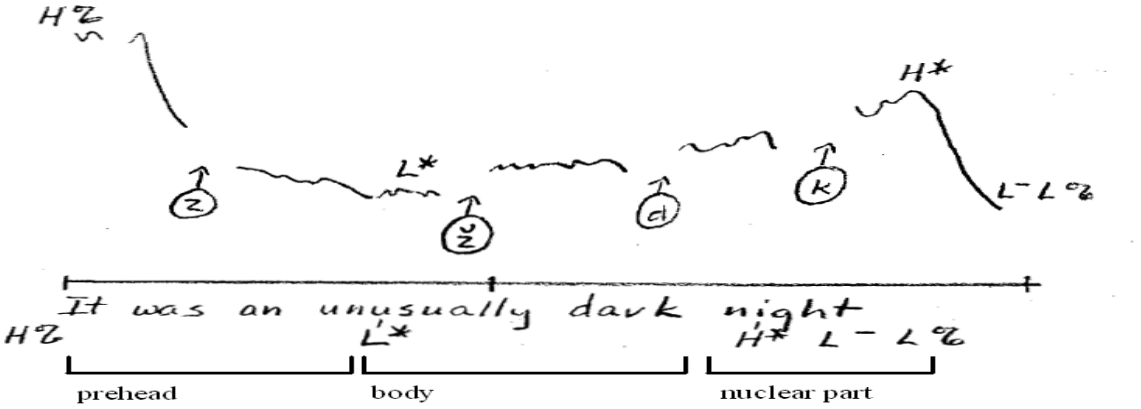
Since Pierrehumbert (1980) the two-level (or two-tone) approach has prevailed (the two levels or tones being High [H] and Low [L]). On the tonal tier, two types of tone are marked: those associated with **pitch accents** (which are associated with lexically stressed syllables and their representation includes a starred H* or L*), and those associated with intonational boundaries (these may be associated with both stressed and unstressed syllables). The tones associated with a fundamental frequency change after the last pitch accent are the **phrase accents** (also known as phrase tones) marked H- and L-, and those associated with the last syllable of the utterance are the **boundary tones** marked H%, if there is a rise on or to the last syllable, and L% otherwise (Cruttenden 1997:60). A boundary tone may occur at the beginning of the intonation unit, too. The structure of the intonation unit in Pierrehumbert's analysis consists of an optional initial boundary tone, one or more obligatory pitch accents (which can be bitonal), an obligatory phrase accent, and an obligatory final boundary tone. In

[9] All cited in Prieto 2003:49.

Figure 1.2, Pierrehumbert's representation is completed by showing the structural parts of the intonation unit according to the British tradition:

Figure 1.2: Correspondences between the structure of the intonation unit in the autosegmental representation and in the Brisith tradition, illustrated with an example taken from Pierrehumbert (1980: 292)

first boundary tone	pitch accents	last pitch accent + phrase accent + final boundary tone
pre-head	body	nuclear part



There are other, non-mainstream proposals for the number of levels in this approach: Martínez Celdrán (2003) considers it necessary to introduce a third level for the autosegmental representation of intonation, whereas Cabrera-Abreu (1996) proposes a radically minimalist transcription model for English using merely H (high) and the lack of it, thus reducing the use of symbols from two to one.

It was in the autosegmental model that a new notational system developed in the 1990s, known as the ToBI (Tone and Break indices) system, which has been applied to numerous languages, even to Serbian (Godjevac 2000), Korean (Jun 2000), Greek (Arvaniti—Baltazani 2000), Japanese (Venditti 2005), German (Grice—Baumann 2002). As intonation and prosodic organization differ from language to language, and often from dialect to dialect within a language, there are many different, language-specific ToBI systems (Beckman—Hirschberg 1999).[10]

Nowadays, the autosegmental intonational analysis of both read and spontaneous corpora is assisted by software (such as Pitchworks or CSL 4300, for instance) but labelling is characteristically carried out manually.[11]

[10] For example, the Dutch counterpart is called ToDI (Gussenhoven et al. 2003).

[11] Software-based intonation analysis is characteristic from the 1960's. The Aix-en-Provence model, developed in the laboratory 'Parole et Langage' of the University of Aix-en-Provence by Daniel Hirst, Albert di Cristo and Robert Espesser, aims at recovering a symbolic representation from the F_0 curve. The process is carried out by the program MES (Motif Environement for Speech), which contains two modules: one for the automatic stylization (called **MOMEL**, "**MO**delling **MEL**ody"), and the other used for annotations (**INTSINT**,

Autosegmental approaches to Spanish intonation include Sosa (1999), Nibert (2000), Pamies et al., (2001), Fernández et al., (2001), Hualde (2002). Those working within the ToBI framework, are e.g. Beckman et al. (2002), Face—Prieto (2006/2007), Patiño (2008).[12] For autosegmental treatments of Hungarian intonational patterns, see Kornai—Kálmán (1989), Olaszy (2001) and Varga (1994, 2002a, 2008).

1.4.3 Cantero—Font-Rotchés's model

The model proposed by Cantero (2002) and later complemented by Font-Rotchés (2007) combines modern contour standardization procedures with a rather traditional conception of the structure and representation of the intonation unit. Their empirical and experiment-based model is called "Melodic Analysis of Speech" (MAS)[13], which describes intonation from a phonetic point of view but is a phonological model, without the use of other (grammatical, pragmatic, etc.) levels of analysis. The method excludes paralinguistic aspects from the phonological component of intonation, the only phonological features being /±interrogative/, /±suspended/ and /±emphatic/. The combinations of these binary phonological features are called **tonemes**, which are realized by certain recurrent intonational contours called the **melodic pattern**s. A melodic pattern is submitted to perceptual tests in order to be characterized by its binary features and thus to be relegated to a particular toneme. Cantero—Font-Rotchés (2007) found 12 melodic patterns with subtypes in European Spanish. The method is also suitable for the purposes of applied linguistics, such as speech reconstruction, for example.

The inner structure of the intonation unit corresponds to the one accepted by the mainstream British tradition, with an **Anacrusis**, **Body**, and **Final Inflection**, corresponding to the traditional concepts of pre-head, body and nuclear part, respectively. The identification

---

"**IN**ternational **T**ranscription **S**ystem for **INT**onation"). As an important proposal of the model is to design a method capable of comparing different languages, a comparison of 20 languages was carried out within this framework in Hirst— Di Cristo (1998). As for Spanish applications of the model, we have to cite Mora (1996), Le Besnerais (1995), and Alcoba y Murillo (1998). For Hungarian, see Fónagy (1998). There are other intonation models strictly connected to text-to-speech conversion programs, such as MINGUS, "Modular Intonation Generation Using Syntax", based on the research of Mertens (1987), the Fujisaki-model (designed originally for Japanese in Fujisaki—Nagashima 1969) and the Thorsen-Grønnum-model (originating in Thorsen 1979). Intonation plays a crucial role in speech recognition and synthesis, and in man-machine interaction. In dialogue systems, which permit personal communication with a computer, there is a need to consider intonation for the better understanding of user interventions and in the automatic generation of a correct answer.

[12] This work can also be seen as an adaptation of Cantero (2002)'s theory of tonemes.

[13] For a description of the model, see also Cantero—Font-Rotchés (2009) and Font-Rotchés—Cantero (2009).

of an intonation unit is not assisted by any external cues, the only criterion for determining its boundaries being the presence of the Final Inflection.

They use spontaneous corpora exclusively, taken from television programs as they guarantee not only high quality but also that the speakers are unaware of being analysed within intonational research.

It is an essential step in their analysis that the original F_0 curve is reduced to a standardized copy of it without micromelodic variations, ultimately with the help of the analysis and synthesis program Praat (Boersma—Weenink 1992-2011). Standardization of contours was first done in terms of semitones in the Dutch School of intonation research, also known as the IPO model, which was worked out in Eindhoven and existed between about 1965 and 1995[14]. The difference between the standardized curves in the Cantero—Font-Rotchés model and the ones in the Dutch School is that the Cantero—Font-Rotchés model gives the standard values in percentages, a system easier to handle than the one with semitones. The standardized contour is represented by a line which starts with an arbitrary value of 100% and anchors in each syllable, which is itself characterized by a percentage based on its position with respect to the previous syllable. It is a negative percentage if the syllable is lower and a positive one if it is located higher than the previous syllable. The standardized contour, as in the case of the Dutch school, is submitted to perceptual tests to confirm that it is melodically identical to the original curve; if not, manual correction is made. The percentages can show more than the autosegmental labels would, in the sense that they can express illocution (in Spanish, for instance, a final rise of over 70% is perceived as an interrogative).[15] (2) shows the original (thinner) curve of the Hungarian utterance *Kipihente magát?* 'Did you have a good rest?' plus the standardized (thicker) curve[16]. The two curves should be perceptually identical.

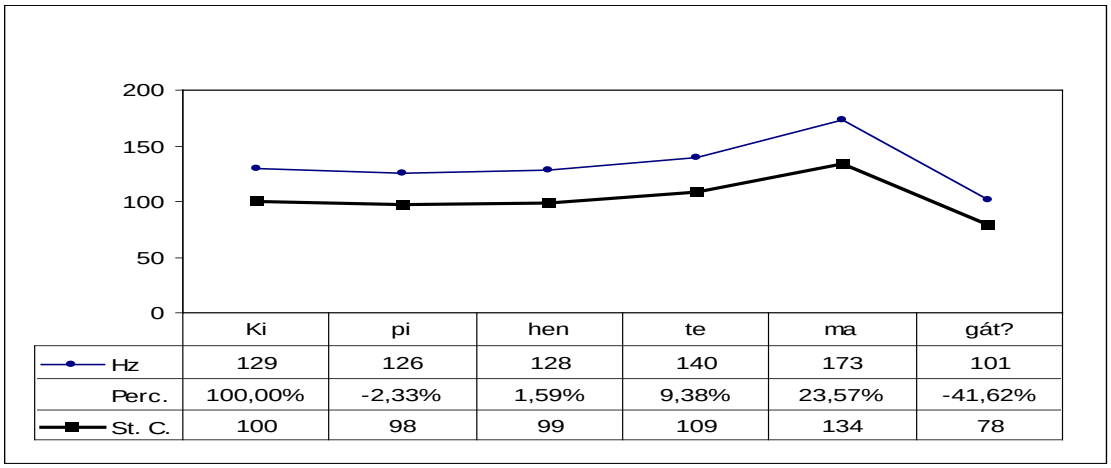
[14] The most emblematic work of this approach is 't Hart, Collier et al. (1990), which was followed by various researches in different languages (Adriaens 1991, Beaugendre 1994, Odé — van Heuven 1994). In Spanish, Garrido (1991, 1996) and Estruch et al. (1999) work with similar methods of automatic stylization. For more information on the Dutch School, see Cantero (2002), Garrido (2003), Estruch et al. (2007) and Font-Rotchés (2007).

[15] Still, Font-Rotchés thinks that their melodic analysis is compatible with autosegmental notations, as it is a model "that also permits any subsequent type of notation, including ToBI methodology", cf. Font-Rotchés—Mateo (2011a:1112).

[16] *Perc*. stands for percentages, and *St. C.* for Standardized Curve in the diagrams.

(2)

| 'Kipihente magát?|
rested-3sg himself/herself-acc
'Did you have a good rest?'



	Ki	pi	hen	te	ma	gát?
Hz	129	126	128	140	173	101
Perc.	100,00%	-2,33%	1,59%	9,38%	23,57%	-41,62%
St. C.	100	98	99	109	134	78

A more detailed description of the Cantero—Font-Rotchés model will follow in Chapter 2. I have chosen this model because it unites in itself *all* of the following advantages:

- it is based on vast corpora of spontaneous utterances;
- it establishes a limited set of intonational patterns with a minimalized set of meanings attributable to them;
- it provides a detailed explanation of data processing and analysis;
- its representation of the intonational patterns is iconic and easier to use for pedagogical (language teaching) purposes than, for example, the ToBI labelling is.

Though first applied to Spanish intonation (Cantero et al. 2005, Cantero—Font-Rotchés 2007, Font-Rotchés—Mateo 2011), it has been extended to the study of intonation in other languages as well, e.g. Catalan (Font-Rotchés 2005, 2007, 2009), or Chinese (Kao 2011). For a partial Spanish application see Patiño (2008). In Hungarian, a partly similar analysis is done in Olaszy—Koutny's investigations, who also work with percentages and stylized contours. In their version, however, the first number (100%) is not an arbitrary value, but a value representing the first abstract F_0 value of declarative sentences. As compared to this value, yes-no questions start at 80% (Olaszy—Koutny 2001: 182-183).

1.5 Summary

The introductory chapter had two objectives:

- explaining that the purpose of the study is to compare Spanish and Hungarian yes-no question intonation, based on a Spanish (Cantero 2002) and a Hungarian intonation

model (Varga 2002a) and two corpora collected for the present study (Corpus 1 with Spanish utterances and Corpus 2 with Hungarian utterances).

- after a brief historical survey of the intonational theories, presenting the model I chose for carrying out the comparative analysis.

After pointing out similarities and differences between the two intonational systems in yes-no interrogatives, several predictions will be made about how Hungarian students will realize Spanish yes-no interrogatives. The focused areas are accent realization, pitch range and the application of intonational patterns, in three subtypes of yes-no questions: ordinary yes-no questions, echo yes-no questions and yes-no questions followed by a vocative.

The selected approach is based on Cantero—Font-Rotchés's melodic analysis of speech (MAS), which combines the traditional British concept of the structure of the intonation unit with modern contour standardization procedures.

Chapter 2 The theoretical background: Cantero's model

2.1 Introduction

The theoretical background used in this work is the theory for intonational study presented by F.J. Cantero in his *Teoría y análisis de la entonación* (2002). This is an acoustically and perceptually based analytical model, which, by instrumental means, is capable of describing intonation objectively from both a phonetic and a phonological point of view.

The model also offers a method for intonational analysis, called "Melodic Analysis of Speech", originally worked out for Spanish and Catalan, but current investigations suggest it is applicable to describe the intonations of different languages of the world.

The following traits make this model attractive:

- It separates the phonetic and the phonological aspects in the description of intonation.
- It analyzes spontaneous speech, without forcing the speakers to produce the "expected" data. The speakers are unaware of being recorded, so their utterances are not influenced by the experiment.
- The melodic analysis is not done by ear, but by a software developed for acoustic analysis.
- It offers an easily employable standardization procedure. With the standardization of the obtained melodic curves, contours produced by men and women, old and young people, etc. are easily comparable.

Now I present the main points of the model, following the argumentation of Cantero (2002:75-102), Font-Rotchés (2007:69-93), Cantero—Font-Rotchés (2009), and Cantero—Font-Rotchés (2009).

2.2 The levels of intonation

For Cantero, intonation equals meaningful variations in the F_0 of utterances. He defines it as "the F_0 variations that accomplish a linguistic function in voice emission" (2002:18).[17] Other

[17] "Las variaciones de F_0 que cumplen una función lingüística a lo largo de la emisión de la voz". (Unless otherwise indicated, the English translations here and elsewhere in this dissertation are mine, K.P.B.) This definition, however, is not restrictive enough because it applies not only to the *intonation* of utterances, but also to *tones* of words in tonal languages, cf. e.g. Tench (1996:3).

elements sometimes traditionally taken to be part of intonation (tempo, intensity, duration, timbre) are out of his scope.[18] With this definition he recognizes that intonation has a linguistic nature (with which not all intonational phonologists would agree, especially in the past). However, not all about intonation is linguistic, i.e., phonological. Intonation, for Cantero, works at three levels, among which only one is linguistic.

At the first, or **prelinguistic** level, intonation acts as a means of organising the phonic blocks into discourse, with the co-operation of accent. This is the common ground between accent and intonation, as for Cantero both phenomena are the product of F_0 variation.[19] The second is the **linguistic** level, this is where the units and meanings of intonation are distinguished. Three binary phonological features, /±interrogative/, /±emphatic/, /±suspended/, are combined to make up 8 possible language **tonemes**.[20] Tonemes, for Cantero (2002: 136) are "intonational linguistic signs".[21] The typical tonemes of a language with their dispersion margins (i.e. realizational latitudes) are realized by the **melodic patterns** of that language.[22] The third level comprises the **paralinguistic** aspects of intonation, responsible for adding emotional information, but this belongs to the field of pragmatics. The following points explain how intonation works at these three levels.

2.3 Prelinguistic intonation. The hierarchy of intonationally relevant phonetic units

The model (developed by Cantero (2002) and Cantero—Font-Rotchés (2008)) makes use of a hierarchy of phonetic units: the **Syllable**, the **Rhythmic Group** (or phonic word) and the **Phonic Group**. We will now discuss these terms one by one.

Within the **Syllable**, only vowels are tonally relevant, because voiceless consonants interrupt the melody, while voiced consonants and glides depend on the vowel's tone. Consonants occupy a marginal status in the syllable. Vowels always constitute syllabic nuclei,

[18] Cantero refers to changes in tempo, intensity and the accentual pattern as non-melodic alterations that are often analysed as emphatic features of intonation (2002: 178). Intensity enters the definition of intonation in Quilis (1981: 394), for example, but Cantero holds that it can add intonational information only in whispered speech, where there is no F_0. Hombert (1978), Mateo (1988), Di Cristo (1982) and Gili Gaya (1924) all suggest that timbre can be part of intonation; Cantero, however, rejects this idea (2002: 17-18).

[19] This is an important point, as for Cantero both intensity and length play a secondary role in the perception of accent, and the F_0 is the main indicator. For English, this was also suggested by American experiments in the 1950's and 60's (cf. Bolinger (1955, 1958), and Hultzén (1955, 1964)).

[20] Contrarily to the international practice, which uses square brackets for phonological features, Cantero (2002: 137 and everywhere else) applies slashes, which I will follow throughout the present work.

[21] "Signos lingüísticos entonativos" (Cantero 2002:136).

[22] The tonemes and the melodic patterns are further explained in 2.4 below.

but stressed vowels are more salient as they have extra intensity and may represent tonal contrast. When they represent tonal contrast, they can be called accents. The smallest unit for the melodic analysis is the **tonal segment** with the – relative – tonal value of the syllabic nucleus (the vowel). Each vowel constitutes one tonal segment, except for the accented vowels, which can constitute **tonal inflections**, that is, combinations of two or more tonal segments.[23] The vowel can be either part of a lexically unstressed word (article, preposition, conjunction, unstressed pronoun) or part of a lexically stressed one (noun, adjective, verb and adverb). Lexically unstressed words do not have phonic independence in speech, it is only in their graphic representation that they seem independent. Only lexically stressed words have phonic independence, created by their stressed vowel. The accent of a lexically stressed word is called **paradigmatic accent**.

The **Rhythmic Group** is the unit for rhythmic analysis, it is a phonetic unit which is defined as a string of sounds that are grouped around a paradigmatic accent, including also the sounds that belong to the adjacent lexically unstressed words.[24] The following examples would all be Rhythmic Groups: *car, the car, in the car*. Cantero and Font-Rotchés use this unit only for finding paradigmatic accents and for expressing how speech is organised into blocks, but from the point of view of intonation the tonal segment and the Phonic Group play a more significant role.

A further unit in the phonetic hierarchy is the **Phonic Group**. This is a conglomeration of Rhythmic Groups around a hierarchically superior paradigmatic accent, called **syntagmatic accent**. This accent is especially significant because it contains an obligatory tonal inflection, and it is the last paradigmatic accent in the Phonic Group.[25] The syntagmatic accent is the nucleus of the Phonic Group and the nucleus of the melody from which the **Final Inflection** (FI) starts. The Phonic Group (with a certain melody, called **intonational contour**) is the unit for the intonational analysis.[26] Figure 2.1 sums up the phonetic hierarchy.

---

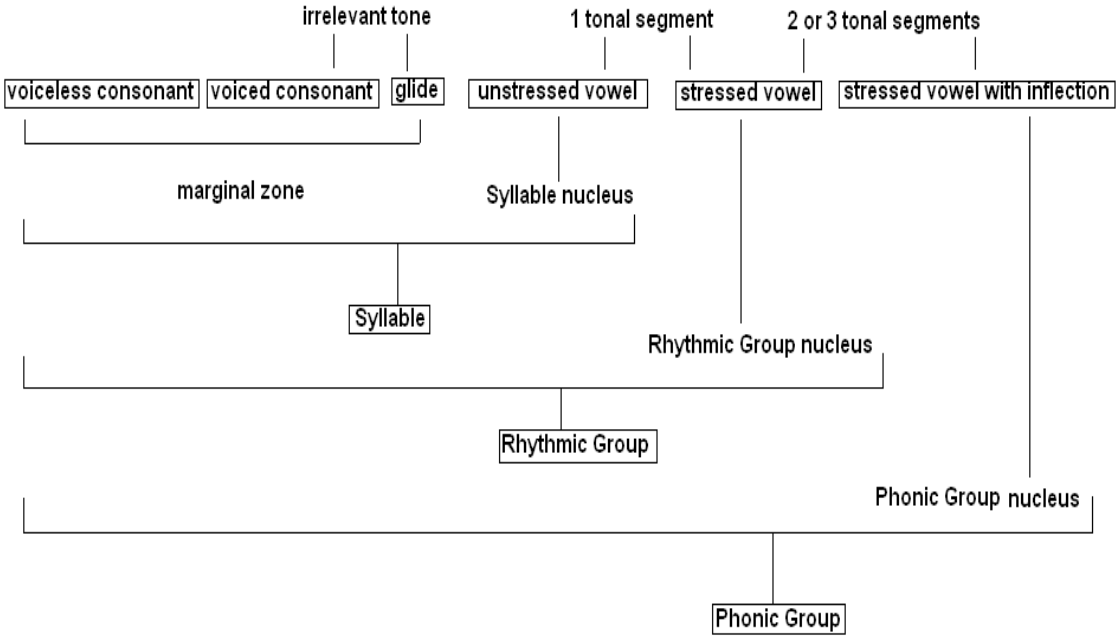
[23] We will deal with the way tonal inflections are realized in 2.4 below.

[24] The direction of grouping the sounds around an accent is not fixed, it can be either from the left or from the right. According to Cantero (2002:53-54), we cannot predict with precision the Rhythmic Group boundaries in a written text, as it is a category existing in speech; furthermore, speakers can posit these boundaries quite arbitrarily. In languages where lexical stress has a fixed position (e.g. French, where it is on the last syllable, or Spanish, where lexical stress tends to be on the penultimate syllable), Rhythmic Groups will mostly follow this pattern, that is, the speaker will attempt dividing the speech into Rhythmic Groups in a way that its stress occupies that preferred position.

[25] The exact location of Phonic Group boundaries is of secondary importance in Cantero's theory; the presence of the Final Inflection is the criterion for segmentation. More on speech segmentation into Phonic Groups will be found in 2.6.

[26] As we will see, the boundaries for Phonic Groups are not very important (cf. 2.6). As in the case of syllables, Rhythmic Group and Phonic Group perception is accumulative, and what matters is the "Nucleus" of each unit (2002:78).

Figure 2.1: The phonetic hierarchy based on Cantero (2002:102)[27]



2.4 Linguistic intonation

2.4.1 The structure of the intonational contour

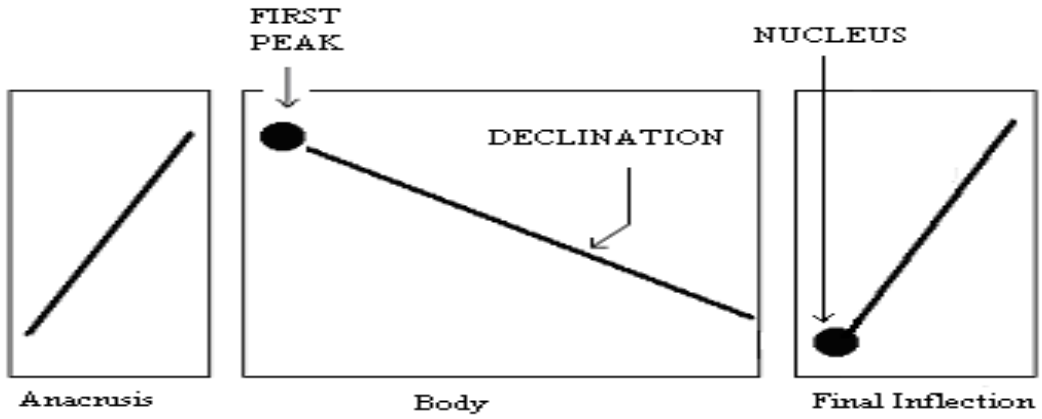
An intonational contour is the melody of a given Phonic Group. The elements of the intonational contour are the following: **Anacrusis**, **Body** and **Final Inflection** (**FI**). By **Anacrusis** Cantero and Font-Rotchés mean the unaccented syllables preceding the **First Peak**, which is normally on the first accented vowel in the contour but can also be displaced to the left or to the right from the first lexical stress.[28] They define as **Body** the syllables between the First Peak and the last accented vowel in the contour (the latter also known as the **Nucleus**), from which the **Final Inflection** begins, see Figure 2.2. Thus there are two important accents that separate these 3 parts, the First Peak and the Nucleus.[29]

[27] In the original version, Cantero did not associate the stressed vowel with more than one tonal segment, but such an association is possible if there are inner inflections in the Phonic Group preceding the FI (cf. 2.4.5). Also, liquids (subsumed under "voiced consonants") are sometimes not marginal, but tone-carrying elements (see Fig. 2.7 in 2.4.4).

[28] This implies that the Anacrusis can contain lexically stressed syllables when the First Peak is shifted to right of the first lexical stress.

[29] There is a parallel between this structure and the classical British division of English intonational phrases into prehead, head, body, nucleus and tail, as suggested e.g. by Kingdon (1958).

Figure 2.2: The structure of the intonational contour



Typically, the First Peak is on the first paradigmatic accent and the Body is a continuous descent (declination). The Final Inflection starts from the syntagmatic accent.

Apart from the Final Inflection all parts are optional, but we cannot speak about a Phonic Group without FI. Also, as inflections must have two tonal segments at least, one tonal segment cannot form an FI, thus cannot be considered a Phonic Group.

2.4.2 Tonemes

As we have seen, Cantero's unit for the intonational analysis is the Phonic Group. Every Phonic Group works as a container of a recurring speech melody, called "intonational contour". The phonologically significant intonational contours realize "tonemes". These should be understood as intonational linguistic signs, each with a dispersion margin (latitude of phonetic realizations) within which it is interpretable (Cantero 2002:84, 136). There are three binary phonological features that characterize the tonemes: /±interrogative/, /±suspended/ and /±emphatic/. These make up 8 possible combinations altogether, which we represent in the following table, together with the punctuation marks associated with them in Spanish:[30]

[30] According to Cantero (2002:143), reading is in fact an auditive process, that is why it is no surprise that written language punctuation marks correlate with this phonological classification.

Table 2.1: Tonemes (Cantero 2002:143)

Toneme number	**Binary features**	**Abbreviations**	**Punctuation mark**
1	/+ interrogative, + emphatic, + suspended /	/+I +E +S/	**¡¿...?!**
2	/+ interrogative, + emphatic, – suspended /	/+I +E –S/	**¡¿ ?!**
3	/+ interrogative, – emphatic, + suspended /	/+I –E +S/	**¿...?**
4	/+ interrogative, – emphatic, – suspended /	/+I –E –S/	**¿ ?**
5	/– interrogative, + emphatic, + suspended /	/–I +E +S/	**¡...!**
6	/– interrogative, + emphatic, – suspended /	/–I +E –S/	**¡ !**
7	/– interrogative, – emphatic, + suspended /	/–I –E +S/	**...**
8	/– interrogative, – emphatic, – suspended /	/–I –E –S/	**.**

2.4.3 Dispersion margins

The description of the structural elements of the intonational contour (the relative height of the First Peak, the shape of the Body, and especially the Final Inflection) allows Cantero to define the contour melodies in his corpus and to establish the melodic patterns as "typical contours" or "variants" of the tonemes, together with their **dispersion margins**.[31] Dispersion margins indicate the phonetic values within which a toneme can be realised. These values characterize the rise or fall of the Final Inflection, but the other elements of the contour, such as the Anacrusis, First Peak and Body also have a default value. An appropriate example is (1), showing the dispersion margins of the most unmarked toneme, Toneme 8.

(1) The dispersion margins of the Intonational contours realizing Toneme 8 in Spanish

TONEME 8 /-I-E-S/

Anacrusis: Rise of maximally 40% up to the First Peak.

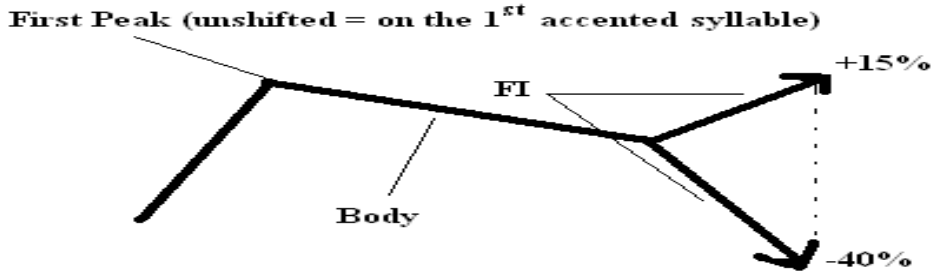
First Peak: The first accented syllable of the contour, which is located at the highest point of the whole contour.

Body: smooth and constant declination.

Final Inflection (FI): pitch movement between a rise of 10-15% and a fall of 30-40% from the last accented syllable.

[31] *Márgenes de dispersión* (Cantero 2002:14).

Figure 2.3: The schematic shape of Toneme 8 contours



With values outside the given interval of the FI (i.e. with a falling FI of more than -40% or a rising FI of more than +15%), the examined contour would be regarded as belonging to (realizing) another toneme. If there is a change in any other element of the list above, it might cause the contour to be classified as another toneme.

2.4.4 The Final Inflection

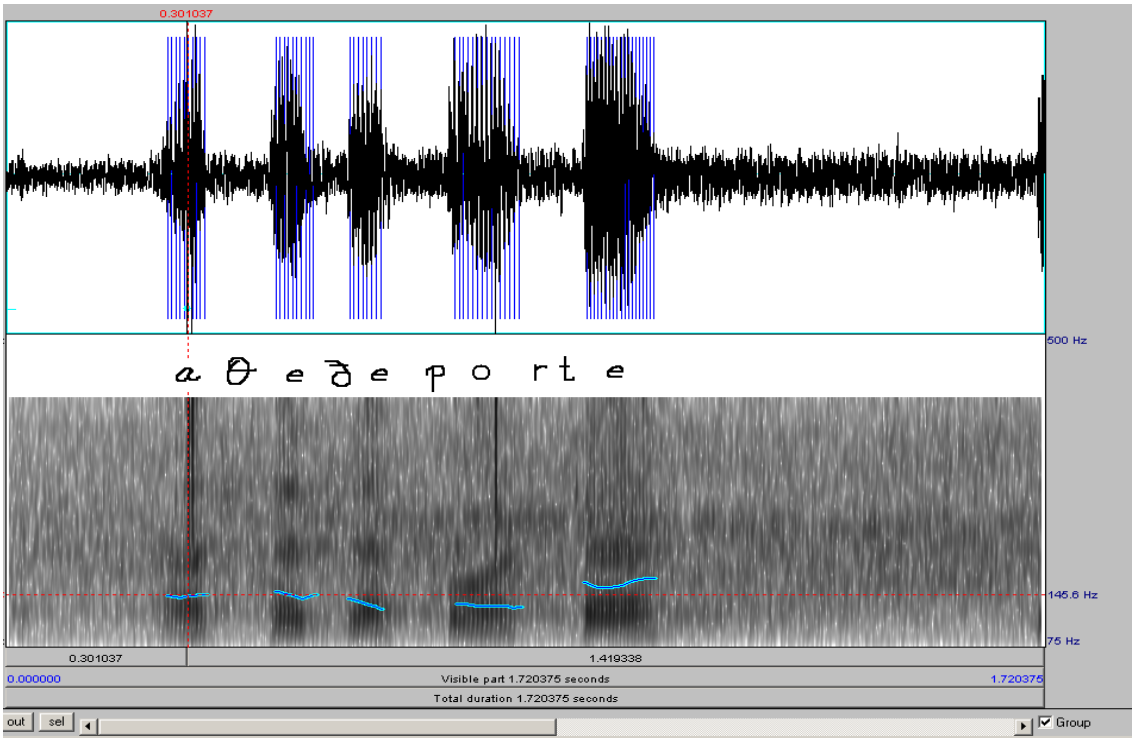
Now we have to discuss the concept of Final Inflection. Cantero (2002:89) enumerates various terms roughly corresponding to his *Final Inflection* in the literature. The Dutch School calls it "tonal movement" ('t Hart, Collier & Cohen, 1990), the British school "tone pattern" (Palmer, 1922), or "accent" (Bolinger, 1986),[32] or "nuclear tone" (Cruttenden, 1986), and Navarro Tomás (1944) calls it "toneme".[33, 34] Traditionally it has been described as a constituent definable with reference to pitch direction and pitch range, but rarely to its elements. Cantero assumes, however, that we can define inflection as consisting of well-defined parts, called tonal segments. He defines the tonal segment as "every more or less stable tonal stage which is clearly perceptible and the duration of which coincides with one **mora**"[35] (2002:89). Thus, each vowel has minimally one tonal segment, that is, it has the duration of one mora, and it may have two or three if it constitutes an inflection. If three, the inflection is circumflex,[36] which means that it has two tonal movements, with three tonal

[32] Bolinger, though American, fought against the American structuralist intonational theory, this is why Cantero mentions him among the followers of the British tradition.
[33] A toneme for Cantero stands for a radically different concept, cf. 2.4.2.
[34] The list, however, is not complete, for labels corresponding to the FI by American structuralists and the autosegmentalists, see Chapter 1.
[35] "Cada uno de los estadios tonales más o menos estables y claramente perceptibles, que suelen coincidir con una mora" , Cantero (2002:89).
[36] For Cantero *circumflex* means two-directional, i.e. both rising-falling and falling-rising.

segments altogether. This is why an inflection is the succession of at least two distinct and contiguous tonal segments.

Figures 2.4.a-e below show how the distinct tonal values can be perceived in the utterance *¿Hace deporte?* 'Do you do any sport (formal)?'.[37] We can see five syllables, each of which has a tonally stable vowel, and there is a bigger pitch jump between the penultimate and the last syllable. Figures 2.4.a-d show the measuring of the pitch height of three of these vowels: the first one, the penultimate one and the last one, and then in 2.4.e we can see a schematic graphic display showing the whole curve with the relevant pitch heights measured at each vowel. In Figure 2.4.a, the red cursor shows that the pitch value measured for the middle of the first vowel "a" is 145,6 Hz (that is, roughly, 146 Hz); this can also be seen in the amplified version in Figure 2.4.b. In Figure 2.4.c, the red cursor shows that the pitch value for the middle of the amplified vowel "o" is 130,49 Hz (that is, 130Hz), and in Figure 2.4.d the cursor shows that the pitch value measured at the end of the last amplified vowel "e" is 168,35 Hz (that is, 168 Hz). While in the case of last vowels it is the end point of the vowel, in the case of other vowels it is the mid-point of the vowel's duration where the pitch-height is measured.

Figure 2.4.a: Pitch value of the first vowel in *¿Hace deporte?*



[37] The diagrams are produced by the voice analysis software Praat (the text is my addition).

Figure 2.4.b: Pitch value of the first vowel in *¿Hace deporte?* (amplified)

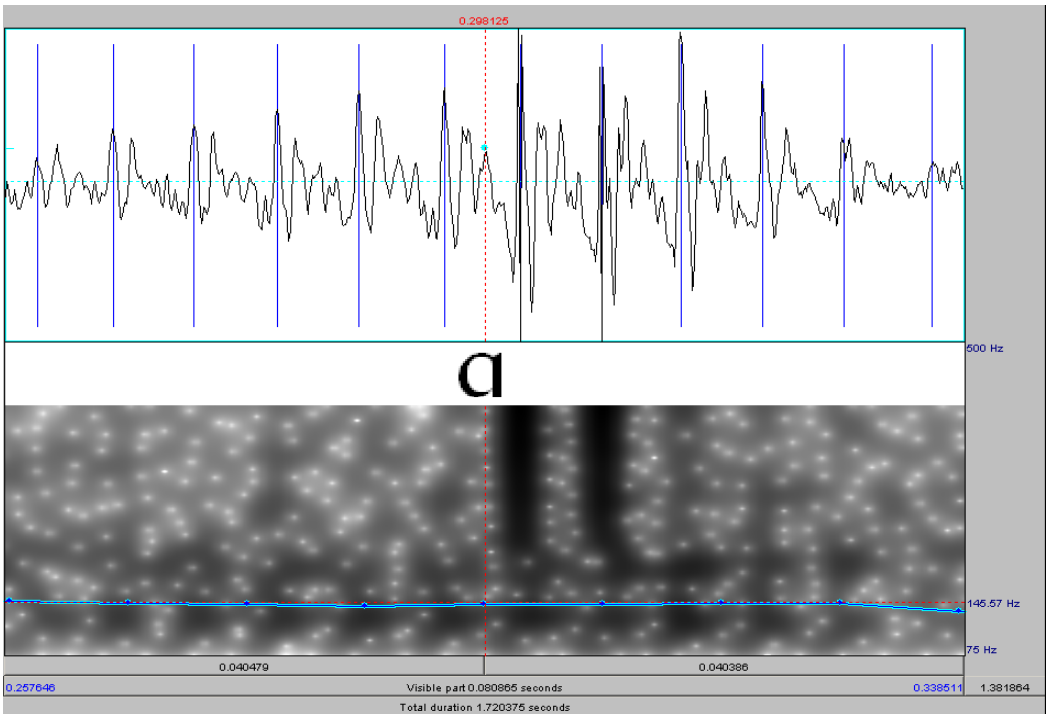


Figure 2.4.c: Pitch value of the vowel “o” in *¿Hace deporte?* (amplified)

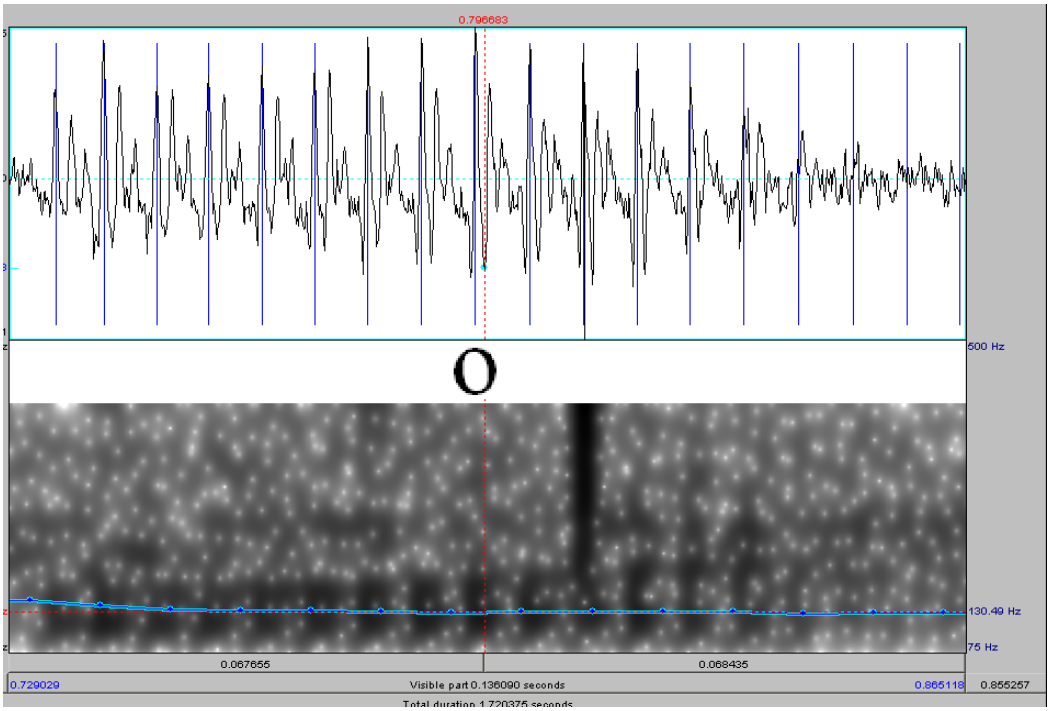


Figure 2.4.d: Pitch value of the last vowel in *¿Hace deporte?* (amplified)

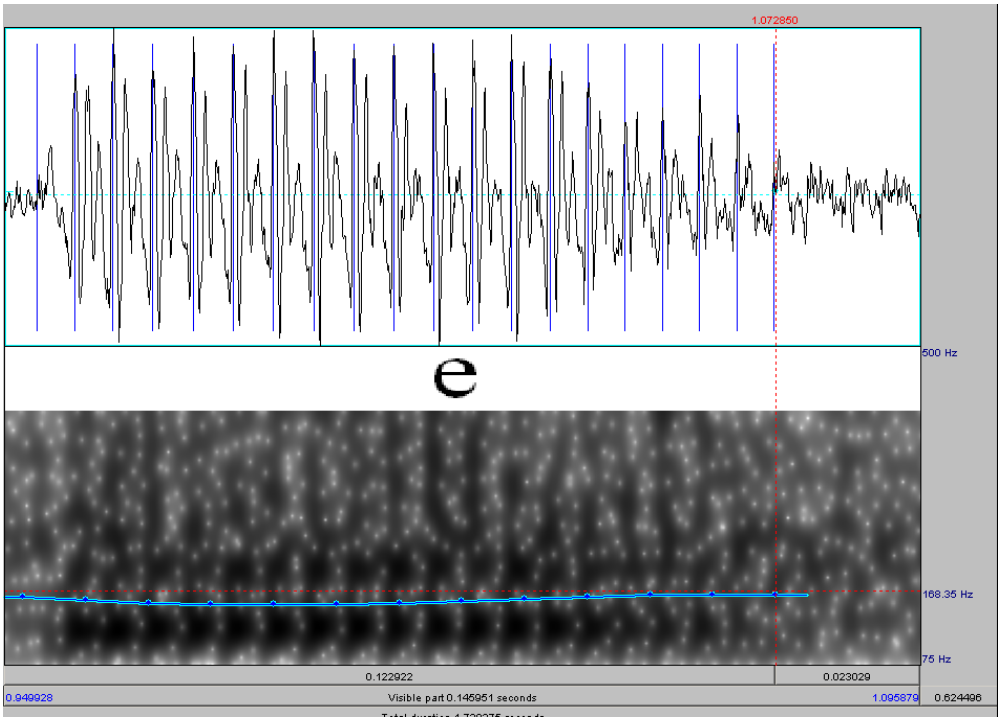
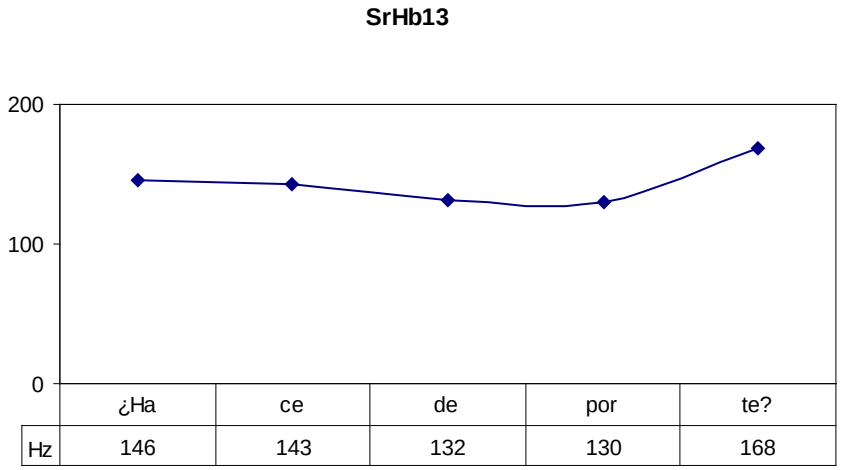


Figure 2.4.e: Pitch values of all five vowels in the utterance in *¿Hace deporte?*[38]



As can be seen in Figures 2.4.a-e, there is tonal stability (i.e. no or hardly any pitch change) in the first three vowels, but there is a big jump, that is, tonal instability (i.e. radical pitch change) between the fourth and the fifth vowels, which characterizes the Final Inflection.

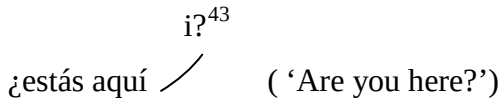
Now we will see how tonal segments are distributed in an inflection (Cantero 2002:90). First, we must mention that Spanish words tend to have the lexical stress on either the penultimate syllable, or the last one, or on the third syllable from the end, but rarely before this. Lexical stress on the fourth vowel from the end is only possible in verb + unstressed

[38] The label SrHb13 is the code-number of the utterance with which it appears in my corpus.

pronoun combinations,[39] such as the imperative *léetelo* ('Read it to yourself').[40] This means that as a Final Inflection normally starts from the last lexically stressed syllable, there can be a maximum of three unstressed syllables after an unshifted Nucleus[41]. When the Nucleus is displaced – shifted to the left –, obviously there can be more than three syllables after the Nucleus[42].

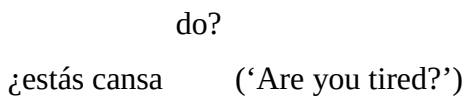
Now we will concentrate on the form Final Inflections take in normal circumstances: with the FI in its normal position, and no lexically unstressed words after it. When the syntagmatic accent falls on the last vowel, the inflection is realized on the lengthened vowel (lengthening is indicated by doubling the vowel letter):

(2)



When the syntagmatic accent falls on the penultimate vowel, this vowel tends to lengthen less, as the two tonal segments are occupied by this vowel and the last one, which serves as a support to the inflection:

(3)



[39] Thus, in Spanish, superproparoxitone words can only be verbs (cf. Quilis 1993:390).

[40] An example for this tendency could be the following: as the position of stress is preserved after pluralization, the word *régimen* ('diet') would have its stress on the 4th syllable from the end in its plural form **régimenes*. But to avoid this anomaly, stress is exceptionally shifted here to the third syllable from the end (*regímenes*), cf. Harris (1996:131-35).

[41] As for the extension of simple Final Inflections, such as rise or fall, Prieto (2003:42) holds that it can be of maximally three syllables, but complex inflections, according to certain authors, can be longer, even up to the whole length of the intonational unit. As we will see, Hungarian Final Inflections can also be realized on chunks longer than three syllables (cf. 4.2).

[42] Whether the Nucleus can be shifted at all in Spanish constitutes a matter of debate even today. When it comes to signalling the focus ("new information"), the most influential traditional works, such as Navarro Tomás (1944) or even modern theories (for instance the autosegmentalist Sosa (1999) discart the possibility of such a movement, and maintain that the informational structure (focus) is not reflected this way, rather by alternative solutions such as the elimination of known elements, for example). From the 50's on, however, some views started to accept nucleus shifts, see Bolinger (1954), Contreras (1978), Ortiz Lira (1994), García-Lecumberri: (1995, 1996), García-Lecumberri et al. (1997) (cited in García-Lecumberri (1996) and Prieto (2003:50). Cantero does not deny the possibility of a Nucleus shift, but acknowledges that it is not natural for signing the place of focus; on other possible reasons for nucleus shift, see also 2.4.6.

[43] The representations (2)-(6) only concentrate on the realization of the inflection, so relative heights in the pre-nuclear part are not shown.

In this case, there is another common practice: the stressed vowel is lengthened and carries the inflection, while the last unstressed vowel does not carry any tonal information:

(4)

a-do?

¿estás cansá

When the syntagmatic accent falls on the third vowel from the end, the stressed vowel together with the following one bears the inflection, and the last vowel is tonally redundant:

(5)

tico?

¿estás reumá ('Do you have rheumatic fever?')

In the case of two-directional inflections, consisting of three tonal segments, the stressed vowel or the following one is lengthened, to bear the inflection:

(6)

¿estás segú o?

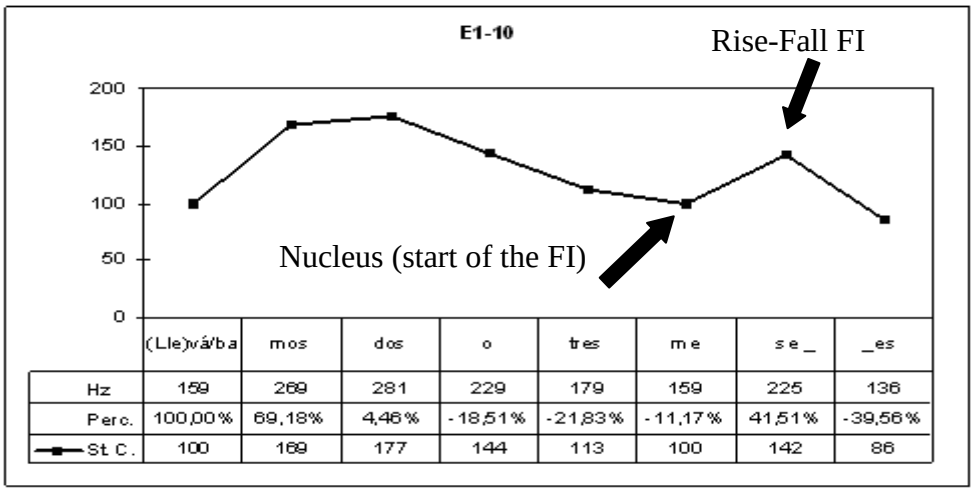
ro ('Are you sure?')

It is essential to note, however, that although a two-directional movement at the end of the utterance might be identified as a two-directional FI at first sight, this is not always the case. As every FI must start from a stressed syllable, normally the last one in the utterance, movements that look like rise-falls, but which do not start on the syntagmatic accent of the utterance are not regarded to be rise-falls. The following examples from Cantero (2005:33-34) show exactly this case. In Figure 2.5, *(Lle)vábamos*[44] *dos o tres mese*s, ('Two or three months passed'), we see a genuine rise-fall, a two-directional FI, where the movement starts

[44] The first syllable is not pronounced, and only one of the two following syllables can be perceived. (It is not known which one, as in Spanish both are pronounced the same, "βa")

from the last lexically stressed syllable (*me*-), and with the lengthening of the last syllable, the FI spreads through three tonal segments (*me se_ _es*).[45]

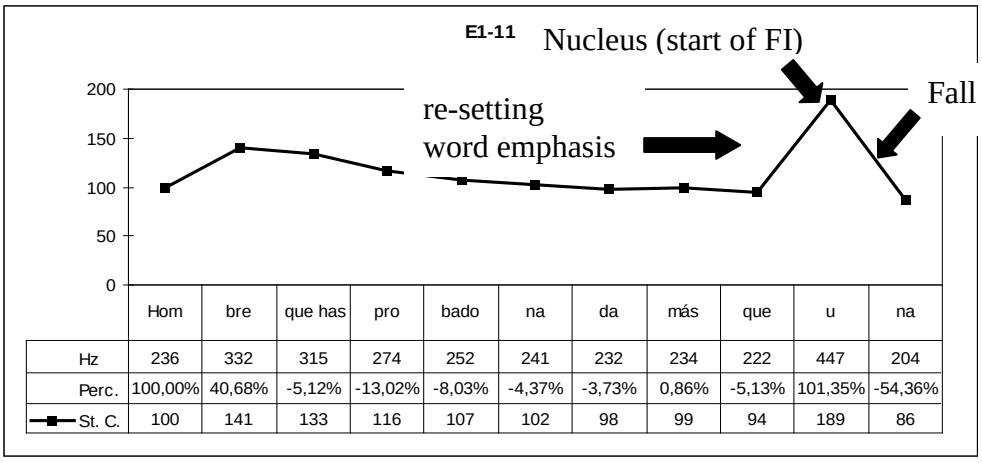
Figure 2.5: An utterance with Rise-Fall inflection[46]



	(Lle)vá'ba	mos	dos	o	tres	me	se_	_es
Hz	159	269	281	229	179	159	225	136
Perc.	100,00%	69,18%	4,46%	-18,51%	-21,83%	-11,17%	41,51%	-39,56%
St. C.	100	169	177	144	113	100	142	86

In Figure 2.6, *Hombre, que has probado nada más que una*[47] ('Man, but you've tried only one'), we only have an unstressed syllable *que*, which rises towards the Nucleus, from where a falling FI (i.e. not a Rise-Fall) starts. In Figure 2.6 Cantero identifies a word emphasis on *una* 'one' (an inner rise, cf. 2.4.5, 2.4.6, 3.3.2) plus a falling FI, but not a two-directional FI.

Figure 2.6: Inner rise plus final fall in an utterance



	Hom	bre	que has	pro	bado	na	da	más	que	u	na
Hz	236	332	315	274	252	241	232	234	222	447	204
Perc.	100,00%	40,68%	-5,12%	-13,02%	-8,03%	-4,37%	-3,73%	0,86%	-5,13%	101,35%	-54,36%
St. C.	100	141	133	116	107	102	98	99	94	189	86

[45] Cantero indicates the lengthening by doubling the orthographic form of the last syllable (*ses ses*). However, I use my own notation, doubling the lengthened vowel with _ _ between the two parts, if they represent a complex tonal movement.

[46] "Hz" stands for absolute values, whereas St. C., i.e. "standard curve" stands for the values obtained after the standardization. For the process of standardization, see 2.6.

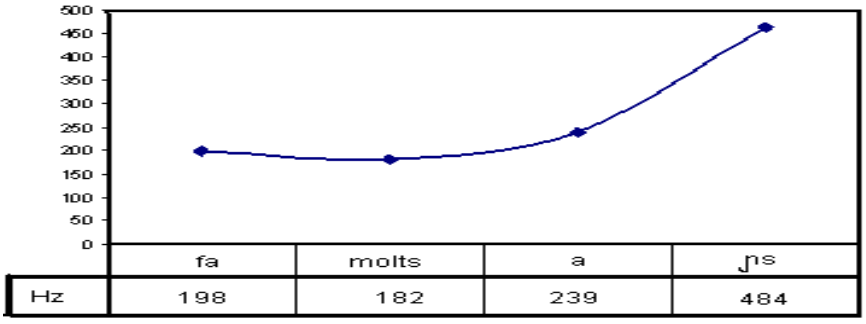
[47] As is shown in the diagram, the two words *que has* are said with the duration of one mora, that is why they are given a single value. The same applies to the syllables *bado*.

Thus, for Cantero an extra mora is responsible for the perceived lengthening of a vowel, as in Figure 2.5 *me se_ _es.* As Spanish vowels are inherently short,[48] the concept of mora is exclusively used for intonational purposes, because vowels have two or more moras when they constitute a Final Inflection and so they are perceived long.

Font-Rotchés's contribution to Cantero's theory is that utterance-final nasals and laterals can also be tonal segments if they follow a stressed vowel, i. e. they can bear one part of the inflection,[49] as seen in the Catalan example shown in Figure 2.7.

In this sentence, *Fa molts anys?* ('Many years ago?'), the syntagmatic accent is on the last stressed vowel, – *a* – of *anys* The [ans] final nasal – normally not a syllabic nucleus in Catalan – contains part of the FI, it bears much of the rise, so it has intonational content.

Figure 2.7: Pitch values for the utterance *¿Fa molts anys?*



(Font-Rotchés 2007: 86-87)

The nasal or lateral need not be the last consonant in the utterance, but if it is followed by another consonant, as in *anys*, the latter is tonally irrelevant (*s* in *anys* is voiceless and does not have F_0).

2.4.5 Inflections in the interior of the Body

Inner inflections are characterized by an upstep / downstep in the body of the contour. They occur where one pitch point is at least ±10% different from the previous one. This is so because the human ear, according to Cantero and Font-Rotchés, cannot perceive smaller changes in the melody. According to Cantero (2002:97), inner inflections are normally falling, and not too informative. Rising inner inflections, however, can be more significant. They can

[48] There is no considerable difference of length between a stressed and an unstressed Spanish vowel, cf. Monroy (1980:134), Martínez Celdrán (1984:246), both cited in Cantero (2002:64). Increased length characterizes the stressed syllable when it forms part of the FI.

[49] This is not surprising if we take into consideration that generally, apart from vowels, nasals and liquids are considered to be possible tone-carriers (Durand 1992:236).

signal subsidiary emphasis on words in the utterance. Generally speaking, any alteration in the continuous descending declination of the Body will result in an emphatic contour, and these alterations are mainly achieved when an inflection occurs in the interior of the Body. Though inflection was defined as a pitch difference of more than 10%, sequences of smaller rises in the Body are significant to the human ear, because, though one small rise will not, a succession of small rises will be noticed. That is the case in rising bodies, an emphatic feature; and in zigzag bodies, i.e. successions of small falls and rises. Emphatic features will be exhaustively dealt with in 3.3.

2.4.6 Shifted "Final Inflections"

There are two common cases in which the syntagmatic accent can be displaced: emphasis and focusing.[50] When the whole sentence is new information, it is said to have **broad focus**, when a particular part of the sentence is singled out as new or contrasted, it has **narrow focus** (Tench 1996:57-61). Both kinds of sentences can occur with or without displacing the Final Inflection. Cruttenden (1986:75-81) cites English cases of broad focus with Nucleus dislocation. These are called **presentation sentences** or **event sentences**.[51] One of his examples, (7a), also mentioned in Cantero (2002:95), however, is translated into Spanish with a Nucleus in its normal position, i.e. on the last lexically stressed syllable, because it sounds better in Spanish, cf. (7b).

(7)
a. That **chim**ney's falling down
b. Aquella chimenea se está ca**yen**do

The other case, narrow focus, is a phenomenon totally dependent on the speaker's wish, because he/she can emphasize any element of an utterance this way. In Spanish, two types of "narrow focus" are recognised: first, when there is a new element in the utterance to be emphasized, and second, when the key-word of the utterance has to be highlighted (Canellada—Madsen (1987:90), cited in Cantero (2002:96)). It also occurs in cases of **accents of insistence**, where normally unstressed vowels become stressed, because the speaker gives additional emphasis to the word this way. This is a phenomenon which occurs when the

[50] Actually, Cantero treats intonational focusing as a type of emphasis (word emphasis if only one word is concerned), cf. Cantero (2002: 95-97, 115).
[51] These "event-sentences" or "presentation sentences" are defined in Cruttenden 1986: 83.

speaker wants to give additional emphasis to the last element of the contour, which bears the FI anyway, by converting some (or all) unstressed vowels of this Rhythmic Group into stressed ones. For example, in the utterance *Esta vez será la definitiva* ('This time it will be the definitive one'), the Rhythmic Group that bears the FI is the last one, /ladefinit**í**va/, but the speaker can regroup the syllables and form new Rhythmic Groups by creating stressed syllables, either as in /l**á**de finit**Í**va/ or /lad**é**fi nit**Í**va/ or even /l**á** d**é**fi nit**Í**va/[52] (Cantero 2002:97). These stresses could result in inner rises in the Body, but as narrow focus normally entails smaller inflections in the interior of the contour, we can distinguish them from the real FI.

When the focused word contains a considerable inner inflection, it can be a mark of surprise, or incredulity, but it does not change the binary features of the toneme. Thus Cantero thinks that "narrow focus" that entails Nucleus dislocation cannot make phonological changes in the intonation[53]. His examples are two versions of the question *¿Qué curso has seguído?* ('Which course did you take?').

In the first version, (8), there appears an early copy of the Final Inflection but the Final Inflection is also realized.

(8)

so do?

¿qué has

cur segui

The second example is a more radical one, as the dislocated Nucleus bears the only inflection in the contour:

(9)

so has seguido?

¿qué

cur

This means that in (9) the dislocated Nucleus has the Final Inflection as there are no more inflections in the contour. Consequently, dislocated nuclei cannot cause phonological changes

[52] The newly created Rhythmic Groups, however, should follow Spanish stress-placing rules, such as "all vowel-ending words have their stress on the penultimate syllable". That is why /ladefinit**Í**va/ can be cut into blocks like /l**á**de finit**Í**va/ etc.

[53] Note that for Face (2006: 309), the most frequent intonational strategy used for expressing narrow focus is the insertion of an intonational unit boundary after the focussed element.

in intonation, as they leave the toneme's binary features unchanged (this utterance, for instance, remains /+interrogative/).

2.4.7 The segmentation of speech into Phonic Groups

The segmentation of speech into Phonic Groups is based on the presence of the FI. Many authors cite pauses as elements that segment speech, but according to Cantero, the presence of the syntagmatic accent is a more solid criterion to establish Phonic Group boundaries, as pauses can be very small or even virtual. One example he takes is the one of defining and non-defining relative clauses cf. (10). The presence of the pauses is less significant than the presence of different FIs in the following example (2002:78):

(10)
Los alumnos que viven lejos llegan tarde ('The students who live far arrive late').

There are two possible ways of the segmentation of this sentence, one containing a defining and another containing a non-defining relative clause:

(11a)
[*Los alumnos que viven l**e**jos*] [*llegan t**a**rde*]. Here the string *que viven lejos* is a defining relative clause, and the sentence means '*The students who live far arrive late.'* It has two FIs, thus two Phonic Groups, the syntagmatic accent nuclei are bold typed.

(11b)
[*Los al**u**mnos*] [*que viven l**e**jos*] [*llegan t**a**rde*]. Here the string *que viven lejos* is a non-defining relative clause. The sentence means '*The students, who live far, arrive late.*' It has three FIs, thus three Phonic Groups, with the syntagmatic accent nuclei bold typed[54].
With this example Cantero demonstrates that in the segmentation of speech into Phonic Groups it is the number of syntagmatic accents, i.e. the number of FIs, and not the pauses that should have a decisive role. Pauses may or may not be there. On the other hand, FIs should always be present.

Cantero even made an experiment to prove that pauses are not perceptively relevant elements in the process of segmenting speech into Phonic Groups. He recorded pairs of

[54] If recursive prosodic structures are allowed, then the initial two Phonic Groups, which together are coextensive with the subject, may be looked upon as constituting a higher-ranking Phonic Group, whose sister is the 3rd Phonic Group, coextensive with the predicate, cf. Ladd (2008:291-293, 296-298); and Hunyadi (2006).

utterances that were different solely in the distribution of Phonic Groups, such as the following mathematical expressions which differ only in bracketing: *9 + (4 – 1)* and *(9 + 4) - 1*. Then, in each pair he eliminated the existing pauses and added pauses where there were not any. After that, listeners had to listen to the randomly organized sentences and had to write them down. Surprisingly, they heard a pause where there was none, and they did not hear it where it was put in by manipulation. The results showed that they recognized over 80% of the utterances correctly after the manipulation.[55]

We must conclude, then, that FIs play a significant role in the segmentation of speech into Phonic Groups, while pauses do not. Thus Cantero's analysis is not dependent on pauses. But his method is not dependent on grammatical structures either. First, because utterances without (complete) grammatical content are possible, e.g. hummed utterances such as *hmm*???. These go with a completely meaningful intonation, but obviously have no words in them, therefore lack grammatical structure. Also, if we utter a string of invented words, the listener will not understand what we say but he/she will be able to interpret the Phonic Groups into which we segmented our utterance (2002:77). The second reason is, as Cantero observes, that in dialogues one independent monosyllabic utterance often completes the melody of the preceding utterance, even if uttered by a different speaker, and so one Phonic Group can contain two complete utterances (called **shared inflection** by Cantero 2002:183). In these shared inflections, utterances of one tonal segment that alone could not form an FI (cf. 2.4.1), get attached to another utterance, of a different person, and "gain" the other tonal segment from it, thus they can form an FI together. The following dialogue, consisting of two turns, exemplifies this phenomenon. The examples are from Cantero (2002:183-184).

(12)
Speaker A: -*Saca los huevos de la nevera.* ('-Get the eggs from the fridge"').
Speaker B: -*¿Tres?* ('-Three?')

The second turn is a monosyllabic question, therefore its duration cannot be of one tonal segment only, as it would not form an FI then. So a natural realization would be (13), with two moras, and a rising inflection spreading over them:

[55] A short summary of the experiment can be found in Cantero (2002:118), a longer version in Cantero (1995: 359-365, 557-579).

(13)

es?

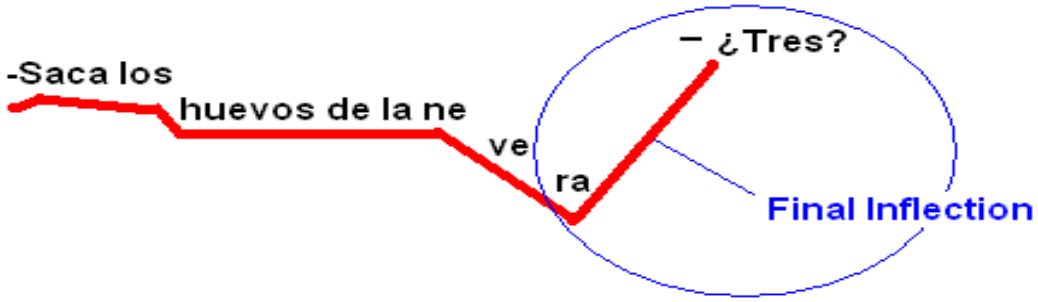
¿Tre⌣

But in this case, when it is preceded by another turn, as in (12), it can also be realized as having only one tonal segment:

(14) ¿Tres?

and form the inflection of two tonal segments with the last syllable of the preceding turn:

Figure 2.8: Cantero's "shared inflection"



These phenomena explain why Cantero bases the segmentation of speech into Phonic Groups on the presence of FIs rather than on syntactic structures or pauses.

When analysing their corpus, most of which is dialogue, as that is the most natural way of communication, Cantero and Font-Rotchés proceed in the following way: they separate the turns, and then they examine how many FIs go in each turn (this may further be modified by recognizing cases of FIs shared by two turns, as in Fig. 2.8). By identifying FIs, Phonic Group boundaries are established, which may not coincide with syntactic units, though in most cases they do. Each Phonic Group is segmented into syllables[56], and then the F_0 of each vowel is measured. As soon as they have the relevant pitch points, they standardize the contour and classify it according to the inventory of the existing patterns, based on features such as the First Peak, the shape and direction of the Body and the amount of rise or fall of the FI. We will explain the method of standardization in 2.6.

[56] The Rhythmic Groups are irrelevant from the point of view of the present analysis.

2.5 Paralinguistic intonation

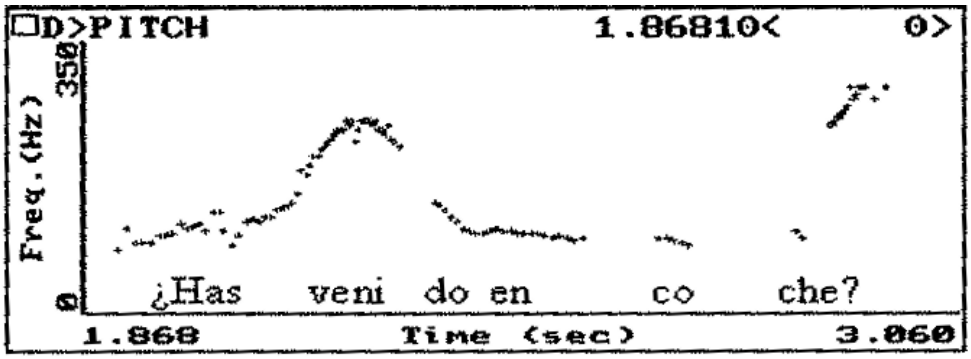
Cantero refers to paralinguistic intonation when contemplating the diverse possible manifestations of one toneme, strictly within its dispersion margins, which help the speaker express emotional, affective and other circumstantial nuances in his/her discourse. It is not linguistic in the sense that it does not involve a change of toneme, e.g. it cannot change a /−interrogative/ toneme into a /+interrogative/ one.

In Figures 2.9.a–b we can see two realizations of *¿Has venido en coche?* ('Have you come by car?'). By placing the First Peak on the first lexically stressed syllable *(has*, present perfect auxiliary, meaning 'have' 2sg), or on the syllable after it (*ve*-), the speaker does not change the /+interrogative/ feature of the toneme. Both contours represent Toneme 4 /+I–E–S/ because in the case of interrogative intonation –Toneme 4 – the position of the First Peak can be on either the first lexically stressed syllable, or the one after it (cf. 3.3). The pair of examples is from Cantero (2002: 159).

Figure 2.9: Pitch tracks of two realizations of *¿Has venido en coche?*

a.

b.



Evidently, Figures 2.9.a–b exemplify the paralinguistic use of intonation, with no linguistic change caused by intonational means.[57]

The next two examples, Figures 2.10.a–b show two ways of saying *Estoy harta de tus manías* ('I'm fed up with your manias'). Here the intonational change involves a linguistic change. While in Figure 2.10.a we have a standard Body with a descending declination, in Figure 2.10.b the Body has a zigzag shape, a typical emphatic feature,[58] which converts the neutral Toneme 8 /−I−E−S/ into the emphatic Toneme 6 /−I+E−S/. The examples are from Cantero (2002: 176).

Figure 2.10: Pitch tracks of two realizations of *Estoy harta de tus manías.*

a.

b.

[57] Actually, the displaced First Peak can change a /−interrogative/ toneme to a /+interrogative/ one if the Final Inflection does not reach a 70% rise, as contours with a 40-60% rise in the FI are decoded as /−interrogative, +suspended/ as long as they do not have a displaced First Peak. If the First Peak is displaced, the contour is /+interrogative/ instead of /+suspended/.

[58] More on emphatic features in 3.3.

That is to say, what happens in the case of tonemes is parallel to what happens in the case of phonemes. For instance, a vowel phoneme of a language or dialect can be realized in a number of ways as long as they do not invade the dispersion margin of another vowel; the realizations may be affective or expressive variants, but still pertain to the same vowel phoneme because they are inside its realizational field. All the varieties of a phoneme are called allophones. If those margins are transgressed, we are talking about a different vocalic phoneme. With intonation we have a parallel situation: all the varieties of a toneme (called *allocontours* by Cantero 2002:197) are phonetic and not phonological, because they do not invade the dispersion margins of another toneme.

2.6 Intonational analysis in Cantero's model: the acoustic and the perceptual phases

Cantero—Font-Rotchés (2009) separate two phases in data analysis: the acoustic phase and the perceptive phase. In the acoustic phase, they search for the outstanding frequency values and then they standardize the contours. In the perceptual phase, they check the validity of the standardized curves and then they interpret the results phonologically.

2.6.1 The acoustic phase: standardization in Cantero's model

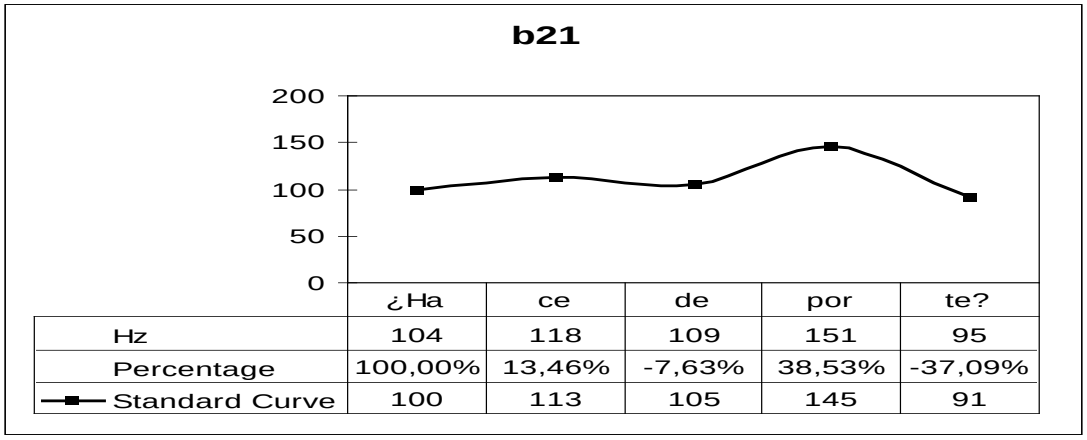
Cantero and Font-Rotchés work with spontaneous speech, they record TV programmes and convert them into audio files. The melodic analysis is done with Praat, a software for acoustic analysis, and later the melodically analysed utterances are "translated" into a version with standard values, which are also displayed. This is an essential step towards the comparison of melodic curves, because, as Cantero (2002:144-153) and Font-Rotchés (2007:84-91) argue, it is not the absolute value in the melody that is informative, but the relative values in the curve compared to one another. It is also important to neglect micromelodic variations, which are not perceptible to the human ear. According to their experiments, less than 10% of rise is not perceived as a rise; though, many small rises add up and show a rising tendency, which can be perceived. The pitch value of the middle of every vowel corresponds to a pitch point in the represented curve, but in the case of lengthened vowels or of vowels containing an inflection, two or three pitch points are marked, and the last tonal segment in the inflection is represented by its end value, not the mid one. The reduction of every syllable to one pitch point can solve the problem of redundant micromelodic variations in the curve, but we still have to face the problem of the significance of each movement. This is a question of considerable importance,

as tonal movements of a certain size can convey different meanings to the listener: a certain amount of inflection suggests that the utterance is a question, for example. But it would be impossible to generalize this amount if we did not standardize the melodies. Let us imagine, for example, the same utterance said by a male adult and a female child. Obviously, at first the two versions seem to be very different, as the female child pronounces the melody with much higher pitch; even the same movements may seem steeper. We cannot compare these melodies unless we have a reliable system of data standardization.

To express the relative pitch level difference between two tonal segments, different approaches have been made, for instance the Dutch School applied a system of semitones, but Cantero argues that the system of percentages is easier to handle. The tonal distance between 100Hz and 150Hz is not the same as the tonal distance between 200Hz and 250Hz, as in the first case the rise to 150 Hz as compared to 100 Hz is 50%, while in the second case, the rise to 250 Hz as compared to 200 Hz is only 25%.

In their process of standardization, the first pitch point is situated at 100 (which is an arbitrary value), and the successive values are represented compared to this number, that is, in terms of the percentage of fall or rise that occurs in the contour at that point compared to the previous point. For example, in Figure 2.11, *¿Hace deporte?* ('Do you do any sport (formal)?'), the absolute value of the first vowel, *a* of *Ha-*, of 104 Hz, is converted to 100; the absolute value of the second vowel, *e* of *-ce*, of 118 Hz, is 13,46% higher than the previous absolute value, so it will be converted to 100 + 13%, that is, 113. The diagrams give both the absolute and the relative values in the table, as well as the percentages of falls or rises compared to the previous pitch point, but only the standard curve values are represented in the graphic displays:

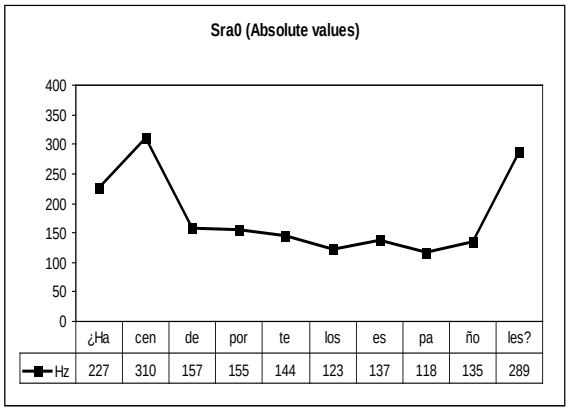
Figure 2.11: The representation of standard values in the graphics



	¿Ha	ce	de	por	te?
Hz	104	118	109	151	95
Percentage	100,00%	13,46%	-7,63%	38,53%	-37,09%
Standard Curve	100	113	105	145	91

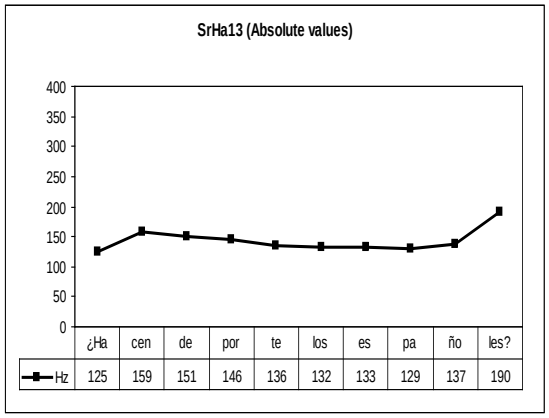
If the values were not standardized, it would be difficult to differentiate (15a) and (15b) showing the values of two realizations of *¿Hacen deporte los españoles?* ('Do the Spanish do sports?'). Their shape is nearly identical, and the lexical content of the utterances also coincides. Traditionally, a final rise is considered to be a sign of "interrogative intonation", and both figures have rising FI. But in Spanish we need at least a rise of 70% to perceive a melody as interrogative.[59] The standardized values of (15a) and (16a) shown in (15b) and (16b), respectively, reveal that only (15a) has a rising FI with that value. (16a) shows a much flatter realization.

(15) a



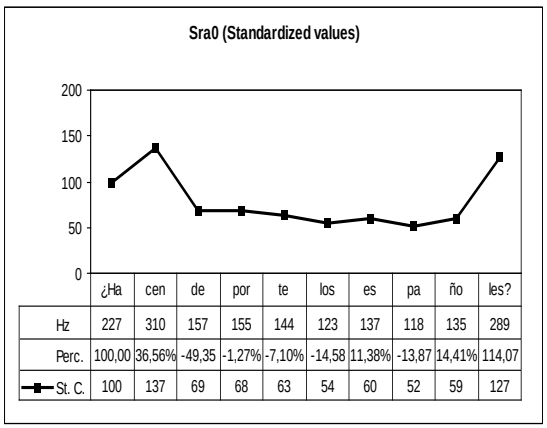
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	227	310	157	155	144	123	137	118	135	289

(16) a



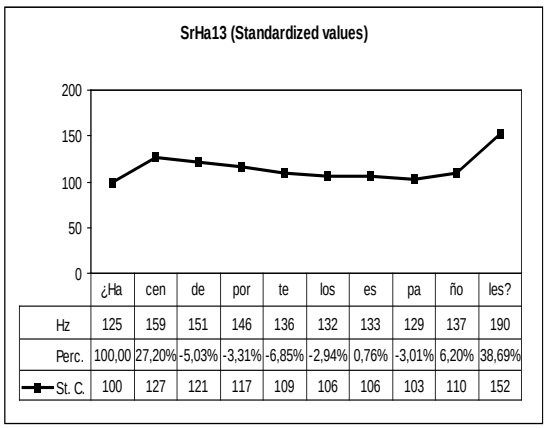
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	125	159	151	146	136	132	133	129	137	190

(15) b



	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	227	310	157	155	144	123	137	118	135	289
Perc.	100,00	36,56%	-49,35	-1,27%	-7,10%	-14,58	11,38%	-13,87	14,41%	114,07
St. C.	100	137	69	68	63	54	60	52	59	127

(16) b



	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	125	159	151	146	136	132	133	129	137	190
Perc.	100,00	27,20%	-5,03%	-3,31%	-6,85%	-2,94%	0,76%	-3,01%	6,20%	38,69%
St. C.	100	127	121	117	109	106	106	103	110	152

The figures obtained by the process of standardization yield objectively analyzable melodies, deprived of all their original micromelodic variations and the idiosyncratic factors of the speaker's voice.

[59] Or, if the First Peak is displaced, a minimum of 40% in the FI, see SP3, in 3.3.2.

2.6.2 The perceptual phase: analysis validation and data interpretation

After the acoustic phase, they check the validity of the results with a series of perceptual tests submitted to the listener's judgement from an exact copy of the analyzed sentences. This synthesized copy is achieved by the programme *Praat* (with PSOLA method), in which all original relative pitch values are erased and then replaced by the standardized values. This way they can check if the melodic analysis has been correct and if it reflects the original melody, without micromelodic variations and with the normalized values.

The following step is the interpretation of the obtained melody, by the extraction of the outstanding melodic data. In this theoretical pattern, there are three phonological features that are studied: /±interrogative/ /±emphatic/ and /±suspended/, whose combination allows them to characterize the language *tonemes.* In these perceptual tests, the listeners are asked whether the utterances they hear (with the standardized F_0 values already) sound to them as questions or not, that is, /±interrogative/; as finished, i.e. /± suspended/, and as exclamations or not, that is to say, /±emphatic/.

The melodic features are, in turn, the characteristic of the functional elements of the contour: *Anacrusis*, the *First Peak*, the *Body* and the *Final Inflection (FI)*. The description of these elements (especially the description of the FI) allows them to define the contour melody and to establish the typical melodic patterns in a corpus (as "typical contours" of the *tonemes*) and their dispersion margins (cf. 2.4, and especially for Spanish, Chapter 3).

2.7 The adaptability of Cantero's method to other languages

The method has been worked out for Spanish (Cantero et al. (2005), Cantero—Font-Rotchés (2007), Font-Rotchés—Mateo (2011), Catalan (Font-Rotchés 2005, 2007, 2009), and is being applied to Brazilian Portuguese and Chinese (Kao (2011)). It has also been used in studies on the acquisition of Spanish by Chinese people, speakers of a tonal language (Cortés, 2000, 2004; Liu and Cantero, 2002; Liu, 2003) and the acquisition of Catalan by Hungarian people (Pálvölgyi 2010), the acquisition of Spanish by Brazilian Portuguese people (Fonseca—Cantero (2011)), by Italians (Cantero—Devís, in press), and by Swedes (Martorell (2011)).

The present study is an attempt to compare Spanish intonation and Hungarian intonation with a view to the intonational difficulties that Hungarian learners of Spanish may encounter

in their Spanish speech. In this special context it is necessary to try to describe Hungarian intonation in Cantero's terms to make comparison possible. In the course of this it will be seen how successful such an adaptation of Cantero's model to Hungarian intonation can be and what kind of problems it involves.

2.8 Summary

In this chapter I presented F. J. Cantero's model, which deals with intonation at the prelinguistic, linguistic, and paralinguistic levels.

The model is based on a phonetic hierarchy, in which there are three major units: Syllables, Rhythmic Groups and Phonic Groups. Rhythmic Groups are built around lexical stresses (called Paradigmatic Accents), whereas Phonic Groups are organized around Syntagmatic Accents. A Syntagmatic Accent is the last and hierarchically superior Paradigmatic Accent in a Phonic Group, which contains the most radical tonal inflection.

At the prelinguistic level, intonation has the only function of organizing speech into blocks, by the help of Paradigmatic Accents. It is not yet linguistic in a sense that it is only responsible for helping the listeners understand the meaning at lexical level, but the meaning of the whole utterance is only expressed by intonation at the next level.

At the linguistic level, intonation can express three meanings according to Cantero, which he captures by means of 3 binary features: /±interrogative/, /±suspended/ and /±emphatic/. These 3 features can make up altogether 8 tonemes, which are intonational linguistic signs.[60] Every toneme has dispersion margins, within which it can be realized. These are defined with the help of perception tests, in which listeners have to decide whether the utterances in question are /±interrogative/, /±suspended/ and /±emphatic/. Thus, when these dispersion margins are established, the investigator can go on finding the intonational patterns that are regularly used for expressing the given toneme. The patterns are characteristic intonational contours, which have 3 characteristic parts in Cantero's framework: the Anacrusis, which stretches from the first syllable of the utterance to the First Peak (or – if there is no First Peak – to the Nucleus); the Body, which goes from the First Peak to the Nucleus (= Syntagmatic Accent); and the Final Inflection, the segment spreading from the Nucleus to the end of the Phonic Group. The description of the patterns considers the peculiarities of these 3 components.

[60] He regards these as binary phonological features, although they might also be considered to be suprasegmental morphemes, i.e. morphemes expressed by tones (cf. Bolinger 1958, 1986, Gussenhoven 2004).

At the paralinguistic level, intonation no longer adds predictable linguistic meaning to the utterances; this is the field where emotional intonation works, pertaining to pragmatics.

Cantero's model can handle spontaneous sentences, submitted to instrumental analysis, using Praat. The intonation of utterances is easier to compare in this model, as there is a system of standardization that is applied for pitch movements within an utterance.

The model is used primarily but not exclusively for analysing Spanish intonation. The present study is an attempt to use it for comparing the intonations of Spanish and Hungarian.

Chapter 3 Spanish intonation patterns recognised by Cantero

3.1 Introduction

As we have seen in 2.4.2, there are altogether 8 possible tonemes, which we represent again in the following table. (The grey background indicates the Spanish tonemes actually found in Cantero's corpus, cf. Cantero—Font-Rotchés 2007).

Table 3.1: Tonemes

Toneme number	**Binary features**	**Abbreviations**
1	/+ interrogative, + emphatic, + suspended /	/+I +E +S/
2	/+ interrogative, + emphatic, – suspended /	/+I +E –S/
3	/+ interrogative, – emphatic, + suspended /	/+I –E +S/
4	/+ interrogative, – emphatic, – suspended /	/+I –E –S/
5	/– interrogative, + emphatic, + suspended /	/–I +E +S/
6	/– interrogative, + emphatic, – suspended /	/–I +E –S/
7	/– interrogative, – emphatic, + suspended /	/–I –E +S/
8	/– interrogative, – emphatic, – suspended /	/–I –E –S/

Cantero used a large corpus of spontaneous Spanish speech, and asked listeners whether the sentences they heard sounded like questions /+interrogative/ or non-questions /–interrogative/, unfinished /+suspended/ or finished /–suspended/, and exclamative /+emphatic/ or non-exclamative /–emphatic/. In this way Cantero could find the most frequent tonemes, and the characteristics of typical contours, i.e. the patterns. He finally found that four tonemes, viz. 4, 6, 7, 8, and twelve frequent melodic patterns with subtypes occurred in spontaneous Spanish. We shall examine the schematic pitch curves of these patterns, and provide a description for them, following Cantero—Font-Rotchés (2007).

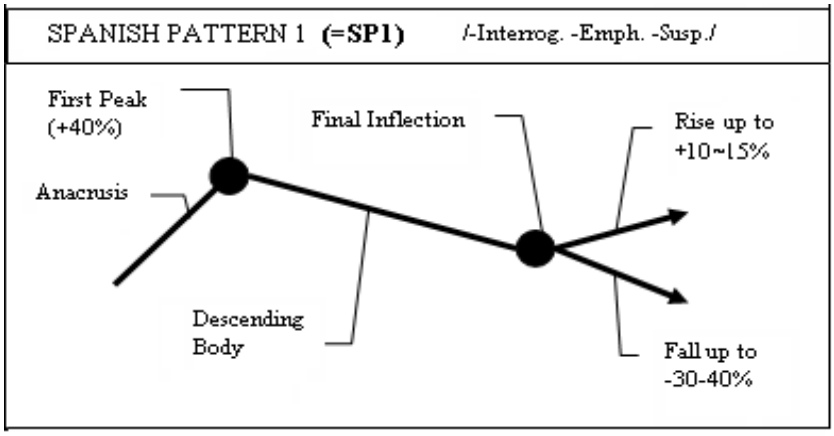
3.2 Non-emphatic intonation

3.2.1 Neutral intonation (Toneme 8) /–I–E–S/

Neutral intonation for Cantero is the one not marked positively for any of the three binary features /±interrogative/, /±suspended/ and /±emphatic/. This is the intonation of Toneme 8, as realized by Spanish Pattern 1 (i.e. SP1). That is to say, the melodies of the utterances that pertain to SP1 are all perceived as non-interrogative, non-emphatic and non-suspended. The FI starts on the last lexically stressed syllable. This pattern is used to produce finished declarative sentences as well as question-word questions. Obviously, the fact that it is perceived as a /−interrogative/ pattern does not mean that it cannot be used for asking any type of question at all.

Though neutral intonation could appear as the most common one, in fact it is quite rare, as in normal speech there abound /+emphatic/ contours.

(1)



Anacrusis: Rise till the First Peak of up to 40%.
First Peak: The first stressed syllable of the contour, which is located at the highest point of the whole contour.
Body: Smooth descending.
Final Inflection: Pitch movement between a rise of 10-15% and a fall of 30-40%.

As it is only the FI which is an obligatory part of a Phonic Group, utterances without Anacrusis and Body but having an FI with these characteristics (viz., between a rise up to

15% and a fall up to -40%) also represent this pattern.[61] This must be considered for all the forthcoming patterns, too.

3.2.2 Interrogative intonation (Toneme 4) /+I –E –S/

The dichotomy between a rising-interrogative and a falling-affirmative intonation is not universal.[62] According to Cantero's investigations (1988), for example, Hungarian questions have a falling FI rather than a rising one.[63]

We have four /+interrogative/ intonational patterns in Spanish (SP2, SP3, SP4a, SP4b). The common feature in all four is some sort of rise in the FI.

Naturally, /+interrogative/ should not be understood as the "intonation of questions", as the notion of "question" belongs to semantics and pragmatics, and it is not a phonological term. In Spanish, a /+interrogative/ contour can serve as a phonological marker of other types of utterances (not interrogatives) as well, such as "threat", or can indicate "politeness" in question-word questions, which normally would have a falling FI. Actually, question-word questions do have a falling /−interrogative/ contour identical to the one in declarative utterances because their interrogative nature is expressed by other, non-intonational means, such as interrogative pronouns (Cantero 2002:137-139).

The most important phonetic characteristic of the phonological feature /+ interrogative/ is the Final Inflection, which is characterised in Spanish by a rise higher than 70%, but normally over 100%. Rise up to 15% is still perceived as /–interrogative/ (that is, declarative), and a rise between 15 and 70% is identified as /+suspended/ by listeners.[64] So a rising FI is not automatically associated with the meaning /+interrogative/, the percentage of the rise is a decisive factor in the categorization.

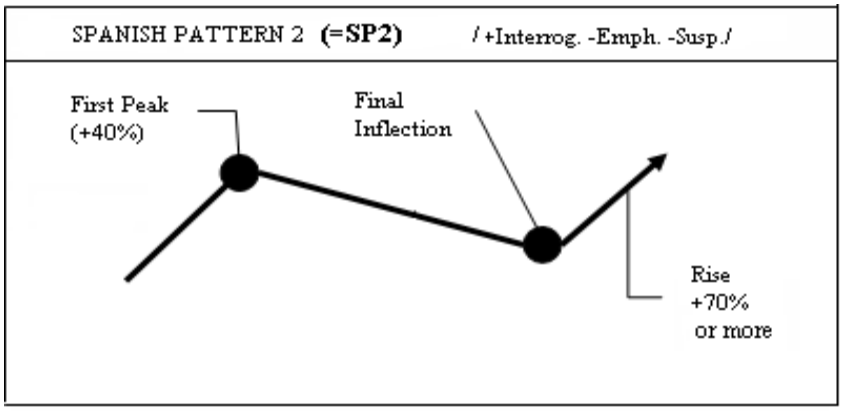
Other melodic characteristics of /+interrogative/ contours are the following: the First Peak is situated at approximately the same height as the last point of the FI rise; and it may be

[61] Font-Rotchés (2005:258) calls the contours which only have FIs "contours formed by FI only", and the rest, "complete contours".
[62] Chickasaw, for instance, is reported to have rising patterns for declarative sentences and falling patterns for yes-no interrogatives, cf. Gussenhoven (2004: 54).
[63] Cantero does not specify in this work whether he investigated yes-no questions or question-word questions in Hungarian. He also cites Catalan questions as having falling FIs, but according to the most recent studies, only a minority of Catalan questions end in a falling FI, where from the context it is obvious that the utterance is a question; the vast majority have rising FIs (cf. Font-Rotchés 2008). On Hungarian questions, see Chapter 6.
[64] Actually, a rise between 40 and 60% in the FI is decoded as /+interrogative/ if the First Peak is displaced to the unstressed syllable following the first stress, see SP3 in (3).

displaced to the unstressed tonal segment following the first stressed vowel (Cantero 2002: 172-3).

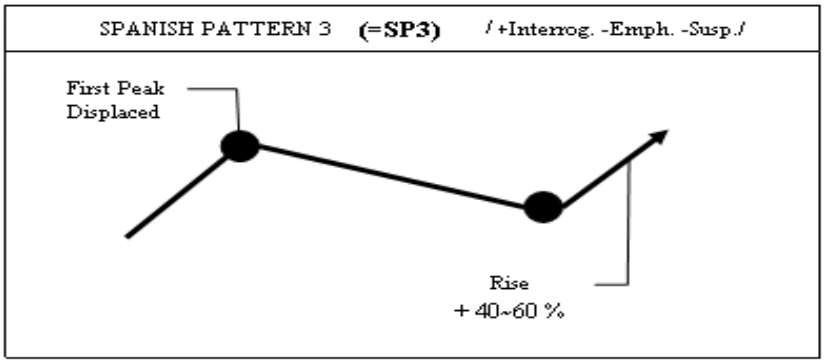
Now let us consider patterns SP2 and SP3, the most common /+interrogative/ patterns, shown in (2) and (3), respectively.

(2)



Anacrusis: Rise till the First Peak of up to 40%.
First Peak: The first stressed syllable, at the first highest point of the contour.
Body: Smooth descending.
Final Inflection: A rise of more than 70% (in most cases, more than 100%).

(3)

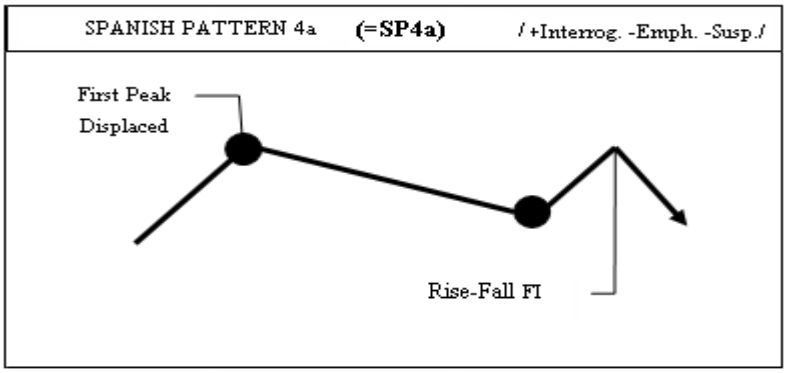


Anacrusis: Rise till the First Peak of up to 40%.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: Smooth descending.
Final Inflection: A rise of 40-60%

The following two interrogative patterns, SP4a and SP4b, presented in (4) and (5), are of special interest to us, as their shape and function seem to be similar to those of their Hungarian counterparts. They are interrogative but have a restricted use, as mentioned in

Navarro Tomás (1944).[65] Before Cantero—Font-Rotchés (2007), these patterns were not recognised among the interrogative ones, and it is interesting to note that Central European yes-or-no interrogatives tend to use a similar pattern (Grice et al. 2000:148-162). The shape of the FI in SP4a and SP4b seems to be identical to the one applied in Hungarian yes-no interrogatives.[66] Since every FI should normatively start on the last lexically stressed syllable (the Syntagmatic Accent), and the FI has two directions, a monosyllabic FI would be lengthened to accommodate the three tonal segments; in a disyllabic FI one syllable would be lengthened to accommodate two tonal segments, and in an FI having three syllables or more there would be no lengthening.

(4)

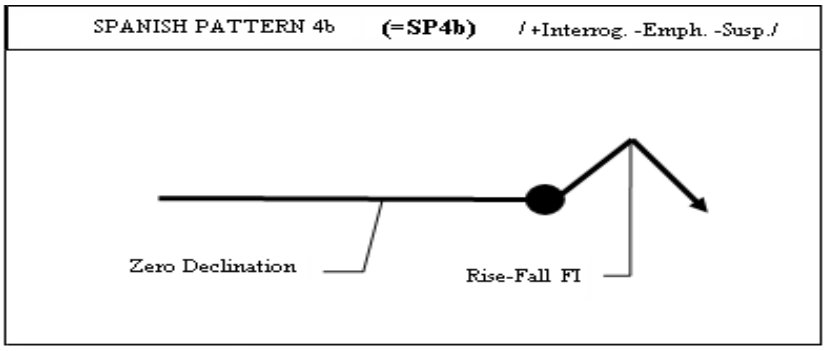


Anacrusis: Rise till the First Peak of up to 40%.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: Smooth descending.
Final Inflection: Rise-Fall.

[65] Navarro Tomás (1944, 1966) found SP4b in the so-called "interrogación relativa" or "pregunta relativa" (a type of question to which the speaker already knows the answer).

[66] The Hungarian pattern is similar to the FI in SP4a in that it requires three tonal segments, but it is not initiated necessarily by a Syntagmatic Accent: it is a pattern that is not sensitive to lexical stress (for stresses which initiate FIs, see É. Kiss–Kiefer–Siptár (2003:378)). These similarities and differences will be treated in more detail when the Hungarian pattern is analysed.

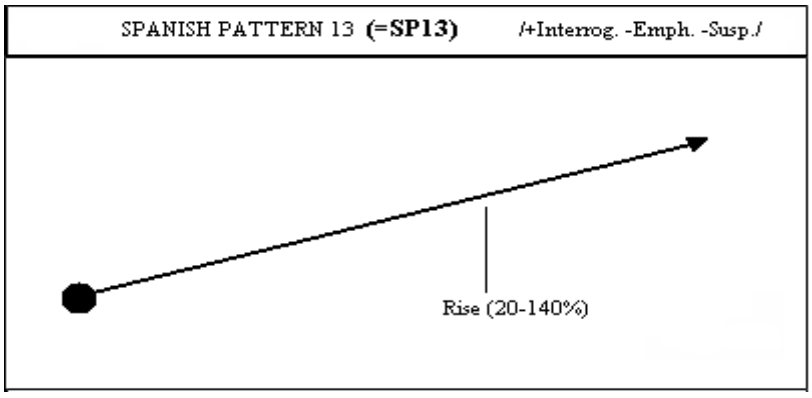
(5)



First Peak: None.
Anacrusis: Level.
Body: None.[67]
Final Inflection: Rise-Fall.

We must mention here a recently discovered pattern ((6), temporarily classified as XIII (SP13) in Font-Rotchés—Mateo (2011)), which is somewhat different from the previous /+ interrogative/ patterns: it lacks a salient First Peak[68], and is defined as having a constantly but not abruptly rising Body.

(6)



First Peak: None (not necessarily salient).
Anacrusis: None (if there is no First Peak).
Body: Rising (altogether with the FI of 20-140%)[69]
Final Inflection: Rising.

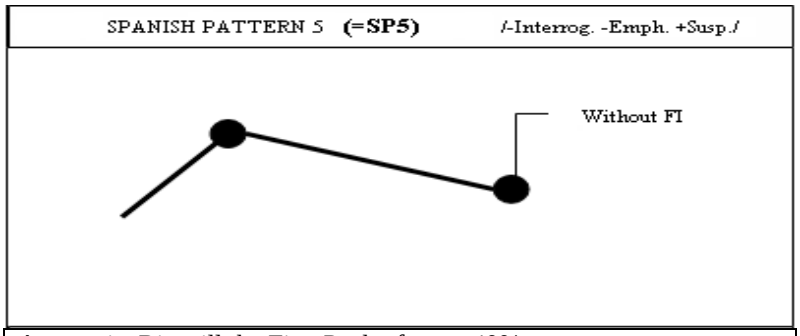
[67] Though in Cantero—Font-Rotchés (2007:8) the description of SP4b speaks of a Body with plain declination, there is no Body only an Anacrusis here, since the First Peak is not realized.
[68] This pattern is already identified in N. Tomás 1966: 258, but he found it in the case of reiterative questions only.
[69] Again, strictly speaking there is no Body in this pattern either, as the Body is defined as having a First Peak. As this is a recently recognized pattern, its description needs further considerations.

3.2.3 Suspended intonation (Toneme 7) /–I–E+S/

Contours can also be /+suspended/. The staple melodic characteristic of /+suspended/ contours is that they lack an FI, or their FI has a rise of between 15 and 70 per cent with a non-displaced First Peak. Generally, the position of /+suspended/ contours is in the interior of the conversational turn, but they can also appear turn-finally, either because the speakers do not want to miss a conversational turn, or because they do not know how to continue but do not want to lose the floor, or they want to leave their discourse suspended, for some other reason.

The contour was defined on the basis of the lack of FI, as in SP5 (7). This can imply that either the Body has reached the end of its normal declination because of its length, thus losing the physical possibility of finishing the contour with an FI, or the Body has been interrupted, which can happen at any point (Cantero 2002:141-142, 172-174). In any case, SP5 is an incomplete contour.

(7)



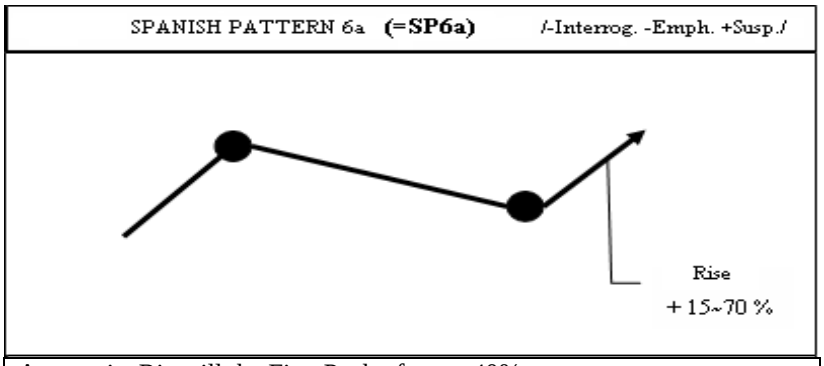
Anacrusis: Rise till the First Peak of up to 40%.
First Peak: The first stressed syllable.
Body: Smooth descending.
Final Inflection: None.[70]

A rising FI can also be interpreted as a suspended contour, but the rise in this case must be less than 70%, as in (8) or (9). Pattern SP6a (8) differs from SP1 with a final rise (1) because here the final rise is over 15%, while in SP1 the maximum of the final rise is 15%. It differs from SP2 (2) as well because its final rise must be under 70%, whereas in SP2 it is more than

[70] As the FI is the only obligatory part of an intonational contour (cf. 2.4.1), it might sound strange to regard these FI-less contours as the representatives of any pattern. These are anomalous contours, but as the lack of an FI is in contrast with the presence of an FI in other patterns, they are also listed here in the inventory of patterns. (7) cannot generalize all FI-less cases: the black circle suggests that the FI is missing, partly or completely.

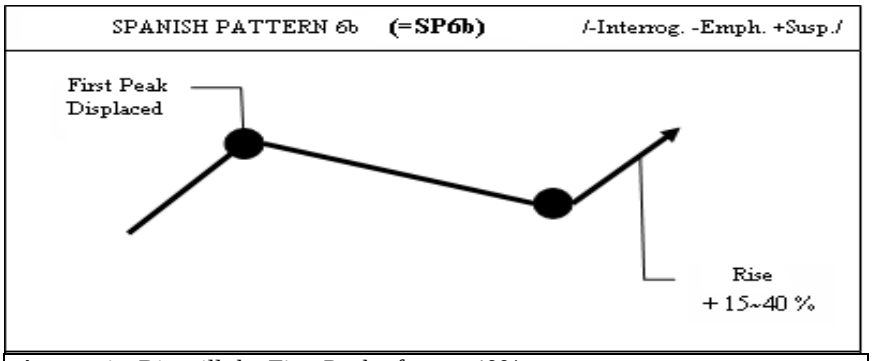
70%. Pattern SP6b (9) differs from SP3 (3) in that its final rise is between 15 and 40%, while in SP3 the final rise is between 40 and 60%.

(8)



Anacrusis: Rise till the First Peak of up to 40%.
First Peak: The first stressed syllable, at the highest point of the contour.
Body: Smooth descending.
Final Inflection: A rise between 15-70%.

(9)



Anacrusis: Rise till the First Peak of up to 40%.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: Smooth descending.
Final Inflection: A rise between 15-40%.

3.3 Emphatic intonation (Toneme 6) /–I+E–S/

The feature /+emphatic/ refers to the "marked" character of the typical /+interrogative/, /–interrogative/ and /+suspended/, /–suspended/ contours, but in Cantero—Font-Rotchés's

(2008) corpus all /+emphatic/ patterns are /–interrogative/ and /–suspended/.[71] It is the emphasis of the contour that is relevant, not the type of emphasis, nor the type of emotion or pragmatic modality it may express.

Thus, an emphatic contour would suit a certain utterance that in a certain context could express, for example, irony; but we cannot say that the intonation of the utterance itself is ironic; irony is a characteristically pragmatic kind of content. Equally, "joy", "surprise", "sadness", "subtlety", "courtesy", "anger" or "paternalism", for instance, are pragmatic categories, and are not expressed by intonation alone. Different types of emphatic intonation are not different linguistic signs, but different concrete uses of one and the same sign (Cantero 2002:140).

We can declare that /+emphatic/ contours are characterised by a perceptible melodic alteration in the normal scheme of the contours. This means that a deviation in one or more of the following features signals emphasis and converts the contour into /+emphatic/:

- First Peak on the First lexically stressed syllable (or in some patterns, on the syllable after it, see 3.3.1)
- Smooth descending Body (see 3.3.2)
- Place or interval of the FI (see 3.3.2)

We can classify the most common characteristics of /+emphatic/ contours according to the structural constituent of the contour that is involved: alterations in the First Peak, in the declination of the Body and in the FI. We can also combine them with two other melodic features of the contours, especially in dialogues, namely pitch range and tonal register. Alterations in these two often accompany but do not in themselves constitute /+emphatic/ contours.

3.3.1 Changes in the First Peak

A First Peak outside the normal pitch range of the discourse means either a very high First Peak, above the upper limits of the normal pitch range, or just the contrary, a very low First Peak, below the lower limits. This can either serve as a means to "steal a turn" in a dialogue or simply to introduce an especially interesting topic. Another way of making a contour /+

[71] This does not mean that they do not exist in Spanish or Catalan, only that they were not present in the corpus; Cantero and Font-Rotchés, with synthetized models, generated such contours and the listeners accepted them as existent in their language.

emphatic/ is by moving the First Peak to an unusual place, which is neither the first lexically stressed syllable nor the one after it, as the First Peak normally falls on one of these two places in the contour. It is also a means of emphasis if the First Peak shifts to the first lexically stressed syllable in patterns SP3, SP4a, SP6b and in the patterns to be presented below, viz. SP10a, SP10b, SP11, SP12a, SP12b, SP12c, as these are the patterns that have their First Peaks on the syllable after the first lexically stressed one. Similarly, in the remaining patterns (SP2, SP5, SP6a, SP7, SP8; the latter two will be presented soon), not having the First Peak on the first lexically stressed syllable would result in /+emphatic/ contours, and an extreme case would be SP9, presented in 3.3.2, in which the FI starts from the First Peak, an obvious case of displaced Nucleus.

3.3.2 Changes in the Body and in the FI

As the declination is normally a continuous descent or a series of falling inflections in the Body (cf. 2.4.1 and 2.4.5), every perceptible rise in the Body means an emphatic trait.[72] This can affect only one word (for example in the case of "word emphasis") or the whole contour if there are more interior rises.

Re-settings in the declination also yield emphasis: one re-setting, as in (10), (14) and (15), or several, when the Body looks like a succession of sawteeth (zigzag Body), presented in (17) and (18). Sentences with great anger or big surprise can have this type of emphasis. Another type of emphatic Body is just the opposite of the preceding one: "level Body", that is, a Body which is neither descending nor ascending, see (16). It is a very strong mark of emphasis, showing that the speaker eliminates the normal physiological phenomenon of a descending Body. It can express sadness or threat, or even contained anger.

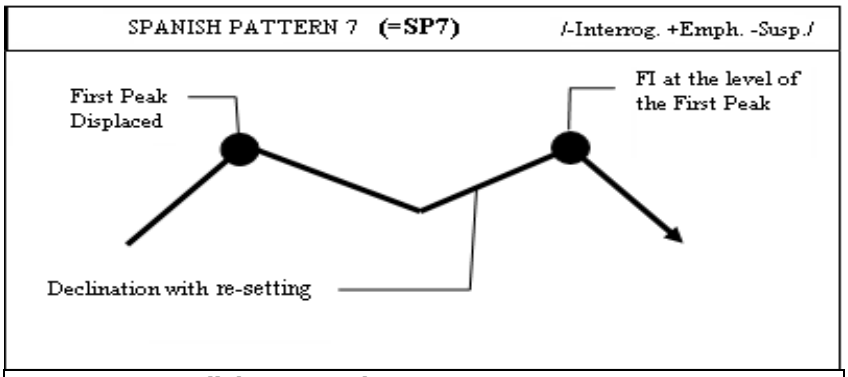
An FI with a fall deeper than -30% signals emphasis, cf. (12). The most radical emphasis, according to Cantero (Cantero et al. 2005:5), is when the Nucleus is fronted to the First Peak, so the FI is shifted, as shown in (11). The Rise-Fall FI is also listed among the possible emphatic features, see (13).[73]

The following patterns (SP7-SP12c) are "inherently" emphatic, that is, they are used systematically to express emphatic content, but theoretically any pattern, even the ones seen

[72] In the FI there can also be additional rises, in the case of "Recursive accent" (or "accent of insistence", cf. 2.4.6), which cause emphasis, too.
[73] Note that this pattern can also be /−emphatic/ but /+interrogative/, but then there are no specifications for the percentages of the FI, cf. (4).

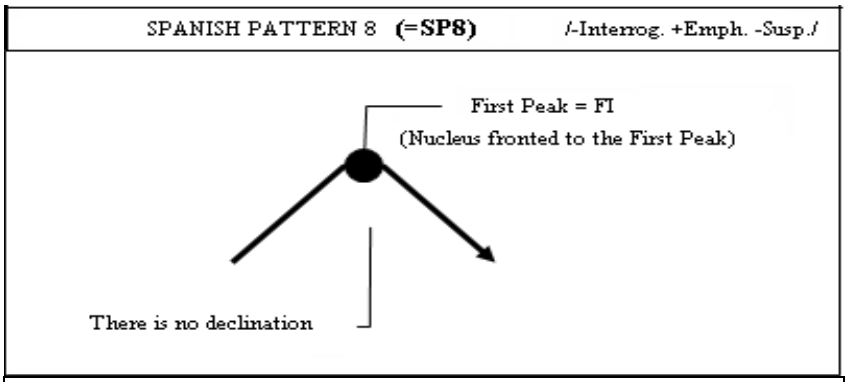
so far (SP1-SP4b) can be made emphatic by changing one element of the set (place of the First Peak, descending Body, place and range of the Final Inflection (Cantero (2002:139-141, 174-179; 2005:38).

(10)



Anacrusis: Rise till the First Peak.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: The declination is re-set upwards so that the Final Inflection could start from the height of the First Peak[74]
Final Inflection: A fall, situated at the height of the First Peak

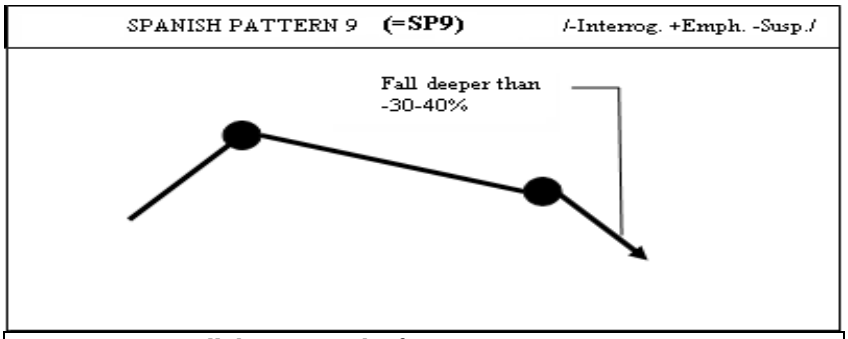
(11)



Anacrusis: Rise till the First Peak.
Body: None
The First Peak and the Final Inflection constitute the same tonal segment, and initiate a fall.

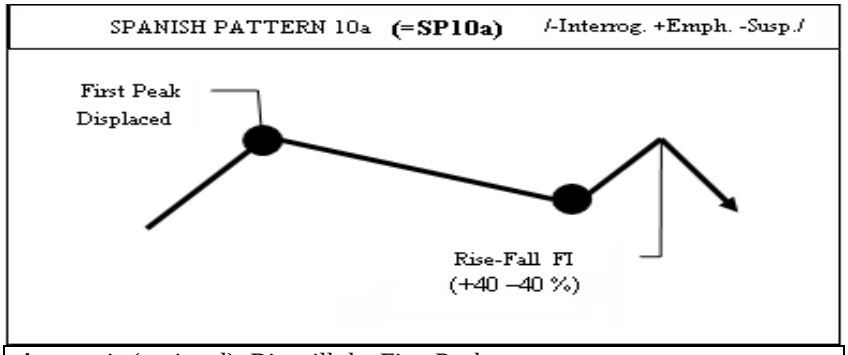
[74] Font-Rotchés (2005: 325) calls this characteristic a "high Syntagmatic Accent", which perhaps describes the situation better.

(12)



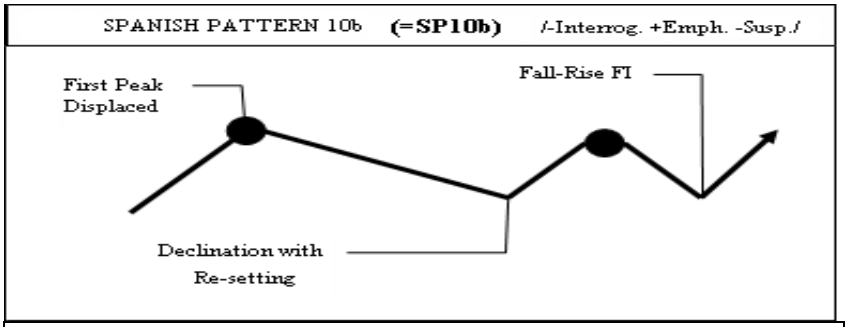
Anacrusis: Rise till the First Peak of up to 40%.
First Peak: The first stressed syllable, at the highest point of the contour.
Body: Smooth descending.
Final Inflection: A fall deeper than 30-40%.

(13)



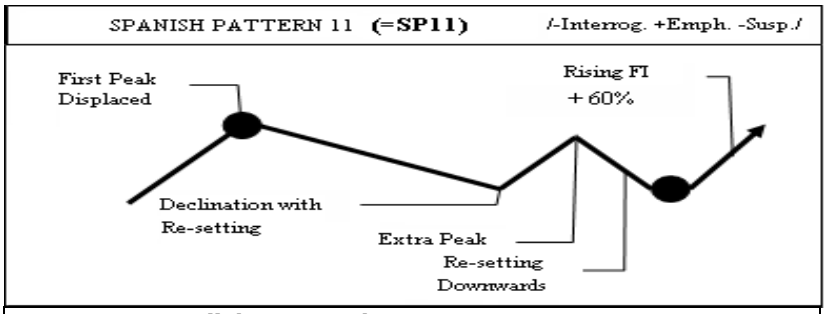
Anacrusis (optional): Rise till the First Peak.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: Smooth descending.
Final Inflection: Rise-Fall (a rise of 40% and a fall of 40%).

(14)



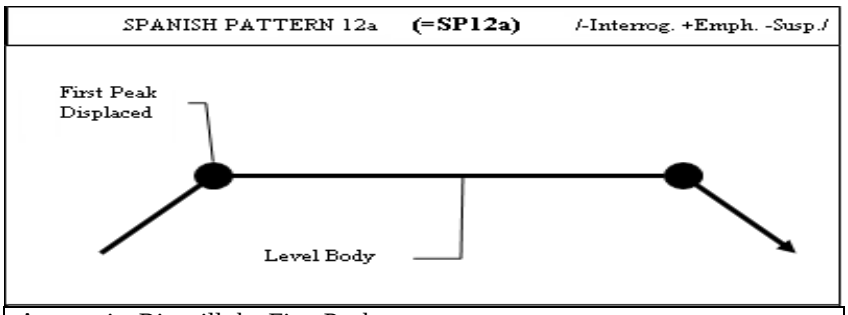
Anacrusis: Rise till the First Peak.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: Declination with re-setting upwards.
Final Inflection: Fall-Rise.

(15)



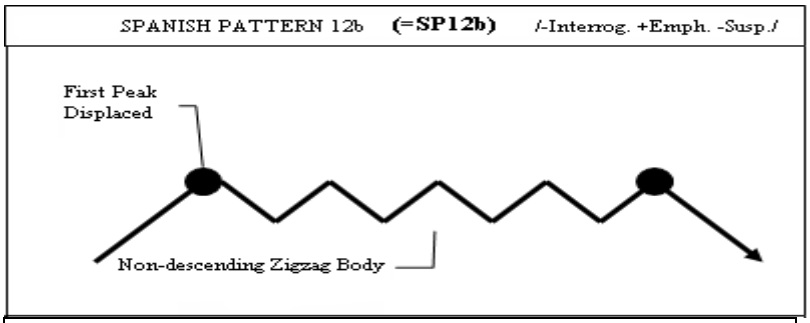
Anacrusis: Rise till the First Peak.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: Declination with re-setting upwards, an extra peak and re-setting downwards.
Final Inflection: A rise of more than 60%.

(16)



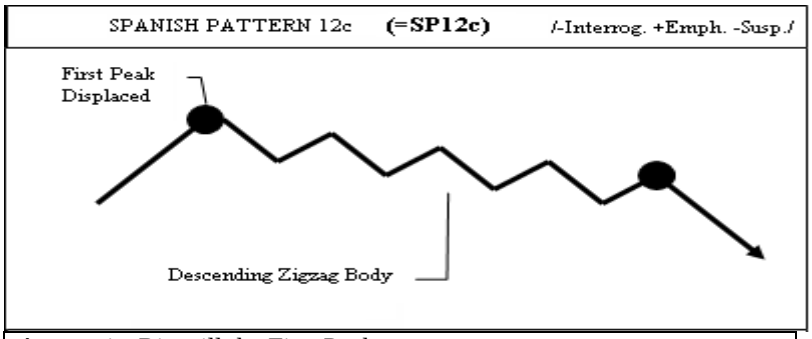
Anacrusis: Rise till the First Peak.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: Level.
Final Inflection: A fall.

(17)



Anacrusis: Rise till the First Peak.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: Non-descending zigzag.
Final Inflection: A fall.

(18)



Anacrusis: Rise till the First Peak.
First Peak: Displaced to the unstressed syllable following the first stress.
Body: Descending zigzag.
Final Inflection: A fall.

Note that minimal contours containing only an FI sometimes cannot be distinguished; for example, if there is only a falling FI no further specified, SP1, SP7, SP8, SP12a,b,c coincide.

3.3.3 Summary of emphatic traits

The following summary is based on Cantero (2002, 2005), and contains the elements that can convert a /–emphatic/ contour to /+emphatic/.

Table 3.2: A summary of emphatic traits in different structural elements of the Phonic Group

First Peak
- First Peak on an unstressed syllable (in some patterns) - First Peak out of the pitch range of the dialogue
Body
- Non-descending level Body - Internal Inflection (rising or falling word emphasis) - Zigzag Body (non-descending or descending) - Re-setting within the Body before the FI at the level of the First Peak
FI
- Final Inflection with a fall deeper than 30-40% -Two-directional FI (Fall-Rise and Rise-Fall) - Displaced FI (Nucleus fronted to the First Peak)

3.4 Summary

For Cantero, an absolutely neutral melody would include a First Peak on the first lexically stressed syllable, a Body with descending declination, with no considerable upsteps, and a Final Inflection starting from the last lexically stressed syllable.

Cantero recognises 12 patterns in Spanish spontaneous speech, with subtypes. In the description of the patterns Cantero includes the interval of values that characterize the Final Inflection of the pattern. For example, in the melodic pattern representing neutral intonation (/–interrogative, –emphatic, –suspended/, Toneme 8), the Final Inflection is characterised by a value between a fall of 30-40% and a rise of 15%. Beyond these values, the melody will cease to be neutral and will be converted to:

- Suspended: if the final rise is between 15 and 70% (corresponding to SP6a, a suspended intonation);
- Interrogative: if the final rise is greater than 70% (in which case it would correspond to SP2, an interrogative intonation);
- Emphatic: if the final fall is lower than -30% (in this case, the melody would correspond to SP9, an emphatic intonation).

In the same way, any change in the values of the First Peak, or in the shape and direction of the Body, or in the Final Inflection, beyond the dispersion margins given for the values specified in the patterns of a toneme, converts that pattern into a new melody, representing a different toneme.

From the eight tonemes that are possible, Cantero (2005: 22) only describes patterns for the following four: Toneme 4, Toneme 6, Toneme 7, Toneme 8 (cf. 2.4.2; 3.1). These are the ones that occurred in his corpus, and can be regarded as basic.

Table 3.3: Spanish tonemes and their realizations in Cantero's corpus

Toneme Nº	**Binary features**	**Patterns**
Toneme 4	/+ interrogative, – emphatic, – suspended/	**SP2, SP3, SP4a, SP4b**
Toneme 6	/– interrogative, + emphatic, – suspended/	**SP7, SP8, SP9, SP10a, SP10b, SP11, SP12a, SP12b, SP12c**
Toneme 7	/– interrogative, – emphatic, + suspended/	**SP5, SP6a, SP6b**
Toneme 8	/– interrogative, – emphatic, – suspended/	**SP1**
Toneme 3	/+ interrogative, – emphatic, + suspended/	**Not found**
Toneme 5	/– interrogative, + emphatic, + suspended/	**Not found**
Toneme 2	/+ interrogative, + emphatic, – suspended/	**Not found**
Toneme 1	/+ interrogative, + emphatic, + suspended/	**Not found**

The remaining four possible tonemes have not been found in Cantero's corpus but can easily be generated. **Toneme 3** /+I –E +S/ can be derived in one step from Toneme 4 or from Toneme 7. **Toneme 5** /–I +E +S/ can be derived in one step from Toneme 6 or Toneme 7. **Toneme 2** /+I +E –S/ can be derived in one step from Toneme 4 or from Toneme 6. **Toneme 1** /+I +E +S/ can be generated from the newly generated Toneme 2 or Toneme 5 or Toneme 3. Cantero's corpus, however, contained only the patterns representing the four basic tonemes.

Chapter 4 The intonation of Hungarian (and its comparison with the intonation of Spanish)

4.1 Introduction

Though there are numerous works about various aspects of Hungarian intonation, I prefer to base my presentation on the relevant parts of Varga (2002a).[75]

In the following chapter I first present the structure of the Hungarian intonational unit, then I describe those Hungarian intonational contours that are necessary for the discussion of Hungarian yes-no questions and then I examine these Hungarian contours from the point of view of how Spanish listeners might perceive them in terms of Cantero's analytical framework. This last step is necessary because, in Chapter 8, I will analyse my Corpus 3, i.e. Spanish sentences realized by Hungarian speakers, with the assumption that they may reflect the interference of Hungarian intonation. The comparison of the Hungarian students' intonation of Spanish sentences to the native Spanish intonation is only feasible in the same framework.

This is why one of the chief aims of this chapter will be to discover whether and how Hungarian patterns can be described in Cantero's terms.

4.2 The structure of the Hungarian intonational unit

According to Varga (2002a: 54-55), the unit of Hungarian intonation is the **Intonation(al) Phrase (IP)**. Within the Hungarian IP there is an obligatory **Terminal Part**, which stretches from the last accent to the end of the IP.[76] The Terminal Part is preceded by an optional **Scale**, which comprises the syllables from the first accent up to but not including the last one. The Scale can be preceded by a **Preparatory Part**: this part is also optional, and contains only minor stresses or no stresses at all. The Preparatory Part, Scale and Terminal Part constitute the structure of the Hungarian IP.

The internal structure of the Hungarian IP, with examples, is shown in Table 5.1.

[1] Works on Hungarian intonation include Tolnai (1915), Csűry (1925, 1935, 1939), Laziczius (1944), Molnár (1954), Deme (1962), Elekfi (1964, 1968), Fónagy—Magdics (1967), Kozma (1974), Hetzron (1980), Kozma—Szende (1981), Varga (1981, 1983, 1994, 2002a, 2008), Kornai—Kálmán (1989), Wacha (1985), Fónagy (1998), Olaszy (2002), etc.

[76] The accented syllable in Hungarian is a syllable which is marked not only by extra intensity but also by the presence of a pitch accent on the syllable. The term "accent" is synonymous with "major stress", and "accented" with "major stressed".

Table 4.1: Examples for the structural parts of the Hungarian IP

IP: Preparatory Part + Scale + Terminal Part	És lelőtte a dühöngő medvét. and off-shot-3sg the raving bear-acc 'And (s)he shot the raving bear dead.' | És 'lelőtte a 'dühöngő 'medvét. | És lelőtte a dühöngő medvét. Prep. Part Scale Terminal Part
IP: Scale + Terminal Part	| 'Lelőtte a 'dühöngő 'medvét. | Lelőtte a dühöngő medvét. Scale Terminal Part
IP: Preparatory Part + Terminal Part	| És a 'medvét. | 'And the bear.' És a medvét. Prep. Part Terminal Part
IP: Terminal Part	| 'Medvét. | '(A) bear.' Medvét. Terminal Part

Now let us compare Cantero's (2002) and Varga's (2002a) views on the internal structure of the intonational unit in Spanish and Hungarian. Varga's Preparatory Part corresponds to Cantero's Anacrusis, Varga's Scale to Cantero's Body, and Varga's Terminal Part to Cantero's Final Inflection, cf. 2.4 above.[77] Both models are reminiscent of the traditional British division of the Intonational Unit, such as Kingdon's (1958) English tone-group. Table 5.2 shows how Kingdon's Prehead + Body + Nuclear Part combination can be expressed in Cantero's and Varga's terms.[78]

[77] Note that in Spanish, if the FI is not dislocated, there are usually up to 3 syllables after the Nucleus of the FI, whereas in Hungarian, the Terminal Part can be much longer, in principle, it can contain any number of syllables.

[78] Varga says (2002a: 206) that he avoided the traditional British terminology for Hungarian, because, though the internal structural division of the intonational unit in English and Hungarian is similar, the British terminology suggests that the last (and obligatory) part is more prominent than the previous parts. In Hungarian, however, the Scale and the Terminal part are normally equally prominent, cf. Fónagy (1998: 340).

Table 4.2: Internal Structure of the intonational unit in Hungarian (Varga 2002a), Spanish (Cantero 2002) and English (Kingdon: 1958). The bracketed parts are optional.

Cantero's (2002) Phonic Group	(Anacrusis)	(Body)	Final Inflection
Varga's (2002a) Intonation Phrase (=IP)	(Preparatory Part)	(Scale)	Terminal Part
Kingdon's (1958) Tone-group	(Prehead)	(Body)	Nuclear Part

Table 4.3: Spanish, Hungarian and English examples in which all three parts of the intonational unit are filled.

Spanish: Phonic Group (Cantero 2002)	*Es* Anacrusis	*'uno de los ma'yores transa-* Body	*-'tlánticos.* Final Inflection
Hungarian: Intonational Phrase (Varga 2002a)	*Ez* Preparatory Part	*'egyike a 'legnagyobb* Scale	*'óceánjáróknak.* Terminal Part
English: Tone-Group (Kingdon 1958)	*This is* Prehead	*'one of the 'biggest 'transatlantic* Body	*'ships.* Nuclear Part

Because of the obvious correspondences between the Spanish "Phonic Group", "Anacrusis", "Body" and "FI" on the one hand, and the Hungarian "Intonational Phrase", "Preparatory Part", "Scale" and "Terminal Part" on the other, from now on I will extend the use of the Spanish terms to Hungarian, and use *Phonic Group, Anacrusis, Body* and *FI* instead of *Intonation Phrase, Preparatory Part, Scale* and *Terminal Part* respectively, when describing Hungarian materials, too. So the Hungarian example of Table 4.3 will be reanalysed as shown in Table 4.4.

Table 4.4: Hungarian example reanalyzed

Hungarian Phonic Group	*Ez* Anacrusis	*'egyike a 'legnagyobb* Body	*'óceánjáróknak.* Final Inflection

4.3 The Hungarian intonational contours: the Final Inflections in Hungarian Phonic Groups

Varga's intonational lexicon of Hungarian contains 11 "character contours" and an "appended contour". A **character contour** is a discrete meaningful speech melody that can

appear on independent utterances; it has a characteristic shape with a high pitch for at least part of the contour, and one accent, which is on the first syllable of the phrase that carries the contour (2002a:33). This initial accent is the only one in a Hungarian character contour. The character contour within a Hungarian Phonic Group constitutes the FI of the Phonic Group. The **appended contour** cannot appear on independent utterances, it lacks high pitch and has only minor stresses in it (2002a:48). The appended contour is irrelevant for the present investigation and so are two of the character contours, viz. the second-type descent and the stylized fall. So in my review I will only discuss nine character contours as typical Hungarian Patterns (HPs). After presenting their physical shape and meaning, I will try to express these meanings in terms of Cantero's binary features /±interrogative, ±emphatic, ±suspended/. I will also try to compare the physical shape of each contour to Cantero's patterns.

Cantero's model has limited applicability to Hungarian intonation, owing to the facts enumerated in (1). The first three facts (1a-c) follow from differences in descriptive methodology. The second three (1d-f), however, are intonational differences between the two languages.

(1)

a. Varga does not give percentages for the pitch height differences produced by pitch movements. For Cantero, the percentage often decides what meaning a contour can convey.
b. Varga (2002a: 35) distinguishes a **full fall**, i. e. a fall that ends on the bottom pitch of the speaker's normal pitch range, from a **half fall**, i. e. a fall that ends higher, without actually going upwards. Cantero does not consider it important where the falling movement ends, as compared to the bottom pitch of the speaker.
c. Varga (2002a: 54) distinguishes a half fall or a high descent when they end in an audible pause from a half fall or a high descent when they do not end in a pause, and considers the former two as possible FIs, the latter two as parts of the Body. By contrast, Cantero does not take pauses into consideration.
d. Hungarian FIs can embrace stretches longer than 3 syllables, whereas in Spanish it is quite rare that the syntagmatic accent is followed by more than two unstressed syllables.[79]
e. In Spanish, vowel lengthening is a by-product of accentuation. In Hungarian there are inherently short and long vowels, and so Hungarians do not lengthen accented syllables.

[79] In Spanish, the syntagmatic accent can be followed by more than 2 syllables in the case of imperatives as in *léetelo* (cf. 2.4.4) and in the case of displaced Nuclei.

f. In the rising-falling Hungarian pattern (HP7, see 4.3.3), there is a change in the direction of pitch movements, which is not necessarily connected to the presence of an accent. In Spanish rise-falls, either the syllable before the peak of the rise or the peak itself should be an accented one (cf. 2.4.4, 3.2.2, 3.3.2).

In the following sections, I will present the Hungarian contours that can be used when asking questions. They all correspond to FIs in Cantero's theory, even though the Hungarian FIs can have an unlimited number of syllables, not only four as in Spanish. The realizations of these contours will be illustrated on four Hungarian names, containing 1 to 4 syllables, namely *Pál, Mari, Mariann* and *Marianna*. This is necessary as many patterns take different realizations depending on the number of syllables of the carrier string.

At the end of the presentation of each group of contours I will give the possible Bodies that can precede these contours. The anacrusis will not be further explained because it necessarily adjusts its movement to the first syllable of the Body.

4.3.1 Front-falling contours

These are characterized by extra intensity on the first syllable of the carrier phrase, and by a radical pitch drop between the first and the second syllable when the utterance is not monosyllabic. Since the first syllable is not only stressed but also initiates an intonation contour, it is intonationally prominent, therefore it is regarded as accented. Varga (2002a) distinguishes three front-falling contours, all three have the general meaning 'self-contained'.

The **full fall** = HP1 (2a) is characterized by a radical fall from the first syllable to the next, and then the contour goes on descending and finally reaches the bottom pitch of the speaker's normal voice range. The meanings this contour conveys are 'self-contained' and 'finished'.

In Cantero's framework, this would be an unmarked pattern, and the 'finished' meaning would be expressed by /–suspended/. In his framework, the radical fall at the beginning of an FI can be a trait of emphasis if it exceeds –30%. Otherwise, the pattern is reminiscent of the FI of SP1, a simple fall in the FI representing the most neutral toneme, /–I–E–S/.

The **half fall** = HP2 (2b) differs from the full fall in ending higher, and thus it does not reach the bottom pitch of the speaker. The meaning associated with this contour is 'self-contained' only. If the full fall expresses a 'finished' meaning, the half fall would be treated as /+suspended/ in Cantero's analysis. For Cantero, however, the fact that a falling contour does not end its movement at the bottom pitch of the speaker is irrelevant, the only important

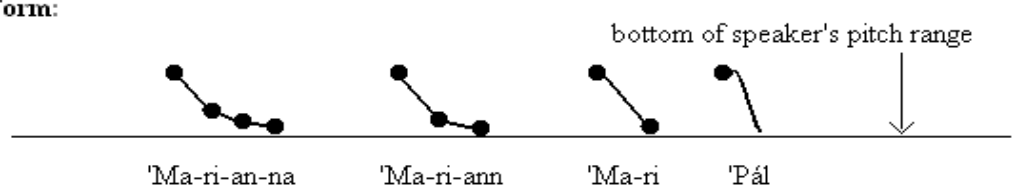
feature being the percentage of the fall. Thus, this pattern is not different from the full fall in its Spanish interpretation.

The **fall-rise** = HP3 (2c) is characterized by a step-up at its end (late rise, HP3a), or it can start the rise from the second syllable (early rise, HP3b). The two subtypes have the same meaning and are in free variation. They can only be differentiated if the initial accented syllable is followed by at least three unaccented syllables[80]. Its 'self-contained' meaning is supplemented by 'conflicting'. I consider the meaning 'conflicting' as a sign of emphasis, thus this contour would be represented as /–interrogative, +emphatic, +suspended/. For Cantero, both realizations of the contour could be analysed as having falling-rising FIs (SP10b), but in the case of the late rise it would be treated as somewhat anomalous, as in Spanish fall-rise patterns the rise immediately follows the fall. However, the Spanish fall-rise is emphatic and not suspended. The following figures (2a-c) sum up the first three contours.

(2a)

HUNGARIAN PATTERN 1 (=HP1) Full fall

Form:



Notes on form: 1st syllable of carrier string is accented

Meaning: 'Self-contained + finished'

Toneme: /–I–E–S/, Toneme 8

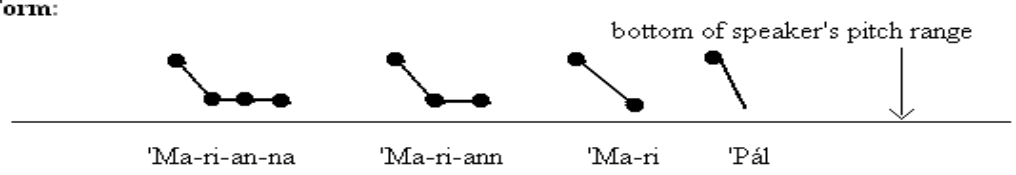
Possible impression on Spanish listeners, interpreted in Cantero's terms:
Falling FI of SP1 (if the fall is below -30%), /–I–E–S/, Toneme 8

[80] When HP3a and HP3b cannot be differentiated because the syllable number is too low, the label used in my analysis will be HP3.

(2b)

HUNGARIAN PATTERN 2 (=HP2) Half fall

Form:



Notes on form: 1st syllable of carrier string is accented

Meaning: 'Self-contained'

Toneme: /–I–E+S/, Toneme 7

Possible impression on Spanish listeners, interpreted in Cantero's terms:

Falling FI of SP1 (if the fall is below -30%), /–I–E–S/, Toneme 8

(2c)

HUNGARIAN PATTERN 3 (=HP3) Fall-rise

Form:

HP3a (late rise)

HP3b (early rise) 'Ma-ri-an-na

'Ma-ri-an-na

Notes on form:

a) 1st syllable of carrier string is accented
b) HP3 can be differentiated into HP3a and HP3b only if there are at least 3 unaccented syllables after the initial accented syllable in the carrier string. They are in free variation.

Meaning: 'Self-contained' + conflicting'

Toneme: /–I+E+S/, Toneme 5

Possible impression on Spanish listeners, interpreted in Cantero's terms:

HP3a: Falling-rising FI of SP10b, a fall-rise, but an irregular one, as the rise does not begin immediately after the fall; /–I+E–S/, Toneme 6
HP3b: Falling-rising FI of SP10b, a fall-rise, /–I+E–S/, Toneme 6

In the body, there are half-falls (HP2) or high descents (HP6, presented in 4.3.2), which can follow one another before any front-falling FI. The half falls or high descents in the body do not finish with a pause. When a half fall or a high descent ends with a pause, it counts as an FI.

As for sentence types, the front-falling contours are used in Hungarian statements, imperatives, question-word questions and ordinary exclamations (Varga 2002a: 36).

4.3.2 Sustained contours

Sustained contours are also characterized by extra intensity on the first syllable of the string carrying the contour and since the first syllable initiates an intonational contour, this syllable is intonationally prominent, i.e. accented. There are three types: the **high rise** = HP4 (3a), the **high monotone** = HP5 (3b) and the **high descent** = HP6 (3c).[81] The high rise can be gradual (HP4a), late (HP4b, from the last syllable) or early (HP4c, from the second syllable). The gradual, early and late rising subtypes have the same meaning and are in free variation. The high monotone has no considerable inner movements. The high descent is similar to the half fall, but without the big drop between the first and second syllables. All the three patterns have the meaning of 'forward-pointing', but the rise also conveys the meaning of 'tense', and the descent, 'routine'.

'Forward-pointing' for Cantero would mean /+suspended/, waiting for continuation. The rising contours, with the meaning 'tense', would be analysed as /+emphatic/ as well as /+suspended/.

The gradual rise (HP4a) is an unlikely pattern in Spanish, as the rise in an FI usually stretches from the syntagmatic accent to the next unstressed syllable but does not spread to all the possible unstressed syllables after that. Usually, if there are more unstressed syllables after the syntagmatic accent, they are not tonally relevant (cf. 2.4.4). This pattern would most probably be analysed as a rising FI, but its classification would depend on the percentage of the rise between the syntagmatic accent and the following syllable. If it is over 40%, the pattern is likely to be analysed not as pattern SP6 /–I–E+S/, but either as SP3 or as SP2 /+I–E–S/. The late rise is impossible in Spanish in normal circumstances, because in that case the rise would not start on the syntagmatic accent but on an unstressed syllable. The early rise is likely to be analysed as a rising FI in Spanish, as it starts from the syntagmatic accent; again, its classification would depend on the percentage of the rise as in the case of the gradual rise.

The high monotone is unlikely in Spanish because it is an example of the lack of FI to the Spanish ear, i.e. SP5, with a non-descending Body, or is perceived as an SP1 with a non-descending Body and a flat FI. The high descent is again unlikely in Spanish, since no radical

[81] In Varga (2002a) these are called "rise" and "descent". The revised labels "high rise" and "high descent" come from Varga (personal communication).

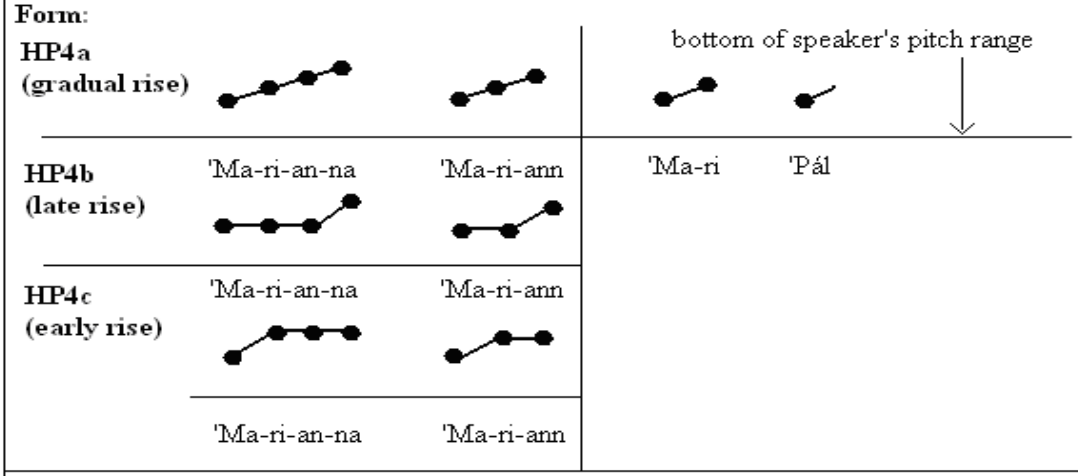
pitch movement can be detected from the Syntagmatic Accent to the next syllable. At any rate, if the descent is not steeper than -30%, it is considered as SP1/–I–E–S/.

All these Hungarian Patterns are characterized by a high starting point of the FI, thus they would be interpreted as /+emphatic/ by Spanish listeners, as a high FI is an emphatic feature in Spanish (cf. SP7, 3.3.2).

(3a)

HUNGARIAN PATTERN 4 (=HP4) High rise

Form:



Notes on form:

a) 1st syllable of carrier string is accented

b) HP4 can be differentiated into HP4a, HP4b, HP4c only if there are at least 2 unaccented syllables after the initial accented syllable in the carrier string.

c) Hybrids between HP4a and HP4b or between HP4b and HP4c are possible.

d) The different varieties (HP4a, HP4b, HP4c and HP4 hybrids) are in free variation.

Meaning: 'Forward-pointing + tense'

Toneme: /–I+E+S/, Toneme 5

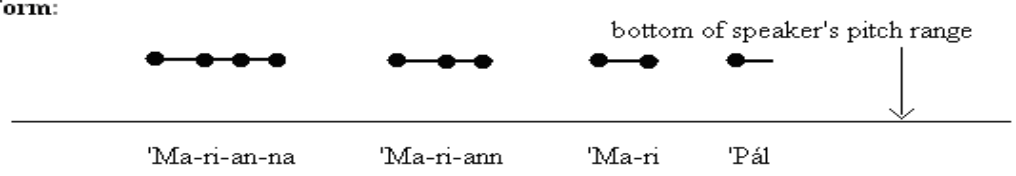
Possible impression on Spanish listeners, interpreted in Cantero's terms:

HP4a and HP4c: a rising FI of:
-SP1, /–I–E–S/, Toneme 8, if the rise is below 15%,
-SP6, /–I–E+S/, Toneme 7, if the rise is between 15-70%,
-SP2 or SP3, /+I–E–S/, Toneme 4, with a displaced First Peak and a rise between 40 and 60%, and anyway if the rise is over 70%.
HP4b: an impossible pattern in Spanish as the rise is delayed from the Syntagmatic Accent. May be erroneously interpreted as a level Body + a rising FI of SP1, SP2,SP3,or SP6)

(3b)

HUNGARIAN PATTERN 5 (=HP5) High monotone

Form:



Notes on form: 1st syllable of carrier string is accented

Meaning: 'Forward-pointing'

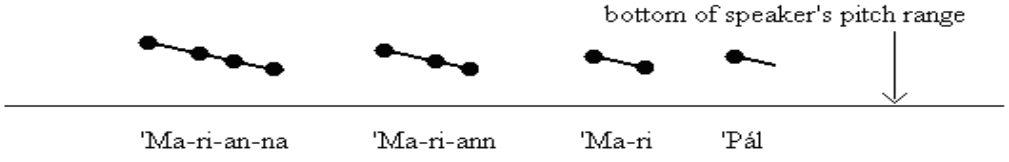
Toneme: /–I–E+S/, Toneme 7

Possible impression on Spanish listeners, interpreted in Cantero's terms:
Either as a smooth FI of SP1 with a non-descending Body (/–I+E–S/, Toneme 6) or as a non-descending Body with no FI (a truncated Phonic Group, SP5, /–I+E+S/, Toneme 5), and emphatic as the Syntagmatic Accent is positioned high.

(3c)

HUNGARIAN PATTERN 6 (=HP6) High descent

Form:



Notes on form: 1st syllable of carrier string is accented

Meaning: 'Forward-ponting + routine'

Toneme: /–I–E+S/, Toneme 7

Possible impression on Spanish listeners, interpreted in Cantero's terms:
Perceived as being a gently falling FI of SP1 with less than 30-40%, /–I+E–S/, Toneme 6, but rare because of the lack of salient pitch movement from the Syntagmatic Accent. Emphatic because the Syntagmatic Accent is positioned high.

The Body before a sustained FI is characterized by a succession of half falls or high descents, none of which ends in a pause.

These patterns appear in Hungarian complementary questions and certain non-final sentence constituents (Varga 2002a: 38).[82]

[82] Complementary questions (in the sense of Bolinger 1957-58) are unfinished sentences containing a conjunction, e.g. *És?* 'And?', topics with no predicates, consisting of nominal phrases, e.g. *Apja neve?* 'Your father's name?', or topics with no predicates, consisting of subclauses, e.g. *És ha nem jön?*, 'And (what) if he

4.3.3 End-falling contours

This group of contours comprises the **rise-fall** = HP7 (4a), the **monotone-fall** = HP8 (4b), and the **descent-fall** = HP9, (4c). All these have extra intensity on the first syllable of the carrier phrase and since this syllable is intonationally prominent, too (initiates an intonational contour), it is regarded as accented. In all three contours the fall occurs between the last two syllables when the utterance is at least 3 syllables long, but this does not make the penultimate syllable accented. The common meaning of all three is 'yes-no interrogative'. The binary feature expressing this meaning is /+interrogative/.[83]

The realization of the **rise-fall** depends on the length of the utterance: in monosyllabic utterances the rise and fall are both realized in the same syllable but the falling part is normally missing (cf. Varga 2002b). In the case of disyllabic utterances, the rise can be located between the two syllables, and the falling movement, in a vestigial form, is positioned on the second syllable. In utterances longer than 2 syllables, the rise goes on until the penultimate syllable and then it drops abruptly between that syllable and the last one. The rising part itself can be gradual (HP7a), late (HP7b) or early (HP7c), but these do not carry meaning differences and are in free variation. The meaning of the rise-fall (HP7) is considered to be 'yes-no interrogative' and 'questioning'.

---

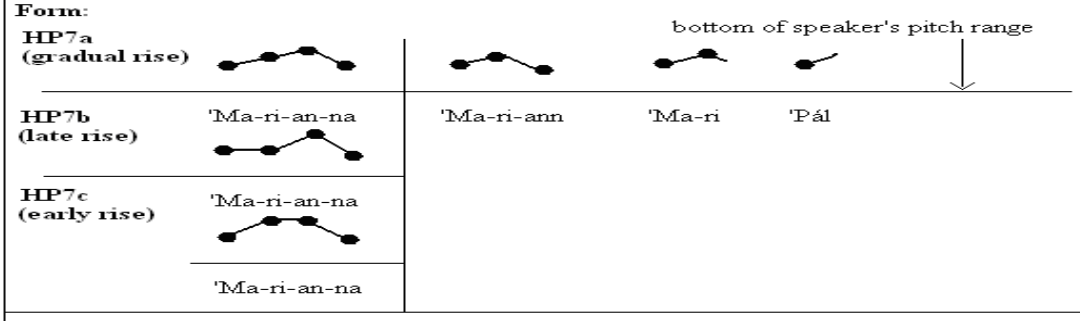
doesn't come?'. Their uses include data-taking questions, informal offers, or simple encouragements for the interlocutor to go on. For the notion of topic, comment (predicate), see É. Kiss (2002:2, 8-9).

[83] The binary feature expressing these meanings is /+ interrogative/ but only from an intonational point of view again; this means that the hearer identifies the contour as having yes-no questioning intonation, but does not mean that the sentence is grammatically a yes-no interrogative, nor that it is used as such in its context. Not all yes-no interrogatives are actually used to ask a question, cf. e. g. *Could you shut the window, please?*

(4a)

HUNGARIAN PATTERN 7 (=HP7), Rise-fall

Form:



Notes on form:

a) 1st syllable of carrier string is accented
b) HP7 can be differentiated into HP7a, HP7b, HP7c only when there are at least 3 unaccented syllables after the initial accented syllable in the carrier string. These subtypes are in free variation.
c) Hybrids between HP7a and HP7b or between HP7b and HP7c are possible.
d) The different varieties (HP7a, HP7b, HP7c and HP7 hybrids) are in free variation.

Meaning: 'Yes-no interrogative + questioning'

Toneme: /+I–E–S/, Toneme 4

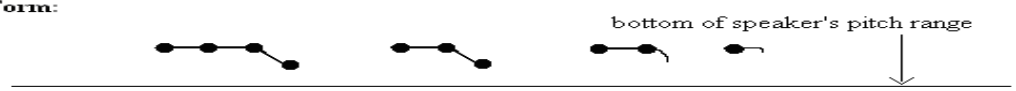
Possible impression on Spanish listeners, interpreted in Cantero's terms:

HP7a: a rising body + a falling FI on the penultimate syllable, emphatic SP1, /–I+E–S/, Toneme 6
HP7b: high Syntagmatic Accent and a falling FI, SP7, /–I+E–S/, Toneme 6
or Rise-Fall FI, SP4, /+I–E–S/, Toneme 4
HP7c: non-existent in Spanish, or misinterpreted as a high level Body + a fall, SP12a, /–I+E–S/, Toneme 6

(4b)

HUNGARIAN PATTERN 8 (=HP8) Monotone-fall

Form:



Notes on form: 1st syllable of carrier string is accented

Meaning: 'Yes-no interrogative'

Toneme: /+I+E–S/, Toneme 2

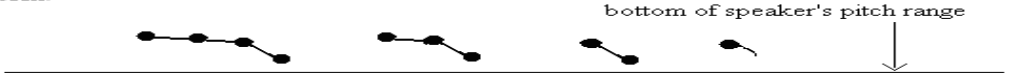
Possible impression on Spanish listeners, interpreted in Cantero's terms:

SP1, but as a level Body + falling FI sequence, thus emphatic, /–I+E–S/, Toneme 6

(4c)

HUNGARIAN PATTERN 9 (=HP9) Descent-fall

Form:



Notes on form: 1st syllable of carrier string is accented

Meaning: 'Yes-no interrogative + exclaiming'

Toneme: /+I+E–S/, Toneme 2

Possible impression on Spanish listeners, interpreted in Cantero's terms:

falling FI of SP1, but starting the FI from the penultimate syllable after a normal declining Body, /–I–E–S/, Toneme 8

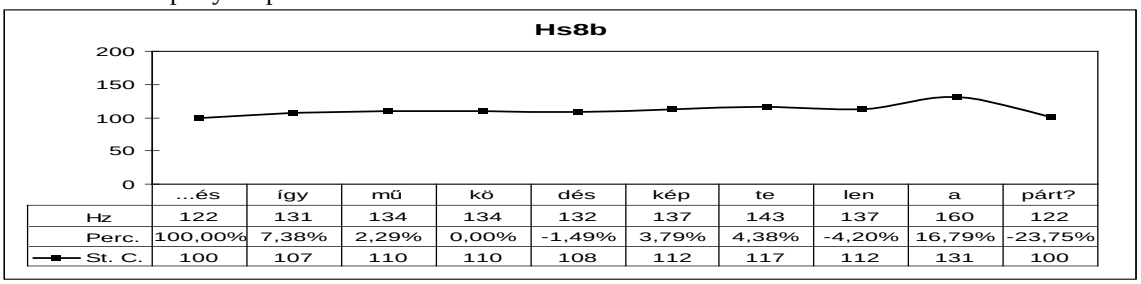
The physical shape of the end-falling contours seems to be problematic from a Spanish point of view. In all the patterns (HP7a-c, HP8, HP9) the most radical pitch movement – a fall – occurs between the penultimate syllable and the last syllable of the string and this does not necessarily coincide with the Syntagmatic Accent (cf. Ladd 2009:145, 228-229). The Hungarian syllable which initiates the whole rise-fall (with the three different shapes of the rise) and is accented is not always perceived as an accented syllable by the Spanish ear, while the non-accent on the penultimate syllable may be perceived as an accent.

HP7 patterns resemble the Spanish SP4 or SP7 in form.[84] However, the Hungarian pattern always has the penultimate syllable at the peak of a rise, which must be from the previous syllable in one variant of HP7 (HP7b), independently of where the Syntagmatic Accent is. As the Syntagmatic Accent tends to be at the beginning of an ordinary Hungarian yes-no question, the highest point of the Hungarian yes-no question is frequently not associated with an accent, in contrast to the Spanish solution. In HP7b, it is the final rise to the penultimate syllable which is the most perceptible movement for Spanish listeners, and they associate this upstep with accent even if there is no accent there in Hungarian. This is so because in Spanish, if there is a considerable rise in pitch, either the syllable which initiates the rise or the one which is located at the end of the rise is a stressed syllable (cf. Chapter 3). Thus, the oddity of this Hungarian pattern for Spanish listeners resides in the fact that the meeting point of the two most characteristic pitch movements of the contour – the rise and the fall – is not associated with an accent.

The following Hungarian example shows a rise-fall with the peak being on the article *a* (‘the’), which is completely unstressed.

(5)

...| és így 'működésképtelen a párt?|
and so inoperative the party
‘…and so is the party inoperative?’



	…és	így	mű	kö	dés	kép	te	len	a	párt?
Hz	122	131	134	134	132	137	143	137	160	122
Perc.	100,00%	7,38%	2,29%	0,00%	-1,49%	3,79%	4,38%	-4,20%	16,79%	-23,75%
St. C.	100	107	110	110	108	112	117	112	131	100

[84] Cf. also Baditzné (2011). They also resemble SP4 or SP7 in the sphere of usage, as both can be used in yes-no questions.

This means that in HP7a, where there is a gradual rise until the penult and a radical fall from there, the FI is heard on the penultimate syllable by the Spanish ear, and the intonation is perceived as a rising Body plus a falling FI, i.e. an emphatic SP1 /–I+E–S/, Toneme 6.

Similarly, HP7b would be perceived as having a falling FI on the penultimate syllable which is situated high, an emphatic trait again, i.e. it would be interpreted as SP7 /–I+E–S/, Toneme 6. Or it would be heard as a rising-falling FI (SP4, /+I–E–S/, Toneme 4), but then, with a Nucleus shifted to the penultimate syllable.

HP7c, with a rise on the syntagmatic accent followed by a plato and then a fall, is a totally non-existent pattern in Spanish. According to Cantero, in complex contours such as the rise-fall the two pitch movements should immediately follow each other, without there being a level sequence between them. Most probably a Spanish listener would analyse this pattern as two Phonic Groups, a rise followed by a new Phonic Group, consisting of a level Body plus a fall.

Consequently, it seems likely that for a Spanish listener none of the patterns in HP7 would count as a rise-fall, for the following reasons: in Hungarian the rising part of the contour

a) starts on the initial, accented syllable of the FI but is separated from the falling part by intervening syllables (as in HP7c),
b) or it does not have a salient rising part because the rise is gradual from the initial, accented syllable of the FI and stretches over various syllables including the penultimate one, as in HP7a,
c) - or it does not start on the initial, accented syllable of the FI at all, as in HP7b.

HP8 has the meaning ‘yes-no interrogative’ but has not got the meaning ‘questioning’. Thus, as a yes-no interrogative under normal circumstances would serve as a question, the Toneme that HP8 represents is an emphatic interrogative, /+I+E–S/, Toneme 2. However, the pattern is heard in Spanish as having a falling FI on the penultimate syllable after a high level Body (an emphatic trait), and so would be interpreted as an emphatic SP1 /–I+E–S/, i.e. Toneme 6.

HP9 is both ‘yes-no interrogative’ and ‘exclamatory’, which is an emphatic interrogative toneme, Toneme 2 /+I+E–S/. It is perceived as having a normal declination and a falling FI starting from the penultimate syllable, a standard SP1, /–I–E–S/, Toneme 8.

Since the patterns in HP7 comprise the typical ordinary yes-no question intonation, I will give a more detailed analysis of them in 6.3 below.

Before an end-falling FI, the neutral Body is a descent. In case of emphasis, there can be a succession of copied rise-falls before the rising-falling FI, see 6.4.1.

The end-falling contours accompany ordinary yes-no questions, echo yes-no questions, echo question-word questions and repetitive question-word questions, as well as certain imperatives (Varga 2002a:40-42), see Chapter 6.

4.4 Correspondences between the Spanish and Hungarian intonational patterns

In order to grasp the correspondences between the intonational patterns of the two languages, we had to examine them in a common framework. This is why the Hungarian patterns were presented from Cantero's perspective; I examined how the Spanish ear would decode such patterns.

The 9 patterns presented above would not be perceived as 9 different patterns by Spanish listeners. For example HP1 and HP2 only differ in whether or not the bottom of the speaker's pitch range is reached, which is not always objectively measurable. HP6, HP8 and HP9 would be perceived as different if the percentage of the fall was big enough to be perceived because, according to Cantero's studies, a listener needs at least 10% of rise or fall to perceive the movement as such, otherwise a slight fall between two syllables is not differentiated from a monotone.

The analysis of the Hungarian two-directional patterns is problematic from Cantero's perspective, because of the following reasons:

a) They can have unstressed syllables between the two movements (cf. HP3a or HP7a and HP7c), whereas in Spanish the two movements must follow each other immediately, without any intervening unstressed syllables (cf. SP4a, SP4b, SP10a, SP10b, SP11, in 3.2.2, 3.3.2)
b) In Hungarian, the rise that constitutes part of the FI can begin on an unstressed syllable in HP4b and HP7b. In Spanish, the rising part of a complex rising-falling FI or a lonely rise should depart from or end at an accented syllable, the Nucleus. Most probably, such Hungarian rises would be perceived as starting from or arriving at an accented syllable, as in Spanish a radical rise typically has a direct contact with the Nucleus. Thus, radical rises[85] are associated with accent in Spanish: either there is an accented syllable at the starting point of the rise, or, in a smaller number of cases, at the endpoint of the rise. This

[85] The amount of the rise in HP7 will be examined in 6.3.

is why HP7b, for example, would be perceived as either a high syntagmatic accent with a falling FI (SP7) or as a rise-fall (SP4) starting from a shifted nucleus, shifted in a sense that there is no lexical stress necessarily present at the rise.

It is interesting to note that in HP3a and HP4b, an unaccented syllable starts a radical rise. Similarly, in the two-directional patterns HP7a, HP7b, HP7c, HP8 and HP9 it is an unaccented syllable which starts a radical fall. It seems plausible then to claim that whereas in Spanish it is always the accented syllable that determines pitch movement in the utterance, in some Hungarian patterns it is rather the position of the syllable that counts in determining pitch movement.

Some Spanish patterns, such as SP2, SP3 or SP9, have no Hungarian equivalents because of the extent (high value in percentage terms) of the rise or fall in them. In my corpus no Hungarian utterances have been found with so high values (see 6.3).

Table 4.5 sums up where we can find correspondences between the examined Hungarian and Spanish patterns; ~ means that the two patterns are almost or completely identical. The comparison examines only the FIs of the Spanish patterns and what the Spanish listeners would identify as the FIs of the Hungarian patterns; it is assumed that all Hungarian FI-contours can be preceded by a descending zigzag Body, with local inflections (i.e. half falls and high descents with no pauses after them). In Spanish, there are more restrictions on which Body types can combine with which FIs.

Table 4.5: Correspondences between Spanish and Hungarian intonation patterns

Patterns with FIs existing only in Hungarian (but with parts that can be erroneously identified as FIs by Spanish listeners)	Hungarian Patterns with corresponding Spanish FIs	Patterns with FIs existing only in Spanish
HP3a ~ irregular SP10b HP4b (~ level Body + rising FI of SP1, SP2, SP3 or SP6) HP7a (~ rising Body + SP1) HP7b (~ SP4 or SP7 or SP10a) HP7c (~ SP12a)	HP1 HP2 HP4a,c HP5 HP6 HP7a HP7b HP8 HP9 ~ SP1, if the fall does not exceed -30% or the rise does not exceed + 10-15%, SP12b,c if preceded by a Body of high falls/descents HP3b ~ SP10b HP4a,c ~ SP6 if the rise is between 15 -40%, SP3 if the rise is between 40-70%, (or misinterpreted as SP13) HP5 ~ SP5 if the FI is between -10-10%	SP2 SP9 SP11

4.5 Summary

In this chapter I presented the relevant patterns in Varga's (2002a) Hungarian intonational lexicon and I characterized them in terms of how a native speaker of Spanish would hear them; that is to say, in terms of Cantero's descriptive mechanism. This step helped me to compare Spanish and Hungarian intonational patterns, and will help me to describe Hungarian people's intonational transfers from their native language when producing Spanish sentences (see Chapter 8).

The structure of the intonational unit in Spanish and Hungarian is similar, so I have chosen the Spanish terminology (Anacrusis, Body and Final Inflection) to refer to the parts of the intonation unit in both languages.

There are two salient differences in the description of the intonational patterns of the two languages:

- In Hungarian, the patterns are defined according to their distance from the bottom of the speaker's pitch range, which functions as reference line, especially in the case of HP2 (the half fall); in Spanish, no phonological contrast derives from this distance.
- Cantero's patterns are defined considering two important factors: the position of the First Peak in the Phonic Group and the percentage of the rise or fall in the Final Inflection, as they play an important role in the differentiation of the Spanish intonational patterns. In Varga's description of the Hungarian patterns these factors are not examined, as they play a considerably less important role in the expression of phonological differences.

Apart from these divergences, we can find certain correspondences in the inventories of intonation patterns of the two languages. One of these correspondences is the one between the two patterns which are almost identical in form in Spanish and Hungarian, SP7 and HP7. They are of special interest to us because they might both be used in yes-no questions. Although both patterns have a rising-falling pattern, there is a remarkable difference in their structure. In Hungarian the peak of the rise (or the starting point of the fall) is not necessarily linked directly to the presence of an accent, whereas in Spanish, it is.

Chapter 5 Types of Spanish yes-no questions and their intonational patterns

5.1 Introduction

Simplified grammatical works about Spanish claim that the peninsular[86] Spanish yes-no questions have an intonational contour with a rising FI as opposed to question-word questions which have an intonational contour with a falling FI.[87] The rising FI is not exclusive of yes-no questions, as polite question-word questions are also asked with such contours, for example (Seco 1999:116-118).

According to the corpus analyses of Cantero—Font-Rotchés (2007), not only rising patterns (SP2, SP3), but also rising-falling ones (SP4a and b) can signal the questionhood of a sentence for a listener. In my experience, there are several further patterns that can appear in yes-no questions.[88] The conclusions about Spanish intonation in yes-no interrogatives will be based on my own Corpus (Corpus 1, containing 76 read and spontaneous yes-no questions), also taking into consideration Font-Rotchés—Mateo (in press), containing 80 yes-no questions.

I will examine which pattern the sentence takes in three categories of yes-no questions: ordinary yes-no questions, echo yes-no questions, and yes-no questions marked with a grammatical particle. I chose the analysis of these categories because in Hungarian these

[86] There is considerable literature on yes-no question intonation in other, non-peninsular varieties of Spanish as well, cf. Llisterri (2011).

[87] On the universality (or at least the characteristic majority) of rising FIs for Spanish interrogative intonation, see Alcoba—Murillo (1998:160), Congosto et al. (2008:9), Face (2007:194), Fernández et al. (2003:191, 197), Henriksen (2010), Jiménez Gómez (2010:296-297), Martínez Celdrán (2003:72, 74), Quilis (1995:429-431), Sosa (1999:30), Tapia (1995:205, 207) and tacitly in Zamora et al. (2005:127). Martínez Celdrán (2003:78) agrees with Cantero (2002:168-169) that in peninsular Spanish, absolute interrogatives must have a rising inflection starting from a low Syntagmatic Accent. Sosa (1999), with an autosegmental treatment, for example, found only rising yes-no questions in Spanish. A possible reason for this is that he made the informants read out yes-no questions. In read yes-no questions, presumably, speakers are cautious to read out the "expected, normative" version. Canellada—Madsen (1987) also found only rising FIs in yes-no interrogatives. Still, as Sosa (1999:211) remarks, Cunningham (1983) found high falling FIs in Oviedo Spanish, and Díaz Tejera (1973:106) also permits a circumflex intonation for yes-no interrogatives.

[88] The most detailed work about Spanish sentence types and their intonation is N. Tomás (1944, 1966). In N. Tomás (1966:135-181) the author differentiates more than 15 question types with their corresponding intonational patterns. Among these, 13 can be associated with yes-no questions. These types are not always sufficiently defined and some groups cannot easily be separated from each other. For example, there are three groups that cover "echo-questions" (defined in 5.4.1), and some types comprise yes-no questions and questions-word questions which share one pragmatic aspect. The basis for separating these subtypes is not homogeneous: it may be the length of the questions, or their pragmatic use, or the presence of certain elements. The results roughly coincide with the results of my investigation; still, I believe that N. Tomás's classification is hard to follow, unnecessarily diverse and sometimes far-fetched.

attract special and well-definable intonational solutions (cf. 6.3-6.4), so a comparison can be made in the same subtypes.

5.2 The Spanish Corpus (Corpus 1)

The corpus consists of 76 Spanish sentences, all representing the standard Castilian dialect. The number of informants is 20 (9 male and 11 female), and the corpus can be divided into two parts: a read and a spontaneous one. The read sentences are taken from Spanish course books (thus, supposedly represent "normative" intonation) or from tv sketches that are not read but certainly rehearsed and learnt, so cannot be called spontaneous. The spontaneous part of the corpus taken from tv programmes.

As for the symbols and abbreviations (see also Appendix 1): |: Phonic Group boundary in the text; ': main stress at utterance-level (in the case of rising diphthongs, such as *ie, io, iu, ia*, the second element is stressed but the stressmark is before the syllable); **Sr:** Spanish sentences read aloud; **Ss:** Spanish spontaneous sentences; **pl:** plural; **sg:** singular; **refl. pron.:** reflexive pronoun; **fem:** feminine; **subj:** subjunctive; **fut:** future tense, *** before segment:** ungrammatical form; **Perc**.: percentage of rise / fall in the F_0 as compared to the previous syllable; **St. C.**: Standard curve values; **_ :** between the two moras of a bimoraic segment. The vertical dotted line indicates the boundary between two Phonic Groups.

5.3 Ordinary yes-no question intonation in Spanish

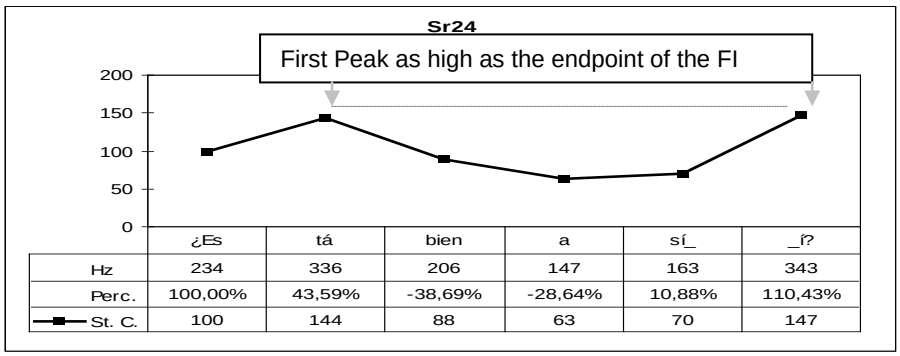
The normative yes-no intonational pattern in Spanish, SP2 (cf. 3.2.2) is said to have two predominant features (cf. Cantero—Font-Rotchés (2007:6)):

- the First Peak is situated at the highest point of the utterance, higher than or at the same height as the endpoint of the Final Inflection; [89]
- the Final Inflection is characterized by at least a 70% rise starting from the Syntagmatic Accent or Nucleus; the rise often exceeds 100%.

Thus, a representative example of a "normative" yes-no question with these features would be (1).

[89] Sosa 1999: 202 also describes the normative peninsular dialects as presenting the First Peak even higher than the endpoint of the final rise, as does N. Tomás (1944), Quilis—Fernández (1964) and Quilis (1987).

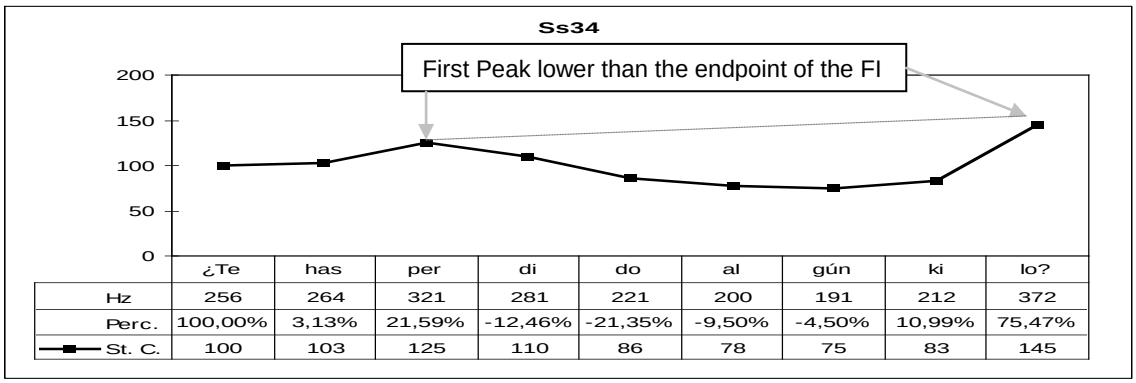
(1)
| ¿Está bien a'sí?|
is well so
'Is it all right this way?'



	¿Es	tá	bien	a	sí_	_í?
Hz	234	336	206	147	163	343
Perc.	100,00%	43,59%	-38,69%	-28,64%	10,88%	110,43%
St. C.	100	144	88	63	70	147

Nevertheless, in my Corpus 1 (containing read and spontaneous Spanish sentences), among the 55 ordinary yes-no questions, the most frequent realization of SP2 is where the First Peak is situated somewhat lower than the endpoint of the Final Inflection, as in (2):

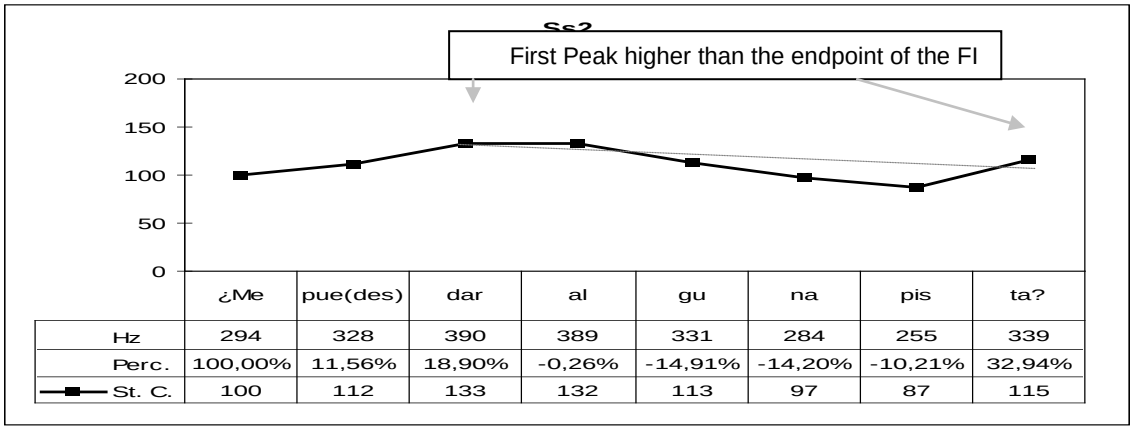
(2)
| ¿Te has perdido algún 'kilo?|
refl.pron.-2sg have-aux-2sg lost some kilo
'Have you lost some weight?'



	¿Te	has	per	di	do	al	gún	ki	lo?
Hz	256	264	321	281	221	200	191	212	372
Perc.	100,00%	3,13%	21,59%	-12,46%	-21,35%	-9,50%	-4,50%	10,99%	75,47%
St. C.	100	103	125	110	86	78	75	83	145

In some cases, it can also happen that the First Peak is situated higher than the endpoint of the FI, though this is less common (cf. (3)). A possible explanation for this is that the speaker runs out of air by the end of a long sentence and is unable to realize the endpoint of the FI as high as it should ideally be.

(3)
| ¿Me puedes dar alguna 'pista?|
me can-2sg give some hint
'Could you give me any hint?'



	¿Me	pue(des)	dar	al	gu	na	pis	ta?
Hz	294	328	390	389	331	284	255	339
Perc.	100,00%	11,56%	18,90%	-0,26%	-14,91%	-14,20%	-10,21%	32,94%
St. C.	100	112	133	132	113	97	87	115

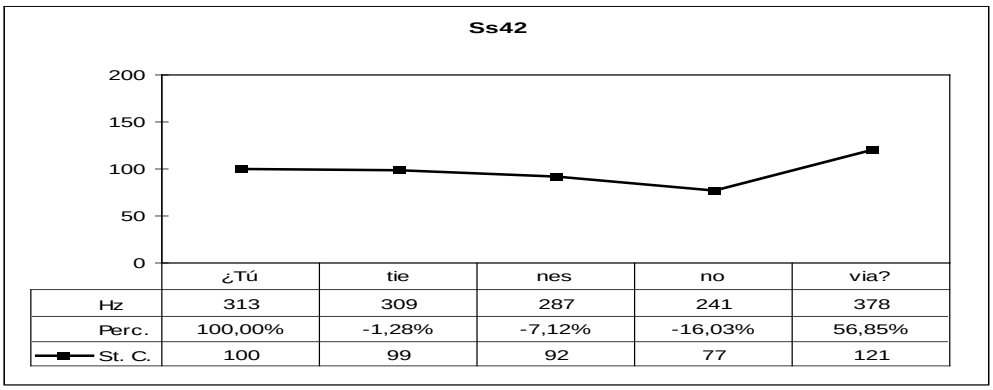
Thus, we cannot localize the height of the First Peak with respect to the end of the FI exactly.

As for the position of the First Peak, it is normatively on the first stressed syllable, as in (1), but in my corpus it frequently appears on a syllable after the first stressed one, as in (3).

Though predominant, SP2 is not the only pattern in ordinary yes-no questions. In a number of cases, ordinary yes-no questions in Spanish are accompanied by SP3 or SP6.[90] In the case of SP3, the rise at the end is not as marked as in the case of SP2, it is between 40-60%. In my corpus SP3 is represented by only three sentences, while SP6 is a much more frequent pattern. Cantero—Font-Rotchés (2007) do not list SP6 among the /+interrogative/ patterns because they claim the hearer associates the rising melody of an SP6 with a /+suspended/ nature instead of /+interrogative/. Still, I have found quite a few instances of SP6 used as /+interrogative/. It is also possible, however, that we are facing only an imperfect performance when the speaker does not have enough breath, for instance, to finish the sentence with a rise over 70% and thus instead of SP2 (s)he realizes an SP6, as in (4).

[90] When there are more subtypes of a pattern depending on the position of the First Peak (as in the case of SP6), we cannot specify the subtype if there are utterances consisting of an FI only. SP6 without specification comprehends both SP6a and SP6b, cf. 3.2.3.

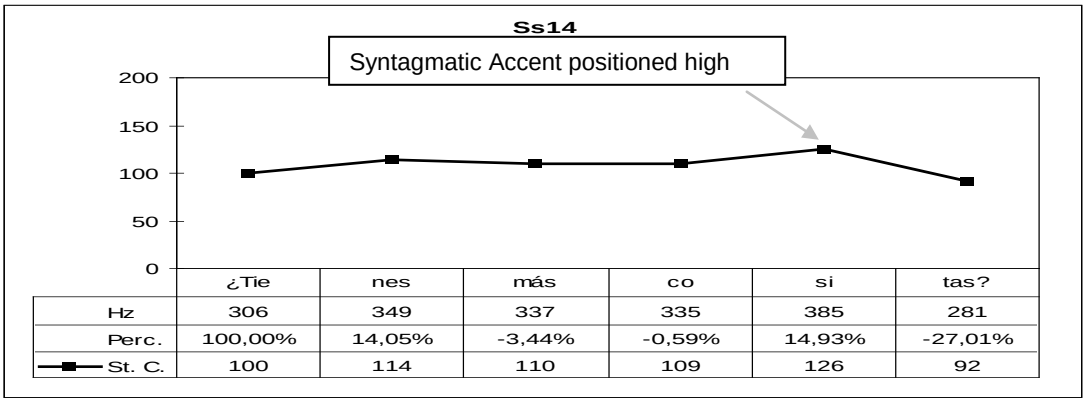
(4)
| ¿Tú tienes 'novia?|
you have-2sg girlfriend
‘Do you have a girlfriend?’



	¿Tú	tie	nes	no	via?
Hz	313	309	287	241	378
Perc.	100,00%	-1,28%	-7,12%	-16,03%	56,85%
St. C.	100	99	92	77	121

The next most frequent pattern was SP7, a non-interrogative but emphatic contour for Cantero—Font-Rotchés (2007). It means that the melody itself is heard as emphatic but non-interrogative. In SP7, the Syntagmatic Accent is positioned higher than the previous syllable even in the declining (normal) Body; and, usually, there is a fall afterwards, see (5).

(5)
| ¿'Tienes más co'sitas?|
have-2sg more little-things
‘Do you have any other things?’

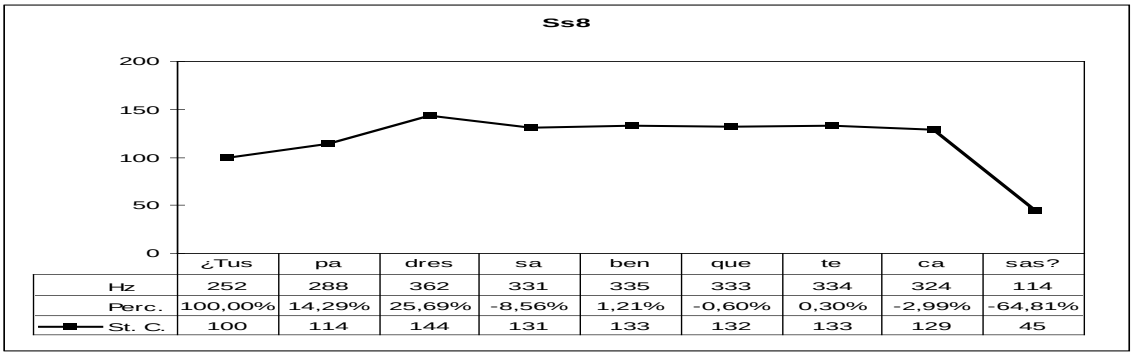


	¿Tie	nes	más	co	si	tas?
Hz	306	349	337	335	385	281
Perc.	100,00%	14,05%	-3,44%	-0,59%	14,93%	-27,01%
St. C.	100	114	110	109	126	92

Ultimately, this pattern is generally descending; but there is a rise preceding the fall, which interrupts the declination of the Body before the Syntagmatic Accent. Thus, it is also characterized by a rise, which however, is not final.

An ordinary Spanish yes-no question may as well end in a fall with no rise before it (in contrast to what we have seen in SP7). In some utterances we have SP1, but a much more frequent realization is SP9. SP9 is characterized by a radical fall from the Syntagmatic Accent onwards, with more than 30%. The following example shows that the fall may reach even –50%, cf. (6).

(6)
| ¿Tus padres saben que te 'casas?|
your-pl parents know-3pl that get-married-2sg
'Do your parents know that you are getting married?'



	¿Tus	pa	dres	sa	ben	que	te	ca	sas?
Hz	252	288	362	331	335	333	334	324	114
Perc.	100,00%	14,29%	25,69%	-8,56%	1,21%	-0,60%	0,30%	-2,99%	-64,81%
St. C.	100	114	144	131	133	132	133	129	45

Table 5.1 shows the intonation patterns found in the 55 ordinary Spanish yes-no questions in Corpus 1. As SP2 is represented by far the greatest number of sentences, I will refer to it as the "yes-no question intonation pattern", with the remark that it is not the only possibility but certainly the most typical one.[91]

Table 5.1: The intonational patterns in ordinary Spanish yes-no questions, according to Corpus 1 (shaded boxes show predominance)

Patterns	Frequency in the read corpus (34)	Frequency in the spontaneous corpus (21)	Frequency (all, 55)
SP2	16 (47%)	5 (24%)	21 (38%)
SP6	4 (11%)	7 (33%)	11 (20%)
SP4	2 (6%)	3 (14%)	5 (9%)
SP3	3 (9%)	1 (4%)	4 (7%)
SP7	2 (6%)	2 (10%)	4 (7%)
SP9	2 (6%)	2 (10%)	4 (7%)
SP1	3 (9%)	0 (0%)	3 (5%)
SP13	1 (3%)	1 (4%)	2 (4%)
SP10b	1 (3%)	0 (0%)	1 (2%)

[91] My results by and large reflect the results found in Font-Rotchés—Mateo (2011b), in the sense that out of the "top" 6 Spanish patterns used in yes-no questions 4 coincide in their analysis and mine (SP2, SP3, SP6, and SP7). Their corpus and mine (Corpus 1) cannot be compared, because Font-Rotchés—Mateo analyse 80 exclusively spontaneous yes-no questions which were not classified according to whether they were ordinary or echo, and 4 of them contained grammatical particles. The patterns they encountered are summed up as follows: 21% of the utterances were characterized by SP13; 18%, by SP7. SP3 follows with 14%. SP1 was present in 9% of the utterances, as well as SP2 and SP6b. Then followed SP4b, with 5%, SP8 and SP11 were represented by 4%, SP4b, SP6a and SP10b by 3%, and finally, SP12b by 1% of the interrogatives. This means that patterns with a rise over 15% in the FI characterized 60% of the utterances. In my corpus, the high occurrence of SP2 is probably due to the fact that my utterances contained read yes-no questions as well, which presumably are characterized by a "more normative" intonation. According to Font-Rotchés (personal communication), in spontaneous speech the speakers do not have to apply so marked inflections as in read sentences.

Table 5.2: The distribution of rising patterns in Spanish ordinary yes-no questions, according to Corpus 1

Patterns	Read (34)	Spontaneous (21)	All (55)
With an FI over 40%	19 (56%)	7 (33%)	26 (47%)
With an FI over 15%	25 (74%)	14 (67%)	39 (71%)

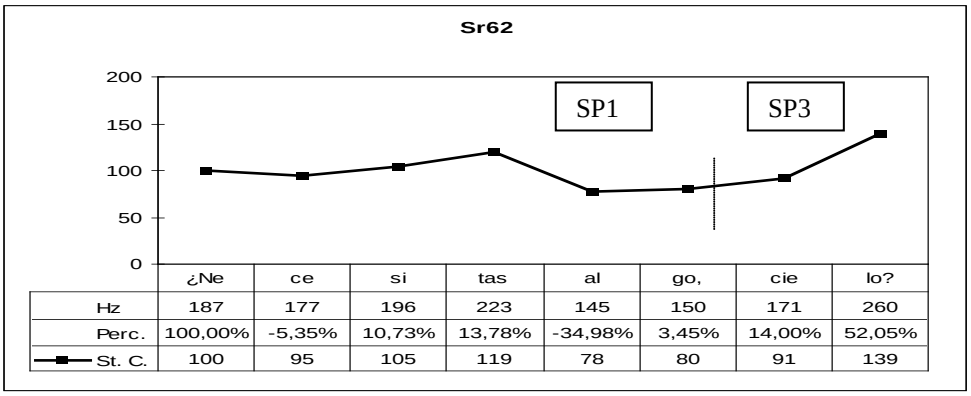
From both my corpus (Corpus 1) and the Font-Rotchés—Mateo (in press) corpus we can see that there are various patterns present in ordinary yes-no questions. The majority of the patterns rise: in my Corpus the 71% of the patterns end with a rise over 15%, only 29% end in a fall.

In my corpus, either SP2 (read utterances) or SP6 (spontaneous utterances) seem to be predominant. This means that in half of the cases, Spanish yes-no interrogatives are accompanied by a rising FI with over 40% of rise. Among the falling patterns, it is SP7 and SP9 which occur most in ordinary yes-no questions.

If a neutral yes-no question is followed by a vocative, generally both the interrogative and the vocative have a rising pattern, the vocative bearing the more radical movement, cf. (7).[92] On this matter, see more in 7.3.2.3.

(7)

| ¿Nece'sitas 'algo, | 'cielo?|
need-2sg something heaven
'Do you need something, darling?'



	¿Ne	ce	si	tas	al	go,	cie	lo?
Hz	187	177	196	223	145	150	171	260
Perc.	100,00%	-5,35%	10,73%	13,78%	-34,98%	3,45%	14,00%	52,05%
St. C.	100	95	105	119	78	80	91	139

[92] In Martínez Celdrán (2003: 74), a level-based representation of a yes-no question + vocative sequence (called somewhat surprisingly "interrogative + incisive") is the following: *¿Aquí viene, María?* 'Does (s)he/it come now, María?': /^{1}a^{2}kí^{2}bjé^{2}ne| ^{2}ma^{2}rí^{2}a↑/ (where small numbers refer to pitch height, | to level terminal juncture, ↑ to a rising terminal juncture). Thus, the interrogative has a definite rise at the end. N. Tomás (1966:175-176) describes various possibilities for such sequences (for example, if the interrogative is rising or falling or circumflex, the vocative, when important, repeats the movement, but if the vocative is an insignificant afterthought, it can be realized with a fall). In my Corpus the general tendency (rise + rise) was attested exclusively, in accordance with Martínez Celdrán's representation. The vertical dotted line indicates the boundary between two Phonic Groups.

5.4 Marked yes-no question intonation in Spanish

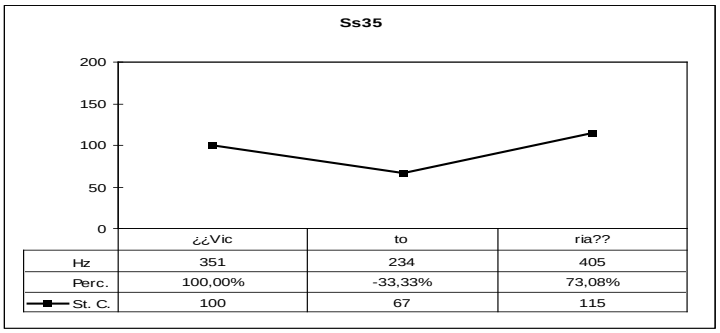
In the following sections, we will examine the intonational patterns present in two subtypes of yes-no questions: echo yes-no questions and the ones marked with a grammatical particle.[93]

5.4.1 Echo-yes-no question intonation in Spanish

Echo yes-no questions are so-called because they "echo" (repeat) some part of the discourse. The first type of these can be called **incredulous/repetitive yes-no questions**. With these the speaker sums up an unexpected experience or statement in the form of a yes-no question, with the aim of making the listener confirm or repeat it. These questions can be looked upon as subordinate clauses after an unsaid matrix sentence "Am I right in supposing that…?".

In Spanish, these questions do not differ radically in intonation from the ordinary ones, they are predominantly characterized by SP2 (see (8)):

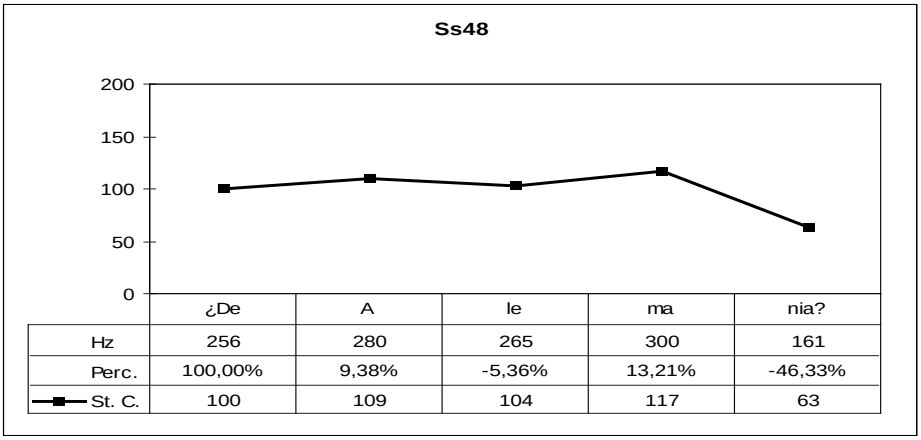
(8)
| ¿Vic'toria?| Context: the speaker has heard that name and wants his/her partner to repeat the name.



In this type of question, we can also find patterns with a falling FI —such as SP7 or SP9 (see (9)):

[93] Until now these categories have not received special attention in the description of Spanish intonational patterns in questions, at least not in a clear-cut way (cf. 4.1 footnote 2). Hockett (1958:41, cited in Martínez Celdrán 2003:76-77) gives three possible patterns for echo yes-no questions (not called this way but coinciding with our echo yes-no question category): rise (neutral), level ("colourless") and rise-fall, with the final fall not reaching as low as the starting point (known answer, waiting for confirmation). N. Tomás 1966: 145-148 also agrees with a rise-fall intonation in this latter subgroup. For N. Tomás 1966: 157-160, a reiterative question (which can more or less coincide with what we call incredulous-repetitive echo-question) is characterized by a rising FI, with a rising or at least high Body (the pattern recognized as SP13 by Font-Rotchés—Mateo 2011a). Examples similar to our clarifying/exclamative echo questions are described as having rising FI (N. Tomás 1966:156). In my corpus, however, echo yes-no questions presented various patterns, not only these. As for yes-no questions with a grammatical particle, N. Tomás gives examples for the hypothetical future (falling FI, 151), and utterances starting with the complementizer *que* (falling or circumflex FI, 158). Alcoba—Murillo only mentions that yes-no interrogatives which contain a grammatical element, "either pronominal or of a different type" (1998:160), the intonation of the question is falling. Again, as my corpus presented a richer variety of intonational patterns, I base my description on my results.

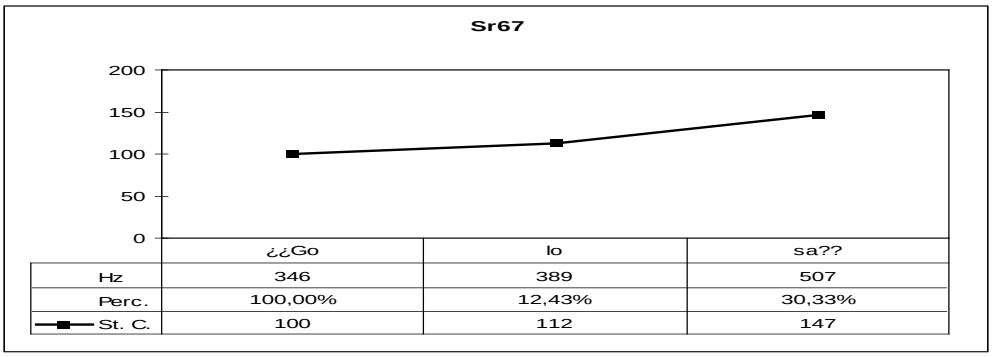
(9)
| ¿De Ale'mania?|
from Germany
'From Germany?' Context: the speaker has heard the utterance "From Germany" and found it surprising.



	¿De	A	le	ma	nia?
Hz	256	280	265	300	161
Perc.	100,00%	9,38%	-5,36%	13,21%	-46,33%
St. C.	100	109	104	117	63

There is another group of echo yes-no questions, in which the speaker repeats a yes-no question (s)he has heard and is pondering about it, in order to think it over before giving an answer, or in order to clarify its meaning. These can be referred to as **clarifying/exclamative yes-no questions**, and they supposedly represent the subclause within the unsaid matrix sentence 'Are you asking if…'. Thus, they are elliptic yes-no questions in that sense, with rising intonation in Spanish, though not as high as in the case of SP2. Example (10) shows a case of SP13.

(10)
| ¿¿Go'losa??|
'(Are you asking if she has) a sweet-tooth?'. Antecedent: 'Does she have a sweet tooth?'



	¿¿Go	lo	sa??
Hz	346	389	507
Perc.	100,00%	12,43%	30,33%
St. C.	100	112	147

Thus, we have seen that in Spanish echo yes-no questions, the predominant intonational pattern is still rising, typically an SP2, but there are falling patterns as well. The following table shows the relevant data in Corpus 1.

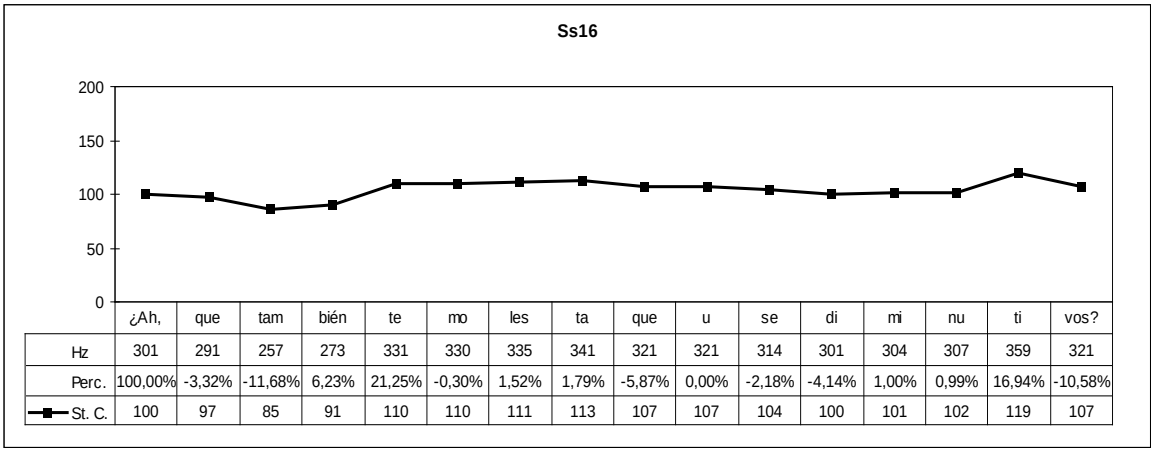
Table 5.3: The intonational patterns in Spanish echo yes-no questions, according to Corpus 1 (shaded boxes show predominance)

Patterns	SP2	SP7	SP10b	SP9	SP13
Frequency in the read corpus (4)	3 (75%)	0 (0%)	1 (25%)	0 (0%)	0 (0%)
Frequency in the spontaneous corpus (7)	2 (28,5%)	2 (28,5%)	1 (14%)	1 (14%)	1 (14%)
Frequency (all, 11)	5 (45%)	2 (18%)	2 (18%)	1 (9%)	1 (9%)

5.4.2 The intonation of yes-no questions with a grammatical particle in Spanish

In Spanish, there are very few grammatical particles that can be present in yes-no questions. The first one to be treated here is *que* (the Spanish counterpart of the complementizer 'that'). It starts the yes-no question, and very often expresses irritation (for example, when the speaker has to ask the question for the second time, in this case, an echo yes-no question), or it simply sums up an experience, meaning 'that is, …'. The intonation of these sentences is mostly falling (from a high Syntagmatic Accent, i.e. SP7, see (11)),[94] or rising-falling (SP4, see (12)).

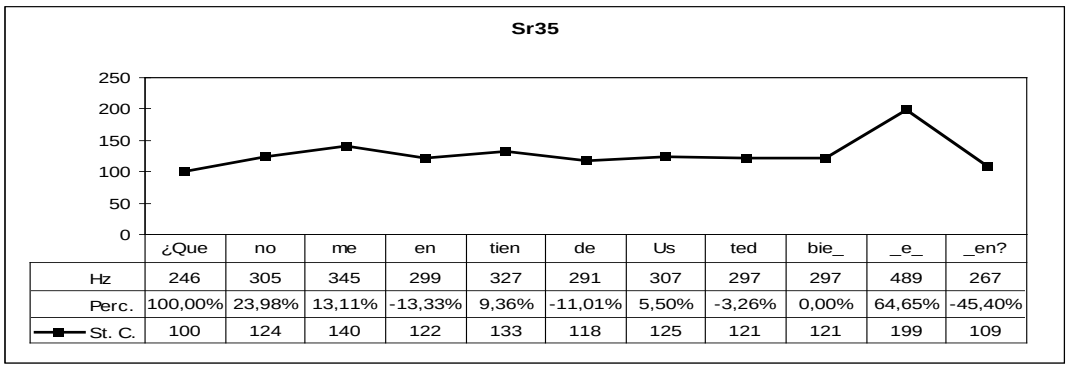
(11)
| ¿Ah, que también te molesta que use diminu'tivos?|
ah that also you-acc disturb-3sg that use-subj-1sg diminutives
'So you are also angry if I use diminutives?'



	¿Ah,	que	tam	bién	te	mo	les	ta	que	u	se	di	mi	nu	ti	vos?
Hz	301	291	257	273	331	330	335	341	321	321	314	301	304	307	359	321
Perc.	100,00%	-3,32%	-11,68%	6,23%	21,25%	-0,30%	1,52%	1,79%	-5,87%	0,00%	-2,18%	-4,14%	1,00%	0,99%	16,94%	-10,58%
St. C.	100	97	85	91	110	110	111	113	107	107	104	100	101	102	119	107

[94] In this case, SP1 would also be acceptable; it seems possible that here we have focalization on the word *diminutivos*, and that is why it has an additional rise, coinciding with a high Syntagmatic Accent (ultimately, an SP7 pattern). The same happens in the case of Catalan final words in focus (Cf. Font—Rotchés 2008).

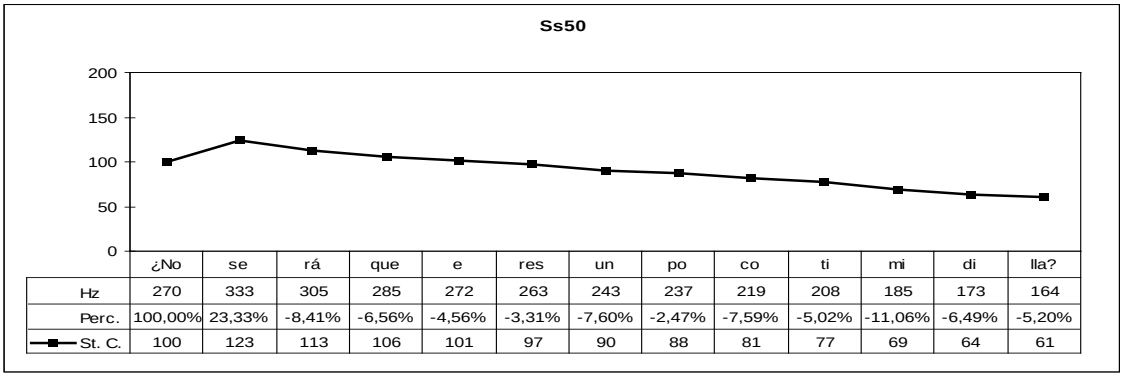
(12)
| ¿Que no me entiende Usted 'bien?|
that not me-acc understand-3sg you-formal-sg well
‘So you don’t understand me well?’



	¿Que	no	me	en	tien	de	Us	ted	bie_	_e_	_en?
Hz	246	305	345	299	327	291	307	297	297	489	267
Perc.	100,00%	23,98%	13,11%	-13,33%	9,36%	-11,01%	5,50%	-3,26%	0,00%	64,65%	-45,40%
St. C.	100	124	140	122	133	118	125	121	121	199	109

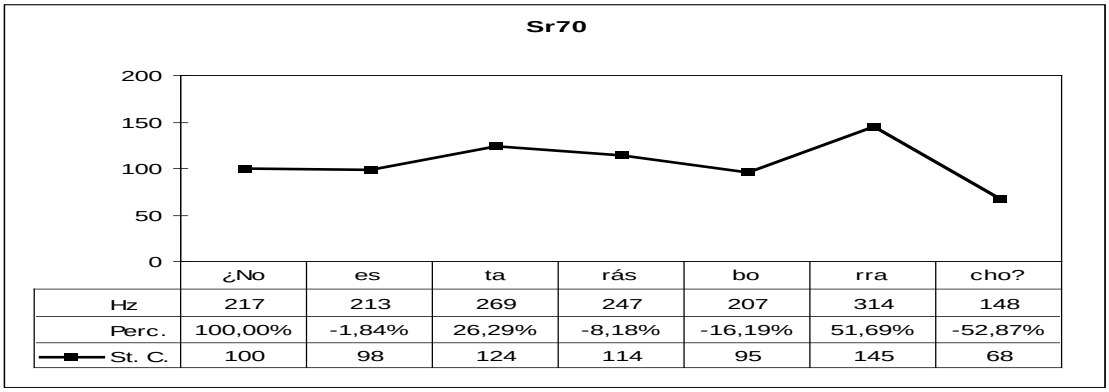
A structure that expresses a hope for a negative answer is constructed by the combination of the negative particle *no* ‘not’ and the so called **future of probability**. In these sentences, the characteristic pattern is ultimately falling, either SP1 (13) or SP7 (14):

(13)
| ¿No será que eres un poco timi'dilla?|
not be-fut-3sg that are-2sg a bit shy-diminutive-fem
‘Can it not be the case that you are a bit shy?’



	¿No	se	rá	que	e	res	un	po	co	ti	mi	di	lla?
Hz	270	333	305	285	272	263	243	237	219	208	185	173	164
Perc.	100,00%	23,33%	-8,41%	-6,56%	-4,56%	-3,31%	-7,60%	-2,47%	-7,59%	-5,02%	-11,06%	-6,49%	-5,20%
St. C.	100	123	113	106	101	97	90	88	81	77	69	64	61

(14)
| ¿No estarás bo'rracho?|
not be-fut-2sg drunken
‘You are not drunken, I hope?’

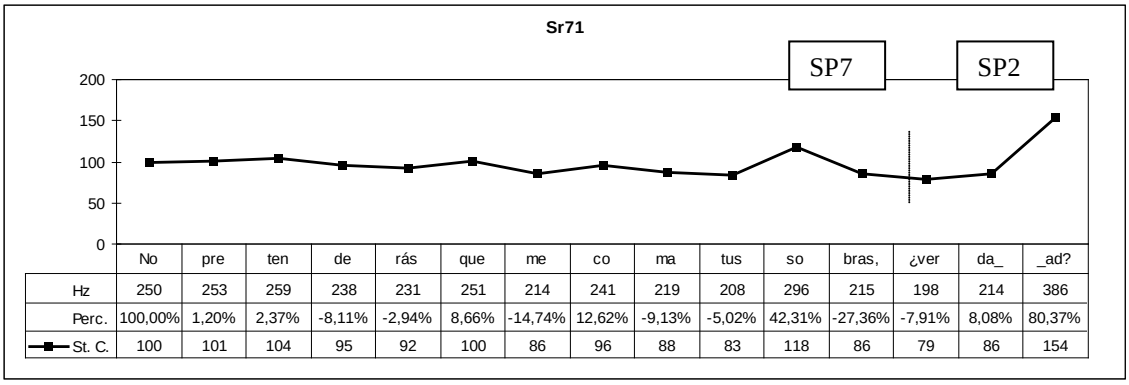


	¿No	es	ta	rás	bo	rra	cho?
Hz	217	213	269	247	207	314	148
Perc.	100,00%	-1,84%	26,29%	-8,18%	-16,19%	51,69%	-52,87%
St. C.	100	98	124	114	95	145	68

There are two characteristic ways to express by a grammatical particle that the speaker expects a positive answer from the listener. One of them is when the sentence contains the word *verdad*, literally 'true'.

In the case of *verdad*, it usually ends the utterance, and *verdad* goes into a separate (rising) Phonic Group after a pause (cf. (15)). In (15) we see that a question, a negative sentence with future of probability, which applies SP7, is followed by the final question *¿verdad?*, with a separate Phonic Group and SP2.

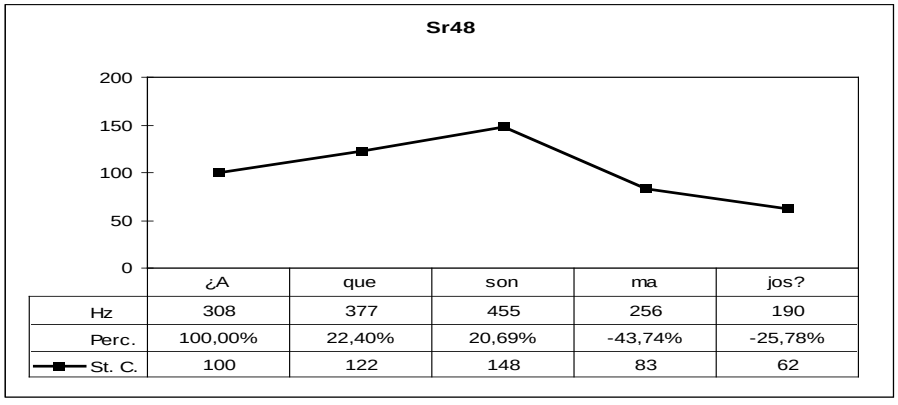
(15)
| No pretenderás que me coma tus 'sobras, | ¿ver'dad?|
not try-fut-2sg that eat-subj-1sg residues true
'You surely don't want me to eat your residues, right?'



	No	pre	ten	de	rás	que	me	co	ma	tus	so	bras,	¿ver	da_	_ad?
Hz	250	253	259	238	231	251	214	241	219	208	296	215	198	214	386
Perc.	100,00%	1,20%	2,37%	-8,11%	-2,94%	8,66%	-14,74%	12,62%	-9,13%	-5,02%	42,31%	-27,36%	-7,91%	8,08%	80,37%
St. C.	100	101	104	95	92	100	86	96	88	83	118	86	79	86	154

The second case when the speaker expects a positive answer to his/her question is when the sentence starts with *A que*… 'Is it right that…?' In these sentences, the intonation is falling, with SP1, cf. (16).[95]

(16)
| ¿A que son 'majos?|
To that are-pl nice-pl
They're nice, aren't they?



	¿A	que	son	ma	jos?
Hz	308	377	455	256	190
Perc.	100,00%	22,40%	20,69%	-43,74%	-25,78%
St. C.	100	122	148	83	62

[95] Cf. also T. Navarro (1966:157), who noted that these questions, occurring with certain frequency in colloquial speech, end with a falling Final Inflection.

In this section we have seen that though it is not typical to include special interrogative particles in Spanish yes-no questions, if there is one in the utterance, the intonation is rather falling than rising. The only exception is *verdad*, which is accompanied by rising intonation, and most characteristically ends the utterance with a separate Phonic Group.

5.5 Deviations from Cantero—Font-Rotchés's method in this work

5.5.1 Diversity in the corpus: inclusion of read and semi-spontaneous material

Cantero—Font-Rotchés call for the use of exclusively spontaneous corpus as the basis of speech analysis, but my corpus includes read, spontaneous and semi-spontaneous utterances as well. In spontaneous, non-laboratory speech, where the informants do not know that their intonation is being examined, authentic colloquial material is produced, the core of which is characteristically provided by dialogues. In colloquial dialogues there are numerous simplified syntactic solutions which are in turn complemented by extra prosodic devices (cf. Narbona 1989). Thus, emphatic intonational solutions, which in sterile laboratory speech would not turn out, abound in the spontaneous corpus. This is why spontaneity must play an important role in any corpus designed for intonational analysis.[96]

Still, I am convinced that in read sentences there may be intonational patterns that are not present even in large corpora of spontaneous speech but are still possible and grammatical. This is why I included a considerable proportion of read sentences as well in my analysis.

Besides, my corpus produced by Hungarian learners (Corpus 3) contains no totally genuine spontaneous sentences, as it would be impossible to expect spontaneous Spanish sentences from Hungarian speakers. The semi-spontaneous sentences were the result of a questionnaire which the students had to use in an interview, and which helped me to produce nearly (but not totally) spontaneous Spanish utterances.

I believe that a mixed corpus of spontaneous, read (and semi-spontaneous) sentences can represent a fuller picture of intonational phenomena than a merely spontaneous corpus would.

[96] Although N. Tomás (1966) says that it is only in spontaneous speech that all the intonational richness can be detected, this has remained an unfulfilled ideal in many cases. N. Tomás includes only artificial sentences taken from literature. Sosa (1999) uses a vast, though not spontaneous corpus which he obtained by asking speakers to read out sentences, correct themselves when needed, and the author himself read out part of the corpus. Practice like this is impossible for Cantero—Font-Rotchés, as they hold that preconceptions can falsify the data if the author him/herself is implied in the corpus. As for Hungarian, Markó (2009:28) also assumes that spontaneous speech (as compared to read corpora) reveals a richer array of intonational realizations.

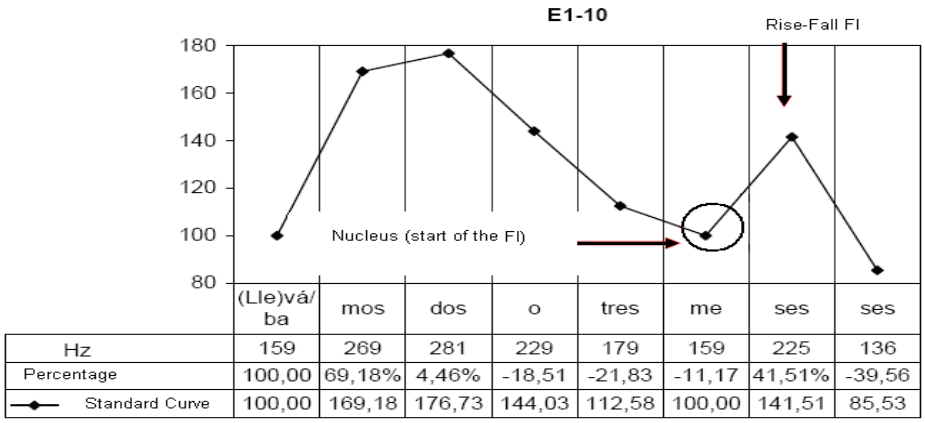
5.5.2 Representational differences

This section presents the points where I differ from Cantero—Font-Rotchés's representations. I believe that my suggestions reduce the possibility of misunderstanding.

First, when the shape of the intonational contour requires the representation of a syllable in more moras — that is, when a complex movement cannot be parsed into one mora — I do not double the syllable itself, as is done in Cantero—Font-Rotchés's model, cf. (17), but only double the affected segments (vowels), as in (18).

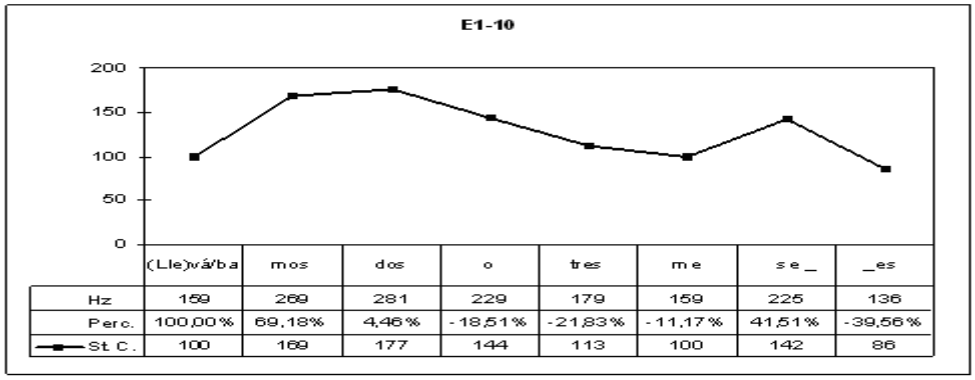
(17)

| Llevábamos dos o tres 'meses|
take-1pl two or three months
'We have been doing it for two or three months'



	(Lle)vá/ba	mos	dos	o	tres	me	ses	ses
Hz	159	269	281	229	179	159	225	136
Percentage	100,00	69,18%	4,46%	-18,51	-21,83	-11,17	41,51%	-39,56
Standard Curve	100,00	169,18	176,73	144,03	112,58	100,00	141,51	85,53

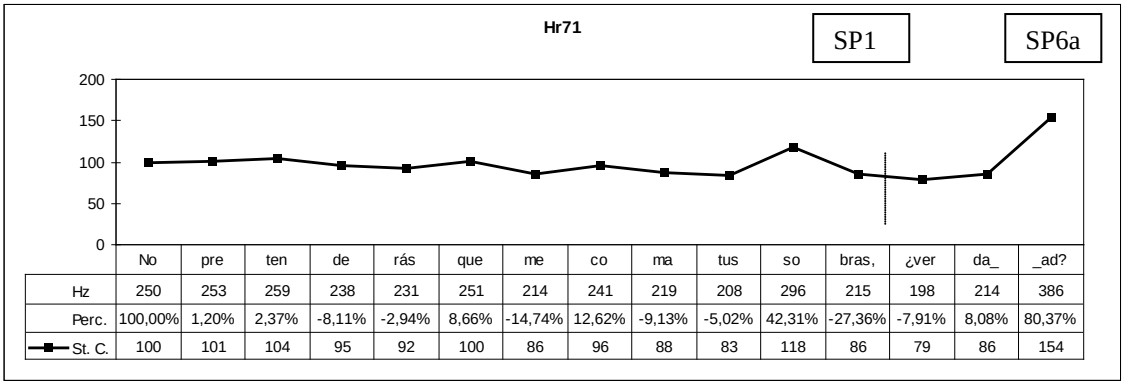
(18)



	(Lle)vá/ba	mos	dos	o	tres	me	se_	_es
Hz	159	269	281	229	179	159	225	136
Perc.	100,00%	69,18%	4,46%	-18,51%	-21,83%	-11,17%	41,51%	-39,56%
St C.	100	169	177	144	113	100	142	86

When there are more Phonic Groups in the utterance, they are separated by the boundary symbol | in my diagrams, as in (19):

(19)



	No	pre	ten	de	rás	que	me	co	ma	tus	so	bras,	¿ver	da_	_ad?
Hz	250	253	259	238	231	251	214	241	219	208	296	215	198	214	386
Perc.	100,00%	1,20%	2,37%	-8,11%	-2,94%	8,66%	-14,74%	12,62%	-9,13%	-5,02%	42,31%	-27,36%	-7,91%	8,08%	80,37%
St. C.	100	101	104	95	92	100	86	96	88	83	118	86	79	86	154

5.6 Summary

This chapter examined the intonational patterns occurring in three subtypes of Spanish yes-no questions: ordinary yes-no questions, echo yes-no questions, and yes-no questions including a grammatical particle. The analysis of these three categories was necessary because in Hungarian these are the yes-no question types that require special intonational patterns and we will need to see whether, if a Hungarian speaker transmits his or her intonational solution to a Spanish sentence, it is viewed as a possible solution in Spanish or not.

In ordinary yes-no questions, the Spanish predominantly apply SP2, a rising pattern with a high rise from the FI (+70%), and normatively, the First Peak as high as the endpoint of the FI. We have also seen, however, that in real speech the First Peak is often situated somewhat lower, and in a few cases, higher than the endpoint of the FI. And in spontaneous speech, the predominant FI, though rising, is often not as high as 70%: in my corpus it is typically an SP6.

Other intonational patterns occurring in ordinary Spanish yes-no questions are SP3, SP4, SP6, SP7 and SP9; also, we have seen sporadic uses of SP1, SP10b and SP13. It is interesting to note that echo yes-no questions and yes-no questions containing a grammatical particle do not apply radically different patterns from those used in ordinary yes-no questions; the only difference is the higher proportion or the almost exclusive presence of SP9 and SP7 as compared to that of SP2. Thus, we can conclude that there is not a unique intonational pattern used in Spanish yes-no questions, and these three categories do not need utterly different solutions, in contrast to Hungarian (cf. Chapter 6).

In my analysis, I basically followed Cantero—Font-Rotchés's principles, but I diverged from their analytical procedures in two respects: (a) I included in my corpus not only

spontaneous, but also semi-spontaneous and read sentences, to achieve a fuller picture of intonational solutions; (b) I introduced some small modifications to their representational mechanism, to increase the clarity of the visual representations.

Concerning the description of Spanish patterns by Cantero—Font-Rotchés (2007), the following observations can be made: my Spanish corpus (Corpus 1) testifies that contrary to the normative descriptions of SP2, the First Peak is often not the highest point of the contour, but can be lower or higher than the endpoint of the FI. As for the position of First Peaks, in a number of cases they are shifted from their normative place, especially to the right. Also, there seem to be more subtypes for certain patterns (for example SP4 should have an additional variant with a Rising Body as well). The classification of the Spanish patterns would be made more transparent if it was done according to the characteristics of the FI exclusively, the other factors (features of the Body or of the First Peak) would be responsible for the description of subpatterns.

Chapter 6 Types of Hungarian yes-no questions and their intonational patterns

6.1 Introduction

In the first part of this chapter I will describe the intonation of Hungarian yes-no questions. The description will first cover the intonation of ordinary and marked yes-no questions. Among the marked ones, the following two subgroups will be investigated:
echo yes-no questions, and yes-no questions with grammatical particles.

I base my observations on my own corpus containing Hungarian yes-no questions.

6.2 The Hungarian corpus (Corpus 2)

The Hungarian corpus (Corpus 2) contains read and spontaneous sentences. The latter group was collected from interviews on www.inforadio.hu, and from various talk shows. There were altogether 69 sentences, out of which 38 were spontaneous (taken from the radio or television), and 31 read sentences (read out by people aged 15-57, with standard Hungarian as their native language). Both the spontaneous and the read sentences were typical utterances in Hungarian, produced by 24 speakers altogether.

The sentences were analysed to find answers to the following questions:
- under what circumstances are the end-falling contours used in yes-no interrogatives;
- which other sentence-types take these contours;
- which of the patterns HP7a, HP7b and HP7c is preferred in yes-no questions;
- what is the extent (in percentage terms) of the fall in patterns HP7a, HP7b, HP7c;
- what is the extent (in percentage terms) of the steepest rise in patterns HP7a, HP7b, HP7c;
- which other patterns are used in yes-no interrogatives;
- what possibilities are there to improve existing descriptions of Hungarian yes-no question intonation.

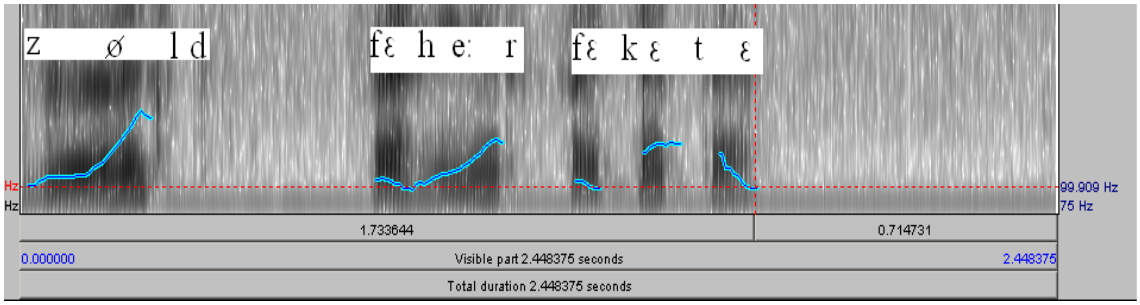
The code names for the sentences read aloud start with *Hr*, while those for spontaneous sentences start with *Hs*. For other symbols, see Appendix 2 and 5.2.

6.3 Ordinary yes-no question intonation in Hungarian

This section will concentrate in detail on HP7a, HP7b, HP7c, i.e. the patterns which are characteristic of ordinary yes-no questions in Hungarian.

Ordinary yes-no questions are used to ask for the confirmation or denial of a proposition. In Hungarian they have no syntactic or morphological markers of their yes-no question status, and so they differ from their declarative counterparts only in their intonation and occasionally in their stress patterns too (see 7.2.2). They have an end-falling contour (cf. 4.3.3), which takes different realizations depending on the number of syllables carrying it. The examples in Figure 6.1 show how the movement is realised on monosyllabic, disyllabic and trisyllabic utterances. In ordinary, unsurprised yes-no questions the falling part cannot be perceived in monosyllabic utterances (Fig. 6.1.a), cannot be heard or can only be heard in some vestigial form in disyllabic ones (Fig. 6.1.b), and is fully perceptible only if the utterance consists of three or more syllables (Fig. 6.1.c). Mono- and disyllabic utterances were also analysed at 3 pitch points, to show the shape of the melody.

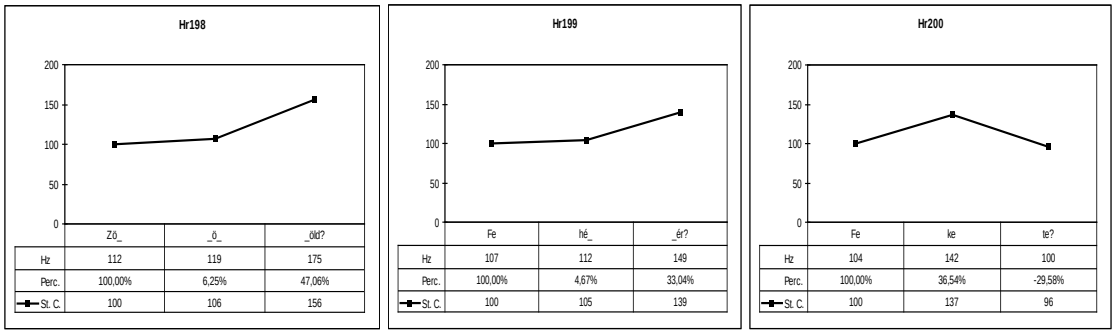
Figure 6.1: Spectograms of *Zöld*? ('Green?'), *Fehér*? ('White?'), *Fekete*? ('Black?')



(1) a.| 'Zöld?|
'Green?'

b.| 'Fehér?|
'White?'

c. | 'Fekete?|
'Black?'



That the phonetically rising realizations of monosyllabic Hungarian yes-no questions are phonologically rise-falls is proved convincingly by Varga (2002b:307-320).

Table 6.1 will sum up the percentage of sentences realizing the different intonational patterns in my corpus. Only utterances longer than three syllables are taken into consideration

because in shorter utterances the differences between HP7a, HP7b and HP7c are neutralised. The column with shading shows the predominant pattern.

Table 6.1: Percentage of end-falling patterns in ordinary yes-no questions of more than three syllables

	patterns			
	HP7a	HP7b	HP7c	Other pattern
Spontaneous (26)	9 (35%)	15 (57%)	0 (0%)	2 (8%)
Read (9)	1 (11%)	5 (56%)	2 (22%)	1 (11%)
Total (35)	**10 (28%)**	**20 (57%)**	**2 (6%)**	**3 (9%)**

Table 6.2 shows the extent (percentages) of the steepest rise and of the fall in the utterances. In most cases, the steep rise is located between the antepenultimate and the penultimate syllables, producing a peak on the penult, as most utterances display HP7b, where this rise occurs before the penultimate syllable. In some cases, however, this steepest rise characterizes the syllable before the antepenultimate one, producing a peak on the antepenult, a tendency observable in spontaneous speech (see also (3b) below and Markó 2007). Whether this phenomenon is an anomaly or a variant of the pattern, for example an emphatic one, is left for future research. In examples of HP7c, the steepest rise occurs between the first and the second syllables of the utterance, and the fall between the penultimate and the last syllables. In this table only trisyllabic and longer utterances are analysed, as the falling part is not perceptible in ordinary monosyllabic yes-no questions, and is not fully realized in disyllables either.

Table 6.2: The extent of rise and fall in HP7 patterns
(ordinary yes-no questions of more than two syllables)

	Extent of the steepest rise of the utterance in percentage terms			Extent of the steepest fall of the utterance in percentage terms		
	≤30%	30%- 50%	>50%	≤30%	30%- 50%	>50%
Spontaneous (27)	18 (67%)	9 (33%)	0 (0%)	8 (30%)	18 (66%)	1 (4%)
Read (12)	8 (67%)	3 (25%)	1 (8%)	4 (33%)	7 (58%)	1 (8%)
Total (39)	**26 (67%)**	**12 (31%)**	**1 (2%)**	**12 (31%)**	**25 (64%)**	**2 (5%)**

Table 6.3 examines whether in the utterances the extent of the steepest rise is bigger than that of the fall, or the other way round. Again, monosyllabic utterances are not taken into consideration.

Table 6.3: The dominant direction in HP7 patterns (ordinary yes-no questions of more than two syllables)

	Rise > Fall	Rise < Fall
Spontaneous (27)	4 (15%)	23 (85%)
Read (12)	6 (50%)	6 (50%)
Total (39)	**10 (26%)**	**29 (74%)**

The data in Tables 6.1-6.3 reveal the following facts:

a) In both spontaneous speech and in speech read aloud, HP7b is predominant. HP7a and HP7c are also possible, though much less common. Patterns not belonging to HP7 have not been found. Among the three different patterns there were two hybrids of HP7a + HP7b and a hybrid of HP7b + HP7c. This means that for an ordinary yes-no question, Hungarian uses either a subtype of HP7, or a hybrid of subtypes of HP7.

b) In most cases, the steepest rise of the utterance is under 30%; and the fall (characteristically between the penultimate and the last syllables) is between 30% and 50%.[97] This information is summed up in Table 6.3, which shows that in 74% of the examined cases the fall is bigger in percentage than the steepest rise. Thus, these contours are better characterized by their final fall than by their rising part, even though to the Spanish ear the rise, especially in HP7b, is more perceptible than the fall. [98]

When an ordinary yes-no question is followed by a vocative, the interrogative is accompanied by any of the HP7 patterns, and the vocative bears a HP1 (a fall). The intonation of this combination will be revisited in 7.2.3.

6.4 Marked yes-no question intonation in Hungarian

This section will concentrate on yes-no questions that are marked in one way or another. The examined groups will be echo yes-no questions, yes-no questions with grammatical particles

[97] In Spanish, though a final fall is considerably rarer in the case of yes-no questions than in Hungarian (in my corpus, only 29% of ordinary yes-no questions presents a final fall, cf. my comment on Table 5.2), the amount of the final fall in these cases is in the same interval of values, between 30% and 50% (Baditzné, in press, a).

[98] This is so in yes-no questions of more than two syllables. As has already been pointed out, in mono- or disyllabic utterances, the falling part is hardly heard or not discernible at all. We might conclude that the falling part is missing in these utterances because they are too short to support two movements, and only the first one, – the rise –, is realized. In spontaneous speech it was attested that both yes-no questions (Markó 2007: 72) and question-word questions (Gósy 1993) have an alternative pattern with a final rise (HP3), a solution considered rather erroneous than a result of a linguistic change by Gósy.

and yes-no questions that express hope. All these subgroups may show differences from the ordinary yes-no questions as far as their intonation is concerned.

6.4.1 Echo yes-no question intonation in Hungarian

In this section I am focusing on echo yes-no questions, i.e. the incredulous/repetitive and the clarifying/exclamative variants of yes-no questions in Hungarian.[99]

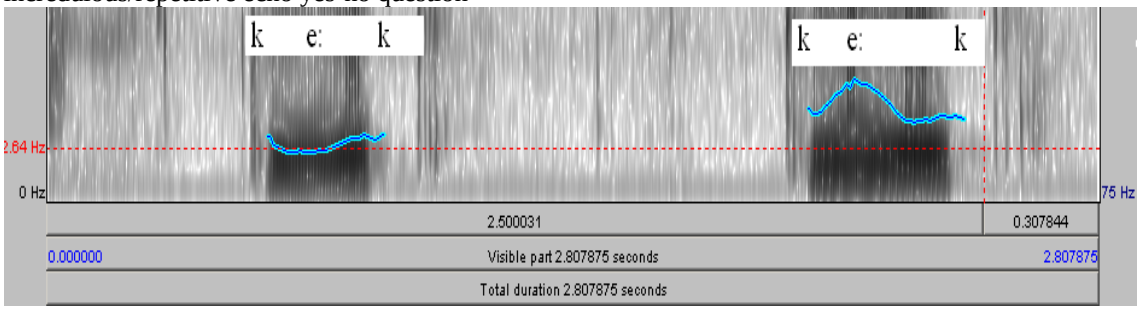
In **incredulous/repetitive yes-no questions**, the speaker uses a yes-no question with the intention of expressing surprise and making the listener confirm or repeat an unexpected experience or statement. These questions can be regarded as subordinate clauses after an unsaid matrix sentence "Am I right in supposing that…?".

The speaker may repeat a yes-no question (s)he has heard in order to gain some time before giving it an answer, or in order to clarify its meaning. These can be referred to as **clarifying/exclamative yes-no questions**, and they can be looked upon as the subclause within the unsaid matrix sentence 'Are you asking if…'.

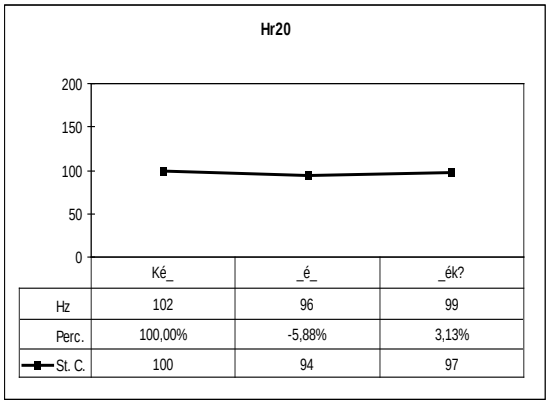
In contrast to ordinary yes-no questions (Fig. 6.1.a), in the incredulous/repetitive echo yes-no questions the falling part of the rise-fall intonation can be observable on monosyllables as well. Figures 6.2.a and b show two renderings of the monosyllabic question *Kék*? ('Blue?'). Fig. 6.2.a is an ordinary yes-no question, Fig. 6.2.b is an incredulous/repetitive (surprised) echo. In the latter variant the falling part is clearly discernible even on a monosyllable, cf. Varga (2002b). (2)a-b show the standardized pitch curves.

[99] A general term used for echo questions is *control questions* in Olaszy-Koutny (2001: 193).

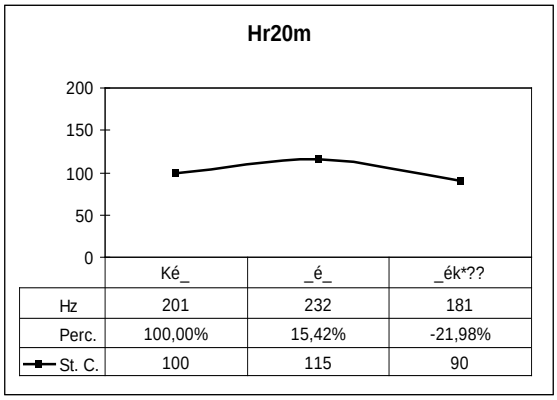
Figure 6.2: Spectograms of two renderings of *Kék*? (‘Blue?’), a: ordinary yes-no question, b: incredulous/repetitive echo yes-no question



(2) a. | 'Kék?|
‘Blue?’



b. | 'Kék?|
‘Blue?’

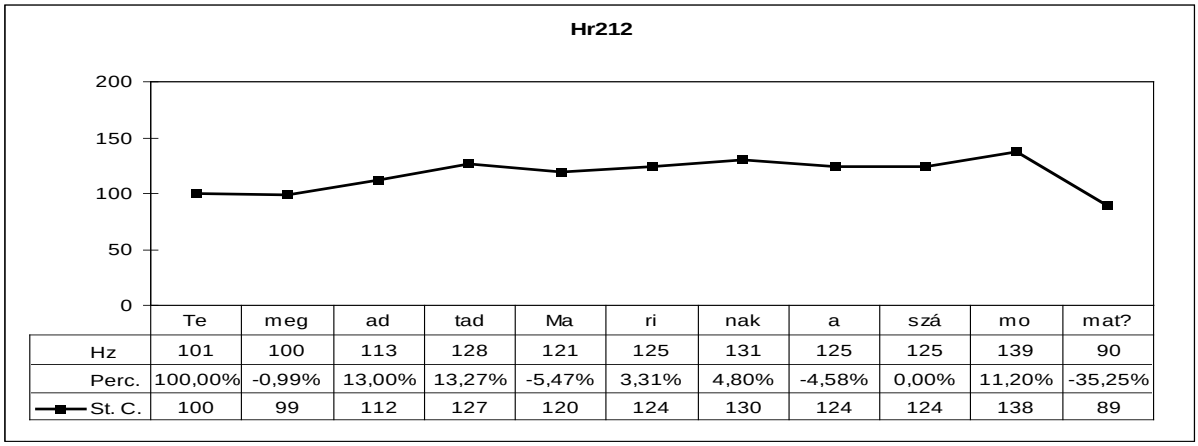


In longer utterances, there may be more accents instead of one, as shown in (3b). In (3a), an ordinary yes-no question, there is only one accent, from which the rise-fall starts. This accent is normally positioned at the beginning of the comment (predicate) or the verb modifier before the verb,[100] with no accent following. In (3b), a surprised variant, there are three accents, and the final rising-falling contour is copied to each one of them. Thus, in an incredulous/repetitive echo yes-no question each accented syllable may start a copy of the last rising-falling contour. These data confirm earlier observations by Csűry (1925) and show that repeated rise-falls occur not only in dialectal but also in standard Hungarian utterances. (In the graphic displays the dotted vertical line indicates the boundary between adjacent Phonic Groups.)

[100] É. Kiss (2002:2, 8-9).

(3a)

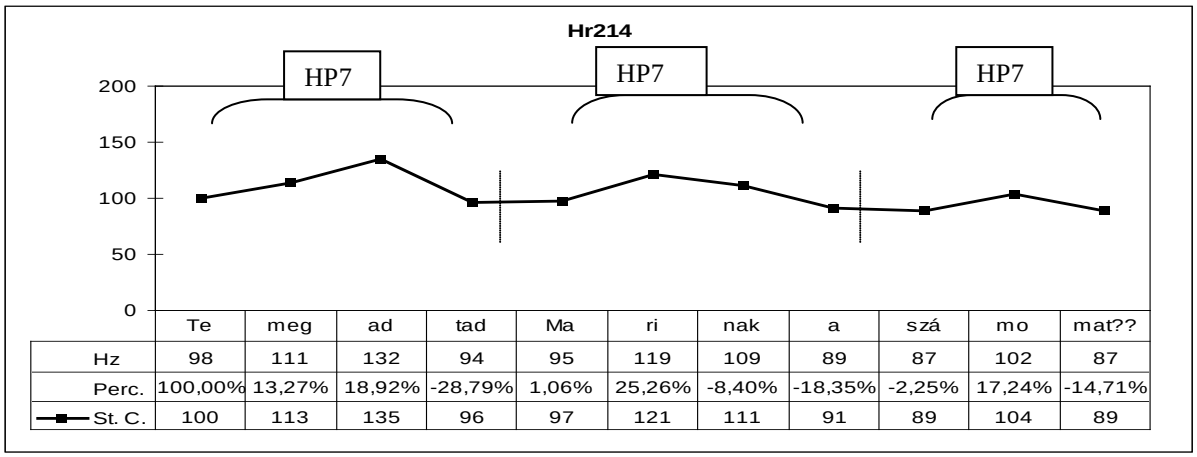
| Te 'megadtad Marinak a számomat?|
you-sg gave-2sg Mary-to the number-my-acc
'Have you given my number to Mary?'



	Te	meg	ad	tad	Ma	ri	nak	a	szá	mo	mat?
Hz	101	100	113	128	121	125	131	125	125	139	90
Perc.	100,00%	-0,99%	13,00%	13,27%	-5,47%	3,31%	4,80%	-4,58%	0,00%	11,20%	-35,25%
St. C.	100	99	112	127	120	124	130	124	124	138	89

(3b)

| 'megadtad | 'Marinak a | 'számomat???|
you-sg gave-2sg Mary-to the number-my-acc
'Have you given my number to Mary?' (Am I right in assuming this?)



	Te	meg	ad	tad	Ma	ri	nak	a	szá	mo	mat??
Hz	98	111	132	94	95	119	109	89	87	102	87
Perc.	100,00%	13,27%	18,92%	-28,79%	1,06%	25,26%	-8,40%	-18,35%	-2,25%	17,24%	-14,71%
St. C.	100	113	135	96	97	121	111	91	89	104	89

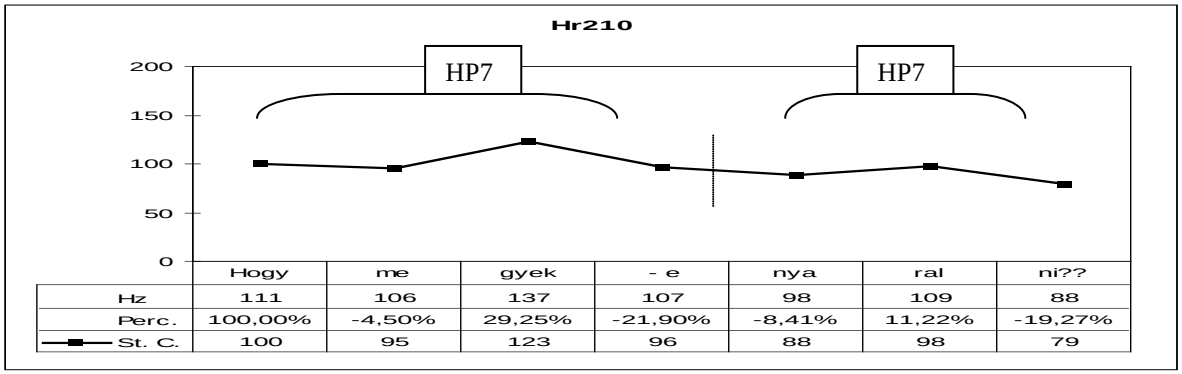
In (3b), the second HP7 is realized somewhat anomalously, as the peak is realized not on the penultimate but on the antepenultimate syllable (-*ri*-) (cf. 6.3).

The other group of echo yes-no questions, referred to as clarifying/exclamative yes-no questions, contain two particles: *hogy* (the complementizer 'that') and *–e* ('whether') as they supposedly represent the subclause within the unsaid matrix sentence 'Are you asking if…'. These carry yes-no question intonation in Hungarian. Again, it is typical that there are more accents, with repeated rise-falls starting on each one of them, cf. (4).

(4)

Context: *Mész nyaralni?* (‘Are you going on holiday?’)

| Hogy 'megyek-e | 'nyaralni?|
that go-1sg-whether have-holiday-inf
‘Am I going on holiday?’ (Is that what you’re asking?)



	Hogy	me	gyek	- e	nya	ral	ni??
Hz	111	106	137	107	98	109	88
Perc.	100,00%	-4,50%	29,25%	-21,90%	-8,41%	11,22%	-19,27%
St. C.	100	95	123	96	88	98	79

In the echo yes-no questions of my corpus only HP7 is used, especially HP7a and HP7b.

6.4.2 Hungarian yes-no questions with the grammatical particles *ugye* and *-e*

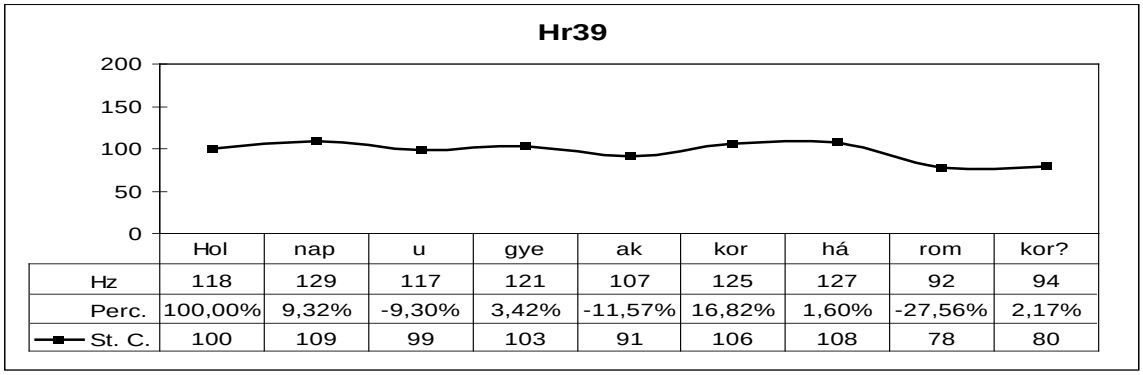
Now we will examine whether intonation has a role to play in utterances that contain a grammatical particle that signals the yes-no questionhood of the sentence.[101] According to Fónagy-Magdics (1967:40), “if the questionhood of the utterance is expressed with the help of morphemes, the question loses its peculiar intonation” (my translation); Olaszy (2002:96) also holds that in questions in which a morphological marker signals the questionhood, the intonation does not play a role in marking it. This is in line with Peshkovskij’s principle: the more a distinction is signalled by grammatical means, the less it is signalled by intonational means; there is a division of labour between intonation and grammar (Peshkovskij (1959)).

There is a type of Hungarian yes-no question which contains the word *ugye* (‘Am I right? / Is that so?’) at one point of the sentence. According to its position, it causes changes in the ordinary yes-no question intonational contour. Since questionhood here is expressed by morphological means, (*ugye*), the typical Rise-Fall intonation of yes-no questions is not used and is replaced by the default intonation (the Fall, HP1, see (5)).

[101] These questions are referred to as “morphologically marked yes-no questions” by Olaszy-Koutny 2001: 194.

(5)

| Holnap ugye akkor 'háromkor?|
tomorrow am-I-right then three-at
'Tomorrow at three o'clock then, isn't it?



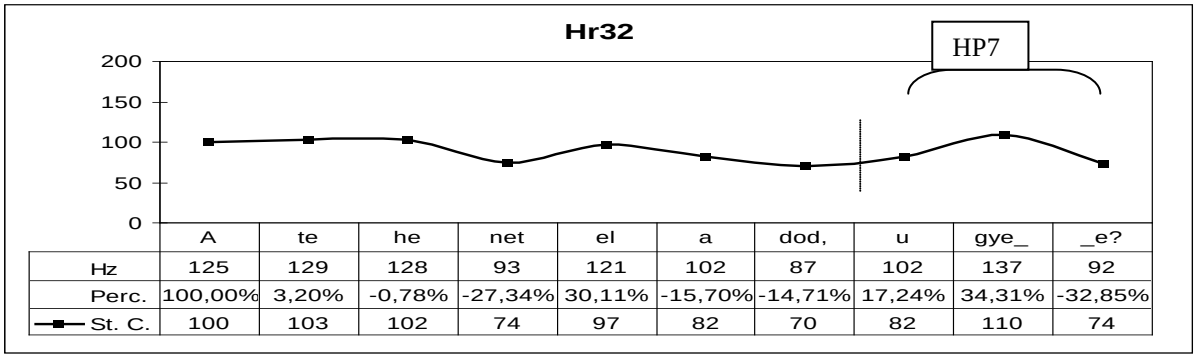
	Hol	nap	u	gye	ak	kor	há	rom	kor?
Hz	118	129	117	121	107	125	127	92	94
Perc.	100,00%	9,32%	-9,30%	3,42%	-11,57%	16,82%	1,60%	-27,56%	2,17%
St. C.	100	109	99	103	91	106	108	78	80

Now let us see what happens when the word *ugye* is situated at different points of the sentence.

When the word *ugye* occupies sentence-initial or sentence-interior position, the pattern used is a HP1, as in (5) above. When the sentence ends with the word *ugye*, it usually goes into a separate Phonic Group, after an optional slight pause, and has a rise-fall (HP7) in it:[102]

(6)

| A 'tehenet 'eladod, | 'ugye?|
the cow-acc sell-2sg am-I-right
'You will sell the cow, won't you?'



	A	te	he	net	el	a	dod,	u	gye_	_e?
Hz	125	129	128	93	121	102	87	102	137	92
Perc.	100,00%	3,20%	-0,78%	-27,34%	30,11%	-15,70%	-14,71%	17,24%	34,31%	-32,85%
St. C.	100	103	102	74	97	82	70	82	110	74

In sum, yes-no questions with the word *ugye* use HP1. When the word *ugye* is initial or medial, it is unaccented and does not interfere with the intonation. But when *ugye*, is utterance-final, the HP1 pattern is followed by a separate HP7, which is carried by the word *ugye*. [103]

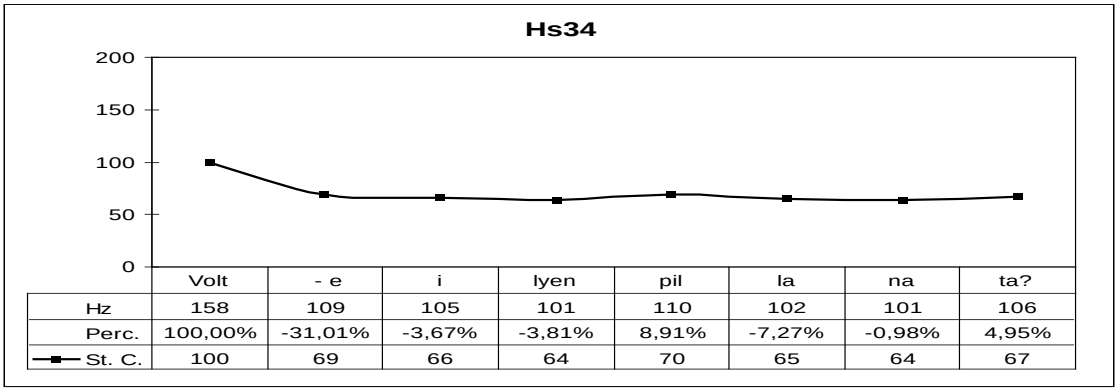
The yes-no interrogative particle *-e* 'whether', which most often occurs in indirect yes-no questions but may occasionally occur in main clause yes-no questions as well, signals yes-no

[102] As *ugye* can be replaced by its more formal equivalent *ugyebár*, the HP7 can spread on those three syllables.
[103] The use of HP1 on an utterance-final *ugye* is possible but uncommon. It expresses that the speaker is expecting a confirmation.

questionhood morphologically. Consequently, the rise-fall intonation is not needed and is replaced by the default intonation: the full fall (SP1), as shown in (7):

(7)

| 'Volt-e ilyen pillanata?|
was-3sg such moment-its
'Did it have such a moment?'

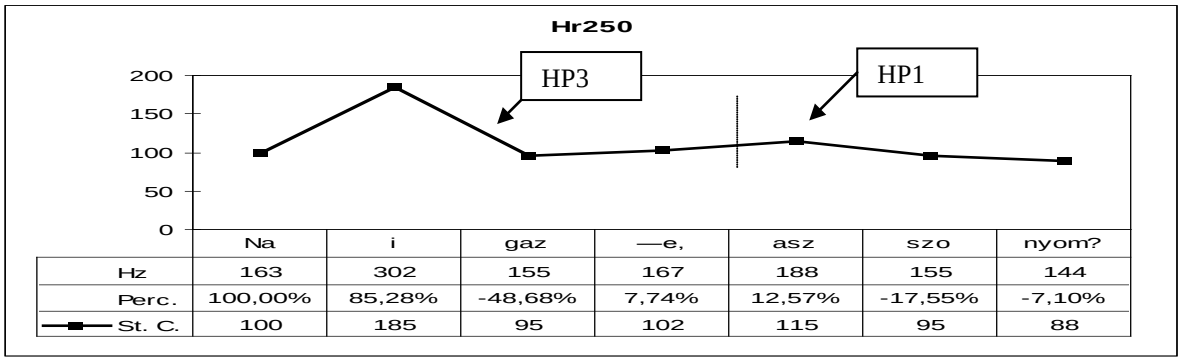


	Volt	- e	i	lyen	pil	la	na	ta?
Hz	158	109	105	101	110	102	101	106
Perc.	100,00%	-31,01%	-3,67%	-3,81%	8,91%	-7,27%	-0,98%	4,95%
St. C.	100	69	66	64	70	65	64	67

It seems true that if the sentence has a morphological marker of yes-no question status, then this status is no longer indicated by intonation and takes a fall. Still, it is also possible that a yes-no question containing the particle –e is accompanied a fall-rise (HP3). In such sentences the meaning is enriched by a reproachful attitude, as in (8), so we cannot say that the intonation does not have any role to play.

(8)

|Na 'igaz-e, | 'asszonyom?|
so true-whether madam-my
'Now, is that true, Madam?'



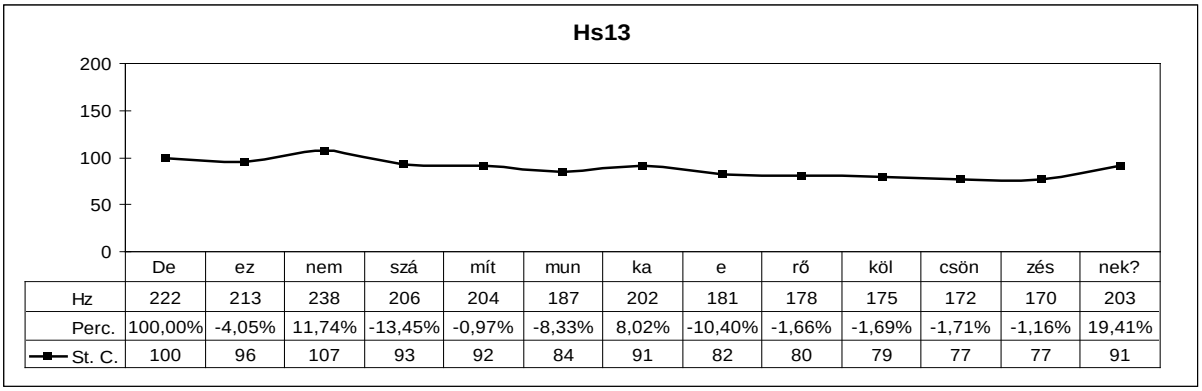
	Na	i	gaz	—e,	asz	szo	nyom?
Hz	163	302	155	167	188	155	144
Perc.	100,00%	85,28%	-48,68%	7,74%	12,57%	-17,55%	-7,10%
St. C.	100	185	95	102	115	95	88

6.4.3 Yes-no questions expressing hope with special particles in Hungarian

There is a particular type of sentence which can be regarded as the subclause of an unsaid declarative main clause paraphraseable as *Remélem*…('I hope …'). This sentence has the value of a special yes-no question. Its pattern tends to be HP3a – i.e. Fall-Rise with a late rise - instead of HP7. The examples contain the negative particle *nem* 'not' somewhere at the beginning at the sentence (cf. (9)), or, more frequently, start with *csak nem*[104] (literally 'just not'), meaning 'I hope not' (cf. (10)).

(9)

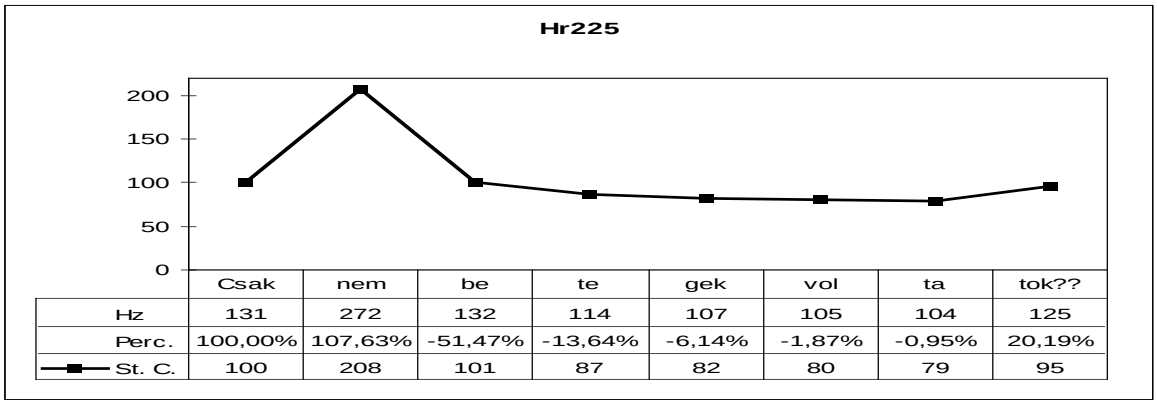
| De ez 'nem számít munkaerő kölcsönzésnek?|
but this not count-3sg work-power borrowing-dat
'But this doesn't count as labour-borrowing, I hope?'



	De	ez	nem	szá	mít	mun	ka	e	rő	köl	csön	zés	nek?
Hz	222	213	238	206	204	187	202	181	178	175	172	170	203
Perc.	100,00%	-4,05%	11,74%	-13,45%	-0,97%	-8,33%	8,02%	-10,40%	-1,66%	-1,69%	-1,71%	-1,16%	19,41%
St. C.	100	96	107	93	92	84	91	82	80	79	77	77	91

(10)

| Csak 'nem betegek voltatok?|
just not ill-pl were-2pl
'You weren't ill, I hope?'



	Csak	nem	be	te	gek	vol	ta	tok??
Hz	131	272	132	114	107	105	104	125
Perc.	100,00%	107,63%	-51,47%	-13,64%	-6,14%	-1,87%	-0,95%	20,19%
St. C.	100	208	101	87	82	80	79	95

[104] Fónagy-Magdics (1967:47) call this the "suspicious" *csak nem*. These questions are also investigated in Baditzné (in press, b).

Though they are a less frequent type of yes-no questions, their importance lies in the fact that they are the only types of yes-no questions in Hungarian which end in a rise from the penultimate syllable on. This rise, 20% on the average, is well under the 70% that characterizes the rise of the typical Spanish interrogative pattern (SP2).

6.5 Summary

After presenting the Hungarian intonation patterns in Chapter 5, in the present chapter I concentrated on the intonation of Hungarian yes-no questions. I examined my Hungarian corpus from the following points of view: (a) which of the three subtypes of HP7 was the most frequent, (b) what percentages characterise the extent of the fall between the penultimate and the last syllable, (c) what percentages characterize the extent of the steepest rise, and (d) what special features can be observed in marked yes-no questions. In ordinary yes-no questions, HP7b was the most frequent, with a rise to the penult of up to 30%, and a fall to the ult of 30 to 50% (cf. 6.3).

It has been confirmed that echo yes-no questions can have copies of the HP7 pattern inside. Yes-no questions with the particle *–e* or *ugye* predominantly have HP1, but in the first case HP3 (a fall-rise) can also appear, with a reproachful overtone. Other lexical devices expressing hope also attract a HP3. Thus, it is a tendency that when a yes-no question is signalled by grammatical devices, it loses its typical yes-no question intonation pattern, and has other intonational solutions (but not necessarily an unmarked, neutral declarative HP1).

In pattern HP7b some peaks are realized one syllable earlier than they should be (cf. (3b)). Whether this is an anomaly or rather a tendency is a problem to be investigated further in future research.

Chapter 7 Predictions about the ways Hungarian speakers realize the intonation of Spanish yes-no questions

7.1 Introduction

While Chapter 5 treated the intonation of Spanish yes-no questions, Chapter 6 examined the intonation of Hungarian yes-no questions. Chapter 7 will deal with the actual comparison of the intonational features that influence the realization of yes-no interrogative patterns in the two languages. This comparison will concentrate on the prelinguistic and linguistic aspects of intonation (cf. 2.2).

At the **prelinguistic** level, I will examine the position of accents in both languages. As Hungarian and Spanish stress- and accent-placing rules are radically different, it is predictable that Hungarians will use their own system when producing Spanish utterances. [105] The two areas examined will be the treatment of Spanish word-final lexical stresses and the distribution of accents in echo yes-no questions.

At the **linguistic level**, I will compare Spanish and Hungarian interrogative intonational patterns, especially those typically used for yes-no questions, together with pitch range differences, and predict which traits Hungarian learners tend to transfer from their mother tongue to Spanish.

Naturally, the Spanish and Hungarian intonational systems may coincide in various points, too, and this can help the acquisition of the target language intonation. These points will also be analysed when interrogative intonational patterns are examined.

7.2 Prelinguistic aspects of intonation

As there are remarkable differences between Hungarian and Spanish stress- and accent-distribution rules, it is expected that Hungarian learners will realize Spanish stress and accentual schemes under the influence of their native language, Hungarian, and this will yield unacceptable or misunderstandable results. After a general outline of the stress-position rules in the two languages, I will concentrate on two areas:

[105] Just to remind the reader, in this work a stressed syllable (vowel) is called an accent when it represents a tonal contrast (i.e. when it is intonationally relevant), cf. 2.3. When words are used in utterances, it is their stressed syllables that can become accents.

- Spanish word-final stress, when it constitutes the Syntagmatic Accent, is realized in two or three moras. Since Hungarian lexical stress is not word-final, it is predictable that Hungarian learners of Spanish will yield only one mora to word-final lexical stresses in Spanish utterances, not realizing a genuine Final Inflection.
- Another issue related to accent-position can be found in echo yes-no questions. In Hungarian, echo yes-no questions are realized in several Phonic Groups because they have several Syntagmatic Accents and so several Final Inflections (several instances of HP7). In Spanish, these utterances have only one Syntagmatic Accent, and so only one Final Inflection and one Phonic Group.

7.2.1 Stress-position rules in words

In Hungarian, the position of word stress is quite predictable: it falls mechanically on the first syllable of the word, e.g. '*táska* 'bag', '*iskola* 'school', '*iskolaév* 'school year', '*iskolatáska* 'school satchel'.[106] Stress shifts within words can be due to a high emotional state, or to excessive length of a word, but most characteristically, they are due to a morphological contrast, such as in (1):

(1)

Nem a barátom'**mal**, hanem a barátom'**hoz** megyek.

not the friend-my-with but the friend-my-to go-1sg

'I am not going **with** (my friend) but **to** my friend ('s)' .[107]

Here the last syllable of a plurisyllabic word receives stress exceptionally; the stress shift serves as an indicator of contrast between the two morphemes: {*-val*} 'with' and {*-hoz*} 'to'.[108]

In Spanish, the position of word stress is predictable but is subject to more complex rules. The majority of Spanish words are stressed on their penultimate[109], or in fewer cases, on their last syllables. Words ending in vowels or /n/, /s/ regularly have their stress on the penultimate syllable, as in '*gato* 'cat', '*hablan* 'they speak', or '*reyes* 'kings'. The rest of the words are stressed on their last syllables, e.g. *Ma'drid*. Words which do not obey these rules have

[106] The acute accents over certain vowel letters (e.g. *é*, *á*) in Hungarian orthography indicate length and have nothing to do with stress.
[107] The example is taken from Bóna—Markó (2009:10). Literature on the stressing of Hungarian words and sentences includes Varga (1988, 2002a), Kálmán—Nádasdy (1994), Hunyadi (2002), etc.
[108] The /v/ of {*-val*} gets assimilated to the /m/ of *barátom* 'my friend'.
[109] That the majority of Spanish words has the stress on the penult was proved to be true by various statistics, cf. Delattre (1965) and Quilis (1983).

"irregular" stressing, which is always signalled by an orthographic stress mark (acute accents) on the vowel letter. Thus, if words ending in a consonant other than /n/ or /s/ are not stressed on their last syllable but elsewhere, the position of the stress must be signalled by an orthographic stress mark, as in *Pérez*. Similarly, if words ending in vowels or /n/ or /s/ are not stressed on their penultimate syllables, they must bear an orthographic stress mark on the letter representing their stressed vowel, e.g. *Canadá* 'Canada'. And as Spanish stress rules can account for the last and penultimate syllable only, in every case where the stress falls on the third syllable from the end of the word or earlier, this vowel is orthographically marked for stress, as in *célula* 'cell'.

Special mention must be made here of the stressing of diphthongs. In Spanish, two contiguous vowels either form a hiatus (i.e. go into separate syllables and are given two tonal values) or form a diphthong (i.e. pertain to the same syllable and are given one tonal value unless they form the Syntagmatic Accent). Diphthongs can be constructed either by a semivowel (/j/ and /w/) plus a full vowel (*a, o, u, e, i*), or by a full vowel plus a semivowel. The full vowel behaves as the nucleus of the syllable and the semivowel behaves as a glide, so it does not have a separate tonal value. From an intonational point of view, the glide has a marginal status (cf. 2.3, Figure 2.1).

A semivowel plus full vowel sequence forms a "rising" diphthong, as in *fiel* 'faithful', whereas a full vowel plus semivowel sequence is a "falling" diphthong, such as in *autocar* 'tourist bus' (cf. Gimson 1989:94-95, 128, 143, 145, Quilis 1993:179-181). When there are two semivowels that constitute the nucleus, which is quite rare, usually the second functions as the syllabic nucleus, as in *cuida* 'takes care', in which *i* is the nucleus. Table 7.1 shows the inventory of Spanish diphthongs.

Table 7.1: The inventory of Spanish diphthongs

Rising diphthongs (more prominence on the 2nd element)	**Falling diphthongs (more prominence on the 1st element)**
/je/ as in *fiel* ('faithful')	/ei̯/ as in *rey* ('king')
/ja/ as in *confiar* ('confide')	/ai̯/ as in *caray* ('tortoise shell')
/jo/ as in *Dios* ('God')	/oi̯/ as in *hoy* ('today')
/ju/ as in *viuda* ('widow')	/eu̯/ as in *Euro* ('Euro')
/wi/ as in *fui* ('I went')	/au̯/ as in *causa* ('cause')
/we/ as in *fueron* ('they went')	/ou̯/ as in *bou* ('seine fishing')
/wa/ as in *evaluar* ('evaluate')	
/wo/ as in *cuota* ('quota')	

When the semivowel receives stress in a vowel cluster, that is, a hiatus is created, the orthographic stress mark must accompany the letters *i* or *u*, as in *María* 'Mary', *garúa* 'kind of rain (in Peru)', so in this case we are not facing a diphthong.

In standard Hungarian, however, there are no diphthongs at the phonological level, the contiguous vowels can only form a hiatus, cf. Siptár—Törkenczy (2000:16-18).[110] That is why, according to my prediction, Hungarian learners' realization of Spanish diphthongs will be strongly hindered by the fact that in Hungarian all vowel clusters are hiatuses, and by the fact that Hungarians associate the Spanish letters *i* and *u* within the orthographic representations of diphthongs with the vowels /i/ and /u/, respectively. Thus, it is very likely that Hungarians will produce vowel clusters instead of Spanish diphthongs, and this can lead to a wrongly placed accent; for example, the Spanish word *fiel* 'faithful' would be erroneously accented '*fiel* ['fiel], as in the Hungarian word *siet* 'hurries', instead of [fjel].[111]

Such differences may seem negligible at first sight, but, as Cantero (2002:88) observes, it is at the prelinguistic level where dialectal intonation functions. A stress produced at an inappropriate place makes the hearer identify the utterance as strange, foreign, or at least dialectal. This is why we should further examine the problem of stress placement.

In words longer than 2 syllables it is quite rare that Spanish would have the stress on the first syllable, whereas having the stress on the first syllable of a word, however long, is the rule in Hungarian. So it is very likely that Hungarian speakers with their normative stress on the first syllable will do the same in Spanish words, causing anomalously stressed words in a great number of cases, such as in the following example: **'Participamos en el 'Campeonato 'Mundial.* 'We participated in the World Championship', instead of *Partici'pamos en el Campeo'nato Mun'dial* [mun'djal].

The incorrect placement of stresses and accents is not simply an accentuation problem. As speech is organized into Rhythmic Groups by the help of accents, inappropriately placed

[110] For the apparent exception of *auto*, see Nádasdy—Siptár (2001: 173-174).

[111] This will have a negative influence on the intonation of Spanish sentences. The diphthongs can be unstressed, or they can form a Paradigmatic Accent, or a Syntagmatic Accent. According to my predictions,
- if the diphthong is in an unstressed syllable or in a Paradigmatic Accent, the Hungarian speaker will give it two tonal values instead of one, as in *ciudad* 'city', where the diphthong *iu* should be given only one tonal value (as only Syntagmatic Accents can be given two or more tonal values in Cantero's framework, cf. 2.3, 2.4.4).
- if the diphthong carries a Syntagmatic Accent, it should be given two tonal values, but the Hungarian speaker will realize the stress – and thus, the inflection – on the first vowel (for example the *u* in *bueno* 'good') as first vowels in Hungarian words are normatively stressed. This can upset the Spanish intonational pattern if the diphthong in question is opening, as the speaker will tend to give accent to the first component of the diphthong instead of the second one.

accents will result in inappropriate Rhythmic Groups. This will have a negative effect on speech decoding.

As Cantero (2002:81) observes, the identification of Rhythmic Groups is an essential step in the comprehension of discourse. But the identification of a Rhythmic Group follows from the identification of Paradigmatic Accents. Hungarian speakers may produce erroneously placed accents (thus, unidentifiable Rhythmic Groups) because of the following reasons:

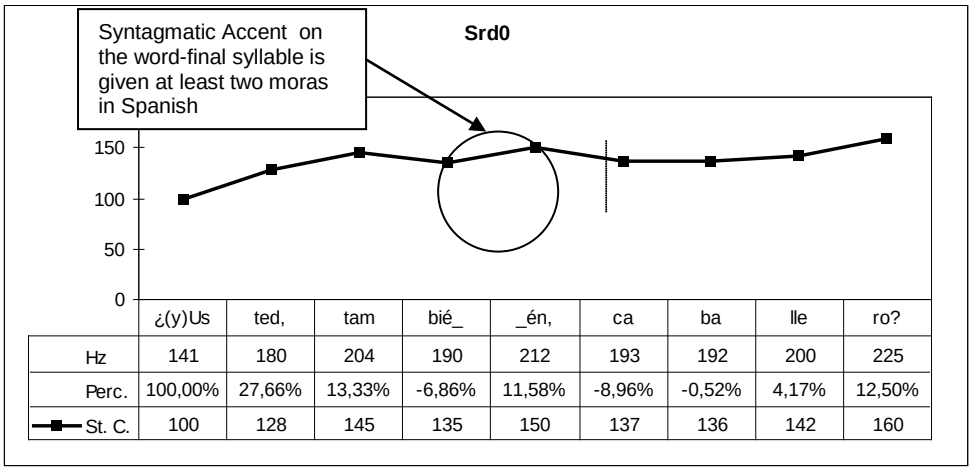
a) The short pronunciation of every vowel without an orthographic stress mark (as in Hungarian these are inherently short vowels), and not giving more duration to the stressed vowels;

b) De-diphthongization, i.e. treating the semivowel of a rising diphthong as a full /i/ or /u/, as in '*bueno* /'bueno/ instead of /'bweno/ 'good';

c) Simply transferring the native stress-placing rule to the target language, as in *'termino* (correctly spelt *término*, 'deadline') for *ter'mino* 'I finish'. In this last case the improper accentuation even changes the word and can cause severe misunderstanding, rather than just hindering comprehension through distorting Rhyhmic Groups (cf. Bóna—Imre 2007).

As there is no word-final stress in Hungarian, I expect that Hungarian learners will not give more than one mora to Spanish word-final lexical stresses when they constitute the Syntagmatic Accent. Thus, it is expected that the Spanish utterance in (2) will be realized by Hungarians without a perceptible Final Inflection on the word *también* in the first Phonic Group.[112]

(2) | ¿(Y) Us'ted también, | caba'llero?|
and you-sg-fml too sir
'And you too, sir?'



	¿(y)Us	ted,	tam	bié_	_én,	ca	ba	lle	ro?
Hz	141	180	204	190	212	193	192	200	225
Perc.	100,00%	27,66%	13,33%	-6,86%	11,58%	-8,96%	-0,52%	4,17%	12,50%
St. C.	100	128	145	135	150	137	136	142	160

[112] Or, if the diphthong is reanalysed as a hiatus by Hungarians in this case, it will be given two moras, but it is not the more prominent vowel (*é*) which receives two moras as in the Spanish solution, but the two vowels, *i* and é, will be given one mora each.

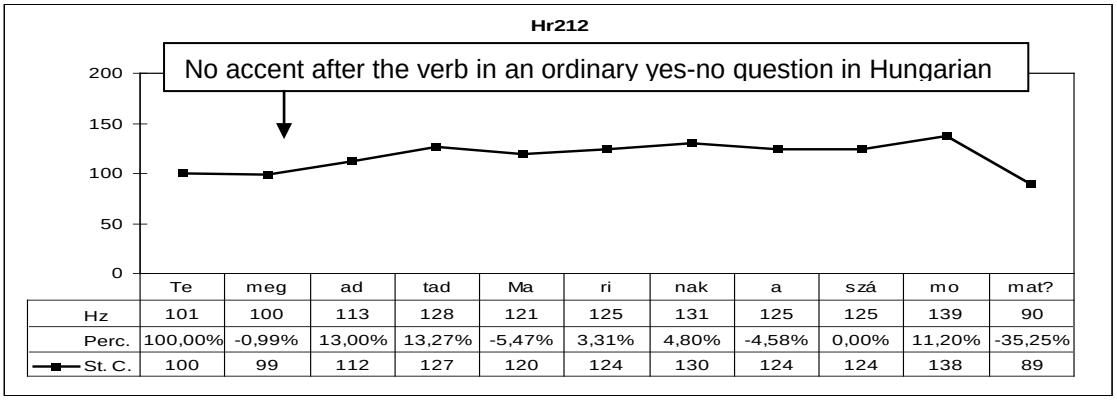
7.2.2 Accent position in yes-no questions

So far (cf. 7.2.1) we have seen stress position differences at the word level, but there are also accent position differences in yes-no questions in the two languages.

In Hungarian, the place of the Syntagmatic Accent in an ordinary yes-no question is at the beginning of the comment or predicate.[113] The rest of the comment is "deaccentuated", i.e. no accents will follow the accent at the beginning of the predicate (cf. Varga 2002a:27, 145, and (3)).[114]

(3)

| Te 'megadtad Marinak a számomat?|
you-sg gave-2sg Mary-to the number-my-acc
'Have you given my number to Mary?'



	Te	meg	ad	tad	Ma	ri	nak	a	szá	mo	mat?
Hz	101	100	113	128	121	125	131	125	125	139	90
Perc.	100,00%	-0,99%	13,00%	13,27%	-5,47%	3,31%	4,80%	-4,58%	0,00%	11,20%	-35,25%
St. C.	100	99	112	127	120	124	130	124	124	138	89

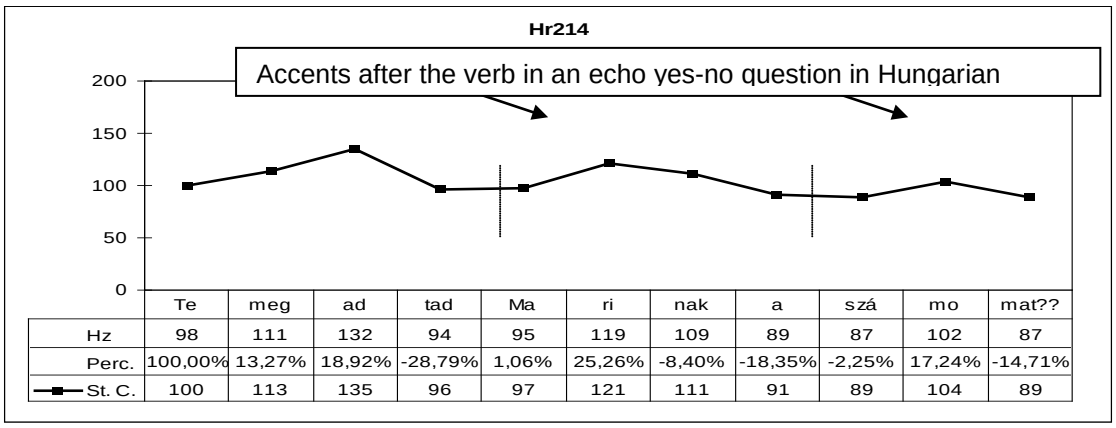
When the sentence is an incredulous-repetitive echo yes-no question, that is, emphatic, there are accents following the verb, and these accents will carry copies of the same HP7 which is used in the ordinary yes-no question, (cf. 6.4.1, and (4)).

[113] For the notion of comment (predicate), see É. Kiss (2002:2, 8-9).
[114] Unless the postverbal region contains a positive or negative universal quantifier. Such quantifiers must be accented even postverbally.

'Beszéltél 'mindenkivel?	'Nem beszéltél 'senkivel?
talked-2sg everyone-with	not talked-2sg nobody-with
'Did you talk to everybody?'	'Didn't you talk to anybody?'

(4)

| Te 'megadtad | 'Marinak a | 'számomat???|
you-sg gave-2sg Mary-to the number-my-acc
'Have you given my number to Mary?' (Am I right in assuming this?)

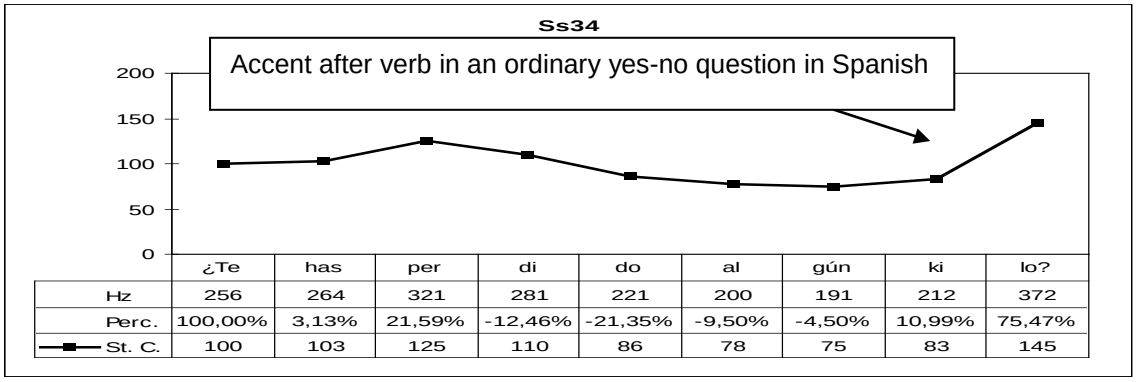


	Te	meg	ad	tad	Ma	ri	nak	a	szá	mo	mat??
Hz	98	111	132	94	95	119	109	89	87	102	87
Perc.	100,00%	13,27%	18,92%	-28,79%	1,06%	25,26%	-8,40%	-18,35%	-2,25%	17,24%	-14,71%
St. C.	100	113	135	96	97	121	111	91	89	104	89

In Spanish, however, the tendency is that the Syntagmatic Accent is on the last lexically stressed syllable of the utterance in ordinary yes-no questions, as in (5):

(5)

| ¿Te has perdido algún 'kilo?|
refl.pron.-2sg have-aux-2sg lost some kilo
'Have you lost some weight?'



	¿Te	has	per	di	do	al	gún	ki	lo?
Hz	256	264	321	281	221	200	191	212	372
Perc.	100,00%	3,13%	21,59%	-12,46%	-21,35%	-9,50%	-4,50%	10,99%	75,47%
St. C.	100	103	125	110	86	78	75	83	145

This means that while in ordinary Hungarian yes-no questions postverbal elements are not normally accented, in ordinary Spanish yes-no questions the last lexical element (most likely postverbal) has the Syntagmatic Accent. In Spanish, echo yes-no questions do not have more accents (with copied FIs) than ordinary yes-no questions, see 7.3.2.2 below.

7.3 Linguistic aspects of intonation

In the following section, I will focus on the linguistic level of intonation. The hypothetically contrasting aspects in the two languages at this level are:

- different pitch range (of both the whole contour and the FI itself)
- different patterns (of FIs and bodies) used for /+interrogative/ tonemes. I will examine in which circumstances Spanish and Hungarian intonational patterns coincide or differ – the latter case is where I expect Hungarian learners of Spanish to make intonational "mistakes" by transferring their own interrogative patterns to Spanish yes-no questions.

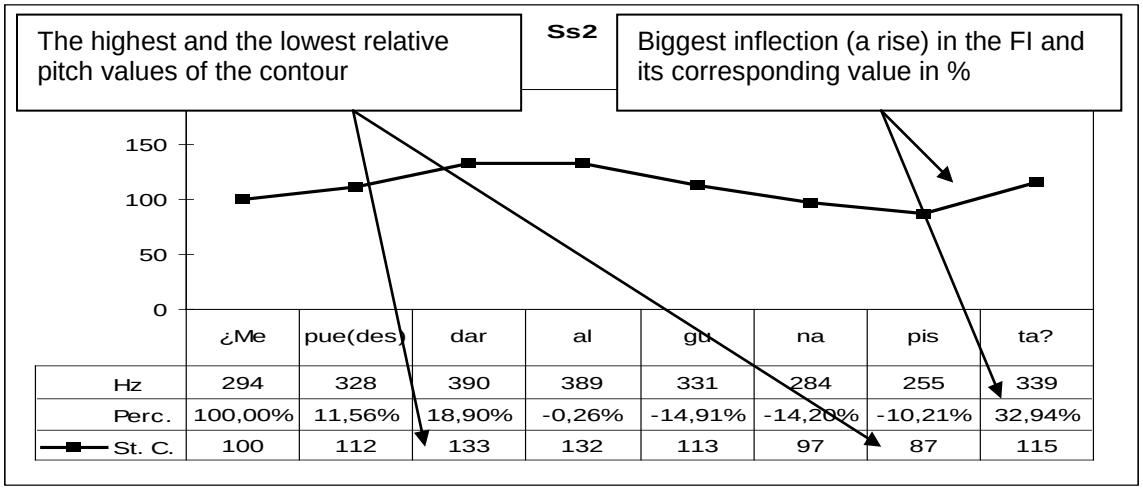
7.3.1 Pitch range differences in the two languages

This question will be treated from two perspectives: the pitch range of the whole contour and the pitch range of the FI will presumably differ in Spanish and Hungarian. By pitch range I mean the vertical extent (in %) of pitch movement, i.e. the difference between the highest pitch and the lowest pitch within a Standardized Contour or within a part of the Standardized Contour. The question of pitch range differences is identified as a linguistic manifestation of intonation,[115] as in Spanish, for example, an FI rising over 70% indicates a /+interrogative/ toneme, whereas an FI falling under -30% is identified as an /+emphatic/ toneme. Similarly, a wide pitch range for the whole contour is an emphatic feature (cf. 3.3)

Varga (2002a:21) claims that in Hungarian the average pitch range of utterances is not as wide as in English. Thus my hypothesis is that the average pitch range in Spanish is also wider than in Hungarian, and that this holds not only for the whole contour but also for the FI itself. To validate this hypothesis, Hungarian and Spanish corpus-sentences have been measured for two values: the difference of the highest and the lowest relative pitch values of the contour (i.e. the relative pitch range of the whole contour), and the relative percentage of (the biggest) rise/fall of the FI. In the following examples we shall see how these two values are obtained.

[115] Whether pitch range is a linguistic aspect of intonation, is a controversial issue today (cf. Prieto 2003:27), but for Cantero and Font-Rotchés it is linguistic.

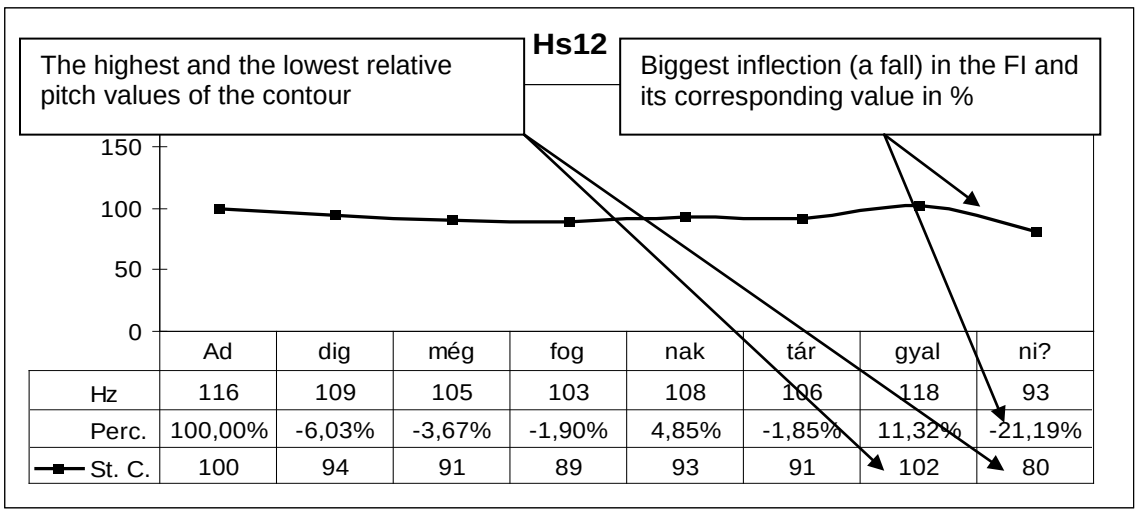
(6a)
| ¿Me 'puedes dar alguna 'pista?|
me can-2sg give some hint
‘Could you give me any hint?’



	¿Me	pue(des)	dar	al	gu	na	pis	ta?
Hz	294	328	390	389	331	284	255	339
Perc.	100,00%	11,56%	18,90%	-0,26%	-14,91%	-14,20%	-10,21%	32,94%
St. C.	100	112	133	132	113	97	87	115

In (6a), the lowest relative pitch value within the Standardized Curve is 87, while the highest is 133. The highest value (133) shows an increase of 53% (a rounded value) with respect to the lowest value (87). Thus, the overall pitch range of the contour, in percentages, is 53%. The biggest inflection realized on the FI in this case is a rise of 33% (a rounded value).

(6b)
| Addig még 'fognak tárgyalni?|
then-till yet will-3pl negotiate
‘Will you still negotiate till then?’



	Ad	dig	még	fog	nak	tár	gyal	ni?
Hz	116	109	105	103	108	106	118	93
Perc.	100,00%	-6,03%	-3,67%	-1,90%	4,85%	-1,85%	11,32%	-21,19%
St. C.	100	94	91	89	93	91	102	80

In (6b), the lowest relative pitch value is of 80, while the highest is 102. The highest value (102) shows an increase of 28% (a rounded value) with respect to the lowest value (80). Thus, the overall pitch range of the contour, in percentages, is 28%. The biggest inflection realized on the FI in this case is a fall of 21% (a rounded value).

Both utterances have the same number of syllables, and it is easy to see that both pitch range values for Hungarian are much lower than the corresponding Spanish ones.

The average overall pitch range for Hungarian, based on a corpus of 58 utterances (APPENDIX 2: Corpus 2, ordinary and echo yes-no questions), is 59%, whereas this value for Spanish, in a corpus of 66 utterances (APPENDIX 1, Corpus 1, ordinary and echo yes-no questions), is 102%. This means that the average pitch range in Spanish is nearly double the amount measured in Hungarian utterances. In Hungarian, the lowest overall pitch range value measured among all the Standardized Curves was 6%, and the highest, 175%, whereas in Spanish, the lowest overall pitch range value among all the Standardized Curves was 5%, and the highest, 246%. These values were examined separately in ordinary and only echo yes-no questions, but the proportion between the Hungarian and the Spanish values was the same in these respects, too.

Concerning Final Inflection pitch values, in the case of rising FIs, the average Spanish value is 70% as compared to the Hungarian 39%; the difference is less marked in the case of falling FIs, with the Spanish average value being 50% as compared to the Hungarian 35%. The following table sums up the most important data:

Table 7.2: A comparison of pitch values in Spanish and Hungarian yes-no questions

Question types	**Examined categories**	**Spanish**	**Hungarian**
ordinary y/n questions	Overall pitch range (average) (%)	96	56
	Highest pitch range value found among all the contours (%)	246	175
	Biggest inflection in the FI (average) (%)	65	35
	Biggest rising inflection in the FI (average) (%)	68	39
	Biggest falling inflection in the FI (average) (%)	49	33
	Biggest inflection in the FI found among all the contours (%)	173	71
echo y/n questions	Overall pitch range (average) (%)	129	66
	Highest pitch range value found among all the contours (%)	233	116
	Biggest inflection in the FI (average) (%)	77	37
	Biggest rising inflection in the FI (average) (%)	82	37
	Biggest falling inflection in the FI (average) (%)	58	37
	Biggest inflection in the FI found among all the contours (%)	153	53
ordinary + echo y/n questions	Overall pitch range (average) (%)	102	59
	Highest pitch range value found among all the contours (%)	246	175
	Biggest inflection in the FI (average) (%)	67	35
	Biggest rising inflection in the FI (average) (%)	71	38
	Biggest falling inflection in the FI (average) (%)	51	34
	Biggest inflection in the FI found among all the contours (%)	173	71

Whether this tendency is observable in the intonation of Hungarian learners' Spanish sentences, too, will be examined in Chapter 8.

Baditzné (2012) also examined the average pitch height in Spanish and in Hungarian yes-no questions. Though N. Tomás (1966) holds that the Spanish average pitch height is lower than in other European languages, Hungarian seems to be even lower, at least in yes-no questions, with 213Hz in the case of Hungarian women as compared to the Spanish value of 297Hz, and 134Hz in the case of Hungarian men as compared to the Spanish value of 177Hz, cf. Table 7.3.

Table 7.3: Average pitch height values in Spanish and Hungarian yes-no questions

Question types	Examined categories	Spanish	Hungarian
ordinary y/n questions	Average pitch (men, Hz)	161	137
	Average pitch (women, Hz)	292	198
	Average pitch (men and women, Hz)	239	143
echo y/n questions	Average pitch (men, Hz)	262	132
	Average pitch (women, Hz)	322	226
	Average pitch (men and women, Hz)	300	161
ordinary + echo y/n questions	Average pitch (men, Hz)	177	134
	Average pitch (women, Hz)	297	213
	Average pitch (men and women, Hz)	250	146

In Corpus 3 (containing Spanish sentences realized by Hungarian students), the comparison was not made, as supposedly people under the age of 18 would have higher average pitch height than in a corpus of generally adult speakers (as in the case of Corpus 1 and 2).

7.3.2 Different /+interrogative/ patterns

Obviously, questionhood can be defined on various grounds, because an utterance can function as a question as an indirect speech act, or as a direct speech act. Direct speech acts are not context-dependent, so if an utterance is a question as a direct speech act, it should be regarded as such by listeners even if it is deprived of contextual clues. Such utterances are helped by either grammar or intonation (or both) to be recognised as questions by listeners. So genuinely interrogative intonational patterns are used when it is only intonation that is responsible for the decoding of the utterance as a question - that is, where grammar does not signal that the utterance is a question. That is why intonation is not needed to signal the questionhood of question word questions, which normally have /–interrogative/ intonational patterns, and this is also true for yes-no questions which contain a grammatical marker.

Thus, a /+interrogative/ intonational pattern means that the pattern is recognised as a question by listeners independently of the context of the utterance. In Hungarian, there are various interrogative patterns: patterns HP7a-c are non-emphatic, and patterns HP8 and HP9 are emphatic interrogative patterns (cf. 4.3.3). The common features they all share is that they are all characterized by a fall starting from the penultimate syllable of the contour. The fall, according to my research, is bigger than any rise preceding it in the contour (cf. 6.3). Thus, the characteristic part of the /+interrogative/ pattern carried by more than two syllables in Hungarian is ultimately falling (as it falls between the penultimate and the last syllables); what precedes the penultimate syllable may be rising fully or partially, as in HP7a-c, or level, as in HP8, or descending, as in HP9.

In Spanish, however, the most characteristic interrogative patterns, SP2 and SP3, and the recently described SP13 are characterized by a rising FI: the rise must be at least 70% in SP2, over 40% in SP3, and the Body and the FI together, between 20% and 140% in SP13. There are two other interrogative patterns, SP4a-b, which are of a more restricted use. These have a rising-falling FI, so ultimately end in a fall, as the Hungarian yes-no question patterns; but the difference between them and the Hungarian ones is that the rising part is short and starts from the Syntagmatic Accent in Spanish, stretching over one mora, whereas in Hungarian it may stretch over a number of syllables, as in pattern HP7a.[116]

7.3.2.1 Ordinary yes-no questions

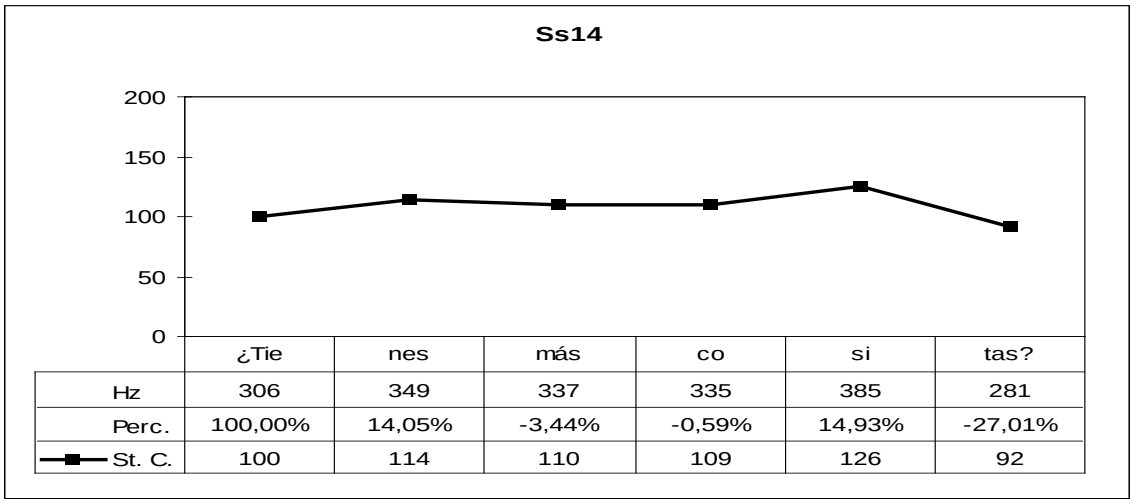
Genuine yes-no interrogative patterns, which are typical of ordinary yes-no questions that are neutral in their context in both languages, are characterised by a rise that happens at one point of the sentence. But whereas in Spanish the typical yes-no intonation contour ultimately ends in a rise, this is not so in Hungarian: unmarked interrogative patterns carried by more than two syllables end in a fall between the penultimate syllable and the last one, whereas in mono- and disyllabic realisations the final fall is lost or almost lost.

This does not mean that yes-no questions cannot have any other patterns: they might take pattern SP9 (cf. 3.3.2) or pattern SP7 (cf. 3.3.2), as in (7).

[116] For more differences between SP4 and HP7, see 4.3.3.

(7)

| ¿'Tienes más co'sitas?|
have-2sg more little-things
‘Do you have any other things?’

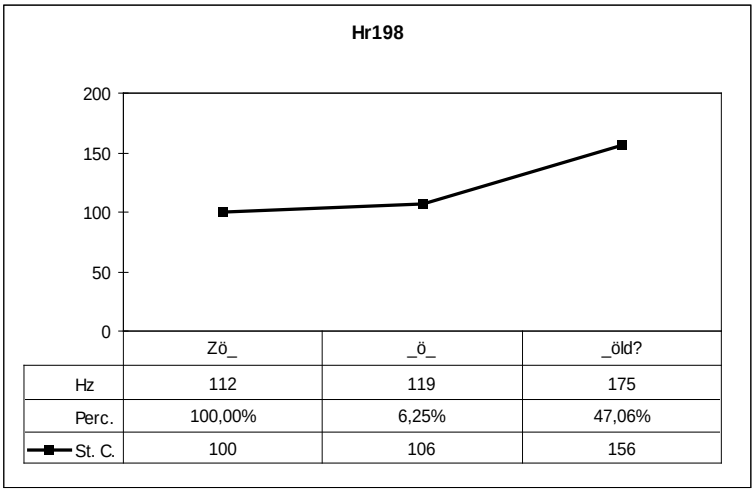


	¿Tie	nes	más	co	si	tas?
Hz	306	349	337	335	385	281
Perc.	100,00%	14,05%	-3,44%	-0,59%	14,93%	-27,01%
St. C.	100	114	110	109	126	92

In Hungarian, when the rise-fall (HP7) is carried by only one syllable, the fall may not even be perceptible, as in (8):

(8)

| 'Zöld?|
green
‘Green?’



	Zö_	_ö_	_öld?
Hz	112	119	175
Perc.	100,00%	6,25%	47,06%
St. C.	100	106	156

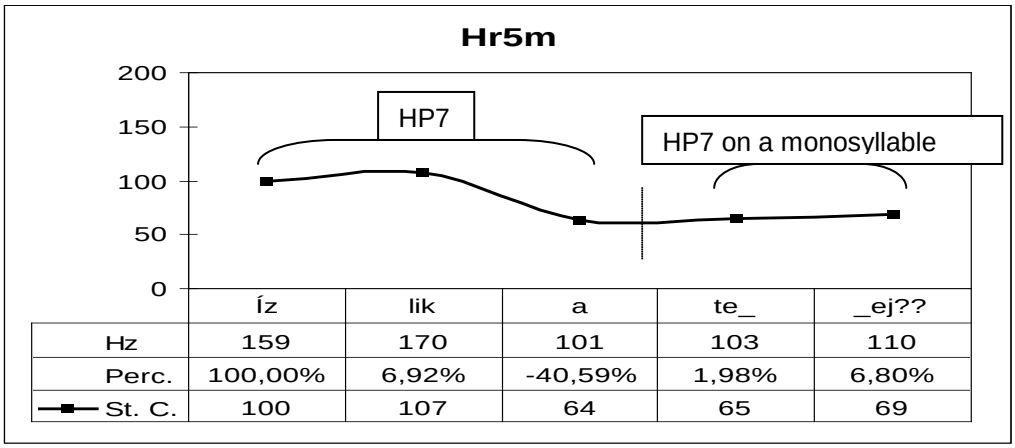
Thus, my predictions are that Hungarian students (a) will realize maximally disyllabic yes-no questions with a rising FI, without a perceptible fall, and (b) trisyllabic and longer yes-no questions with a rising-falling pattern, their native HP7.

7.3.2.2 Echo yes-no questions

In echo yes-no questions in Hungarian there are several accents, each initiating a HP7 contour. When this contour spreads on a monosyllabic word, the fall cannot be perceived and the FI will be phonetically realized as rising (cf. also 6.3, 6.4.1):

(9)

| 'Ízlik a | 'tej??|
taste-3sg the milk
'Does the milk taste good??'

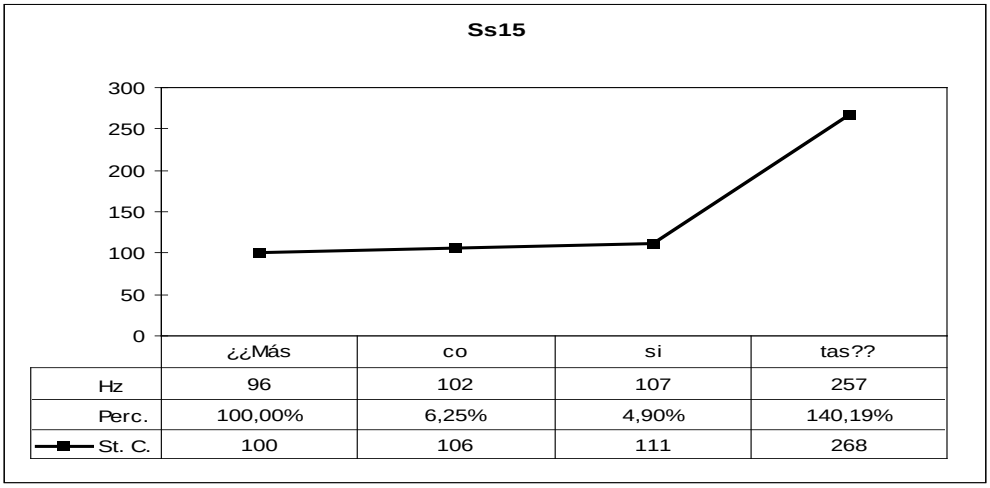


	Íz	lik	a	te_	_ej??
Hz	159	170	101	103	110
Perc.	100,00%	6,92%	-40,59%	1,98%	6,80%
St. C.	100	107	64	65	69

Example (9) is an 'incredulous/repetitive' yes-no question (cf. 6.4.1) containing several instances of HP7 in the utterance. In Spanish, however, incredulous/repetitive yes-no questions have only one Phonic Group, see (10):

(10)

| ¿¿'Más co'sitas??|
more things
'More things??'



	¿¿Más	co	si	tas??
Hz	96	102	107	257
Perc.	100,00%	6,25%	4,90%	140,19%
St. C.	100	106	111	268

My prediction is that Hungarians will transfer this peculiar case of emphasis – i.e., the repetition of HP7 – to the intonation of echo Spanish yes-no questions.

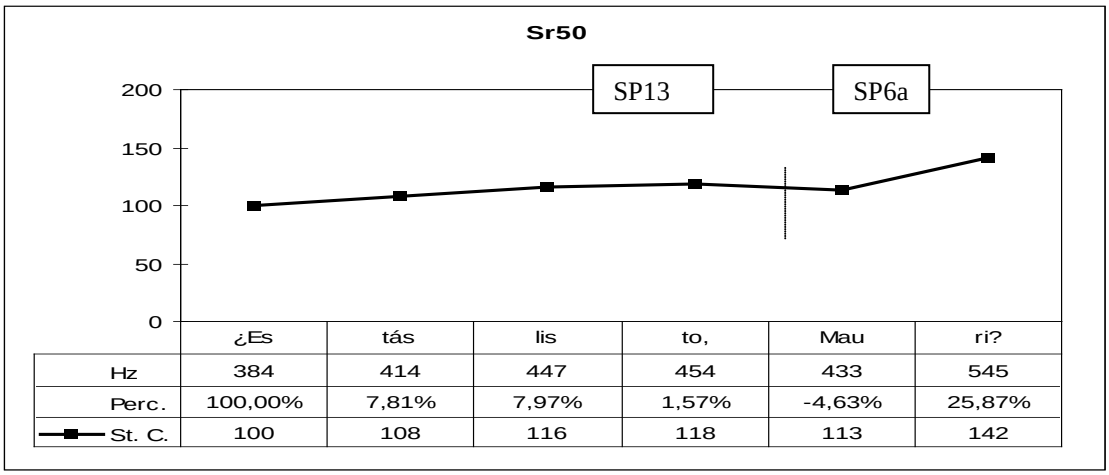
7.3.2.3 Yes-no question + vocative sequences

There is in the intonational realizations of yes-no question plus utterance-final vocative sequences in the two languages.

In Spanish, the final vocative receives the typical yes-no question intonation pattern SP2, or a rising pattern with a moderate rise, and the preceding part — the yes-no question — receives a moderately rising contour (SP1, SP6 or SP13, for example), see (11).

(11)

| ¿Estás 'listo, | 'Mauri?|
are-2sg ready Mauri(cio)
'Are you ready, Mauri?'

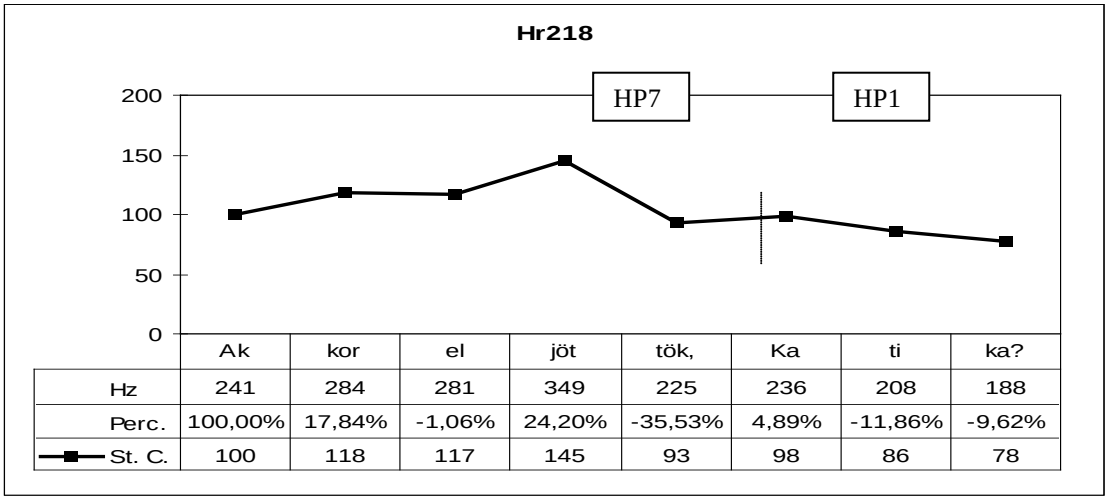


	¿Es	tás	lis	to,	Mau	ri?
Hz	384	414	447	454	433	545
Perc.	100,00%	7,81%	7,97%	1,57%	-4,63%	25,87%
St. C.	100	108	116	118	113	142

In Hungarian, however, the final vocative receives a falling pattern (HP1), and the yes-no question before it gets the question intonational pattern (HP7).

(12)

| Akkor 'eljöttök, | 'Katika?|
then come-2pl Kate-diminutive
'Then will you come, Katie?'



	Ak	kor	el	jöt	tök,	Ka	ti	ka?
Hz	241	284	281	349	225	236	208	188
Perc.	100,00%	17,84%	-1,06%	24,20%	-35,53%	4,89%	-11,86%	-9,62%
St. C.	100	118	117	145	93	98	86	78

The application of the intonational pattern used in the other language would lead to ungrammatical solutions in both languages:

(13)

7.3.2.4 Hypotheses about the intonational patterns used by Hungarian learners of Spanish in Spanish yes-no questions: a review

To sum up, I expect that Hungarian speakers will use an ultimately falling pattern (with the fall on the last two syllables) when producing an ordinary Spanish yes-no question, with a rise before the falling part which is not as steep as the fall. Hungarian speakers will only produce the typical rising interrogative FIs when they produce a short, maximally disyllabic ordinary yes-no question, or an echo yes-no question with an accent on the last, maximally disyllabic word. A falling pattern for a question in Spanish is not perceived as /+interrogative/, and is not so frequent.

In echo yes-no questions, I expect Hungarian learners of Spanish to produce repeated rising-falling patterns in their Spanish echo yes-no questions.

In yes-no question + vocative sequences, my hypothesis is that Hungarian will produce a rising-falling pattern in the yes-no question and a falling pattern in the vocative.

The following table will summarize the expected coincidences (the shaded parts of the table) and divergences in the use of intonational patterns in Spanish and Hungarian yes-no

questions. (~ means that the two patterns are roughly identical). The coincidences can be looked upon as cases of positive transfer (i.e. facilitation), whereas the divergences as cases of negative transfer (i.e. interference).

Table 7.4: Spanish and Hungarian intonational patterns in yes-no questions

Question types	**Spanish pattern**	**Hungarian pattern**
Ordinary yes-no questions	SP2 (Rise)	
	SP3 (Rise)	
	SP6 (Rise)	
	SP13 (Rise)	
	SP10b (Fall-rise)	
	SP4 (Rise-fall)	HP7 ~ SP4, SP7 (Rise-fall) or ~ SP1, SP9 (Fall)
	SP7 (Rise-fall)	
	SP1 (Fall)	
	SP9 (Fall)	
Echo yes-no questions	SP2 (Rise)	Repeated HP7 (Rise-fall)
	SP7 (Rise-Fall)	
	SP9 (Fall)	
	SP10b (Fall-rise)	
	SP13 (Rise)	
Yes-no question + vocative sequences	Two rising patterns	HP7 + HP1

7.4 Summary

In this chapter we have made predictions about the ways Hungarian speakers realise the intonation of Spanish yes-no questions. These predictions were concerned with the prelinguistic and linguistic aspects of intonation.

At the prelinguistic level, stress- and accent-placing rules were compared in the two languages. As Hungarian and Spanish present different solutions, the transfer of the Hungarian ways to the Spanish sentences may alter the accent pattern of the utterance, which may lead to difficulties in decoding the meaning of the lexical items of the utterance. It is a remarkable difference that while in Hungarian the postverbal elements are de-accentuated in ordinary yes-no questions, in Spanish it is rather the last postverbal lexical stress which receives the main accent. In echo yes-no questions Hungarian presents several Syntagmatic Accents with the same HP7 copied to all of them, whereas in Spanish there is only one Syntagmatic Accent.

At the linguistic level, predictions were made about yes-no interrogative intonation in the two languages. Hungarian and Spanish apply different intonational patterns for ordinary yes-no interrogatives. Additionally, pitch range for the whole contour and pitch range for the FIs

seem to be different in the two languages. The hypothesis is that Hungarians will transfer their own interrogative intonational patterns as well as their more restricted pitch range to Spanish questions. With this transfer, they will change the meaning not at the level of lexical items, but at the level of the whole utterance.

In the next chapter all these predictions will be confronted with the data in Corpus 3 (see APPENDIX 3), which contains Spanish yes-no questions produced by Hungarian learners of Spanish.

Chapter 8 Validation of the predictions, and pedagogical implications (An analysis of Corpus 3)

8.1 Introduction

The comparison between certain Hungarian and Spanish intonational phenomena in Chapter 7 was based on Corpus 1 (read and spontaneous Spanish sentences) and Corpus 2 (read and spontaneous Hungarian sentences). This chapter will focus on Corpus 3, which consists of read and semi-spontaneous Spanish sentences uttered by Hungarian learners of Spanish. It will be examined whether the intonation of these Spanish sentences is nearer to Spanish or Hungarian intonation.

The informants of Corpus 3 were 52 secondary school students, all from Budapest, aged between 14 and 18. They had 3-5 Spanish lessons per week, and non-native Spanish teachers with Hungarian as their mother tongue. Students with non-Hungarian parents were excluded from the analysis, and so were students who had spent more than 2 weeks in any Spanish-speaking country. As Corpus 3 includes two parts, Corpus 3A (read utterances) and Corpus 3B (semi-spontaneous utterances), the two will be analysed, separately.

The points under consideration will be the following:

- at the prelinguistic level: improperly realized Final Inflections due to accent anomalies.
- at the linguistic level: pitch range in both the whole utterance and in the Final Inflection, and the application of typically Hungarian intonational patterns.

At the end of the chapter, as a conclusion, I will highlight the intonational areas which need more attention on the part of a language teacher when familiarizing Hungarian learners with the Spanish language.

8.2 Corpus 3: Spanish utterances made by Hungarian learners of Spanish

8.2.1 Corpus 3A: Spanish sentences read by Hungarians

The read Spanish corpus contains sentences of a written dialogue taken from a Spanish coursebook, *Gente 1* (Baulenas et al., 1998). The short text could be read silently once before it was read out and recorded[117], so the students knew what they were saying and their intonation was supposed to be correct. They could not hear each other while reading.

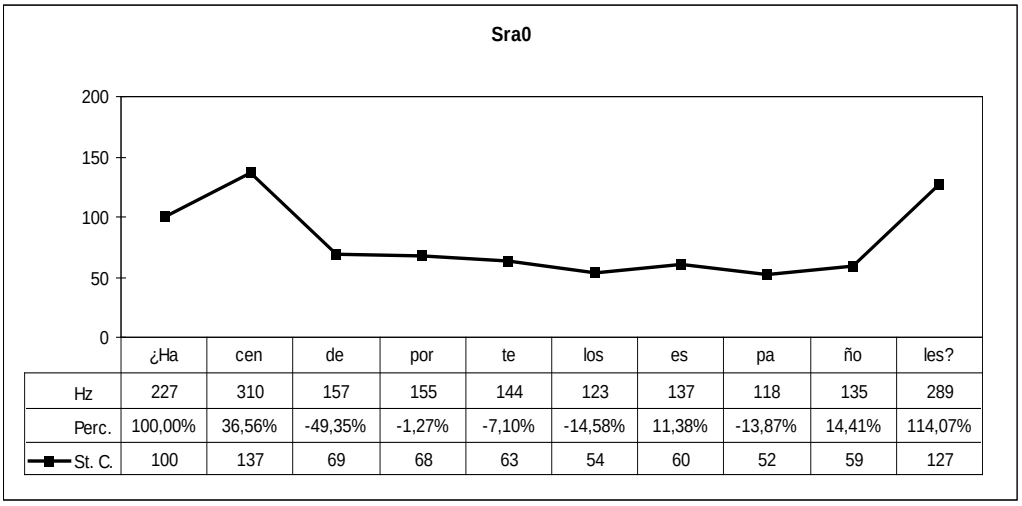
[117] Obviously, they had not heard the text before.

Four yes-no questions of the text were selected and analysed. Their original Spanish textbook realizations, taken from Baulenas et al. (1998), are shown in (1), (2), (3) and (4). They fall into the following categories:

- Sentences “a” and “b” are ordinary yes-no interrogatives, with typical yes-no question intonation (SP2).

(1) Sentence “a”

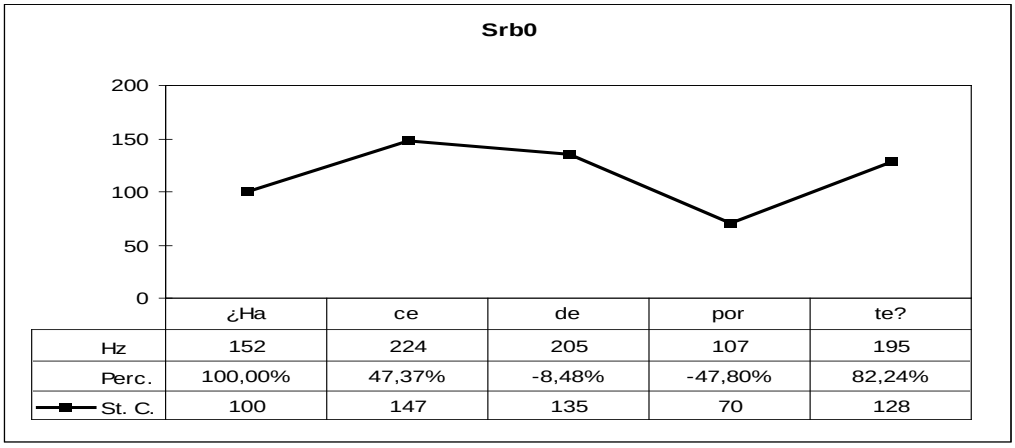
| ¿'Hacen de'porte los espa'ñoles?|
do-3pl sport the Spanish
‘Do the Spanish do sports?’



	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	227	310	157	155	144	123	137	118	135	289
Perc.	100,00%	36,56%	-49,35%	-1,27%	-7,10%	-14,58%	11,38%	-13,87%	14,41%	114,07%
St. C.	100	137	69	68	63	54	60	52	59	127

(2) Sentence “b”

| ¿'Hace de'porte?|
do-2sg sport
‘Do you do any sport?’



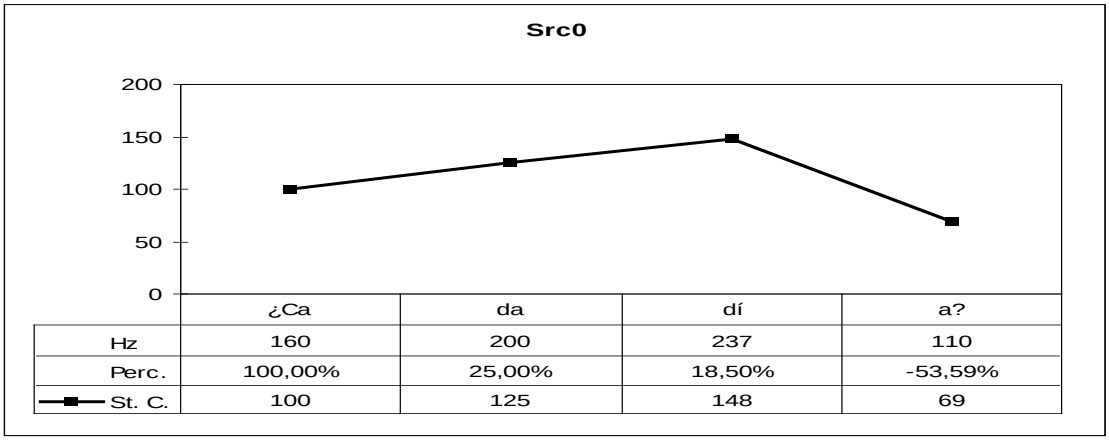
	¿Ha	ce	de	por	te?
Hz	152	224	205	107	195
Perc.	100,00%	47,37%	-8,48%	-47,80%	82,24%
St. C.	100	147	135	70	128

- Sentence “c” expresses surprise, it is an incredulous-repetitive yes-no question with (SP9);

- Sentence “d” is a yes-no question + vocative sequence, with an SP1 in each Phonic Group, both rising.

(3) Sentence “c”

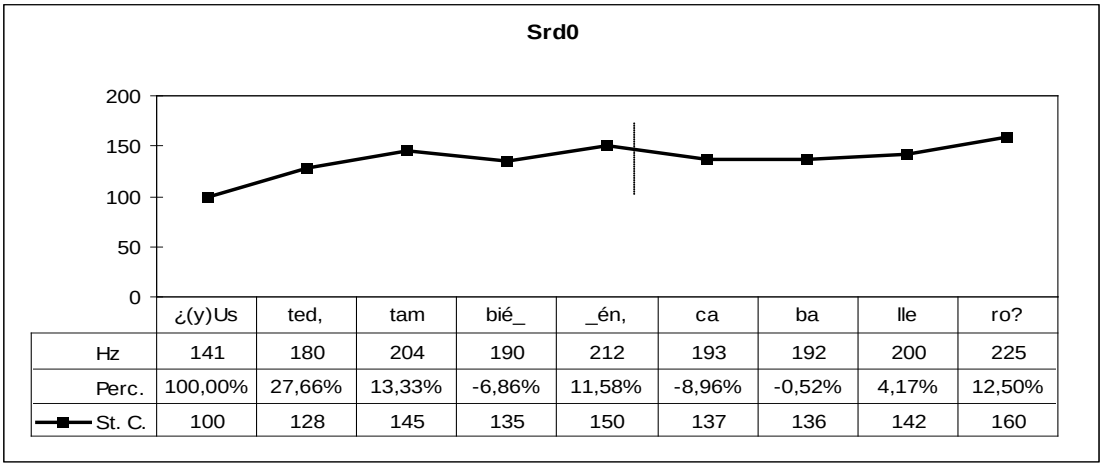
| ¿'Cada día?|
Every day
‘Every day?’



	¿Ca	da	dí	a?
Hz	160	200	237	110
Perc.	100,00%	25,00%	18,50%	-53,59%
St. C.	100	125	148	69

(4) Sentence “d”

| ¿(Y) Usted también, caballero?|
and you-sg-fml too sir
‘And you too, sir?’



	¿(y)Us	ted,	tam	bié_	_én,	ca	ba	lle	ro?
Hz	141	180	204	190	212	193	192	200	225
Perc.	100,00%	27,66%	13,33%	-6,86%	11,58%	-8,96%	-0,52%	4,17%	12,50%
St. C.	100	128	145	135	150	137	136	142	160

Thus, in the read corpus three types of yes-no questions were analyzed: ordinary, echo yes-no questions, and yes-no questions followed by a vocative. Altogether this corpus includes 111 utterances from 30 students: 25 realizations of “a”, 29 realizations of “b” (thus, 54 ordinary yes-no interrogatives), 29 realizations of “c” (echo yes-no questions), and 28 realizations of “d” (yes-no question + vocative combinations).[118]

[118] Even though the students could prepare for the recording, some of them forgot to read the title (sentence “a”), and some utterances were read out so softly that they could not be analyzed properly. So altogether there are 111 sentences instead of 120.

8.2.2 Corpus 3B: semi-spontaneous Spanish sentences produced by Hungarians

The semi-spontaneous corpus contains 63 utterances, provided by 22 speakers altogether. The corpus was based on various interviews acted out by students; they did not know that it was their intonation that was being tested, they were told that they were practicing for an oral exam.

The questionnaire induced the speakers to produce a great number of complementary questions as well. These were not analysed as they are not considered to be yes-no questions.[119]

The majority of the semi-spontaneous corpus sentences are ordinary yes-no questions (61); there are two echo yes-no questions as well.

8.3 The Spanish intonation of Hungarian learners of Spanish: the prelinguistic level

There is only one point under consideration in this section: erroneous accentuation in the FIs. [120] As the most measurable potential divergence characterizes those words which have the lexical stress on their last syllables and this syllable bears the FI, I will concentrate here on this group exclusively.

According to Cantero, the FI must have more than one mora (cf. 2.4.4). When the FI is realized by words having the lexical stress in the ult, there are no more syllables for the FI to spread over, so the last syllable must lengthen to provide enough "space" for the FI. The lengthened syllable in itself has a tonal contrast, such as *-dad* in (5):

---

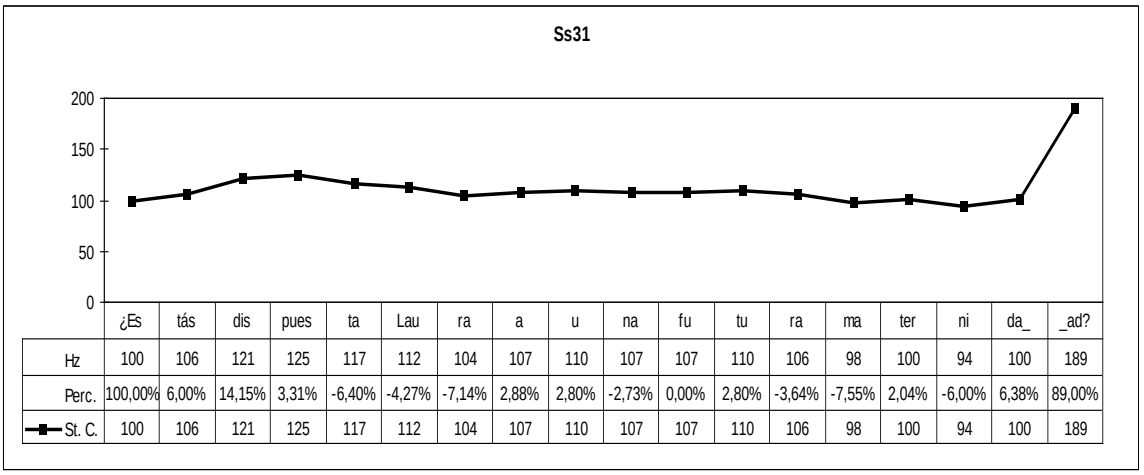
[119] For complementary questions, see footnote 8 in 4.3.2. They may resemble the ordinary yes-no questions in form, but constitute a different category. Interrupted yes-no questions, offering and 'listing' questions go into this group. In Hungarian they are normally characterized by rising intonation (as opposed to ordinary yes-no questions with rising-falling intonation, but this rise is a relatively moderate one, with up to 40% of rise generally). The questionnaire included several items, and as the speakers in most cases asked about the items one after the other, as if checking a list, they presumably tended to produce the listing type of complementary questions, with a moderate rise at the end of the sentence (but never reaching 70%).

Another group of excluded questions was the one of interrupted alternative questions, as they do not belong to yes-no questions either.

[120] Another difference is the position of accents (and thus, FIs) in ordinary yes-no questions (cf. 7.2.2). While in the Hungarian solution the FI begins towards the beginning of the sentence, in Spanish it is the end of the sentence, more concretely, the last three (or four) syllables that bear the FI (cf. 2.4.4). Whether Hungarian learners of Spanish transfer this accentuation pattern to their Spanish sentences cannot be examined based on F_0 variations exclusively, as in Hungarian ordinary yes-no questions the most radical inflections are realized from the antepenultimate syllable, even if there is no accent, so the biggest F_0 variation in the utterance is not an objective indicator of accent in these cases. F_0 indicates accent in the case of Hungarian echo yes-no questions, where in Hungarian there are more accents that initiate a HP7 pattern, as opposed to the Spanish version which has only one accent and one FI. Thus, the presence of a HP7 (with rise-fall FI) suggests the presence of an accent. In this latter case we can objectively measure this difference based on the F_0, see 8.5.2.

(5)

| ¿Estás dis'puesta, Laura, a una futura materni'dad?|
be-2sg ready Laura to a future maternity
'Are you ready, Laura, for a future maternity?'



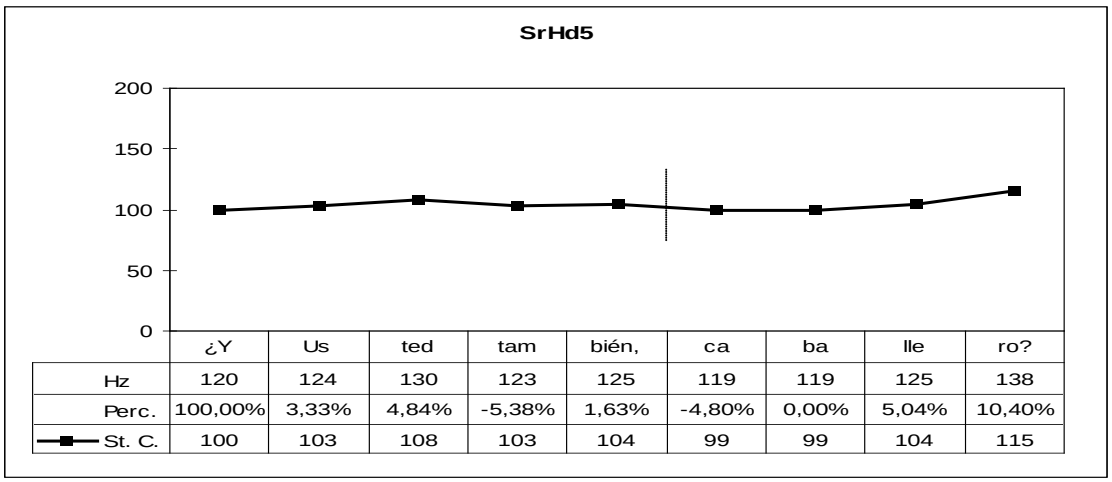
	¿Es	tás	dis	pues	ta	Lau	ra	a	u	na	fu	tu	ra	ma	ter	ni	da_	_ad?
Hz	100	106	121	125	117	112	104	107	110	107	107	110	106	98	100	94	100	189
Perc.	100,00%	6,00%	14,15%	3,31%	-6,40%	-4,27%	-7,14%	2,88%	2,80%	-2,73%	0,00%	2,80%	-3,64%	-7,55%	2,04%	-6,00%	6,38%	89,00%
St. C.	100	106	121	125	117	112	104	107	110	107	107	110	106	98	100	94	100	189

Unlike Spanish, Hungarian lexical stress can never fall on the last syllable of a plurisyllabic word (cf. 7.2.1). This means that it is not likely that Hungarians should give more than one mora to the last, accented syllable of a plurisyllabic word when it carries the FI.

Among the read yes-no questions (Corpus 3A), there is only one sentence, "d", which has the word *también*, with accent on the last syllable *bién*, which itself is the bearer of the FI. In the original Spanish utterance, (4), this syllable was given a tonal contrast of over 11%. Let us see how many Hungarian students realized the sentence with a tonal contrast of at least 10% or gave the syllable three moras.

Of the 28 utterances produced, the syllable *bién* is given two or three moras in only 6 sentences, i.e. in 21% of the expectable cases. The value of the FI on *bién* ranged from 10% to 38%. In the rest of the realizations of "d", *bién* is given one mora, with less than 10% of tonal contrast, as in (6):

(6)

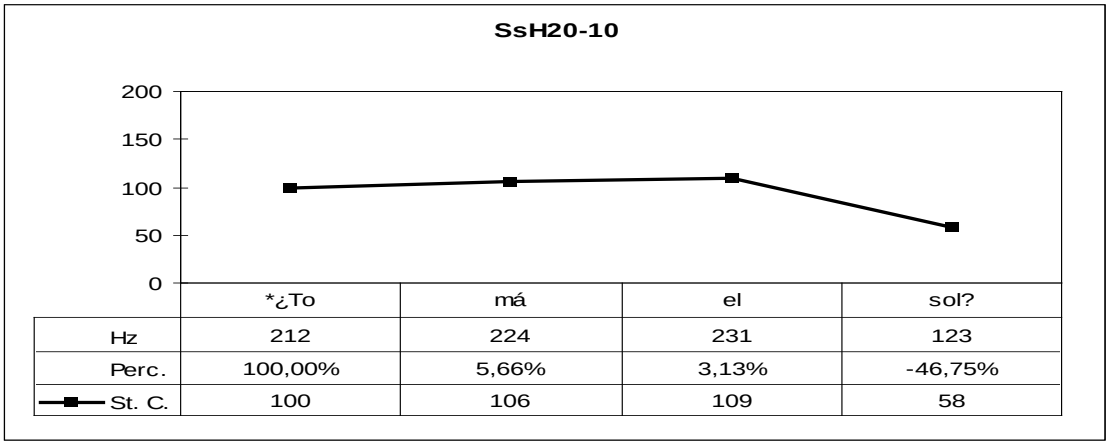


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	120	124	130	123	125	119	119	125	138
Perc.	100,00%	3,33%	4,84%	-5,38%	1,63%	-4,80%	0,00%	5,04%	10,40%
St. C.	100	103	108	103	104	99	99	104	115

The problem of mora-reduction in the case of final syllable FIs is also present in Corpus 3B (the semi-spontaneous corpus). Among the 63 yes-no questions, there are 20 in which the last syllable is bearing the FI, and should therefore be given more than one mora and represent a significant tonal contrast of more than 10%. In 12 cases (60%) this last syllable was realized correctly, but in 8 cases (40%) we find the anomalous Hungarian solution, with only one mora and no tonal contrast given to the last, accented syllable. This irregular solution is realized in two ways:

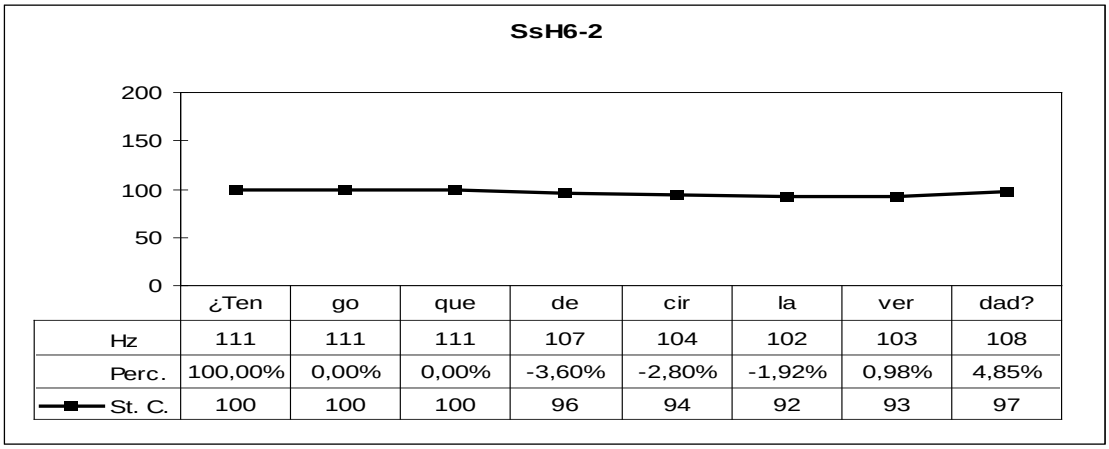
- having a considerable downstep to the last syllable, but no tonal contrast within it, as in (7).
- having a flat curve, with no salient inflections at all, as in (8);

(7)
| ¿*Tomá el sol?| correctly: ¿Toma el sol?
take-3sg the sun
'Do you (formal) sunbathe?'



	*¿To	má	el	sol?
Hz	212	224	231	123
Perc.	100,00%	5,66%	3,13%	-46,75%
St. C.	100	106	109	58

(8)
| ¿'Tengo que decir la ver'dad?|
have-1sg that-compl tell the truth
'Do I have to tell the truth?'

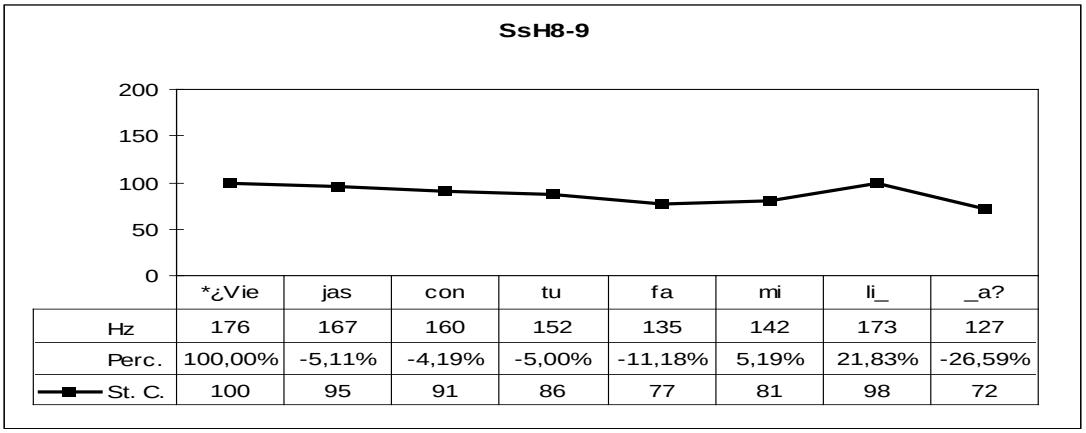


	¿Ten	go	que	de	cir	la	ver	dad?
Hz	111	111	111	107	104	102	103	108
Perc.	100,00%	0,00%	0,00%	-3,60%	-2,80%	-1,92%	0,98%	4,85%
St. C.	100	100	100	96	94	92	93	97

If we consider the treatment of final-syllable FI in both Corpus 3A and 3B, we can see that of the 49 cases that would require two or three moras (and a tonal contrast over 10%) in the last accented syllable, Hungarian students produced that solution in 22 cases, which is a 45%. This means that this is an area which needs more attention in the language-teaching classroom in the future.

As I have predicted, Hungarians sometimes reanalyze diphthongs as hiatuses (cf. 7.2.1). This is observable in the following two examples, (9) and (10), in which they give two separate moras for the two elements of the diphthongs. Note that, however, these solutions are not anomalous in Spanish, as in complex FIs it is possible that the final unstressed syllable bears two separate tonal movements (cf. 2.4.4, (6)), and the transferred Hungarian pattern, HP7, has a complex FI.

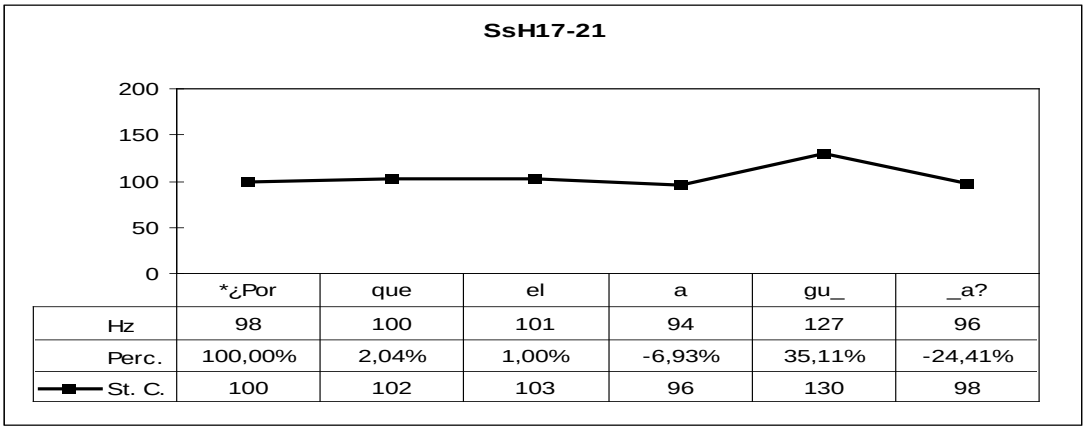
(9)
| ¿*Vie'jas con tu fa'milia?| correctly: viajas
travel-2sg with your family
'Do you travel with your family?'



	*¿Vie	jas	con	tu	fa	mi	li_	_a?
Hz	176	167	160	152	135	142	173	127
Perc.	100,00%	-5,11%	-4,19%	-5,00%	-11,18%	5,19%	21,83%	-26,59%
St. C.	100	95	91	86	77	81	98	72

(10)

| ¿*'Porque el 'agua?| correctly: ¿Por el agua?
because the water
'Because of the water?'



	*¿Por	que	el	a	gu_	_a?
Hz	98	100	101	94	127	96
Perc.	100,00%	2,04%	1,00%	-6,93%	35,11%	-24,41%
St. C.	100	102	103	96	130	98

In (9) and (10), though Hungarians transferred their HP7 yes-no interrogative patterns and de-diphthongized the last syllable, the result is an acceptable SP4b, an interrogative pattern, in both cases.

8.4 The Spanish intonation of Hungarian learners of Spanish: the linguistic level: (i) Pitch range

The following sections will concentrate on two areas that represent considerable differences in Spanish and Hungarian: pitch range (in the whole utterance and in the Final Inflection itself) and the inventory of intonational patterns used in yes-no questions.

8.4.1 Pitch range in the whole utterance

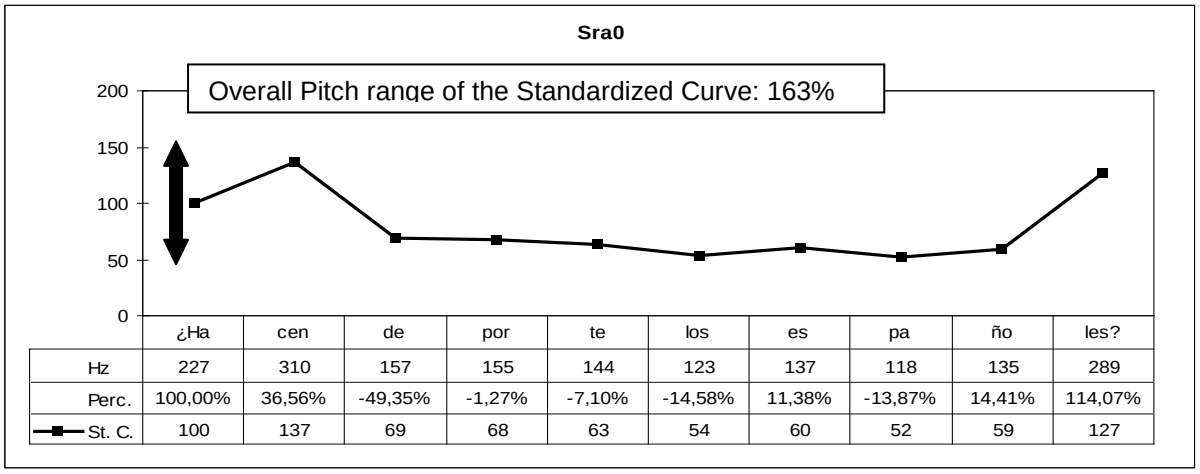
Based on our hypotheses, Hungarians will produce a narrower pitch range in their utterances: according to the prediction, the average pitch range in the Hungarian sentence is roughly half of the pitch range in the Spanish sentence. As in the case of Corpus 1 and Corpus 2, in Corpus 3, too, we will concentrate on ordinary yes-no questions and echo yes-no questions.

The read sentences (Corpus 3A) contain altogether 83 yes-no questions. Among these, the minimum pitch range value was 5%, and the maximum, 198%. The average was 44%, a very low value compared to the Spanish average value of 102%, cf. 7.3.1, Table 7.2., and also Baditzné 2012.

If we look at the examples (11) and (12), we can see that the pitch range in the whole utterance is considerably wider, i.e. 163% (obtained by calculating the tonal distance between the lowest relative value, 52, and the highest, 137) in the authentic Spanish version (11) than in the Hungarian attempt (12), with 24% (obtained by calculating the tonal distance between the lowest relative value, 83, and the highest, 103); on the method to calculate these values, cf. 7.3.1).[121]

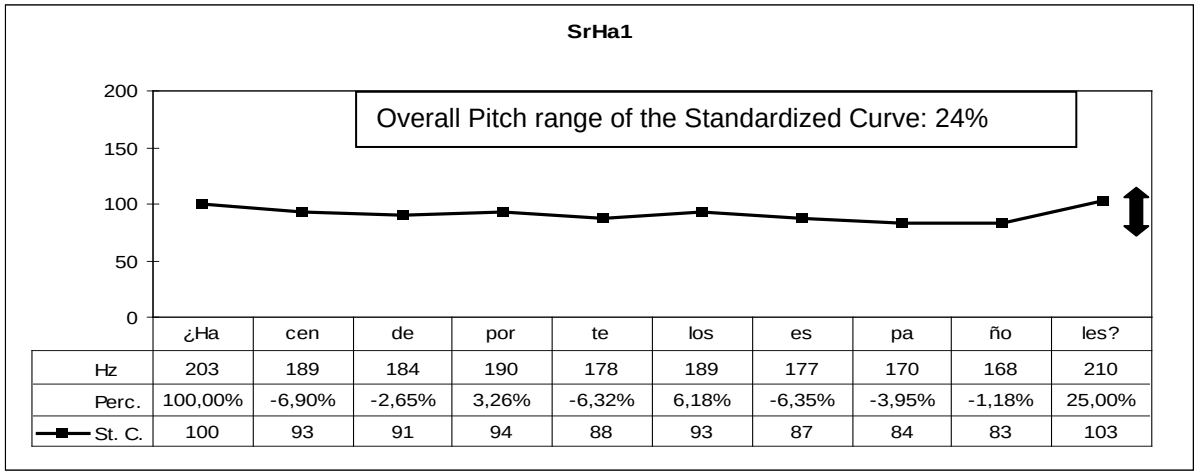
[121] This remarkable difference between the Spanish and Hungarian values may be due to the fact that the original Spanish version is taken from a course book. In spontaneous speech, Spanish applies narrower pitch range than in model sentences traditionally used for language teaching.

(11)



	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	227	310	157	155	144	123	137	118	135	289
Perc.	100,00%	36,56%	-49,35%	-1,27%	-7,10%	-14,58%	11,38%	-13,87%	14,41%	114,07%
St. C.	100	137	69	68	63	54	60	52	59	127

(12)



	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	203	189	184	190	178	189	177	170	168	210
Perc.	100,00%	-6,90%	-2,65%	3,26%	-6,32%	6,18%	-6,35%	-3,95%	-1,18%	25,00%
St. C.	100	93	91	94	88	93	87	84	83	103

In the semi-spontaneous utterances (Corpus 3B) the values roughly correspond to what we have found in Corpus 3A (63 yes-no questions with an average pitch range of 45%, in ordinary yes-no questions 43%, and in echo yes-no questions 61%, but there are only two examples). In Corpora A and B taken together, there are 146 yes-no questions, with an average pitch range of 44% (43% in the case of echo yes-no questions), and this value is undoubtedly lower than the Spanish average.

8.4.2 Pitch range in the most radical inflection of the utterance

I have predicted that the Hungarian learners of Spanish will have lower pitch range values not only in whole utterances, but also in Final Inflections.

After searching for the existing highest inflection pitch range value in the utterances, which was 100% in Corpus 3A and 115% in Corpus 3B (lower than the Spanish 173% in Corpus 1),

I looked at the highest inflection pitch range in every utterance, and then I took an average value for these inflections (also differentiating rising and falling inflections). These data are shown in Table 8.1.

Table 8.1: Pitch variation results in the whole utterance and in the biggest inflection of the utterance (rounded values) in Corpus 3A, Corpus 3B, and in Corpus 3 (A + B taken together)

Question types	**Examined categories**	**Corpus**		
		3A	**3B**	**3**
ordinary y/n questions	Overall pitch range (average) (%)	43	45	44
	Highest pitch range value found among all the contours (%)	131	198	198
	Biggest inflection in the FI (average) (%)	28	33	30
	Biggest rising inflection in the FI (average) (%)	32	34	33
	Biggest falling inflection in the FI (average) (%)	21	28	24
	Biggest inflection in the FI found among all the contours (%)	100	115	115
echo y/n questions	Overall pitch range (average) (%)	41	61	43
	Highest pitch range value found among all the contours (%)	82	111	111
	Biggest inflection in the FI (average) (%)	32	60	33
	Biggest rising inflection in the FI (average) (%)	39	111	43
	Biggest falling inflection in the FI (average) (%)	25	9	24
	Biggest inflection in the FI found among all the contours (%)	73	111	111
ordinary + echo y/n questions	Overall pitch range (average) (%)	42	45	44
	Highest pitch range value found among all the contours (%)	131	198	198
	Biggest inflection in the FI (average) (%)	29	34	31
	Biggest rising inflection in the FI (average) (%)	36	35	35
	Biggest falling inflection in the FI (average) (%)	21	27	24
	Biggest inflection in the FI found among all the contours (%)	100	115	115

We can see that the rising inflection values are always higher than the falling inflection values. Still, if we compare these data with the corresponding Spanish and Hungarian ones (cf. Table 7.2, partly reproduced here for convenience in Table 8.2), we can see that the pitch range values produced by Hungarian students produced utterances with pitch range in the inflections are nearer to their native, Hungarian pitch range. The only exception is the bigger existing inflection in echo yes-no questions: from this aspect, students produced utterances more similar to the Spanish solution. The shaded pairs of columns represent which language were Hungarian students nearer to when producing Spanish yes-no questions, as far as these pitch values are concerned.

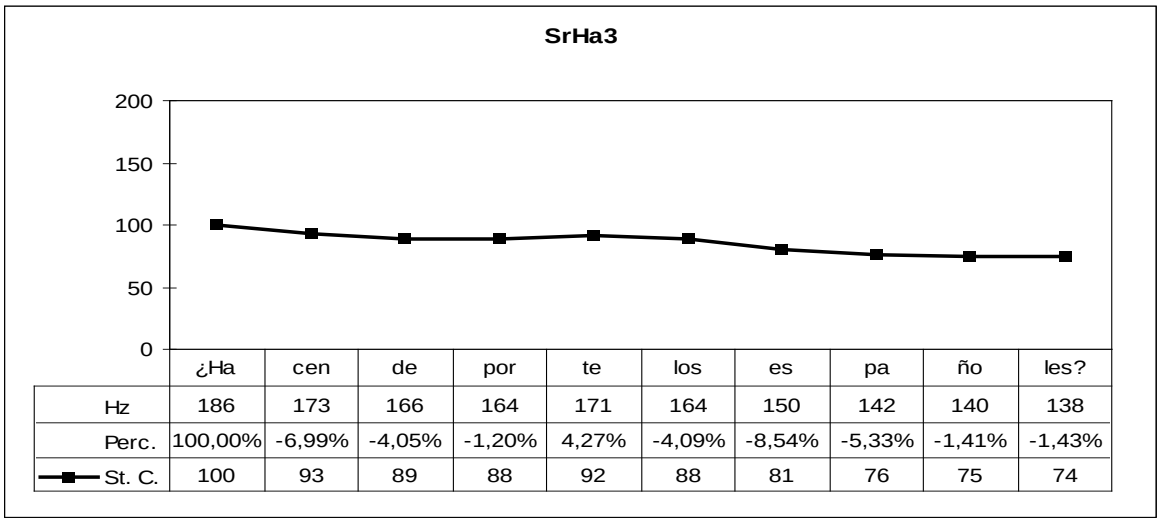
Table 8.2: Pitch variation results (in the whole utterance and in the biggest inflection of the utterance, rounded values) in Corpus 3, contrasted with those values in Corpus 1 and Corpus 2

Question types	**Examined categories**	**Spanish (Corpus1)**	**Corpus 3**	**Hungarian (Corpus 2)**
ordinary y/n questions	Overall pitch range (average) (%)	96	44	56
	Highest pitch range value found among all the contours (%)	246	198	175
	Biggest inflection in the FI (average) (%)	65	30	35
	Biggest rising inflection in the FI (average) (%)	68	33	39
	Biggest falling inflection in the FI (average) (%)	49	24	33
	Biggest inflection in the FI found among all the contours (%)	173	115	71
echo y/n questions	Overall pitch range (average) (%)	129	43	66
	Highest pitch range value found among all the contours (%)	233	111	116
	Biggest inflection in the FI (average) (%)	77	33	37
	Biggest rising inflection in the FI (average) (%)	82	43	37
	Biggest falling inflection in the FI (average) (%)	58	24	37
	Biggest inflection in the FI found among all the contours (%)	153	111	53
ordinary + echo y/n questions	Overall pitch range (average) (%)	102	44	59
	Highest pitch range value found among all the contours (%)	246	198	175
	Biggest inflection in the FI (average) (%)	67	31	35
	Biggest rising inflection in the FI (average) (%)	71	35	38
	Biggest falling inflection in the FI (average) (%)	51	24	34
	Biggest inflection in the FI found among all the contours (%)	173	115	71

It is observable that in almost every point under consideration (pitch range for both the biggest inflection and the whole utterance) the values produced by Hungarian learners maximally reach only half of the expected Spanish average.

There is one more point to consider here, namely, that in 30 cases (26% of the total) the biggest inflection ranged between −10 and +10% — values which are not even perceived as movements by listeners. An example for this tendency is (13), with a well observable flat curve, too monotonous for a genuine native Spanish yes-no question:

(13)



	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	186	173	166	164	171	164	150	142	140	138
Perc.	100,00%	-6,99%	-4,05%	-1,20%	4,27%	-4,09%	-8,54%	-5,33%	-1,41%	-1,43%
St. C.	100	93	89	88	92	88	81	76	75	74

It is interesting to note that the measured values were closer to the Spanish average values in the (semi-)spontaneous corpus than in the read one (though still considerably lower than expected). All this means that pitch range constitutes an area to develop in language classrooms.

8.5 The Spanish intonation of Hungarian learners of Spanish: the linguistic level: (ii) Intonation patterns

In the following sections I will examine whether any of the Spanish patterns used for yes-no questions are applied by Hungarian speakers of Spanish. As there is a wide variety of possible yes-no question intonational patterns in Spanish, we will focus on the following aspects:

- which of the intonational patterns used in Spanish yes-no questions yes-no (the /+interrogative/ SP2, SP3, SP4, SP13 or the /-interrogative/ SP1, SP6, SP7, SP9, SP10b, cf. Table 5.1) is used by Hungarian students;
- in what percentage do Hungarian students use Hungarian intonation in their Spanish yes-no questions. This latter point will focus on three questions types (with their peculiar Hungarian solution):
  - ordinary yes-no questions (exclusively HP7 in Hungarian as opposed to any of the Spanish patterns mentioned),
  - echo yes-no questions (repeated HP7 as opposed to a “single” Spanish SP2 or SP7, for example),

- yes-no question + vocative sequences (HP7 + HP1, as opposed to the Spanish solution of two rising patterns, where the first one, accompanying the yes-no question itself, is less steep).

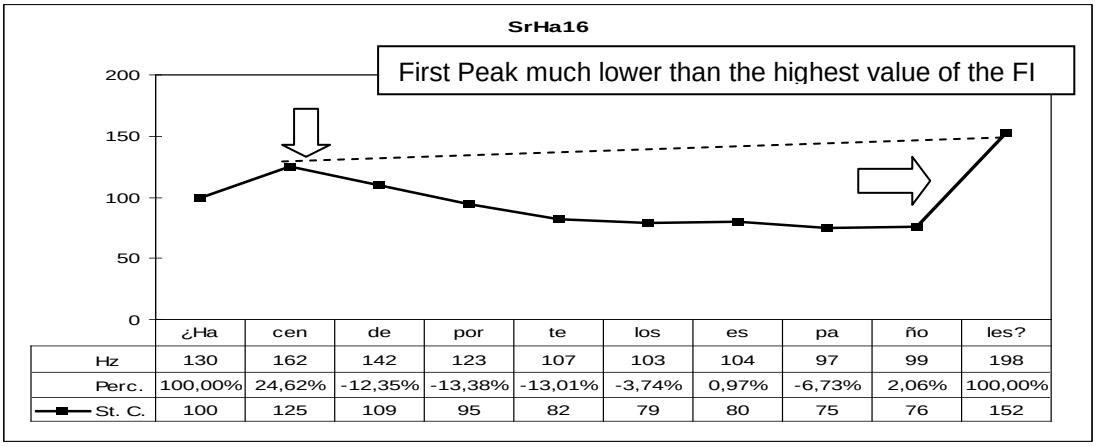
8.5.1 Intonational patterns used in ordinary yes-no questions in Corpus 3

First I will give an overall summary of the patterns used in the whole read corpus, and then I will examine the appearance of those patterns in the three categories investigated:
ordinary-, echo- and yes-no questions followed by a vocative. The last group is only examined in Corpus 3A, as there are no such utterances in Corpus 3B.

In the read corpus (Corpus 3A), the predominant pattern used is SP1. Half of the utterances was produced with this pattern, which is characterized by a fall rather than a moderate rise. The second most significant pattern applied, with a ratio of 26%, is a rising pattern, SP6. In the semi-spontaneous corpus (Corpus 3B), the two most frequent patterns are also SP1 and SP6, but SP6 is the more frequent of the two (34%). In Corpus 3 (Corpus 3A and 3B taken together) the two most frequent patterns are SP1 (38%) and SP6 (30%); that is, Hungarian students produced falling or moderately rising FIs most characteristically. In Spanish (Corpus 1, cf. Table 5.1), SP6 figures in 20% of the corpus, and SP1, only in 5%. This means that Hungarian students make an excessive use of SP1 in their ordinary yes-no questions as compared to native Spanish speakers.

SP2, the most characteristic intonational pattern used for yes-no questions in Corpus 1 (38%, cf. Table 5.1) is hardly present in Corpus 3 (only 7%). In Spanish, we know that normatively the First Peak is at the same height as the endpoint of the FI in SP2 (cf. 5.3), but in my Corpus 1 its most characteristic position was a bit lower than the endpoint of the FI. If we focus on the realization of SP2 in Corpus 3 (i.e. by Hungarian learners), we notice that the First Peak is never realized as high as or higher than the endpoint of the FI, but is usually much lower (for example, see (14)). Thus, in Corpus 3 (and most visibly in Corpus 3) it is the endpoint of the FI which is the highest point of a realized SP2.

(14)



	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	130	162	142	123	107	103	104	97	99	198
Perc.	100,00%	24,62%	-12,35%	-13,38%	-13,01%	-3,74%	0,97%	-6,73%	2,06%	100,00%
St. C.	100	125	109	95	82	79	80	75	76	152

Further analysis shows that in 48% of Corpus 3 the students produced a perceivably rising FI (that is, with a value of the rise over 15%). This proportion in the Spanish corpus is 71% (cf. Table 5.2).

Tables 8.3 and 8.4 sum up all these data about pattern distribution and FI characteristics in the ordinary yes-no questions. It is an interesting difference between the read and the (semi-)spontaneous corpus that in the latter students used more rising patterns than in the read one.

Table 8.3: The distribution of intonational patterns in ordinary yes-no questions (Corpus 3)

Patterns	SP1	SP2	SP3	SP4b	SP6	SP7	SP9	SP13
Corpus 3A (54 questions)	25 (46%)	4 (7%)	3 (6%)	0 (0%)	14 (26%)	5 (9%)	1 (2%)	2 (4%)
Corpus 3B (61 questions)	16 (26%)	4 (7%)	7 (11%)	2 (3%)	19 (31%)	7 (11%)	3 (5%)	3 (5%)
Corpus 3 (115 questions)	41 (36%)	8 (7%)	10 (9%)	2 (2%)	33 (29%)	12 (10%)	4 (4%)	5 (4%)

Table 8.4: The characteristics of the FIs in the patterns applied in ordinary yes-no questions (Corpus 3)

The characteristics of the end of the patterns applied	Corpus 3A (out of 54 questions)	Corpus 3B (out of 61 questions)	Corpus 3 (out of 115 questions)
Patterns ultimately falling	17 (31%)	13 (21%)	30 (26%)
Patterns ultimately falling or ending in a low rise (below 15%)	30 (55%)	30 (49%)	60 (52%)
Patterns with a rise over 15%	24 (44%)	31 (51%)	55 (48%)
Patterns ultimately rising	37 (69%)	48 (79%)	85 (74%)

As for the Hungarian intonational patterns applied for ordinary yes-no questions in Corpus 3, there are three whose presence can be felt in the utterances: HP1, HP7 and HP8.[122] Only the

[122] HP8 was not expected as it is an emphatic /+interrogative/ pattern, cf. 4.3.3.

occurrence of HP7 was predictable (cf. 7.3.2.1), but my analysis suggests the presence of HP1 as well, though it is less common.

The transfer of HP7 to a Spanish yes-no question is not viewed as negative transfer, because SP4 or SP7 (the patterns equivalent to HP7) is used in the 14% of ordinary yes-no interrogatives in Corpus 1. It would be anomalous if Hungarians used HP7 in every Spanish yes-no question, as in Spanish it is one of the less frequent patterns; that is why I consider the use of HP7 in a Spanish yes-no question atypical, but not anomalous. Furthermore, in chunks shorter than three syllables, ordinary Hungarian yes-no questions realize HP7 patterns as a rise (cf. 4.3.3, 6.3), so in those cases the transfer of a rising HP7 could even be considered as positive transfer (as Spanish ordinary yes-no questions typically stand with rising FIs).

I consider a pattern an instance of HP1 when there is a bigger drop (a fall over -15%) between the first and the second syllables, or between the second and the third syllables,[123] what corresponds to the Spanish FI of the end of the utterance is between −15 and +15% (that is, not perceptible, the most marked movement being the fall from the second to the third syllable). And I consider a pattern an HP7 if it has a rise up to the penult (the starting point of the rise may vary, cf. 4.3.3) and then a fall from the penult to the ult.

The following table shows the proportion of possible Hungarian patterns found in Corpus 3.

Table 8.5: The presence of Hungarian intonational patterns in ordinary yes-no questions (Corpus 3) [124]

Occurrences of patterns		Corpus 3
HP1 (out of 115 questions)		4 (3 %)
HP7	rise-fall HP7 on at least trisyllabic Syntagmatic Accents (out of 109 questions)	15 (15%)
	rising HP7 on mono- and disyllabic Syntagmatic Accents (out of 6 questions)	5 (83%)
HP8	(out of 115 questions)	1 (1%)

We can note that the presence of Hungarian patterns is not strong in Corpus 3. HP7 does appear, but is not as frequent as it might have been expected. Its proportion is higher in mono- and disyllabic FIs, which can be viewed as positive transfer because of its rising nature. As for the frequency of HP7 subtypes, Hungarian students used HP7b in the 87%, and HP7a in the 13% of the HP7 patterns longer than three syllables.[125]

As a summary of the intonational patterns found in ordinary Spanish yes-no questions produced by Hungarian learners of Spanish, we can make the following conclusions:

[123] This latter case is less typical in Hungarian though existent, cf. Appendix 1., Hr30 or Hr34.
[124] When examining the presence of HP7, a pattern which needs at least 3 syllables to get fully realized (cf. 6.3), in Corpus 3 utterances with only trisyllabic and longer FIs were scanned, thus only 111 instead of 115 sentences were taken into consideration. Interrogatives with mono-and disyllabic FIs were analysed separately.
[125] Note that we need at least four syllables to decide which HP7 subpattern is used, cf. 4.3.3.

- though in Spanish the most typical intonational patterns accompanying ordinary yes-no questions are SP2 and SP3, the presence of these is scarce in Corpus 3. When Hungarian speakers use an SP2, it is never realized with a "normative" First Peak as high as the endpoint of the final rise, but much lower. The predominant pattern used is SP1, which is almost non-existent in ordinary Spanish yes-no interrogatives; it is followed in frequency by SP6, a possible but less common ordinary yes-no interrogative pattern in Spanish.
- the majority of Spanish yes-no interrogatives are characterized by a final rise; this is, somewhat surprisingly, also true for Corpus 3, though the value of the final rise in Spanish is higher (in Spanish, there is a final rise over 15% in more than 70% of the cases, but in Hungarian, in less than a half of the cases only).
- Hungarian students tend to apply the predicted ordinary Hungarian yes-no question pattern to their Spanish sentences relatively rarely; HP7, especially HP7b appeared in less than the 20% of Corpus 3. This may well reflect the Spanish proportion of patterns with similar melodic characteristics (SP4 and SP7). The transfer of HP7 to maximally disyllabic chunks can be seen as positive transfer, as its rising FI coincides with the typical rising FI of ordinary Spanish yes-no questions. In read sentences, though minimally, Hungarian HP1 was also present.

8.5.2 Intonational patterns used in echo yes-no questions in Corpus 3

Echo yes-no questions present a characteristic intonational pattern in Hungarian: if there are more than one accentable syllables in the sentence, each one of them will initiate an HP7 FI. This solution would be absolutely anomalous if transferred to Spanish yes-no questions, as in Spanish there is only one FI in these cases, with one of the characteristic Spanish intonational patterns used for yes-no questions, cf. 5.4.1. According to my hypothesis, Hungarian learners of Spanish will be influenced by their native Hungarian habit of repeating HP7 patterns in echo yes-no questions in Spanish.

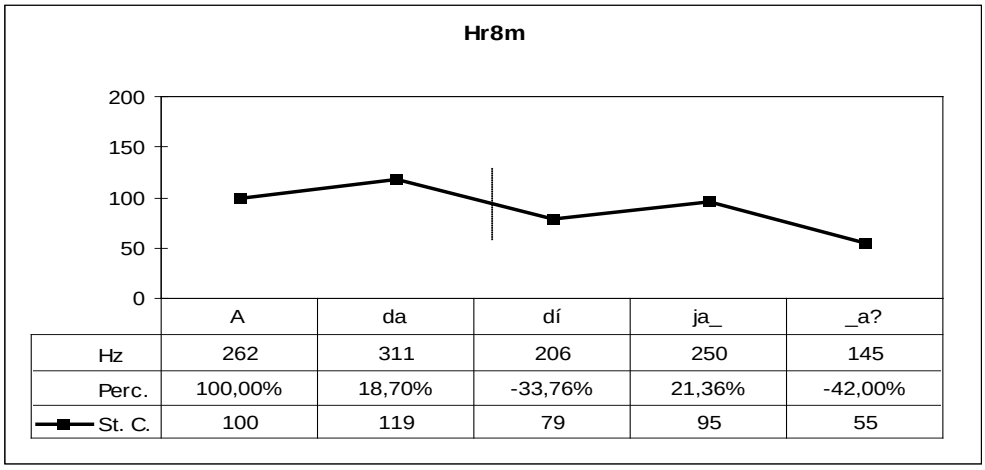
It is Corpus 3A, i.e. read Spanish yes-no interrogatives, which contains a number of echo yes-no questions. We have 29 utterances of *¿Cada día?*, used as an echo yes-no question. If our hypothesis is verified, it will be realized the same way as the Hungarian echo interrogative, *Ada díja?*, 'Ada's prize?'. (The sound sequences of the two utterances roughly coincide: the first voiceless consonant [k] in Spanish has no intonational role, cf. Figure 2.1).

In (15), we can see that the Hungarian echo yes-no question *Ada díja?* is realized with two subsequent HP7 patterns, the first starting from the accented syllable *A*, and the second, from

the accented syllable *dí-*. Since the first HP7 pattern is extended over a disyllabic word, its phonetic realization is characteristically a rise only, but in echo yes-no questions it can be fully realized as a rise-fall, cf. 4.3.3, 6.3, 6.4.1. In (16), we have a typical rendering of a Spanish echo yes-no question by Hungarian learners: we can see that the intonation, as we have predicted, is identical to the native Hungarian one.[126]

(15)

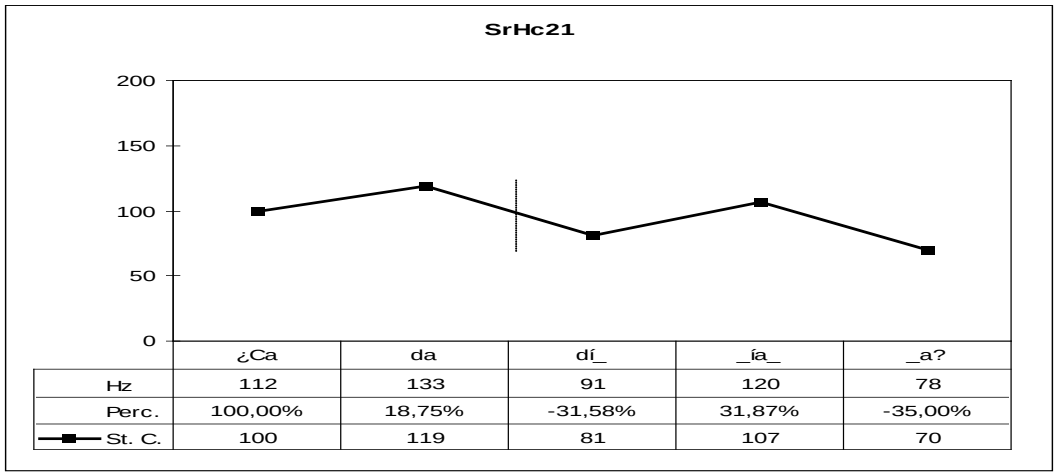
| 'Ada | 'díja??|
Ada (fem. name) prize-his/her
'Ada's prize??'



	A	da	dí	ja_	_a?
Hz	262	311	206	250	145
Perc.	100,00%	18,70%	-33,76%	21,36%	-42,00%
St. C.	100	119	79	95	55

(16)

| ' Cada | 'día?? |
every day
'Every day??'



	¿Ca	da	dí_	_ía_	_a?
Hz	112	133	91	120	78
Perc.	100,00%	18,75%	-31,58%	31,87%	-35,00%
St. C.	100	119	81	107	70

[126] In Hungarian, if more disyllabic words are in a yes-no question, the last one is given a fuller rise-fall movement, the preceding ones tend to realize only the rise.

In Corpus 3A, the great majority of the utterances is realized like (16). In Corpus 3B, there are only two echo yes-no questions (one with an SP1 and another with an SP2), thus, I have simply added to the ones in Corpus 3A and given them no separate representation. Table 8.4 shows two things: the occurrences of Spanish patterns in echo yes-no questions in Corpus 3 and the number of times the students transferred their native repeated HP7 to the Spanish sentences.

Table 8.6: The distribution of intonational patterns and the transfer of Hungarian patterns in echo yes-no questions (Corpus 3A)

SP1	SP2	SP4 (=HP7)	SP6	SP10b
2 (6%)	2 (6%)	25 (81%)	1 (3%)	1 (3%)

We can see that in the case of echo yes-no questions, Hungarian students use their native repeated HP7 pattern overwhelmingly. It is interesting to note that even speakers who realize SP2 or SP3 in their ordinary yes-no questions, use repeated HP7 when producing emphatic sentences. This suggests that when there is a stronger emotion or emphasis on the part of the speaker, it is more likely that (s)he will transfer his/her own native intonational traits to the target language product. Therefore, language teachers should make a strong effort to reduce the effect of this negative transfer.

8.5.3 Intonational patterns used in yes-no question + vocative sequences in Corpus 3

As we have seen, the two languages apply radically different patterns for yes-no question + vocative sequences. As a simplified generalization, we could say that whereas in Spanish the pattern accompanying the interrogative and the one spreading over the vocative both tend to be rising (especially the second one), in Hungarian the first pattern is rising-falling (thus, ultimately falling) and the one with the vocative is falling, too (cf. 7.2.3).

As we have 28 yes-no question + vocative sequences in Corpus 3A but none in Corpus 3B, we examine the data in Corpus 3A. Table 8.7 gives the proportion of each of the following five combinations: Fall + Fall, Rise + Rise, Rise + Fall, Fall + Rise, Level + Rise. As for the transfer of a typical Hungarian combination (HP7 + HP1), there was not any occurrence.

The table also shows how many utterances reflect the peculiar Spanish structure (two rising FIs, the second one being bigger).

Table 8.7: The characteristics of patterns used in yes-no question + vocative sequences (Corpus 3A)

Fall + fall	Rise + rise	Rise + fall	Fall + rise	Level + rise
2 (7%)	16 (57%)	2 (7%)	7 (25%)	1 (4%)

Within the Rise + Rise sequence (percentages are calculated from the total number (28) of utterances):

First rise bigger	Second rise bigger
3 (14%)	13 (36%)

We can see that, contrary to our predictions, negative transfer does not play an important role in the realization of Spanish yes-no question + vocative sequences by Hungarian learners.

8.6 Summary and pedagogical implications

In this chapter we have checked the validity of the hypotheses set up in Chapter 7 about the ways Hungarian students realize the intonation and accentuation of Spanish yes-no interrogatives.

Among the **prelinguistic** aspects, we have found that, since Hungarian word-final syllables in plurisyllabic words cannot be accented, Hungarian students do not give more than one mora to accented word-final syllables in Spanish, whereas such syllables should be given more than one mora to accomodate the FI. This difference yielded negative transfer in 45% of the cases, which is a considerable percentage, and obviously needs special attention in language teaching.

As for **the linguistic aspects of intonation**, we have found the following:

First, the predicted transfer of low pitch range in both the whole utterance and at the Final Inflection turned out to be valid: Hungarian students realized a pitch range which was always approximately half of the expected Spanish value. This area of pronunciation should also be given more emphasis in language classrooms.

Second, I have also investigated the transfer of Hungarian patterns in three yes-no question types: ordinary yes-no questions, echo yes-no questions, and yes-no question + vocative sequences.

In ordinary yes-no questions it was expected that Hungarian students would transfer their normative yes-no question pattern, HP7, to Spanish interrogatives as well. The presence of HP7 in Corpus 3 was not very high, 14%. This pattern is similar to SP4 or SP7, both possible patterns in Spanish ordinary yes-no questions, but their presence in Spanish is not high either (17%, roughly the same proportion as shown in Corpus 3). This means that the interference of

HP7 is not a problem that seriously threatens communication and does not have to be specially and urgently dealt with by the language teaching profession. Moreover, when HP7 is transferred to maximally disyllabic FIs in yes-no questions, its realization phonetically coincides with the most typical rising Spanish yes-no question intonational patterns. There was another Hungarian pattern, HP1, transferred to Corpus 3, and its presence is totally anomalous among Spanish yes-no interrogatives. Still, it figured in Corpus 3 in only a very low proportion. As for the use of genuine Spanish interrogative patterns, Hungarian students used less rising patterns than Spanish speakers do.

In echo yes-no questions, Hungarian students transferred their native "repeated HP7 sequences" to their Spanish utterances in a very high proportion. Since in Spanish there are no multiple FIs in echo yes-no interrogatives, this constitutes a common Hungarian mistake, and needs special pedagogical attention.

In yes-no question + vocative sequences, Hungarians use a rise-fall (HP7) for the interrogative and a fall (HP1) for the vocative, while in Spanish both patterns tend to rise, the second one more remarkably. Thus, negative transfer can be predicted in these sequences, resulting in anomalous intonational solutions. However, Hungarian students did not realize the sequence with their native intonation, but rather in the Spanish way. This means that this area needs no special attention on the part of a language teacher.

The areas which need more practice are:

- avoidance of mora-reduction in word-final accents;
- widening the pitch range in the utterance and in the FI itself;
- the use of typical Spanish yes-no question intonational patterns such as SP2 or SP3, for instance, instead of SP1;
- avoidance of multiple HP7 patterns in echo yes-no questions.

There are various issues that could not be handled in this work because of space limitations. They include the following two questions:

- Do Hungarians transfer their low register to their Spanish sentences?
- Do Hungarians transfer any of their Hungarian patterns into Spanish yes-no questions with grammatical markers?

In my view, these suggested questions could constitute research topics for the future. Concerning the results of the thesis, larger semi-spontaneous or spontaneous Spanish corpora by Hungarian learners of Spanish would cast light on even more interesting phenomena, but even the data in Corpus 3 will provide me several investigation topics in the future.

APPENDIX 1

Corpus 1: the Spanish Corpus

This corpus consists of 76 Spanish sentences, all representing the Standard Castilian dialect. The number of informants is 20 (9 male and 11 female), and the corpus can be divided into two parts: a read and a spontaneous one. The **read sentences** are taken from Spanish coursebooks (thus, supposedly represent "normative" intonation) or from tv sketches that are not read but certainly rehearsed and learnt, so cannot be called spontaneus. The **spontaneus** part of the corpus is taken from tv programmes.

The read corpus comes from:

- the following textbooks (audio material):

Álvarez Martínez, M. Á. — Canales, A. B. — Torrens Álvarez, M. J. — Alarcón Pérez, C. (2005): *Vuela 1*, Universidad de Alcalá, Editorial Anaya.
Baulenas, N. — Peris, M. (2004): *Gente 2*. Barcelona: Difusión.

- tv programmes:

"Escenas de matrimonio" from the programme "Noche de Fiesta": (rehearsed sketches, thus, semi-spontaneous, but treated as read here, as they are not improvised). In the corpus these sources are referred to by capital letters.
A: "Atracción fatal" (http://www.youtube.com/watch?v=FB-xXocK_wQ&feature=related, 11 Aug 2010)
B: "Cita a ciegas" (http://www.youtube.com/watch?v=5OUNd941l-I&feature=related, 11 Aug 2010)
C: "Hablando se entiende la gente" (http://www.youtube.com/watch?v=_1TJ4nJatnY&feature=related, 11 Aug 2010)
D: "La tía Herminia" (http://www.youtube.com/watch?v=45XmhBvOCXI&feature=related, 11 Aug 2010)
E: "Rupert te necesito" (http://www.youtube.com/watch?v=xBJBQbIA0ak, 11 Aug 2010)
F: "Pepa y Avelino 28" (http://www.youtube.com/watch?v=zTk8Z_OzbvM, 11Aug 2010)
G: "Pepa y Avelino 6" (http://www.youtube.com/watch?v=oR1ZUavt_lw, 11Aug 2010)
H: "Pepa y Avelino: Pepa llega de las rebajas" (http://www.youtube.com/watch?v=0OTng4B-Hh0&feature=related, 11Aug 2010)

The spontaneous corpus comes from the following tv programmes (all these sources are referred to by capital letters):

I: Diario de Patricia: Parejita feliz, (Antena 3, http://www.youtube.com/watch?v=69z4ZIqnVag, 11 Aug 2010)
J: Diario de Patricia: Manoli no quiere novios (Antena 3, http://www.youtube.com/watch?v=S1hXki06YGY, 11 Aug 2010)
K: "Gana Ahora" with Marisa Sandoval (La sexta, http://www.youtube.com/watch?v=eiNj5X_zthM, 11 Aug 2010)

L: Interview with Ana Belén, “Tal cual la contamos”, (Antena 3, http://www.youtube.com/watch?v=pia8laFgUdc, 11 Aug 2010)
M: Interview with Laura Sánchez in “Tal Cual”, (Antena 3
N: Intreview with Rosario Mohedano in “Tal Cual”, (Antena 3, http://www.youtube.com/watch?v=0Vw8A8sVdiU, 11Aug 2010)
O: Nuria Bermúdez interviewed by children, in “Tal Cual”, (Antena 3 http://www.youtube.com/watch?v=HNEr9tZWl40, 11 Aug 2010)
P: Sé lo que hicisteis, (La sexta, http://www.youtube.com/watch?v=YYT1TFLMZzQ, 11 Aug 2010)
Q: Sé lo que hicisteis, (La sexta, 30 July 2009)

The corpus will be divided into the following sentence-types:

1. Ordinary yes-no questions
2. Marked yes-no questions
   a. Incredulous/repetitive echo yes-no questions
   b. Clarifying/exclamative echo yes-no questions
   c. Yes-no questions with a grammatical particle or special grammatical structure
3. Yes-no question + vocative sequences

This classification is necessary for the intonational comparison because these categories of sentences are accompanied by special intonational patterns either in Spanish or in Hungarian.

List of symbols and abbreviations

' x:	accent on the syllable which the sign precedes
***** (before example):	ungrammatical
‖ :	boundary between two adjacent Phonic Groups in the diagram
‿ :	(between tautosyllabic vowel letters): segment represented in two moras
| :	Phonic Group boundary in the text
acc.:	accusative
compl.:	complementizer
COND:	conditional
dat.:	dative
fem:	feminine
fut:	future tense
Hz:	absolute pitch values obtained in Hertz
Perc.:	Percentages of rise / fall
pl.:	plural
refl.:	reflexive pronoun
sg.:	singular
Sr:	Spanish sentence read aloud
Ss:	spontaneous Spanish sentence
St. C.:	Pitch values of the Standardized Curve
subj:	subjunctive

Notes in connection with the diagrams:
a) The curves represent the Standardized Curves (St. C.).
b) The Pattern represent the intonational pattern.
c) The Pitch range of the utterance is relative, based on the St. C. (rounded value).
d) the Average pitch (Hz) is an absolute height in Hz (rounded value).
Note on Spanish orthography:

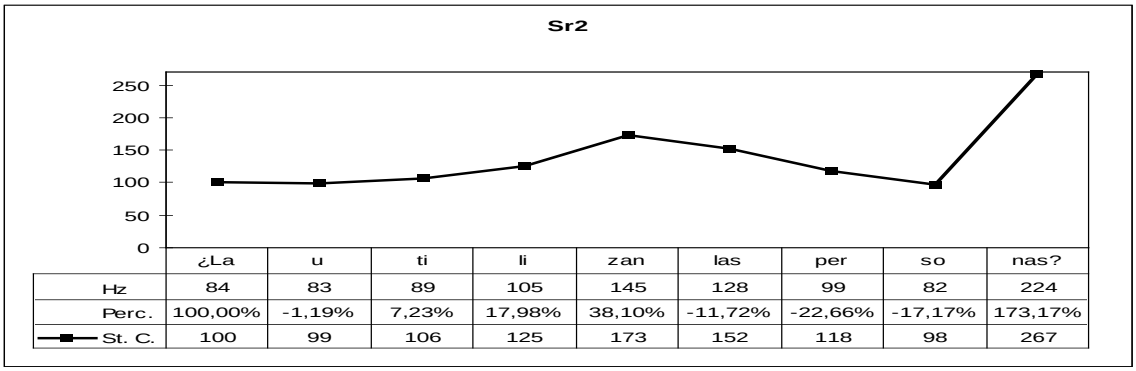
Acute accents on certain vowel letters usually indicate word-stress, but in a few cases they serve to distinguish monosyllabic homophones (*sí ~ si*) or question words from homophonous relative pronouns (*dónde ~ donde* 'where').

Note on the assignment of pattern types:

Monosyllables were represented with three values, but if the inflection was unidirectional, the difference between the first and the last values was measured to calculate the percentage of the FI (which in most cases is enough to decide the pattern type). In cases where this number alone, or where the lack of First Peak would yield two solutions (for example SP3 and SP6, or SP2 and SP13, or SP4 and SP9), it was always the pattern with smaller number I have chosen.

1. Ordinary yes-no questions

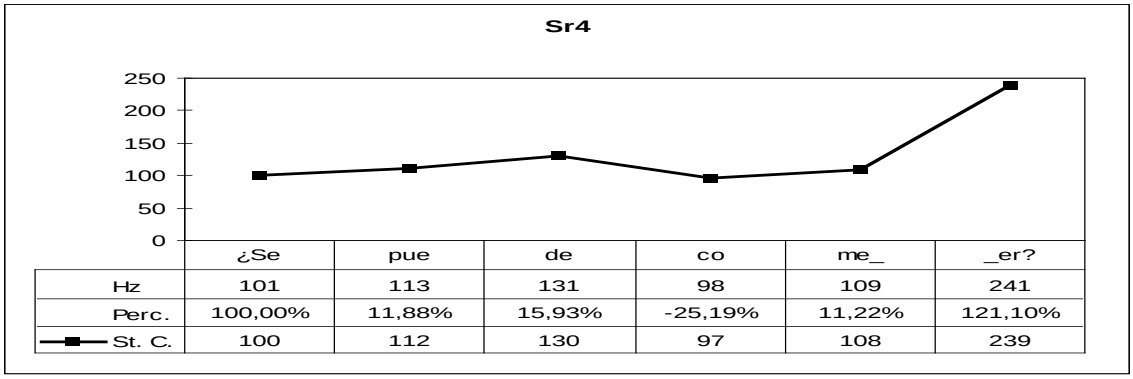
| ¿La uti'lizan las per'sonas?|
that-fem-acc. use-3pl the persons
'Is it used by people?



	¿La	u	ti	li	zan	las	per	so	nas?
Hz	84	83	89	105	145	128	99	82	224
Perc.	100,00%	-1,19%	7,23%	17,98%	38,10%	-11,72%	-22,66%	-17,17%	173,17%
St. C.	100	99	106	125	173	152	118	98	267

Code, gender, source	Sr2, male, Gente 2, Unit 5 / 7.
Pattern	SP2, First Peak shifted to right
Pitch range	172
Average pitch (Hz)	115

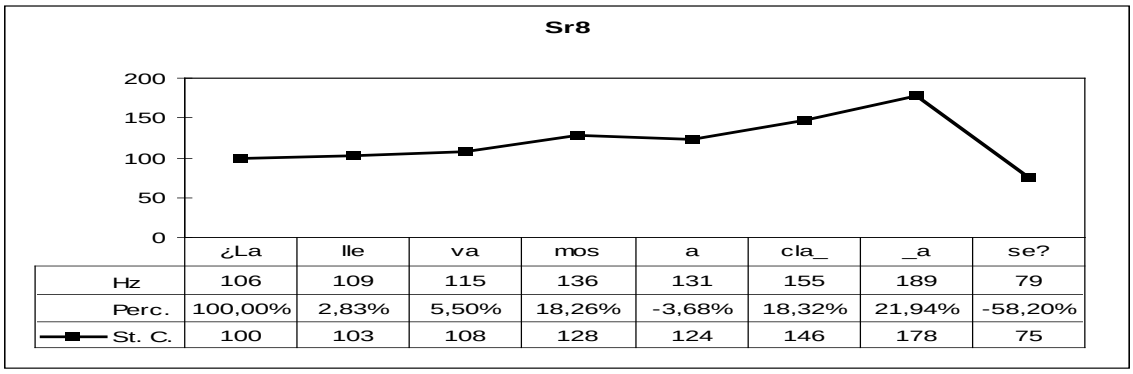
| ¿Se 'puede co'mer?|
refl.-3sg can-3sg eat
'Can it be eaten?'



	¿Se	pue	de	co	me_	_er?
Hz	101	113	131	98	109	241
Perc.	100,00%	11,88%	15,93%	-25,19%	11,22%	121,10%
St. C.	100	112	130	97	108	239

Code, gender, source	Sr4, male, Gente 2, Unit 5 / 7.
Pattern	SP2, First Peak shifted to the right
Pitch range	146
Average pitch (Hz)	132

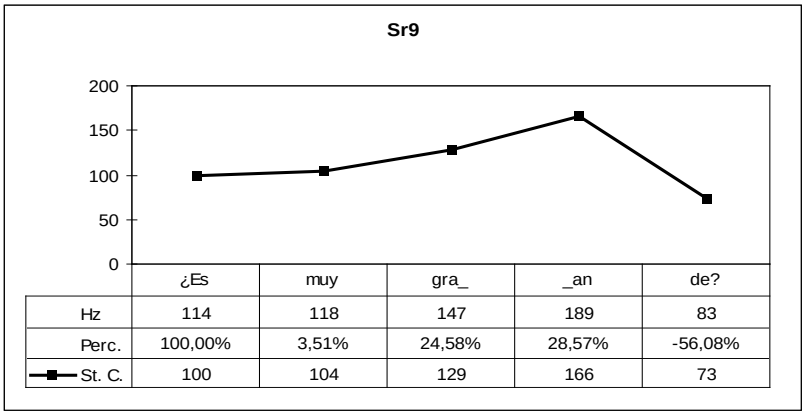
| ¿La lle'vamos a 'clase?|
that-fem-acc. take-1pl to class
‘Do we take it to the lesson?’



	¿La	lle	va	mos	a	cla_	_a	se?
Hz	106	109	115	136	131	155	189	79
Perc.	100,00%	2,83%	5,50%	18,26%	-3,68%	18,32%	21,94%	-58,20%
St. C.	100	103	108	128	124	146	178	75

Code, gender, source	Sr8, male, Gente 2, Unit 5 / 7.
Pattern	SP4a (with Rising Body)
Pitch range	137
Average pitch (Hz)	128

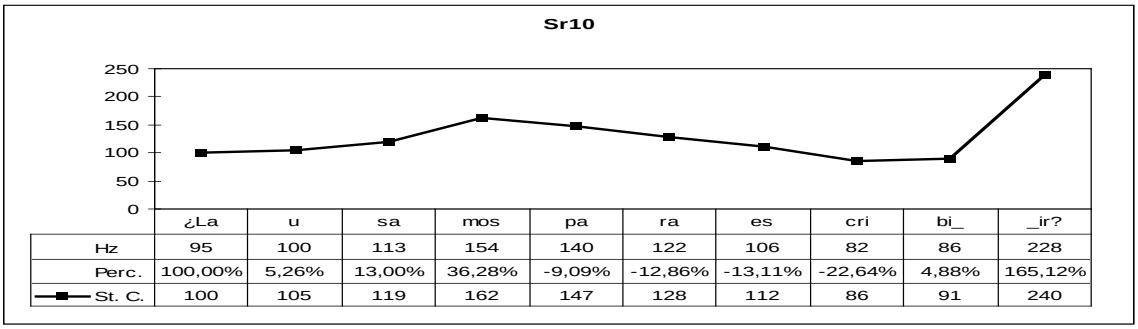
| ¿Es muy 'grande?|
is very big
’Is it very big?’



	¿Es	muy	gra_	_an	de?
Hz	114	118	147	189	83
Perc.	100,00%	3,51%	24,58%	28,57%	-56,08%
St. C.	100	104	129	166	73

Code, gender, source	Ss29, male, Gente 2, Unit 5 / 7.
Pattern	SP4a (with rising Body)
Pitch range	127
Average pitch (Hz)	130

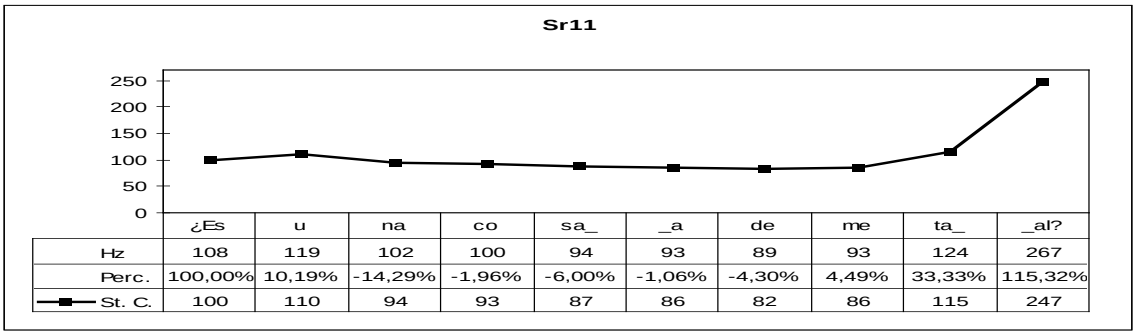
| ¿La u'samos para escri'bir?|
that-fem-acc. use-1pl for write
‘Do we use it for writing?’



	¿La	u	sa	mos	pa	ra	es	cri	bi_	_ir?
Hz	95	100	113	154	140	122	106	82	86	228
Perc.	100,00%	5,26%	13,00%	36,28%	-9,09%	-12,86%	-13,11%	-22,64%	4,88%	165,12%
St. C.	100	105	119	162	147	128	112	86	91	240

Code, gender, source	Sr10, male,, Unit 5 / 7.
Pattern	SP2, First Peak shifted to the right
Pitch range	179
Average pitch (Hz)	123

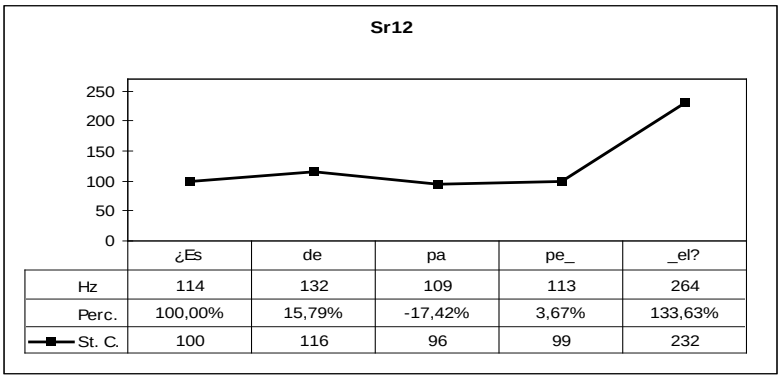
| ¿Es 'una cosa de me'tal?|
is a thing of metal
‘Is it a thing made of metal?’



	¿Es	u	na	co	sa_	_a	de	me	ta_	_al?
Hz	108	119	102	100	94	93	89	93	124	267
Perc.	100,00%	10,19%	-14,29%	-1,96%	-6,00%	-1,06%	-4,30%	4,49%	33,33%	115,32%
St. C.	100	110	94	93	87	86	82	86	115	247

Code, gender, source	Sr11, male, Unit 5 / 7.
Pattern	SP2
Pitch range	201
Average pitch (Hz)	119

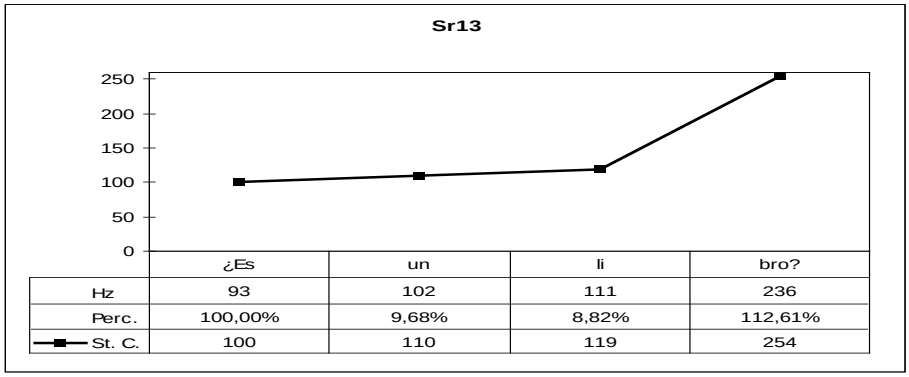
| ¿Es de pa'pel?|
is of paper
‘Is it made of paper?’



	¿Es	de	pa	pe_	_el?
Hz	114	132	109	113	264
Perc.	100,00%	15,79%	-17,42%	3,67%	133,63%
St. C.	100	116	96	99	232

Code, gender, source	Sr12, male, Gente 2, Unit 5 / 7.
Pattern	SP2, First Peak shifted to the left
Pitch range	142
Average pitch (Hz)	146

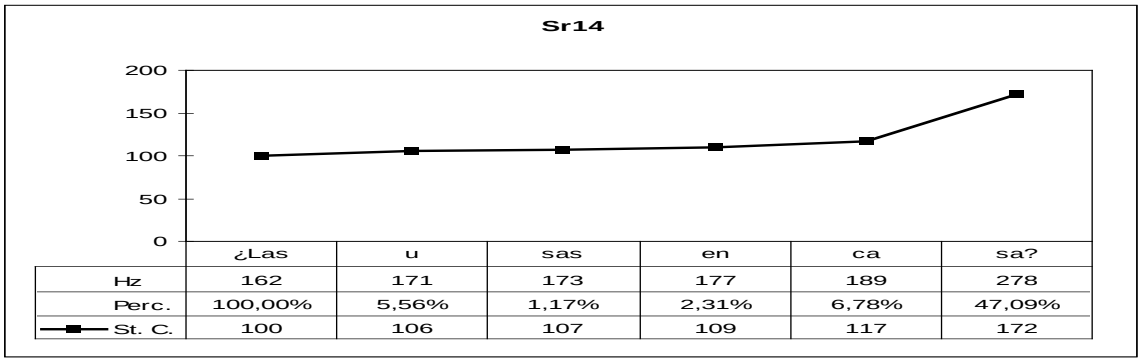
| ¿Es un 'libro?|
is a book
‘Is it a book?’



	¿Es	un	li	bro?
Hz	93	102	111	236
Perc.	100,00%	9,68%	8,82%	112,61%
St. C.	100	110	119	254

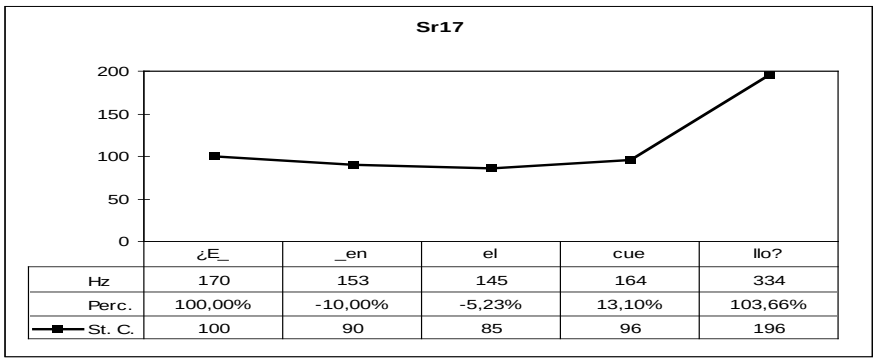
Code, gender, source	Sr13, male, Gente 2, Unit 5 / 7.
Pattern	SP2
Pitch range	154
Average pitch (Hz)	136

| ¿Las 'usas en 'casa?|
them use-2sg at home
‘Do you use them at home?’



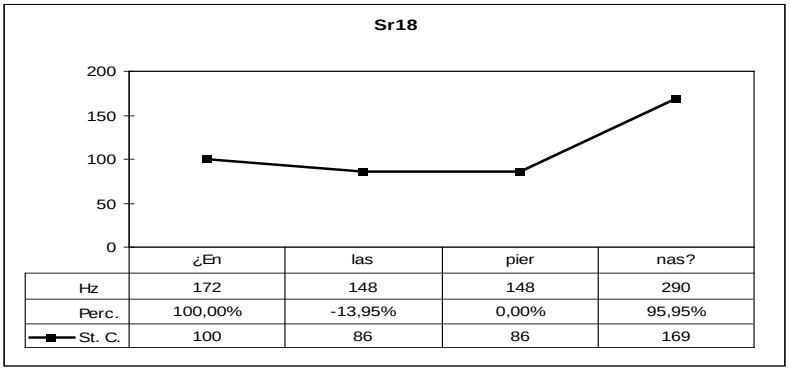
Code, gender, source	Sr14, female, Gente 2, Unit 5 / 7.
Pattern	SP13
Pitch range	72
Average pitch (Hz)	192

| ¿En el cue'llo?|
on the neck
‘Around one’s neck?



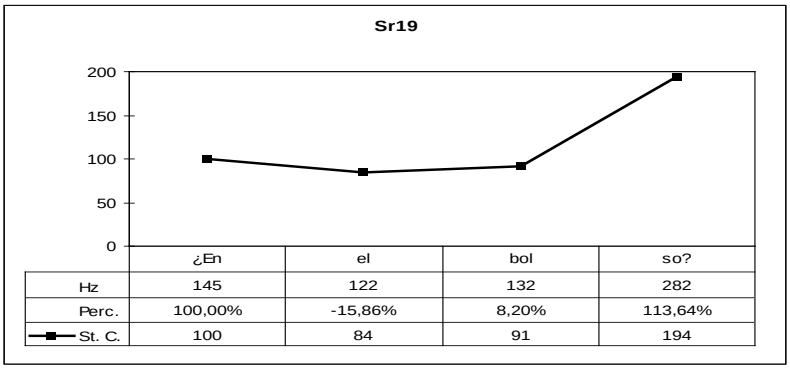
Code, gender, source	Sr17, female, Gente 2, Unit 5 / 7.
Pattern	SP2
Pitch range	131
Average pitch (Hz)	193

| ¿En las 'piernas?|
on the legs
‘On one’s legs?’



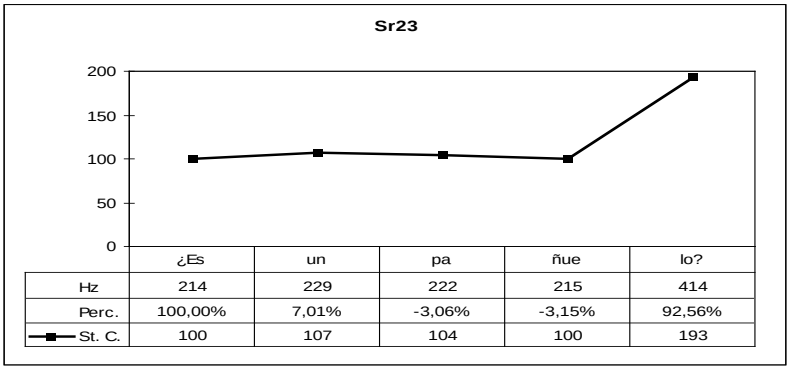
Code, gender, source	Sr18, female, Gente 2, Unit 5 / 7.
Pattern	SP2
Pitch range	97
Average pitch (Hz)	190

| ¿En el 'bolso?|
in the bag
‘In one’s bag?’



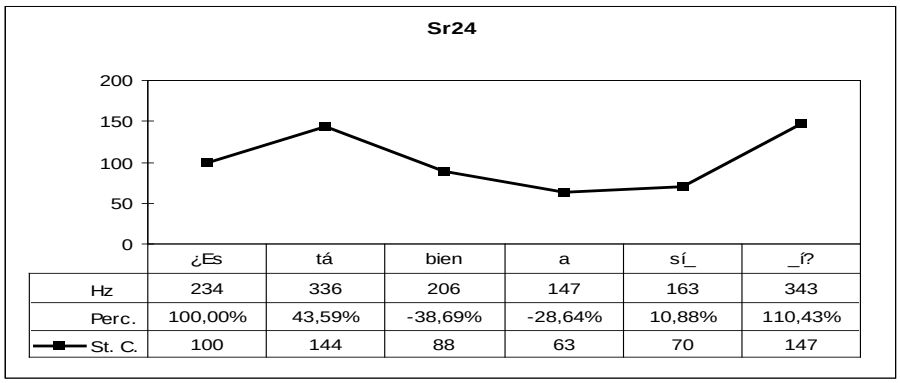
Code, gender, source	Sr19, female, Gente 2, Unit 5 / 7.
Pattern	SP2
Pitch range	131
Average pitch (Hz)	170

| ¿Es un pa'ñuelo?|
is a handkerchief
‘Is it a handkerchief?’



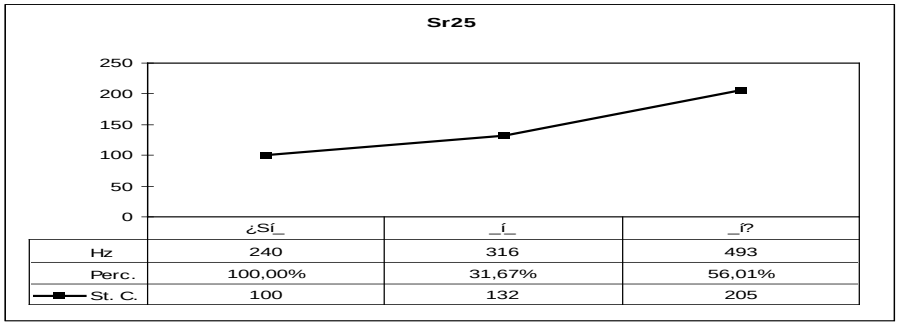
Code, gender, source	Sr23, female, Gente 2, Unit 5 / 7.
Pattern	SP2
Pitch range	93
Average pitch (Hz)	219

| ¿Está bien a'sí?|
is well so
‘Is it all right this way?’



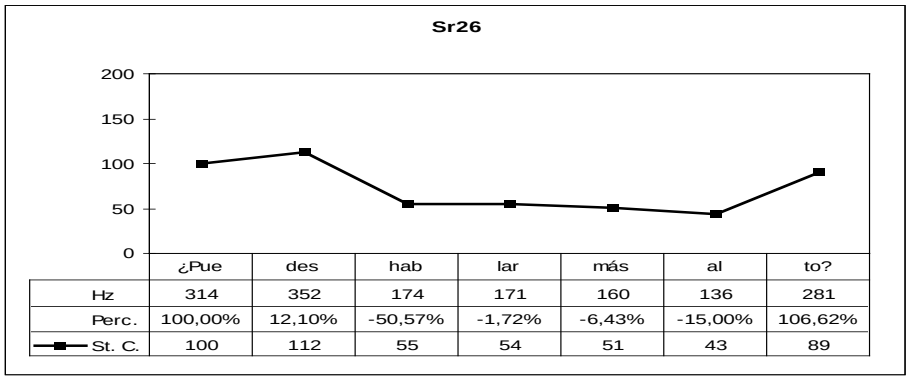
Code, gender, source	Sr24, female,Vuela 1, Unit 2, exercise 12
Pattern	SP2
Pitch range	110
Average pitch (Hz)	238

| ¿'Sí?|
‘Yes?’



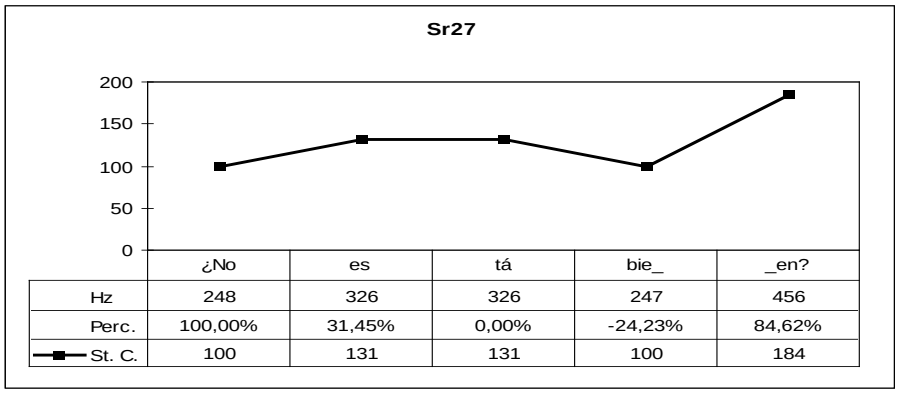
Code, gender, source	Sr25, female, Vuela 1, Unit 2, exercise 12
Pattern	SP2
Pitch range	105
Average pitch (Hz)	350

| ¿'Puedes hablar más 'alto?|
can-2sg speak more loud
‘Can you speak louder?’



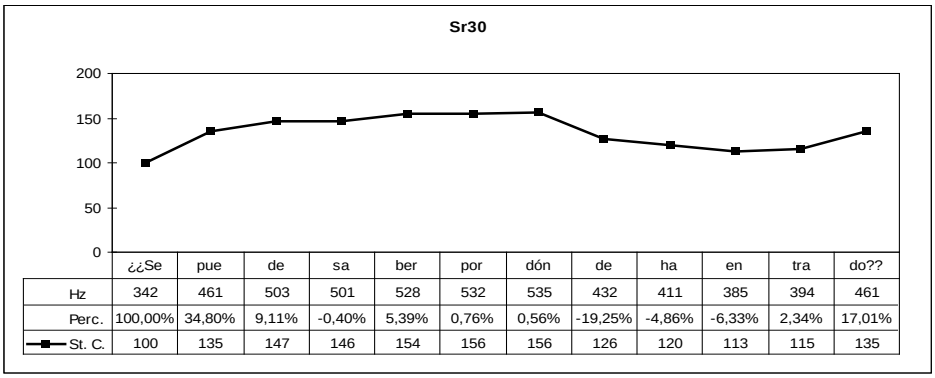
Code, gender, source	Sr26, female, Unit 2, exercise 12
Pattern	SP2, First Peak shifted to the right
Pitch range	161
Average pitch (Hz)	227

| ¿No está 'bien?|
not is well
‘Is it not all right?’



Code, gender, source	Sr27, female, Vuela 1, Unit 2, exercise 12
Pattern	SP2
Pitch range	84
Average pitch (Hz)	320

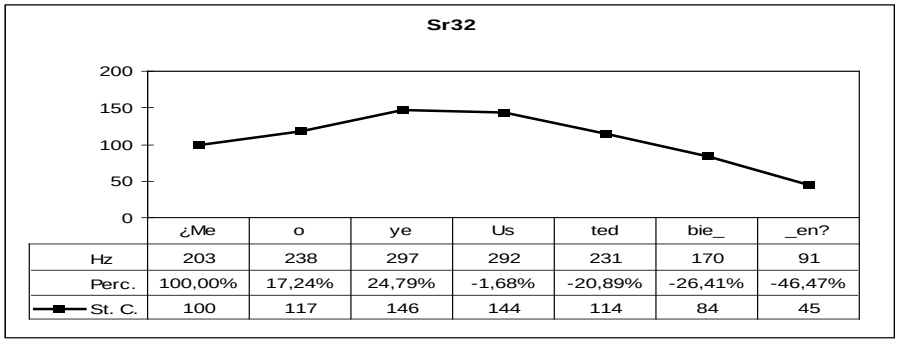
| ¿¿Se 'puede saber por dónde ha en'trado??|
refl.-3sg can-3sg know across where have-3sg entered
‘Can you tell me where you have entered?’



	¿¿Se	pue	de	sa	ber	por	dón	de	ha	en	tra	do??
Hz	342	461	503	501	528	532	535	432	411	385	394	461
Perc.	100,00%	34,80%	9,11%	-0,40%	5,39%	0,76%	0,56%	-19,25%	-4,86%	-6,33%	2,34%	17,01%
St. C.	100	135	147	146	154	156	156	126	120	113	115	135

Code, gender, source	Sr30, female, C
Pattern	SP6b
Pitch range	56
Average pitch (Hz)	457

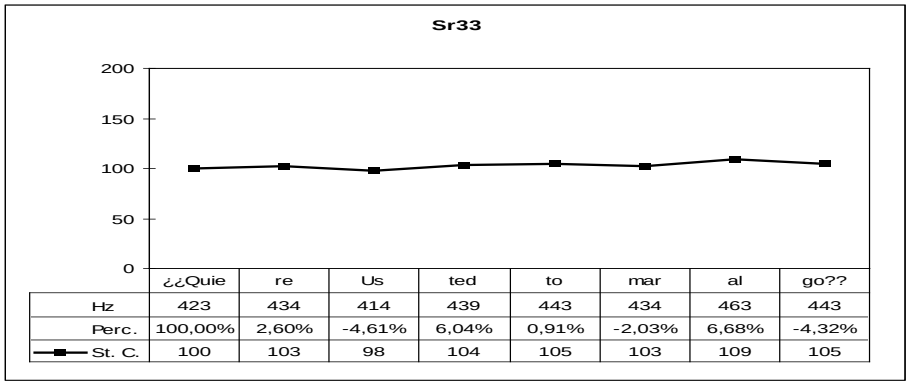
| ¿Me 'oye Usted 'bien?|
me-acc hear-3sg you-formal-sg well
‘Do you hear me well?’



	¿Me	o	ye	Us	ted	bie_	_en?
Hz	203	238	297	292	231	170	91
Perc.	100,00%	17,24%	24,79%	-1,68%	-20,89%	-26,41%	-46,47%
St. C.	100	117	146	144	114	84	45

Code, gender, source	Sr32, male, C
Pattern	SP9, First peak shifted to the right
Pitch range	224
Average pitch (Hz)	217

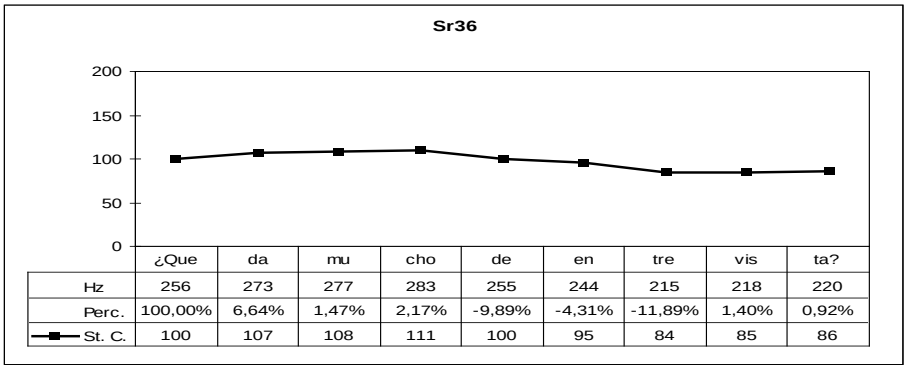
| ¿'Quiere Usted tomar 'algo?|
want-3sg you-formal-sg take something
‘Would you like to drink something?’



	¿¿Quie	re	Us	ted	to	mar	al	go??
Hz	423	434	414	439	443	434	463	443
Perc.	100,00%	2,60%	-4,61%	6,04%	0,91%	-2,03%	6,68%	-4,32%
St. C.	100	103	98	104	105	103	109	105

Code, gender, source	Sr33, female, C
Pattern	SP1
Pitch range	7
Average pitch (Hz)	436

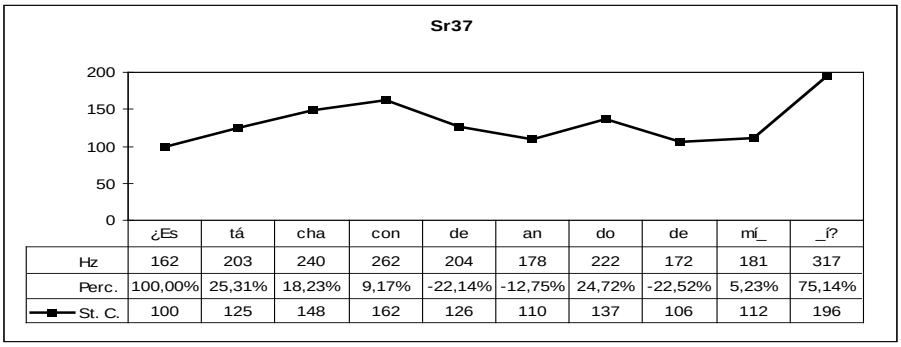
| ¿'Queda mucho de entre'vista?|
remain-3sg a lot from interview
'Will the interview go onfor long?'



	¿Que	da	mu	cho	de	en	tre	vis	ta?
Hz	256	273	277	283	255	244	215	218	220
Perc.	100,00%	6,64%	1,47%	2,17%	-9,89%	-4,31%	-11,89%	1,40%	0,92%
St. C.	100	107	108	111	100	95	84	85	86

Code, gender, source	Sr36, male, C
Pattern	SP1, First Peak shifted to the right
Pitch range	32
Average pitch (Hz)	249

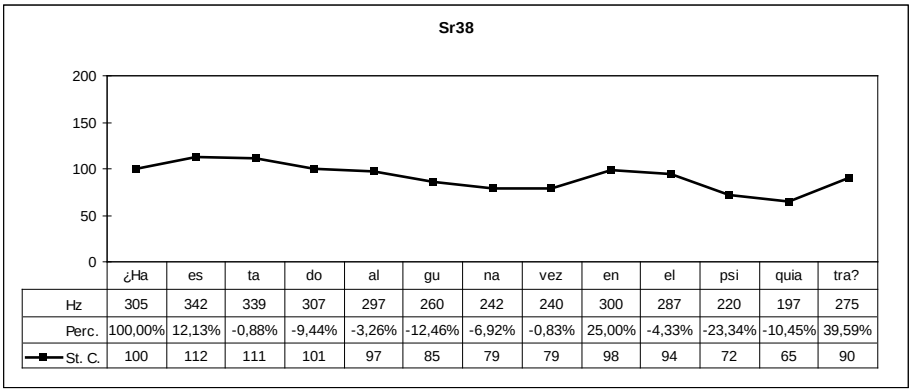
| *¿Está chacondeando de mí?| correctly: cachondeando
is making fun of me
'Are you making fun of me?'



	¿Es	tá	cha	con	de	an	do	de	mí_	_í?
Hz	162	203	240	262	204	178	222	172	181	317
Perc.	100,00%	25,31%	18,23%	9,17%	-22,14%	-12,75%	24,72%	-22,52%	5,23%	75,14%
St. C.	100	125	148	162	126	110	137	106	112	196

Code, gender, source	Sr37, male, C
Pattern	SP2, First Peak shifted to the right
Pitch range	96
Average pitch (Hz)	214

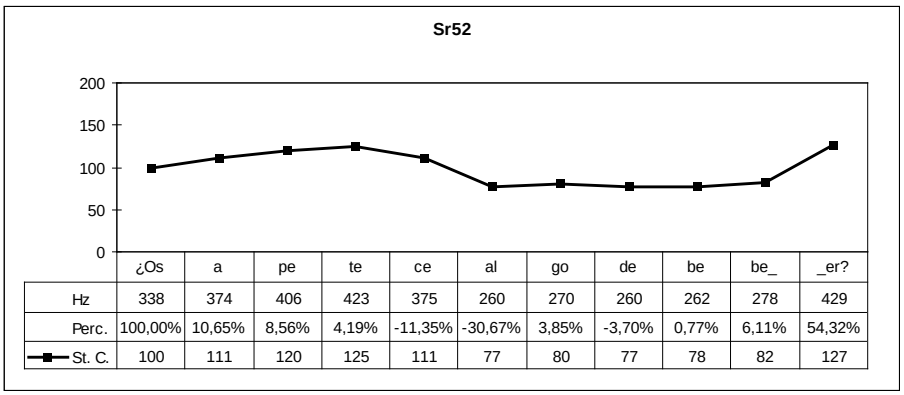
| ¿Ha es'tado alguna vez en el psi'quiatra?|
have-2sg been some time in the psychiatrist
'Have you ever been to the psychiatrist?'



	¿Ha	es	ta	do	al	gu	na	vez	en	el	psi	quia	tra?
Hz	305	342	339	307	297	260	242	240	300	287	220	197	275
Perc.	100,00%	12,13%	-0,88%	-9,44%	-3,26%	-12,46%	-6,92%	-0,83%	25,00%	-4,33%	-23,34%	-10,45%	39,59%
St. C.	100	112	111	101	97	85	79	79	98	94	72	65	90

Code, gender, source	Sr38, female, C
Pattern	SP6b, First Peak shifted to the right
Pitch range	56
Average pitch (Hz)	262

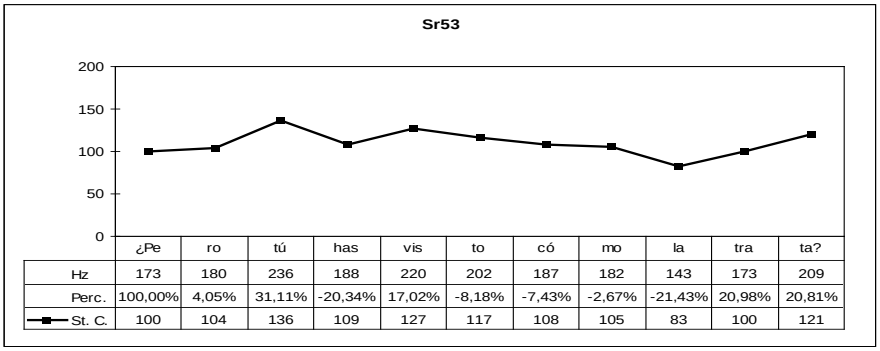
| ¿Os ape'tece algo de be'ber?|
you-pl-dat feel like-3sg something of drink
‘Would you like to drink something?’



	¿Os	a	pe	te	ce	al	go	de	be	be_	_er?
Hz	338	374	406	423	375	260	270	260	262	278	429
Perc.	100,00%	10,65%	8,56%	4,19%	-11,35%	-30,67%	3,85%	-3,70%	0,77%	6,11%	54,32%
St. C.	100	111	120	125	111	77	80	77	78	82	127

Code, gender, source	Sr52, female, E
Pattern	SP3
Pitch range	65
Average pitch (Hz)	286

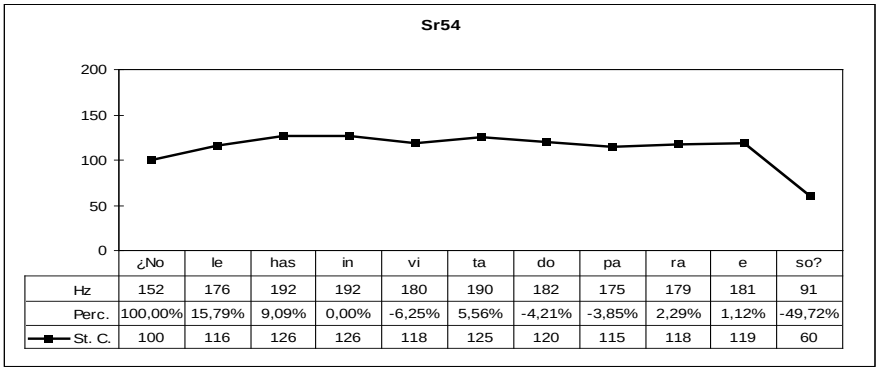
| ¿Pero tú has visto cómo la 'trata?|
but you-sg have-2sg seen how her-acc treats
‘But have you seen how he treats her?’



	¿Pe	ro	tú	has	vis	to	có	mo	la	tra	ta?
Hz	173	180	236	188	220	202	187	182	143	173	209
Perc.	100,00%	4,05%	31,11%	-20,34%	17,02%	-8,18%	-7,43%	-2,67%	-21,43%	20,98%	20,81%
St. C.	100	104	136	109	127	117	108	105	83	100	121

Code, gender, source	Sr53, male speaker from “Noche de fiesta” sketch, E
Pattern	SP6a
Pitch range	64
Average pitch (Hz)	190

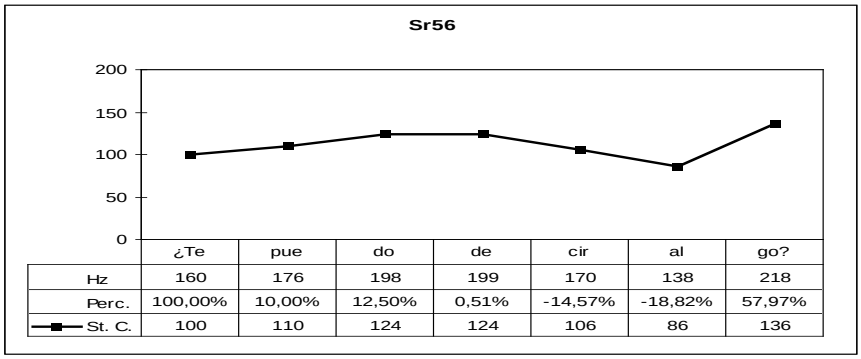
| ¿No le has invi'tado para 'eso?|
not him have-2sg invited for that
‘Haven’t you invited him for that?’



	¿No	le	has	in	vi	ta	do	pa	ra	e	so?
Hz	152	176	192	192	180	190	182	175	179	181	91
Perc.	100,00%	15,79%	9,09%	0,00%	-6,25%	5,56%	-4,21%	-3,85%	2,29%	1,12%	-49,72%
St. C.	100	116	126	126	118	125	120	115	118	119	60

Code, gender, source	Sr54, male, E
Pattern	SP9
Pitch range	110
Average pitch (Hz)	172

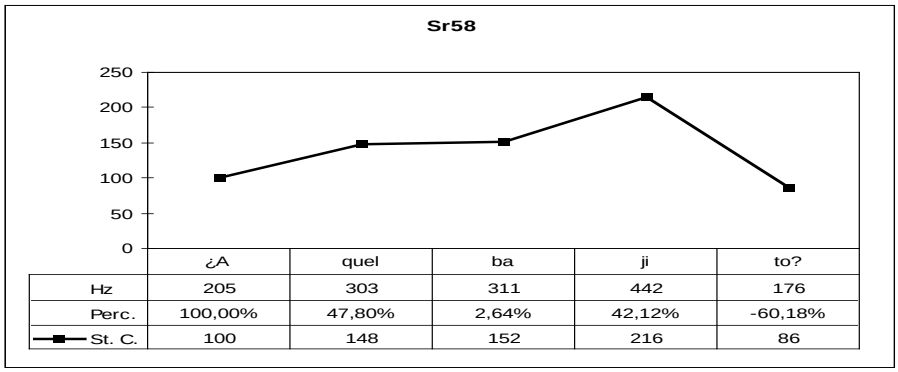
| ¿Te 'puedo decir 'algo?|
you-sg.-dat can-1sg say something
‘Can I tell you something?’



	¿Te	pue	do	de	cir	al	go?
Hz	160	176	198	199	170	138	218
Perc.	100,00%	10,00%	12,50%	0,51%	-14,57%	-18,82%	57,97%
St. C.	100	110	124	124	106	86	136

Code, gender, source	Sr56, male, E
Pattern	SP3
Pitch range	58
Average pitch (Hz)	180

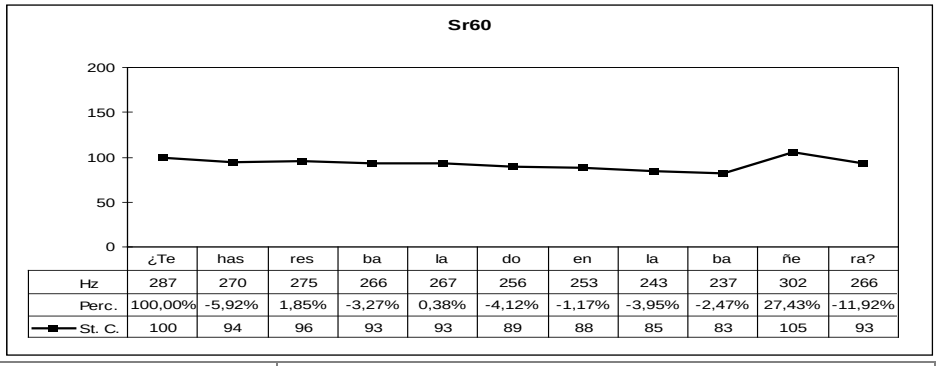
| ¿A'quel ba'jito?|
that short-diminutive
‘That short man?’



	¿A	quel	ba	ji	to?
Hz	205	303	311	442	176
Perc.	100,00%	47,80%	2,64%	42,12%	-60,18%
St. C.	100	148	152	216	86

Code, gender, source	Sr58, female, H
Pattern	SP7
Pitch range	151
Average pitch (Hz)	287

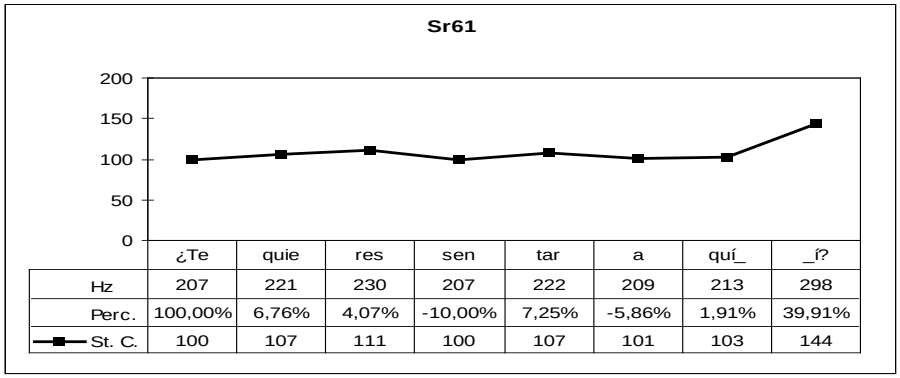
| ¿Te has resbalado en la ba'ñera?|
you-refl.-2sg have-2sg slipped in the bath
‘Have you slipped in the bath?’



	¿Te	has	res	ba	la	do	en	la	ba	ñe	ra?
Hz	287	270	275	266	267	256	253	243	237	302	266
Perc.	100,00%	-5,92%	1,85%	-3,27%	0,38%	-4,12%	-1,17%	-3,95%	-2,47%	27,43%	-11,92%
St. C.	100	94	96	93	93	89	88	85	83	105	93

Code, gender, source	Sr60, female, H
Pattern	SP7 (First Peak shifted to left)
Pitch range	27
Average pitch (Hz)	266

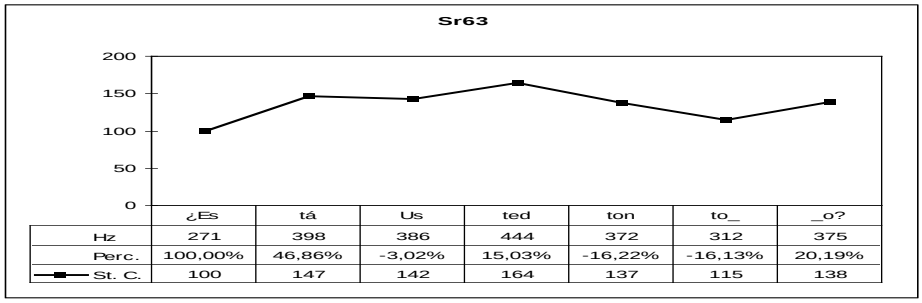
| ¿Te 'quieres sentar aquí?|
you-refl.-2sg like-2sg sit here
‘Would you like to sit down here? (=Sit down here, please.)’



	¿Te	quie	res	sen	tar	a	quí_	_í?
Hz	207	221	230	207	222	209	213	298
Perc.	100,00%	6,76%	4,07%	-10,00%	7,25%	-5,86%	1,91%	39,91%
St. C.	100	107	111	100	107	101	103	144

Code, gender, source	Sr61, male, H
Pattern	SP3
Pitch range	44
Average pitch (Hz)	200

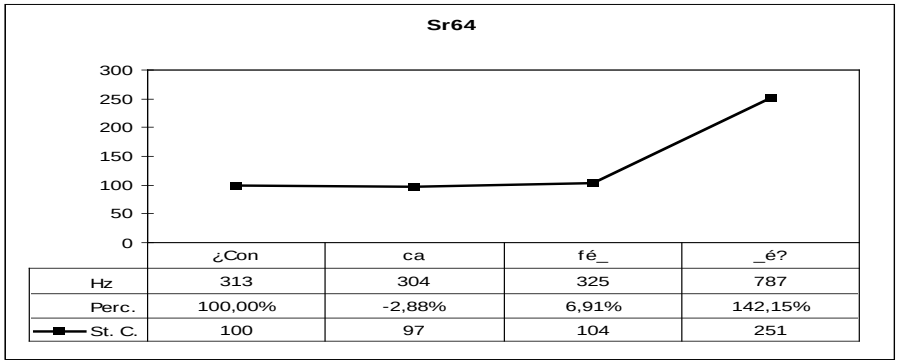
| ¿¿Está Usted 'tonto??|
is you-sg-formal silly
‘Are you an idiot?’



	¿Es	tá	Us	ted	ton	to_	_o?
Hz	271	398	386	444	372	312	375
Perc.	100,00%	46,86%	-3,02%	15,03%	-16,22%	-16,13%	20,19%
St. C.	100	147	142	164	137	115	138

Code, gender, source	Sr63, female speaker from “Noche de fiesta” sketch, D
Pattern	SP10b (First Peak on the first stress, with atypical spreading of the FI on the unstressed post-tonic syllable and no re-setting)
Pitch range	64
Average pitch (Hz)	365

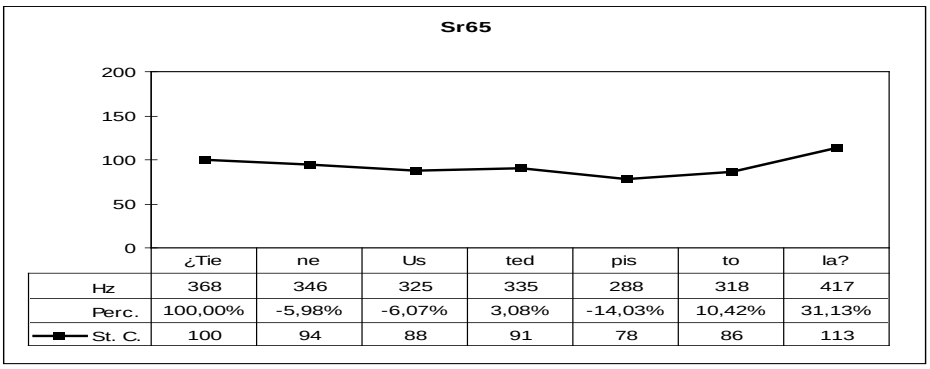
| ¿Con café?|
with coffee
‘With coffee?’



	¿Con	ca	fé_	_é?
Hz	313	304	325	787
Perc.	100,00%	-2,88%	6,91%	142,15%
St. C.	100	97	104	251

Code, gender, source	Sr64, female, D
Pattern	SP2
Pitch range	159
Average pitch (Hz)	351

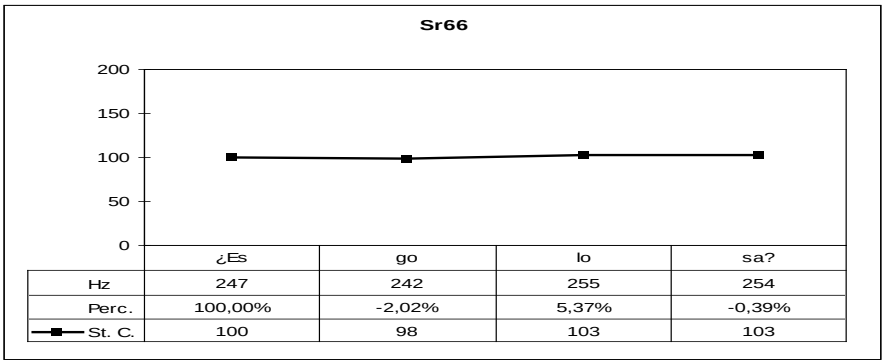
| ¿'Tiene Usted pis'tola?|
have-3sg you-sg-formal pistol
‘Do you have a gun?’



	¿Tie	ne	Us	ted	pis	to	la?
Hz	368	346	325	335	288	318	417
Perc.	100,00%	-5,98%	-6,07%	3,08%	-14,03%	10,42%	31,13%
St. C.	100	94	88	91	78	86	113

Code, gender, source	Sr65, female, D
Pattern	SP6a
Pitch range	41
Average pitch (Hz)	342

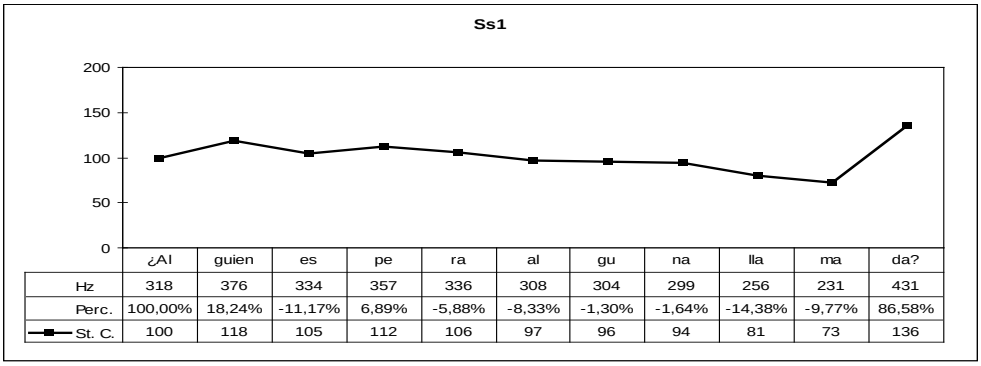
| ¿Es go'losa?|
is sweet-toothed-fem
‘Does she have a sweet tooth?’



	¿Es	go	lo	sa?
Hz	247	242	255	254
Perc.	100,00%	-2,02%	5,37%	-0,39%
St. C.	100	98	103	103

Code, gender, source	Sr66, male, D
Pattern	SP1
Pitch range	5
Average pitch (Hz)	250

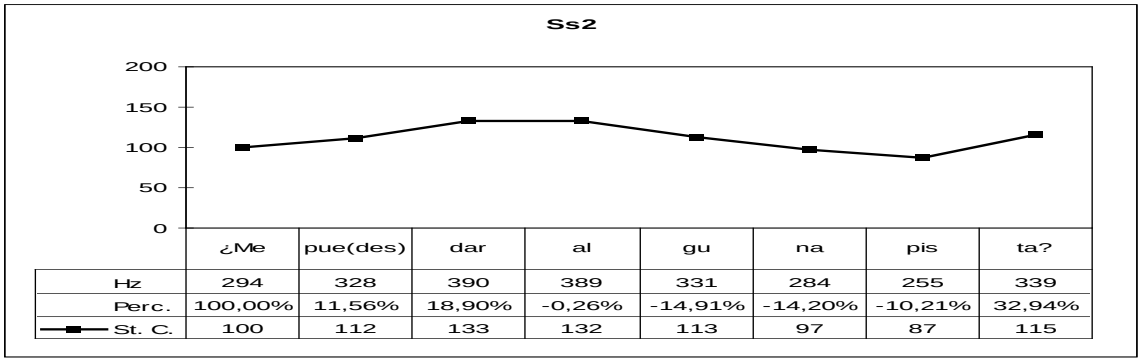
| ¿'Alguien espera alguna lla'mada?|
someone wait-3sg some call
‘Is anyone waiting for a phone call?’



	¿Al	guien	es	pe	ra	al	gu	na	lla	ma	da?
Hz	318	376	334	357	336	308	304	299	256	231	431
Perc.	100,00%	18,24%	-11,17%	6,89%	-5,88%	-8,33%	-1,30%	-1,64%	-14,38%	-9,77%	86,58%
St. C.	100	118	105	112	106	97	96	94	81	73	136

Code, gender, source	Ss1, female, J
Pattern	SP2, First Peak shifted to the right
Pitch range	86
Average pitch (Hz)	323

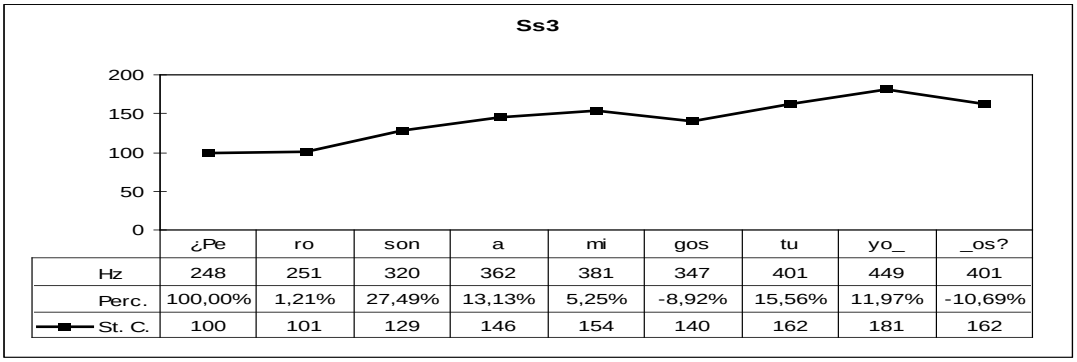
| ¿Me 'puedes dar alguna 'pista?|
me can-2sg give some hint
‘Could you give me any hint?’



	¿Me	pue(des)	dar	al	gu	na	pis	ta?
Hz	294	328	390	389	331	284	255	339
Perc.	100,00%	11,56%	18,90%	-0,26%	-14,91%	-14,20%	-10,21%	32,94%
St. C.	100	112	133	132	113	97	87	115

Code, gender, source	Ss2, female, J
Pattern	SP6b, First Peak shifted to the right
Pitch range	53
Average pitch (Hz)	326

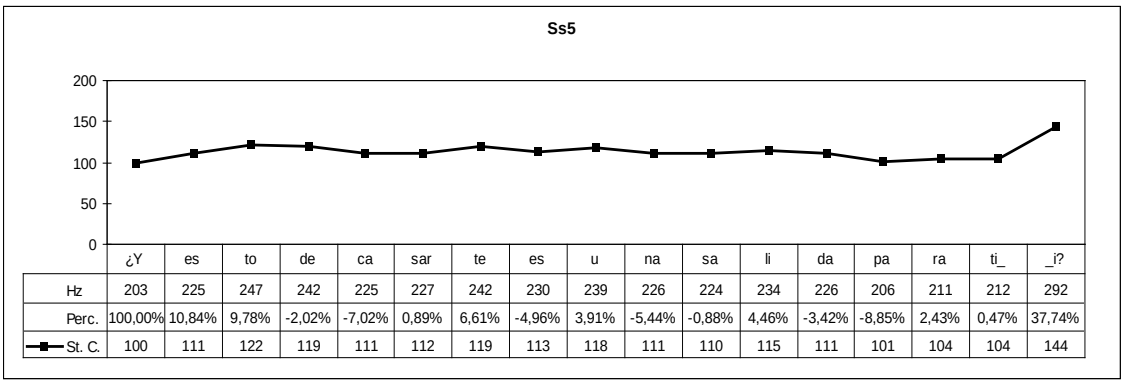
| ¿Pero son a'migos 'tuyos?|
but be-3pl friends yours
‘But are they your friends?’



	¿Pe	ro	son	a	mi	gos	tu	yo_	_os?
Hz	248	251	320	362	381	347	401	449	401
Perc.	100,00%	1,21%	27,49%	13,13%	5,25%	-8,92%	15,56%	11,97%	-10,69%
St. C.	100	101	129	146	154	140	162	181	162

Code, gender, source	Ss3, female, I
Pattern	SP4a
Pitch range	81
Average pitch (Hz)	351

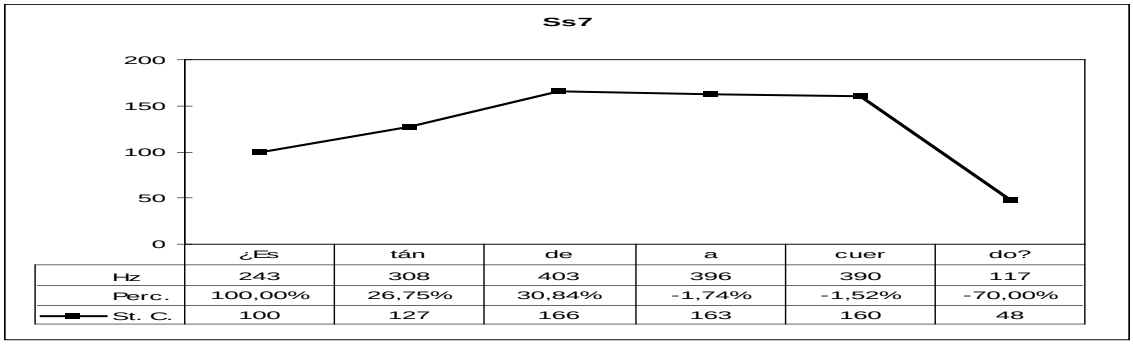
| ¿Y esto de ca'sarte es una salida para 'ti?
and this of getting-married-2sg is a way-out for you
‘And is the idea of getting married a getaway for you?



	¿Y	es	to	de	ca	sar	te	es	u	na	sa	li	da	pa	ra	ti_	_i?
Hz	203	225	247	242	225	227	242	230	239	226	224	234	226	206	211	212	292
Perc.	100,00%	10,84%	9,78%	-2,02%	-7,02%	0,89%	6,61%	-4,96%	3,91%	-5,44%	-0,88%	4,46%	-3,42%	-8,85%	2,43%	0,47%	37,74%
St. C.	100	111	122	119	111	112	119	113	118	111	110	115	111	101	104	104	144

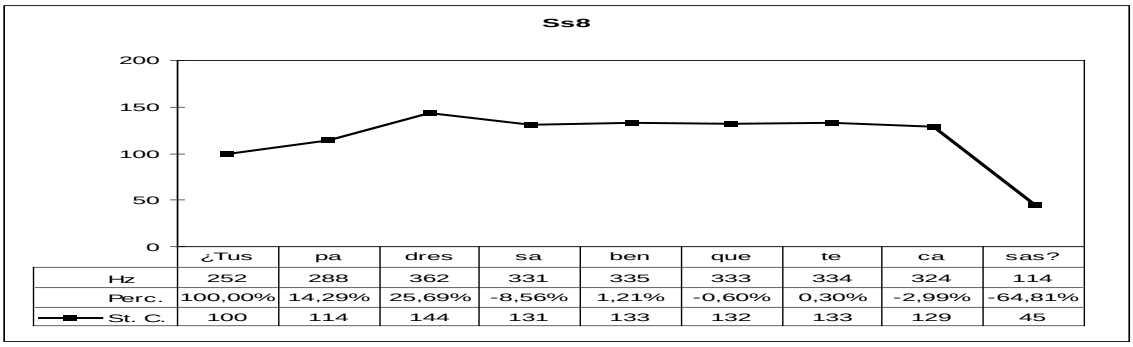
Code, gender, source	Ss5, female, I
Pattern	SP6b
Pitch range	44
Average pitch (Hz)	230

| ¿Están de a'cuerdo?|
is of accord
‘Are you of the same opinion?’



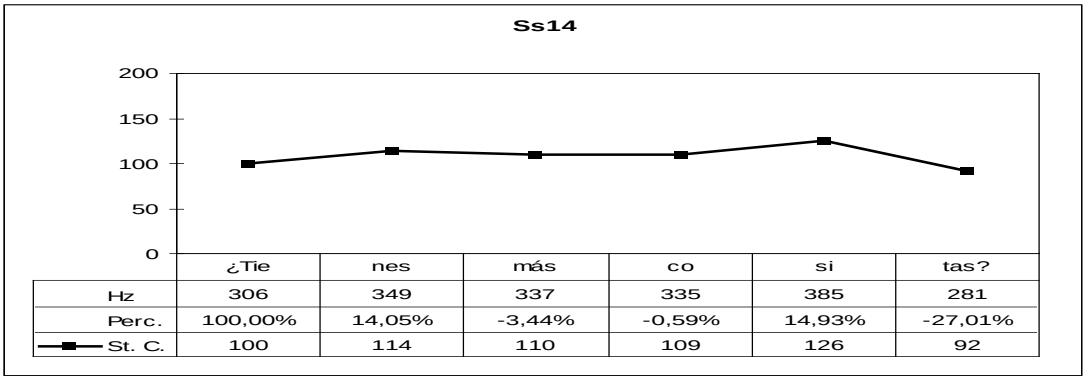
Code, gender, source	Ss7, female, I
Pattern	SP9, First Peak shifted to the right
Pitch range	246
Average pitch (Hz)	310

| ¿Tus 'padres saben que te 'casas?|
your-pl parents know-3pl that get-married-2sg
‘Do your parents know that you are getting married?’



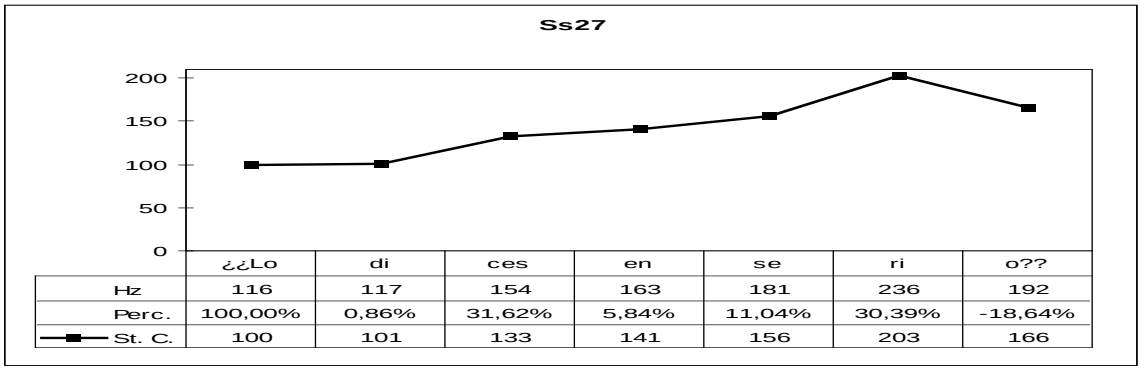
Code, gender, source	Ss8, female, I
Pattern	SP9, First Peak shifted to the right
Pitch range	220
Average pitch (Hz)	297

| ¿'Tienes más co'sitas?|
have-2sg more little-things
‘Do you have any other things?’



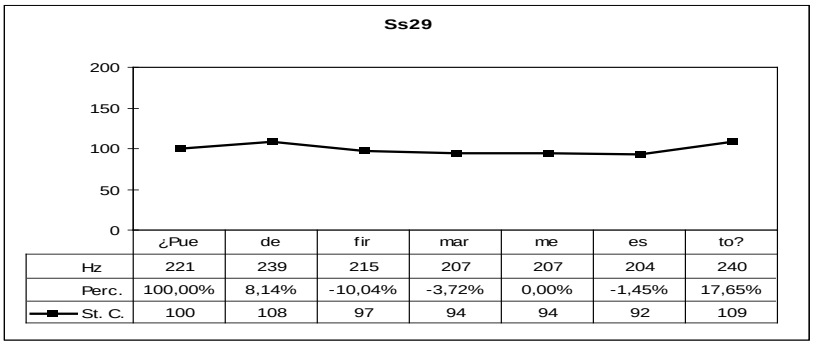
Code, gender, source	Ss14, female, P
Pattern	SP7
Pitch range	37
Average pitch (Hz)	332

| ¿¿Lo 'dices en 'serio??|
that say-2sg in serious
‘Are you saying it seriously?’



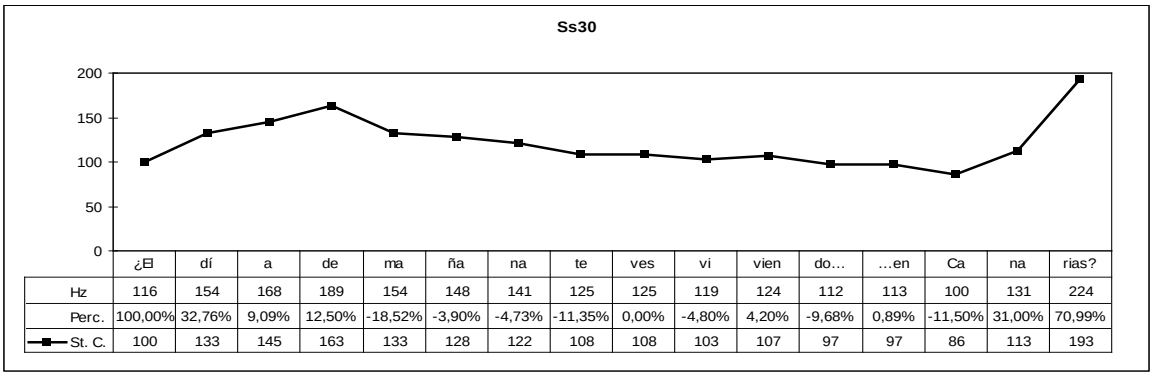
Code, gender, source	Ss27, male, Q
Pattern	SP4a, Rising Body
Pitch range	103
Average pitch (Hz)	166

| ¿'Puede firmarme 'esto?|
can-3sg sign-to me this
‘Could you sign this for me?’



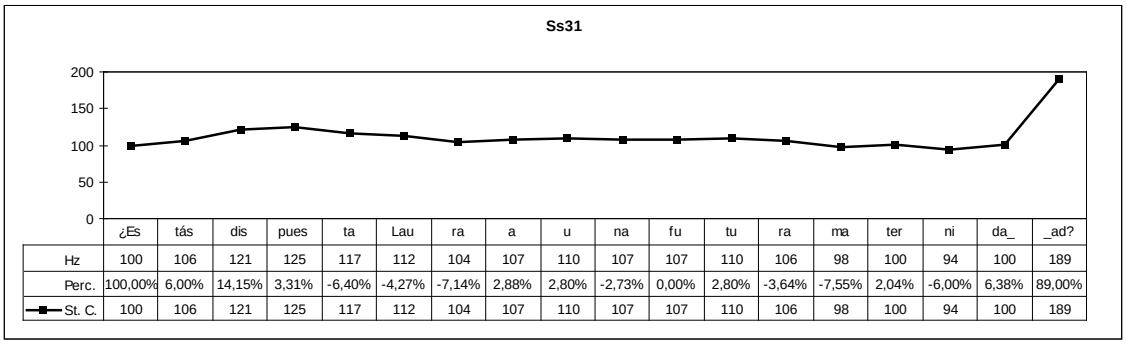
Code, gender, source	Ss29, male, Q
Pattern	SP6b
Pitch range	18
Average pitch (Hz)	189

| ¿El día de mañana te ves viviendo … en Ca'narias?|
the day of tomorrow you-sg.-acc. see-2sg. living in Canary Islands
‘Do you see yourself living in Canary Islands tomorrow?’



Code, gender, source	Ss30, male, M
Pattern	SP2, First Peak shifted to the right
Pitch range	124
Average pitch (Hz)	140

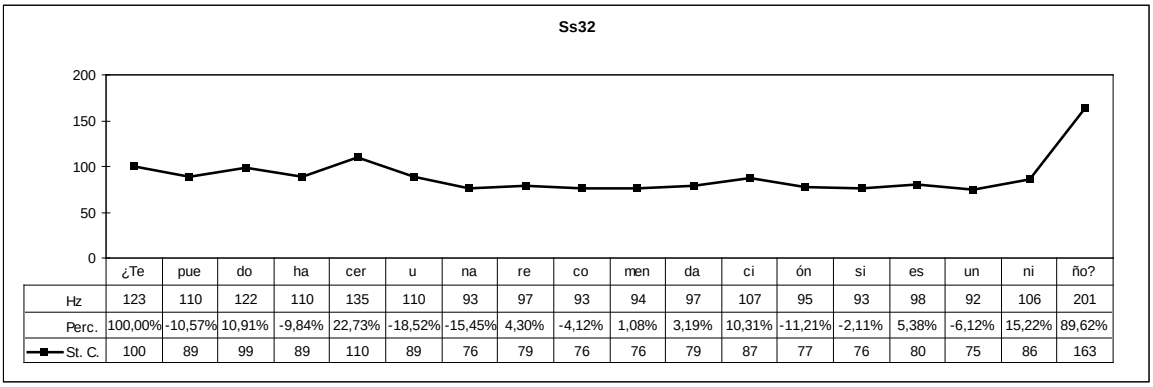
| ¿Estás dis'puesta, Laura, a una futura materni'dad?|
be-2sg ready Laura to a future maternity
‘Are you ready, Laura, for a future maternity?’



	¿Es	tás	dis	pues	ta	Lau	ra	a	u	na	fu	tu	ra	ma	ter	ni	da_	_ad?
Hz	100	106	121	125	117	112	104	107	110	107	107	110	106	98	100	94	100	189
Perc.	100,00%	6,00%	14,15%	3,31%	-6,40%	-4,27%	-7,14%	2,88%	2,80%	-2,73%	0,00%	2,80%	-3,64%	-7,55%	2,04%	-6,00%	6,38%	89,00%
St. C.	100	106	121	125	117	112	104	107	110	107	107	110	106	98	100	94	100	189

Code, gender, source	Ss31, male, M
Pattern	SP2
Pitch range	101
Average pitch (Hz)	112

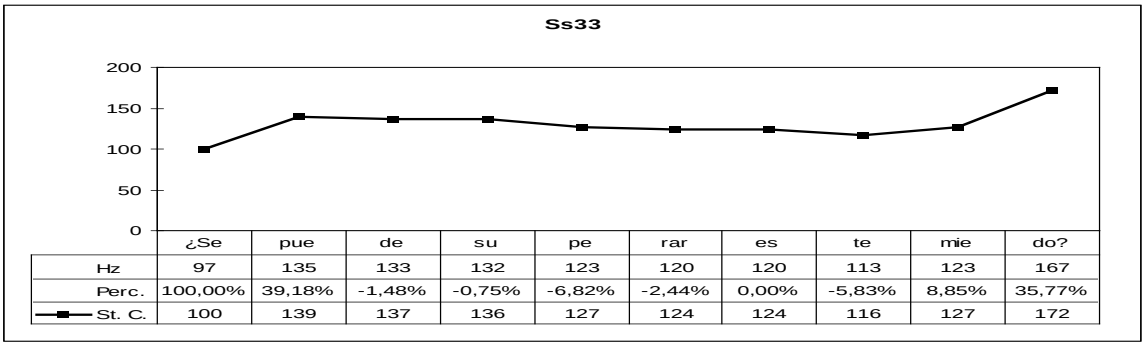
| ¿Te puedo ha'cer una recomendación si es un 'niño?|
you-sg.-dat can-1sg make a recommendation if is a boy
‘Can I make a recommendation if the baby turns out to be a boy?’



	¿Te	pue	do	ha	cer	u	na	re	co	men	da	ci	ón	si	es	un	ni	ño?
Hz	123	110	122	110	135	110	93	97	93	94	97	107	95	93	98	92	106	201
Perc.	100,00%	-10,57%	10,91%	-9,84%	22,73%	-18,52%	-15,45%	4,30%	-4,12%	1,08%	3,19%	10,31%	-11,21%	-2,11%	5,38%	-6,12%	15,22%	89,62%
St. C.	100	89	99	89	110	89	76	79	76	76	79	87	77	76	80	75	86	163

Code, gender, source	Ss32, male, M
Pattern	SP2
Pitch range	117
Average pitch (Hz)	110

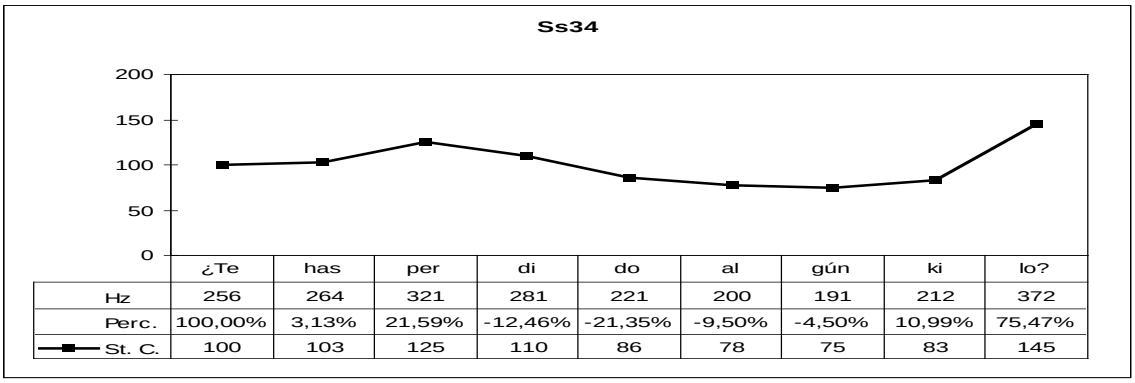
| ¿Se 'puede superar este 'miedo?|
refl.pron-3sg can-3sg beat this fear
‘Can this fear be beaten?



	¿Se	pue	de	su	pe	rar	es	te	mie	do?
Hz	97	135	133	132	123	120	120	113	123	167
Perc.	100,00%	39,18%	-1,48%	-0,75%	-6,82%	-2,44%	0,00%	-5,83%	8,85%	35,77%
St. C.	100	139	137	136	127	124	124	116	127	172

Code, gender, source	Ss33, male, L
Pattern	SP6a
Pitch range	72
Average pitch (Hz)	126

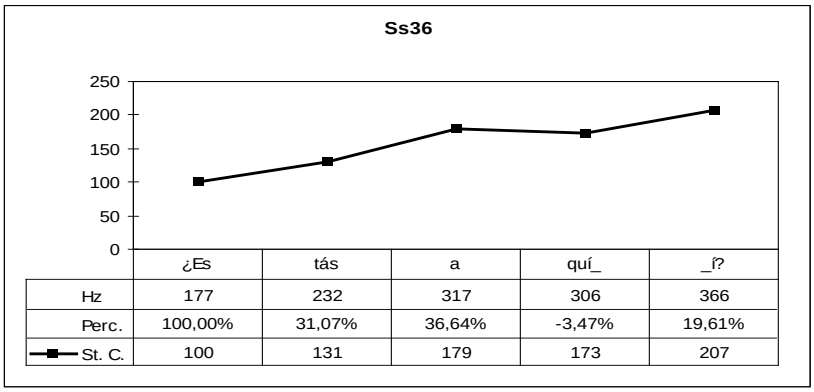
| ¿Te has per'dido algún 'kilo?|
refl.pron.-2sg have-aux-2sg lost some kilo
‘Have you lost some weight?’



	¿Te	has	per	di	do	al	gún	ki	lo?
Hz	256	264	321	281	221	200	191	212	372
Perc.	100,00%	3,13%	21,59%	-12,46%	-21,35%	-9,50%	-4,50%	10,99%	75,47%
St. C.	100	103	125	110	86	78	75	83	145

Code, gender, source	Ss34, female, N
Pattern	SP2, First Peak shifted to the right
Pitch range	93
Average pitch (Hz)	224

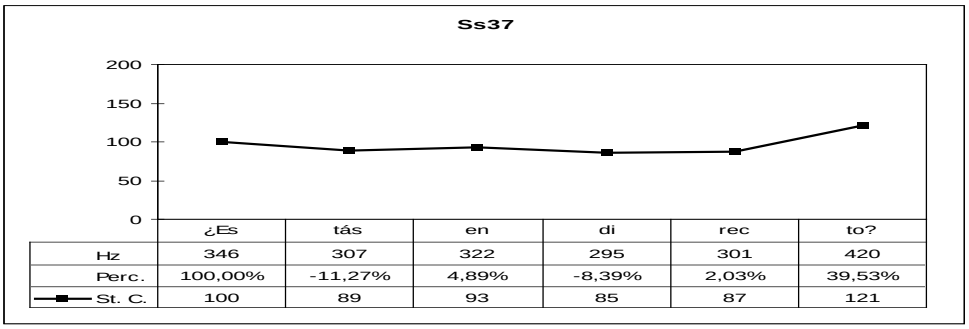
| ¿Estás aquí?|
be-2sg here
‘Are you here?’



	¿Es	tás	a	quí_	_í?
Hz	177	232	317	306	366
Perc.	100,00%	31,07%	36,64%	-3,47%	19,61%
St. C.	100	131	179	173	207

Code, gender, source	Ss36, female, K
Pattern	SP13
Pitch range	107
Average pitch (Hz)	280

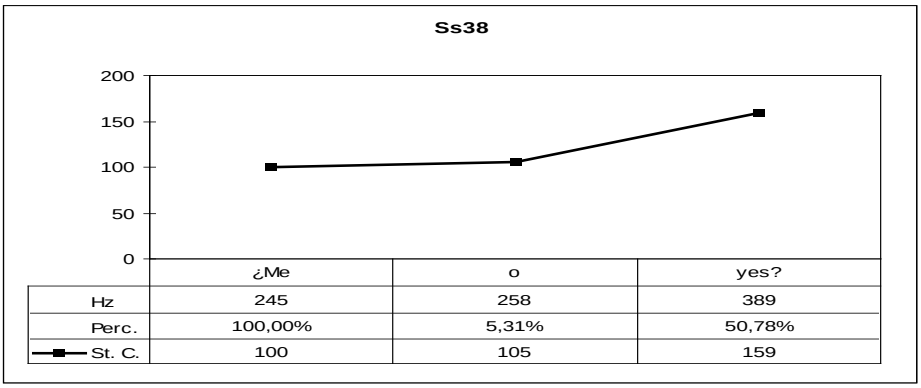
| ¿Estás en di'recto?|
be-2sg on direct
‘Are you through?’



	¿Es	tás	en	di	rec	to?
Hz	346	307	322	295	301	420
Perc.	100,00%	-11,27%	4,89%	-8,39%	2,03%	39,53%
St. C.	100	89	93	85	87	121

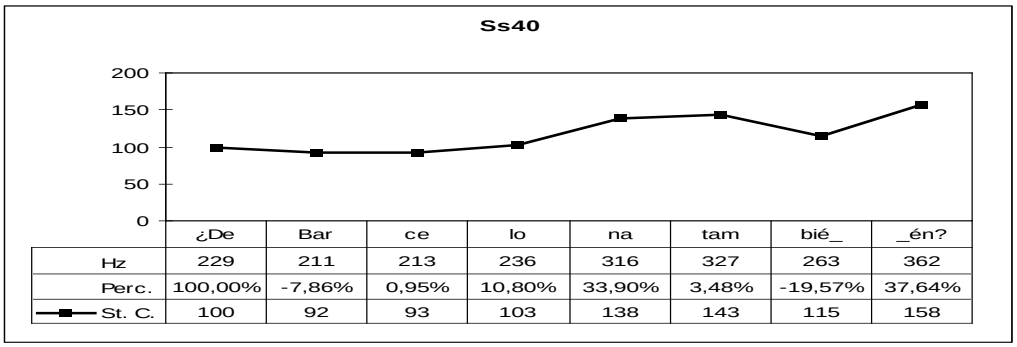
Code, gender, source	Ss37, female speaker from K
Pattern	SP6b
Pitch range	42
Average pitch (Hz)	332

| ¿Me 'oyes?|
me hear-2sg
‘Do you hear me?’



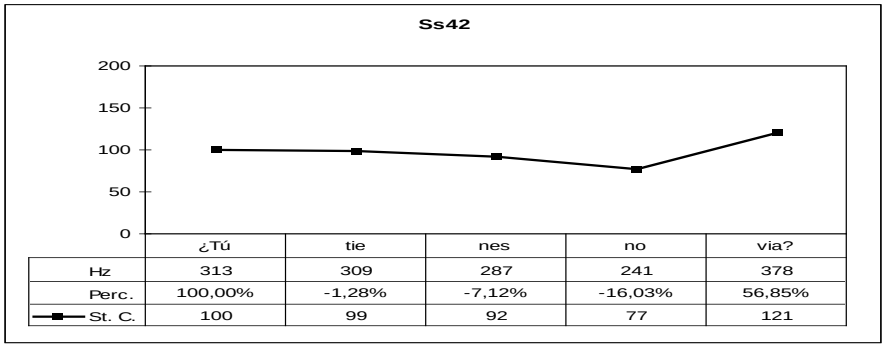
Code, gender, source	Ss38, female, K
Pattern	SP3
Pitch range	59
Average pitch (Hz)	297

| ¿De Barce'lona también?|
from Barcelona too
‘From Barcelona, too?’



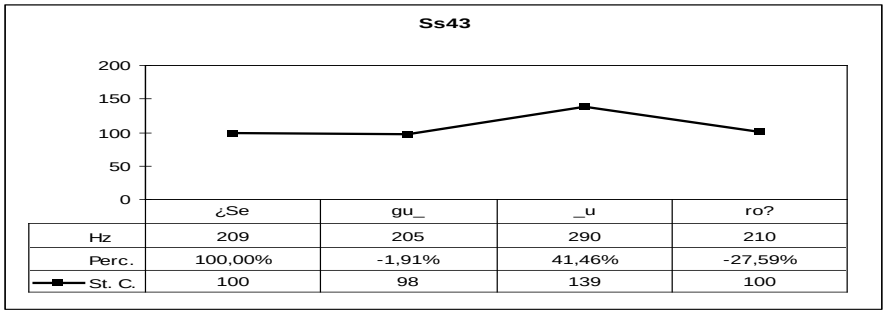
Code, gender, source	Ss40, female, K
Pattern	SP6b
Pitch range	72
Average pitch (Hz)	270

| ¿Tú tienes 'novia?|
you have-2sg girlfriend
‘Do you have a girlfriend?’



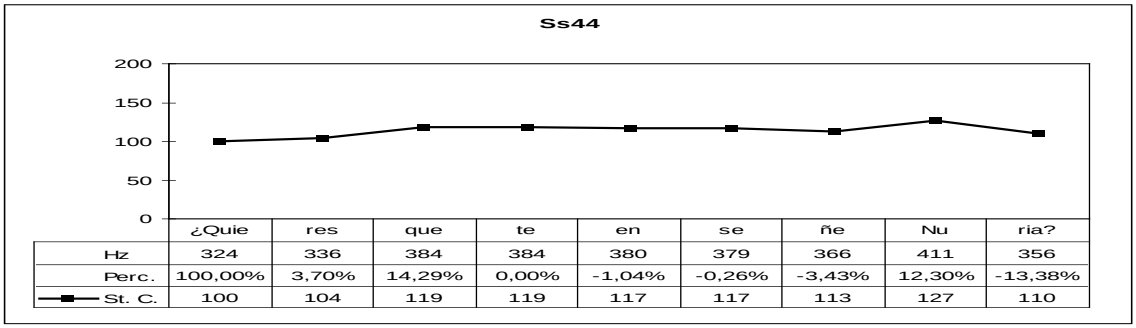
Code, gender, source	Ss42, female, O
Pattern	SP6a
Pitch range	57
Average pitch (Hz)	306

| ¿Se'guro?|
sure
‘Sure?’



Code, gender, source	Ss43, female,O
Pattern	SP4a
Pitch range	42
Average pitch (Hz)	229

| ¿ 'Quieres que te enseñe 'Nuria?|
Want-2sg that-compl you-acc teach-3sg-subj Nuria
‘Do you want Nuria to teach you?’

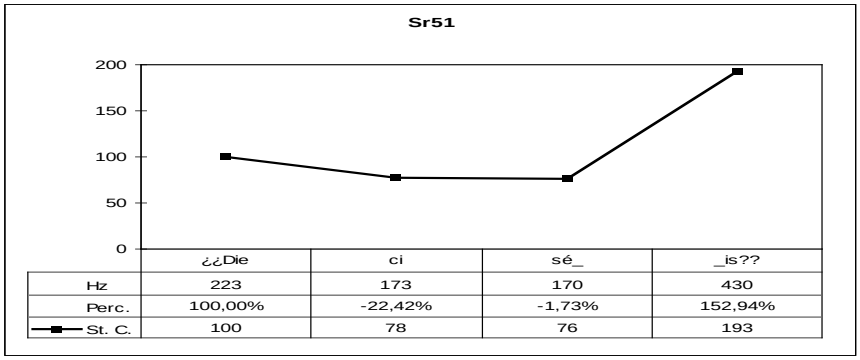


Code, gender, source	Ss44, female, O
Pattern	SP7, First Peak shifted to the right
Pitch range	27
Average pitch (Hz)	369

2. Echo yes-no questions

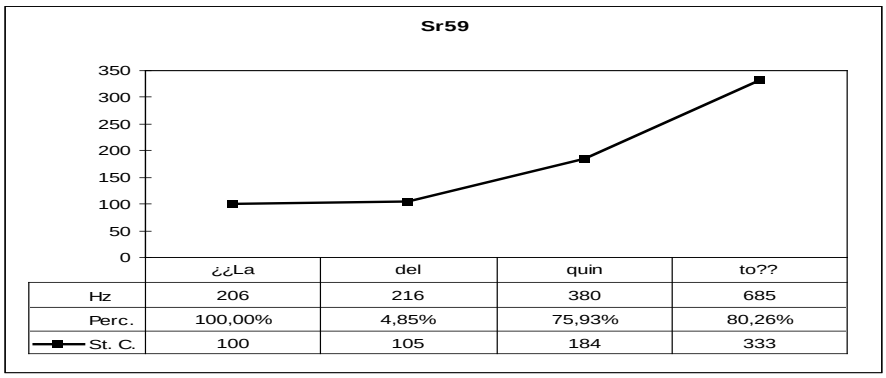
a. Incredulous-repetitive echo yes-no questions

| ¿¿Dieciséis??|
‘Sixteen??’



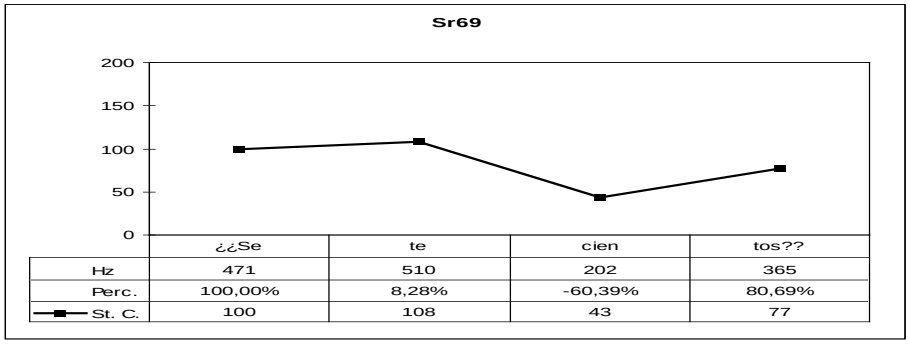
Code, gender, source	Sr51, male, E
Pattern	SP2
Pitch range	154
Average pitch (Hz)	249

| ¿¿La del 'quinto??|
the from fifth
‘The one from the fifth floor??’



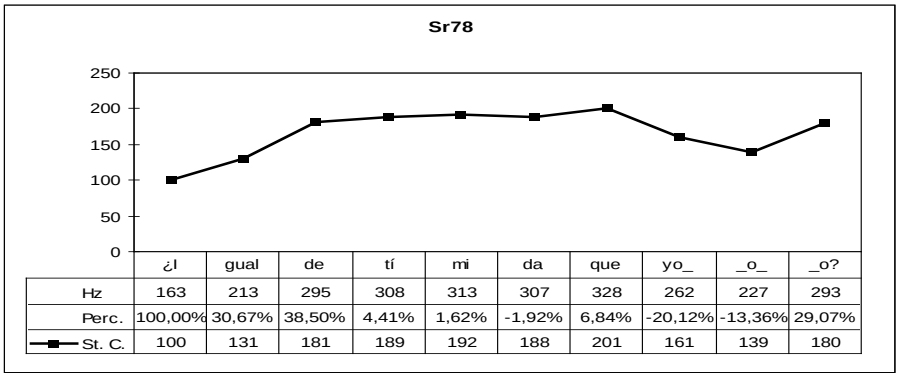
Code, gender, source	Sr59, female, H
Pattern	SP2
Pitch range	233
Average pitch (Hz)	372

| ¿¿Sete'cientos??|
‘Seven hundred??’



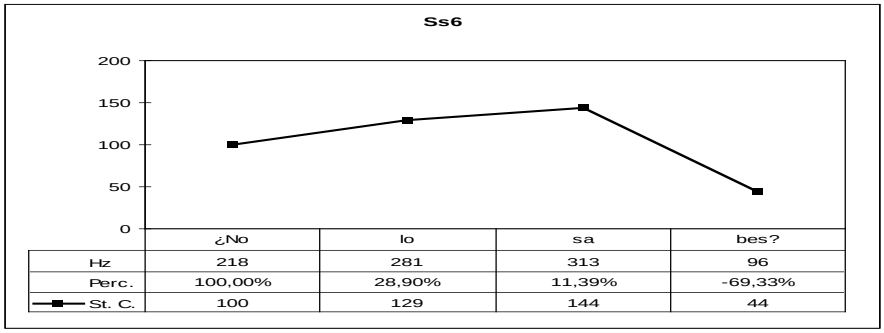
Code, gender, source	Sr69, male speaker from “Noche de fiesta” sketch, F
Pattern	SP2
Pitch range	151
Average pitch (Hz)	387

| ¿¿I'gual de tímida que 'yo??|
same of shy that me
‘As shy as I??’



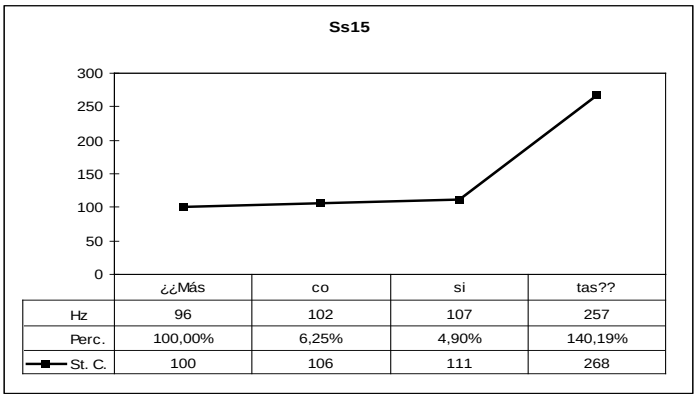
Code, gender, source	Sr78, male, B
Pattern	SP10b
Pitch range	101
Average pitch (Hz)	271

| ¿¿No lo 'sabes??|
not that know-2pl
‘You do not know it??’



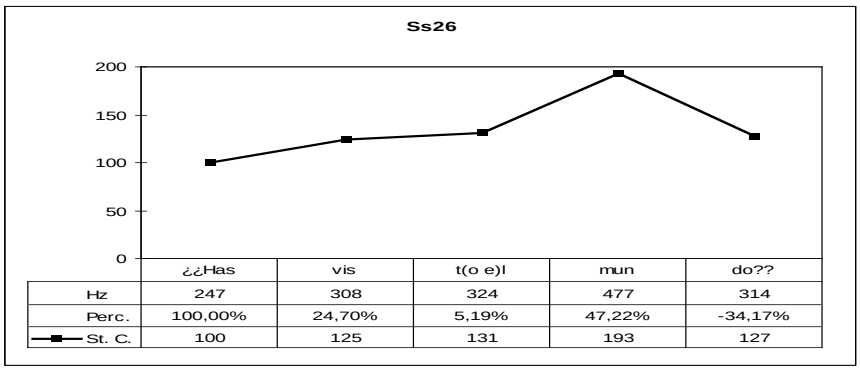
Code, gender, source	Ss6, female speaker from I
Pattern	SP9
Pitch range	227
Average pitch (Hz)	227

| ¿¿'Más co'sitas??|
more things
‘More things??’



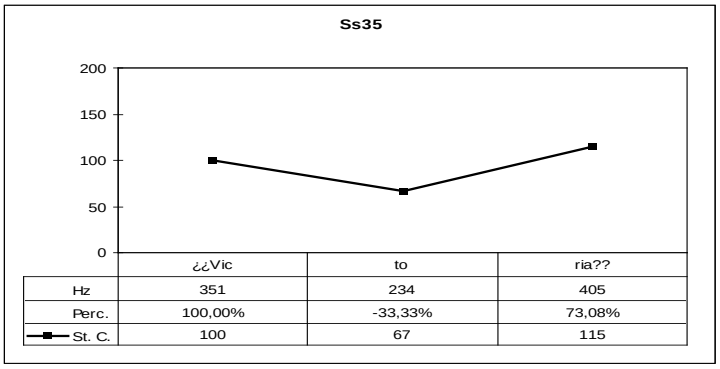
Code, gender, source	Ss15, male, P
Pattern	SP2
Pitch range	168
Average pitch (Hz)	141

| ¿¿Has 'visto el 'mundo??|
have-2g seen the world
‘Have you seen the world??’



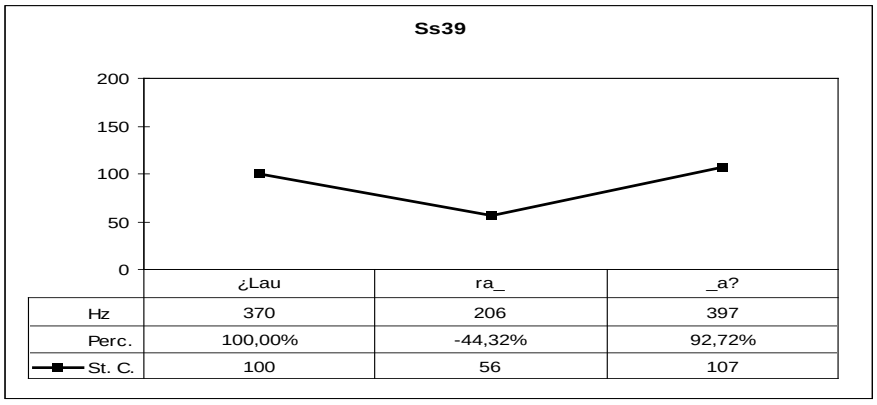
Code, gender, source	Ss26, female, Q
Pattern	SP7
Pitch range	93
Average pitch (Hz)	334

| ¿¿Vic'toria??|



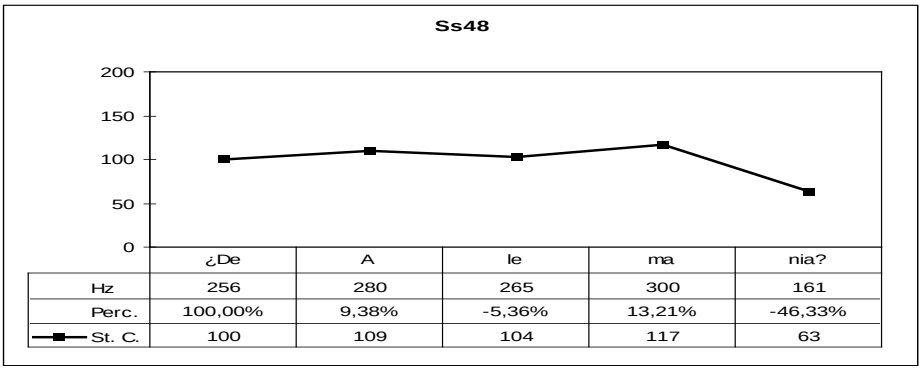
Code, gender, source	Ss35, female, K
Pattern	SP2
Pitch range	72
Average pitch (Hz)	330

| ¿¿'Laura??|



Code, gender, source	Ss39, female, K
Pattern	SP10b
Pitch range	91
Average pitch (Hz)	324

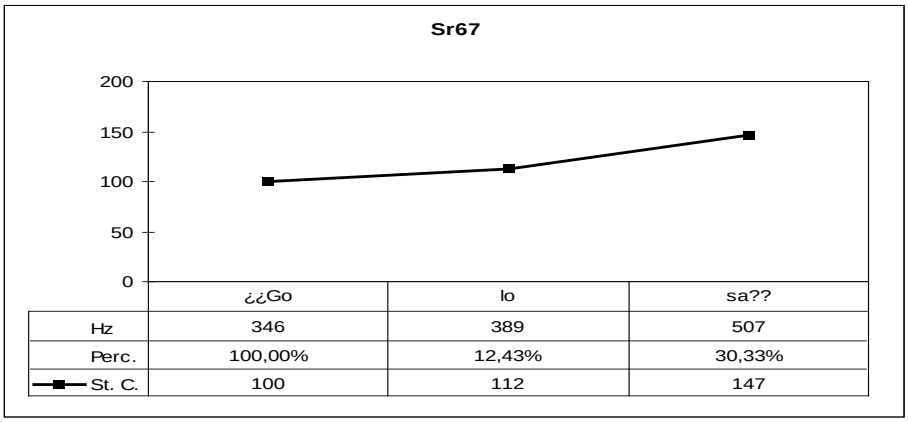
| ¿¿De Ale'mania??|
from Germany
'From Germany??'



Code, gender, source	Ss48, female, O
Pattern	SP7
Pitch range	86
Average pitch (Hz)	252

b. Clarifying / exclamative echo yes-no questions

| ¿¿Go'losa??|
‘(Are you asking if she has) a sweet-tooth?’. Antecedent: ‘Does she have a sweet tooth?’

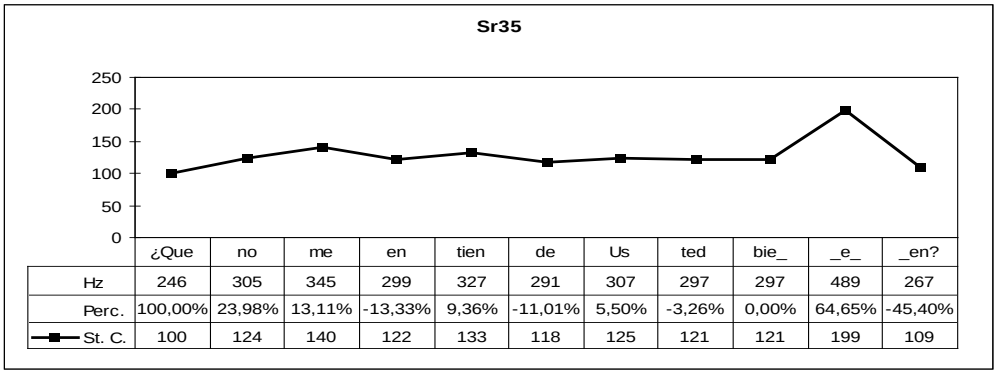


	¿¿Go	lo	sa??
Hz	346	389	507
Perc.	100,00%	12,43%	30,33%
St. C.	100	112	147

Code, gender, source	Sr67, female, D
Pattern	SP13
Pitch range	47
Average pitch (Hz)	414

c. Yes-no questions with a grammatical particle or special grammatical structure (bold type in the transcription and the glosses)

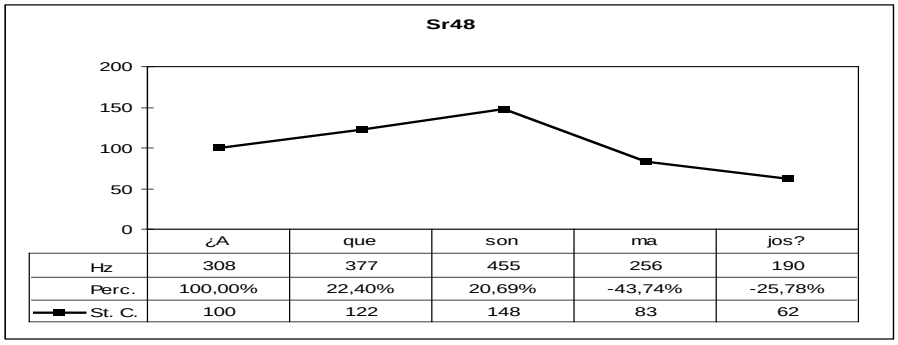
| ¿**Que** no me en'tiende Usted bien?|
that-compl. not me-acc understand-3sg you-formal-sg well
‘So you don’t understand me well?’



	¿Que	no	me	en	tien	de	Us	ted	bie_	_e_	_en?
Hz	246	305	345	299	327	291	307	297	297	489	267
Perc.	100,00%	23,98%	13,11%	-13,33%	9,36%	-11,01%	5,50%	-3,26%	0,00%	64,65%	-45,40%
St. C.	100	124	140	122	133	118	125	121	121	199	109

Code, gender, source	Sr35, male, D
Pattern	SP4a
Pitch range	99
Average pitch (Hz)	315

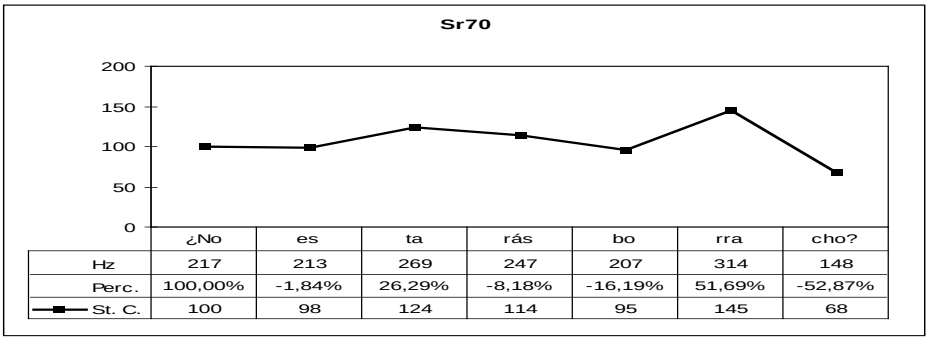
| ¿**A que** son 'majos?|
to that-compl. are-pl nice-pl
They're nice, aren't they?



	¿A	que	son	ma	jos?
Hz	308	377	455	256	190
Perc.	100,00%	22,40%	20,69%	-43,74%	-25,78%
St. C.	100	122	148	83	62

Code, gender, source	Sr48, female, D
Pattern	SP1
Pitch range	139
Average pitch (Hz)	317

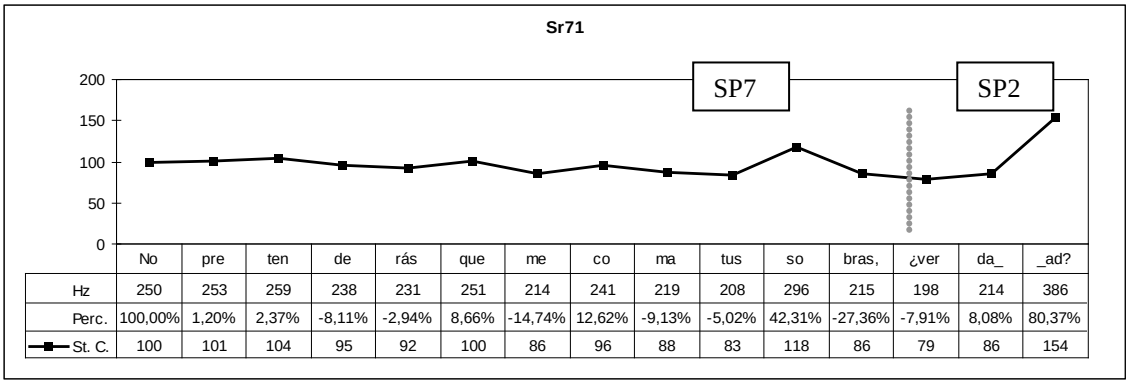
| ¿No estar**ás** bo'rracho?|
not be-**fut**-2sg drunken
'You are not drunken, I hope?'



	¿No	es	ta	rás	bo	rra	cho?
Hz	217	213	269	247	207	314	148
Perc.	100,00%	-1,84%	26,29%	-8,18%	-16,19%	51,69%	-52,87%
St. C.	100	98	124	114	95	145	68

Code, gender, source	Sr70, female, F
Pattern	SP7, First Peak shifted to the left
Pitch range	113
Average pitch (Hz)	231

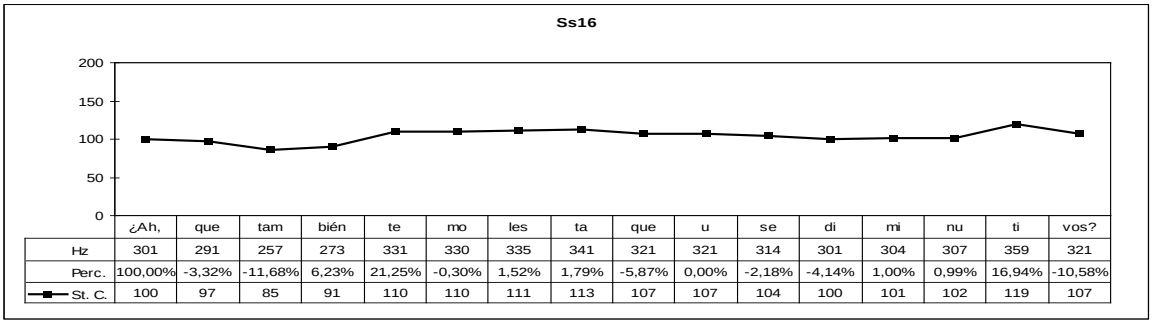
| No pretenderás que coma tus 'sobras, | ¿**ver'dad**?|
not try-fut-2sg that-compl eat-subj-1sg residues **true**
'You surely don't want me to eat your residues, do you?'



	No	pre	ten	de	rás	que	me	co	ma	tus	so	bras,	¿ver	da_	_ad?
Hz	250	253	259	238	231	251	214	241	219	208	296	215	198	214	386
Perc.	100,00%	1,20%	2,37%	-8,11%	-2,94%	8,66%	-14,74%	12,62%	-9,13%	-5,02%	42,31%	-27,36%	-7,91%	8,08%	80,37%
St. C.	100	101	104	95	92	100	86	96	88	83	118	86	79	86	154

Code, gender, source	Sr71, female, G
Pattern	SP7 + SP2
Pitch range	(in the second pattern) 95
Average pitch (Hz)	(in the second pattern) 266

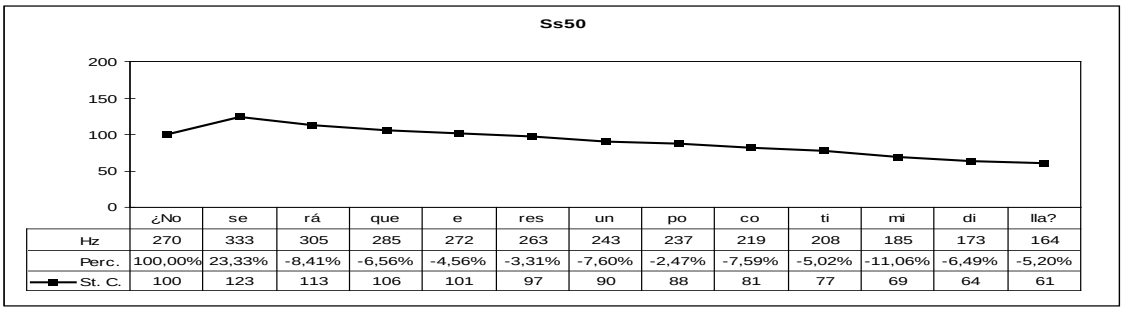
| ¿Ah, **que** también te molesta que use diminu'tivos?|
ah **that**-compl. also you-acc disturb-3sg that use-subj-1sg diminutives
'So you are also angry if I use diminutives?'



	¿Ah,	que	tam	bién	te	mo	les	ta	que	u	se	di	mi	nu	ti	vos?
Hz	301	291	257	273	331	330	335	341	321	321	314	301	304	307	359	321
Perc.	100,00%	-3,32%	-11,68%	6,23%	21,25%	-0,30%	1,52%	1,79%	-5,87%	0,00%	-2,18%	-4,14%	1,00%	0,99%	16,94%	-10,58%
St. C.	100	97	85	91	110	110	111	113	107	107	104	100	101	102	119	107

Code, gender, source	Ss16, female, P
Pattern	SP7
Pitch range	40
Average pitch (Hz)	293

| ¿No ser**á** que eres un poco timi'dilla?|
not be-fut-3sg that are-2sg a bit shy-diminutive-fem
'Cannot it be the case that you are a bit shy?'

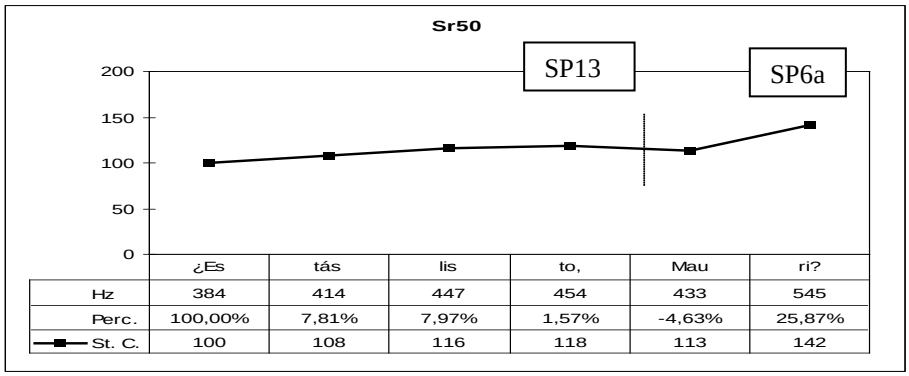


	¿No	se	rá	que	e	res	un	po	co	ti	mi	di	lla?
Hz	270	333	305	285	272	263	243	237	219	208	185	173	164
Perc.	100,00%	23,33%	-8,41%	-6,56%	-4,56%	-3,31%	-7,60%	-2,47%	-7,59%	-5,02%	-11,06%	-6,49%	-5,20%
St. C.	100	123	113	106	101	97	90	88	81	77	69	64	61

Code, gender, source	Ss50, female speaker from J
Pattern	SP1, First Peak shifted to the left
Pitch range	102
Average pitch (Hz)	243

3. Yes-no question + vocative sequences

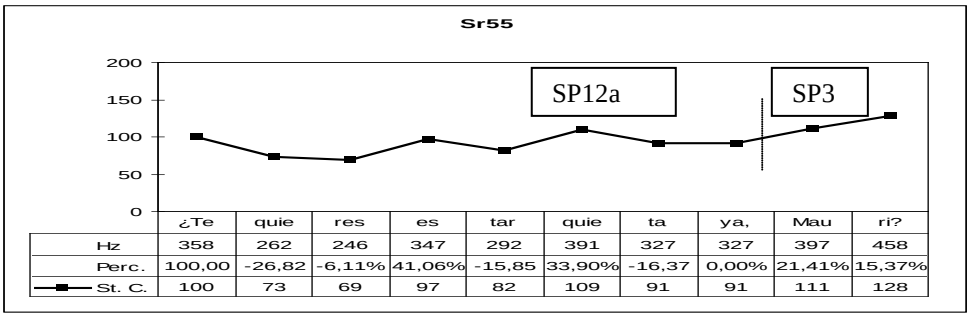
| ¿Estás 'listo, | 'Mauri?|
are-2sg ready Mauri(cio)
'Are you ready, Mauri?'



	¿Es	tás	lis	to,	Mau	ri?
Hz	384	414	447	454	433	545
Perc.	100,00%	7,81%	7,97%	1,57%	-4,63%	25,87%
St. C.	100	108	116	118	113	142

Code, gender, source	Sr50, female speaker from "Noche de fiesta" sketch, E
Pattern	SP13 + SP6a
Pitch range	(in the second pattern) 26
Average pitch (Hz)	(in the second pattern) 489

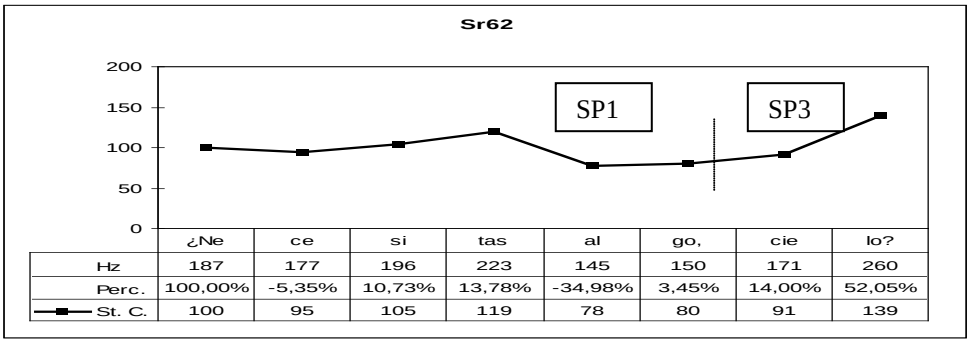
| ¿Te 'quieres estar quieta ya, | 'Mauri? |
you-2sg want-2sg be calm already Mauri(cio)
‘Would you stay calm, Mauri? (stay calm, Mauri!)’



	¿Te	quie	res	es	tar	quie	ta	ya,	Mau	ri?
Hz	358	262	246	347	292	391	327	327	397	458
Perc.	100,00	-26,82	-6,11%	41,06%	-15,85	33,90%	-16,37	0,00%	21,41%	15,37%
St. C.	100	73	69	97	82	109	91	91	111	128

Code, gender, source	Sr55, female, E
Pattern	SP12a + SP6
Pitch range	(in the second pattern) 15
Average pitch (Hz)	(in the second pattern) 428

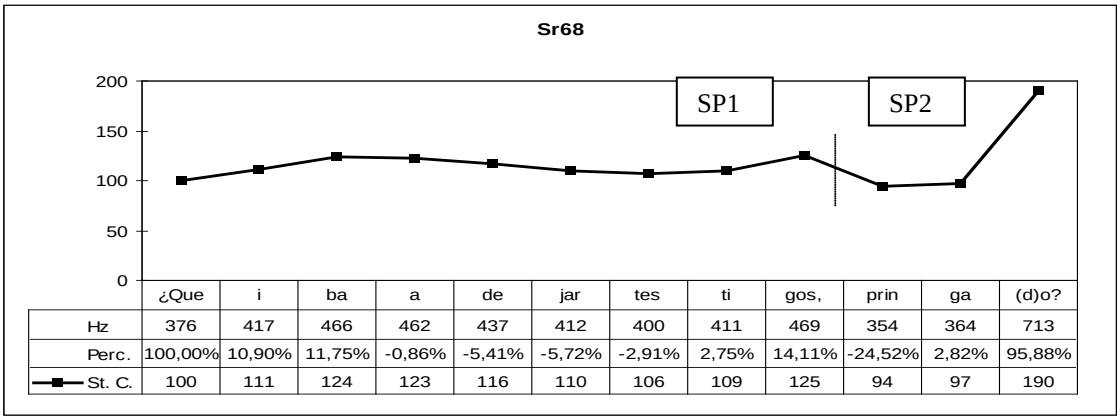
| ¿Nece'sitas 'algo, | 'cielo?|
need-2sg something heaven
‘Do you need something, darling?’



	¿Ne	ce	si	tas	al	go,	cie	lo?
Hz	187	177	196	223	145	150	171	260
Perc.	100,00%	-5,35%	10,73%	13,78%	-34,98%	3,45%	14,00%	52,05%
St. C.	100	95	105	119	78	80	91	139

Code, gender, source	Sr62, male speaker from “Noche de fiesta” sketch, H
Pattern	SP1 (First Peak shifted to the right) + SP3
Pitch range	(in the second pattern) 53
Average pitch (Hz)	(in the second pattern) 216

| ¿Que i'ba a dejar tes'tigos, | prin'ga(d)o?|
that-compl. was-1sg to leave witnesses wet
‘(What did you think?) That I would leave witnesses, idiot?’



	¿Que	i	ba	a	de	jar	tes	ti	gos,	prin	ga	(d)o?
Hz	376	417	466	462	437	412	400	411	469	354	364	713
Perc.	100,00%	10,90%	11,75%	-0,86%	-5,41%	-5,72%	-2,91%	2,75%	14,11%	-24,52%	2,82%	95,88%
St. C.	100	111	124	123	116	110	106	109	125	94	97	190

Code, gender, source	Sr68, female speaker from “Noche de fiesta” sketch, D
Pattern	SP1 (First Peak shifted to the right) + SP2
Pitch range	(in the second pattern) 102
Average pitch (Hz)	(in the second pattern) 477

APPENDIX 2
Corpus 2: The Hungarian corpus

The corpus (containing 69 yes-no questions) is divisible into two parts: spontaneous and read utterances.

The spontaneous corpus comes from the following tv and radio programmes (all sources are referred to by a capital letter):

A: Balázs Show http://www.youtube.com/watch?v=FuWBIL_pZVE
B: Balázs Show http://www.youtube.com/watch?v=9Z33IF5SAW8&feature=related
C: Balázs Show http://www.youtube.com/watch?v=WBvzF2LsMs4&p=356B7CBADF5FA032&playnext=1&index=6
D: Barbara Show http://www.youtube.com/watch?v=eW1hpYLEfkI
E: Mokka (Dr. Csernus Imre a Mokkában) http://www.youtube.com/watch?v=bz_WybPtIjA
F: "Info Rádio" (recordings from 2009)

The spontaneous corpus was provided by 19 speakers, 13 male and 6 female speakers.

The **read corpus** comes from my private recordings (signalled G) and was provided by 5 speakers (3 male and 2 female).

Altogether the corpus includes 24 speakers.

The corpus consists of the following question types:

1. Ordinary yes-no questions
2. Marked yes-no questions
   a. Incredulous-repetitive echo yes-no questions
   b. Clarifying-exclamative yes-no questions
   c. Yes-no questions with special lexical elements or grammatical particles
3. Yes-no questions followed by a vocative

List of symbols and abbreviations

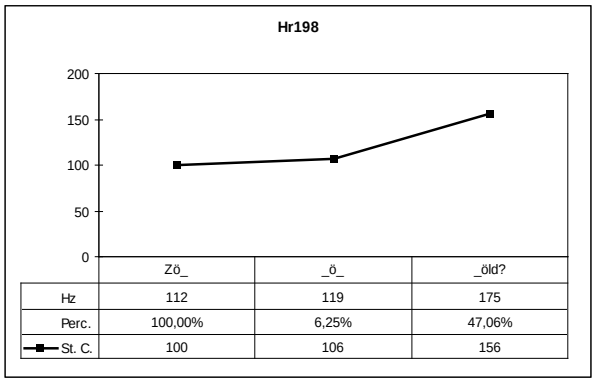
,…:	unfinished sentence
??:	emphatic question
_ (between tautosyllabic vowel letters):	shows that the vowel is in a bimoraic or trimoraic syllable
⎪:	Phonic Group (IP) boundary in the text
⎪	boundary between adjacent Phonic Groups in the diagram
a,b,c (at the end of the code):	If an utterance was too long it was cut into parts a,b,c.
acc.:	accusative
compl.:	complementizer
COND:	conditional
Hr:	Hungarian sentence read out loud
Hs:	spontaneous Hungarian sentence
Hz:	absolute pitch values obtained in Hertz
m (at the end of the code):	a marked version of the sentence with the code
Perc.:	Percentages of rise / fall
pl.:	plural
sg.:	singular
St. C.:	Pitch values of the Standardized Curve
'x:	accent on the syllable which the mark precedes

Notes in connection with the diagrams:
a) The curves represent the Standardized Curves (St. C.).
b) The Pattern represent the intonational pattern.
c) The Pitch range of the utterance is relative, based on the St. C. (rounded value).
d) the Average pitch (Hz) is an absolute height in Hz (rounded value).

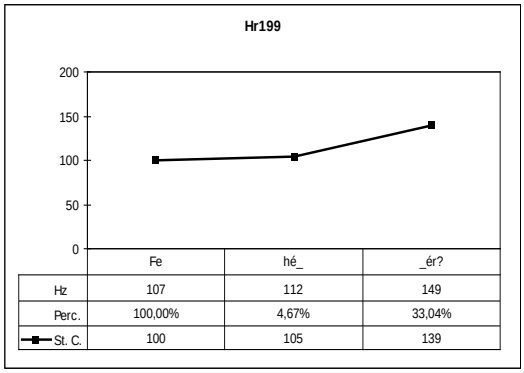
Note on Hungarian orthography:
Acute accents on certain Hungarian vowel letters (e.g. *á*, *é*, etc.) indicate vowel length and not stress.

Question types
1. Ordinary yes-no questions

| 'Zöld?|
‘Green?’



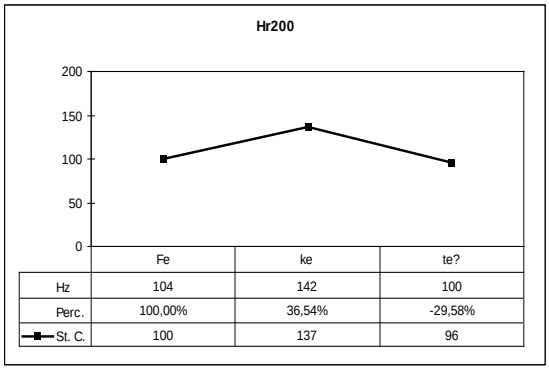
| 'Fehér?|
‘White?’



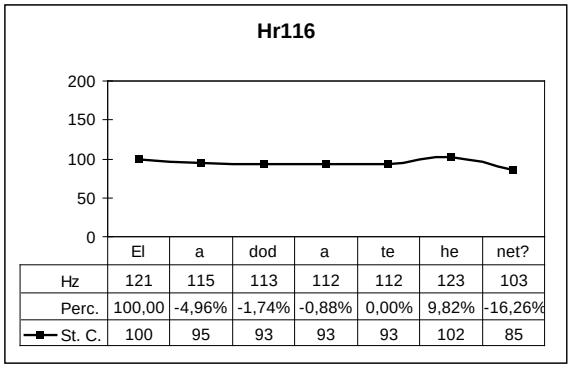
Code, gender, source	Hr198, male, G	Hr199, male, G
Pattern	HP7	HP7
Pitch range	56	39
Average Pitch (Hz)	135	123

| 'Fekete?|

‘Black?’

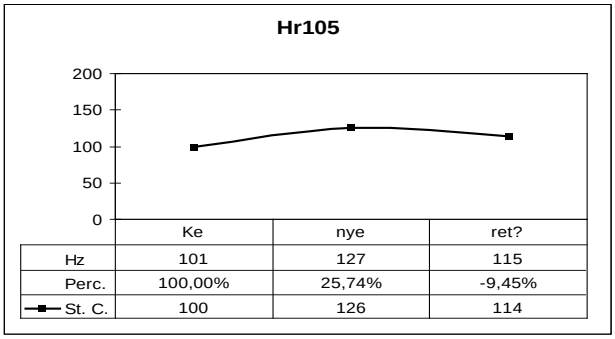


| 'Eladod a tehenet?|
sell-2sg the cow-acc
‘Are you selling the cow?’



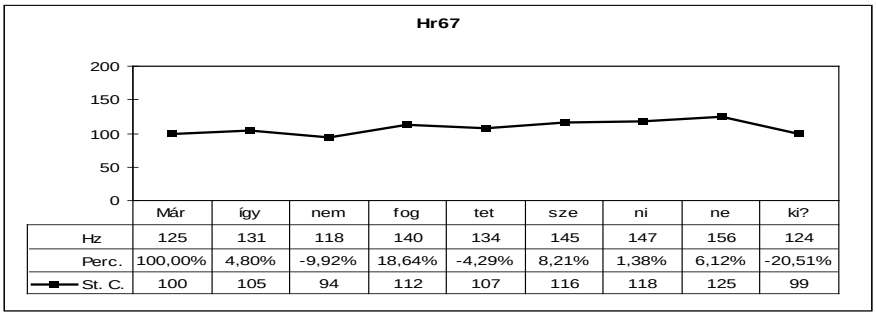
Code, gender, source	Hr200, male, G	Hr116, male, G
Pattern	HP7	HP7b
Pitch range	43	20
Average Pitch (Hz)	115	114

| 'Kenyeret?|
bread-acc
‘Bread (acc.)?’



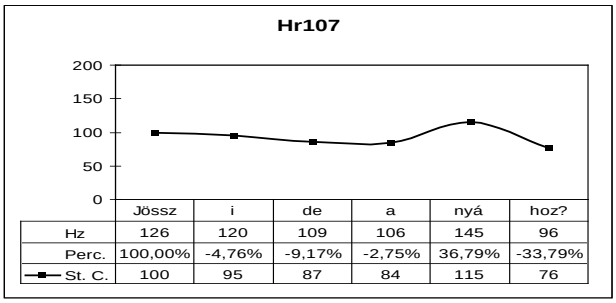
Code, gender, source	Hr105, male, G
Pattern	HP7
Pitch range	26
Average Pitch (Hz)	114

| Már így 'nem fog tetszeni neki?|
already so not will-3sg be-nice her-dat
‘(S)he won’t like it this way?’



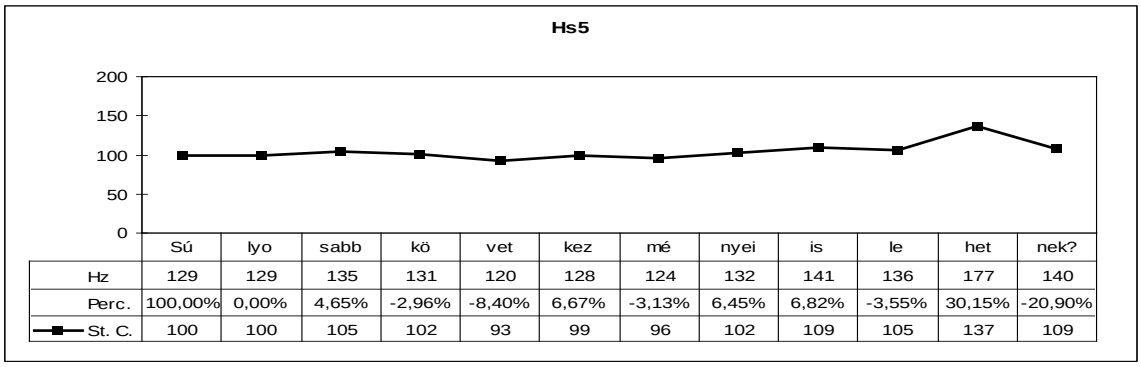
Code, gender, source	Hr67, male
Pattern	HP7
Pitch range	33
Average Pitch (Hz)	136

| 'Jössz ide anyához?|
come-sg2 here mum-to
‘Will you come here to Mummy?’



Code, gender, source	Hr107, male,
Pattern	HP7c
Pitch range	32
Average Pitch (Hz)	117

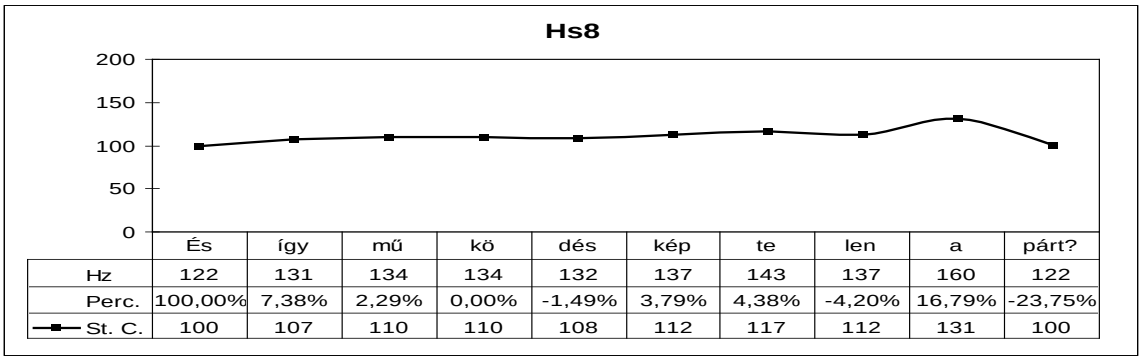
| 'Súlyosabb következményei is lehetnek?|
more-serious consequences too can-be-3pl
‘Can it have more serious consequences?’



	Sú	lyo	sabb	kö	vet	kez	mé	nyei	is	le	het	nek?
Hz	129	129	135	131	120	128	124	132	141	136	177	140
Perc.	100,00%	0,00%	4,65%	-2,96%	-8,40%	6,67%	-3,13%	6,45%	6,82%	-3,55%	30,15%	-20,90%
St. C.	100	100	105	102	93	99	96	102	109	105	137	109

Code, gender, source	Hs5, male, F
Pattern	HP7b
Pitch range	47
Average Pitch (Hz)	135

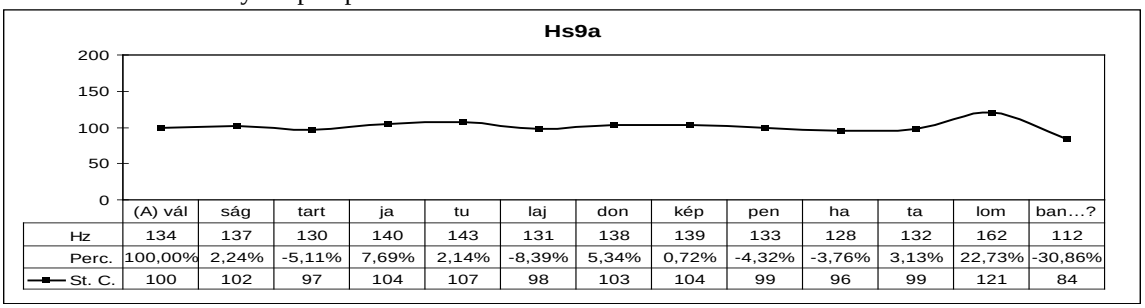
|És így 'működésképtelen a párt?|
and so inoperative the party
‘And so is the party inoperative?’



	És	így	mű	kö	dés	kép	te	len	a	párt?
Hz	122	131	134	134	132	137	143	137	160	122
Perc.	100,00%	7,38%	2,29%	0,00%	-1,49%	3,79%	4,38%	-4,20%	16,79%	-23,75%
St. C.	100	107	110	110	108	112	117	112	131	100

Code, gender, source	Hs8, male, F
Pattern	HP7b
Pitch range	31
Average Pitch (Hz)	135

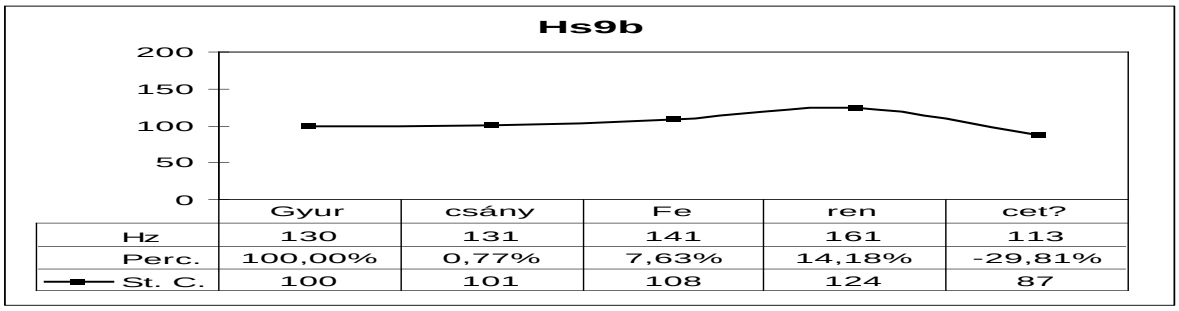
| (A) 'válság tartja tulajdonképpen hatalomban|…
(the) crisis keep-3sg in-fact power-in
‘Does the crisis actually keep in power…?’



	(A) vál	ság	tart	ja	tu	laj	don	kép	pen	ha	ta	lom	ban…?
Hz	134	137	130	140	143	131	138	139	133	128	132	162	112
Perc.	100,00%	2,24%	-5,11%	7,69%	2,14%	-8,39%	5,34%	0,72%	-4,32%	-3,76%	3,13%	22,73%	-30,86%
St. C.	100	102	97	104	107	98	103	104	99	96	99	121	84

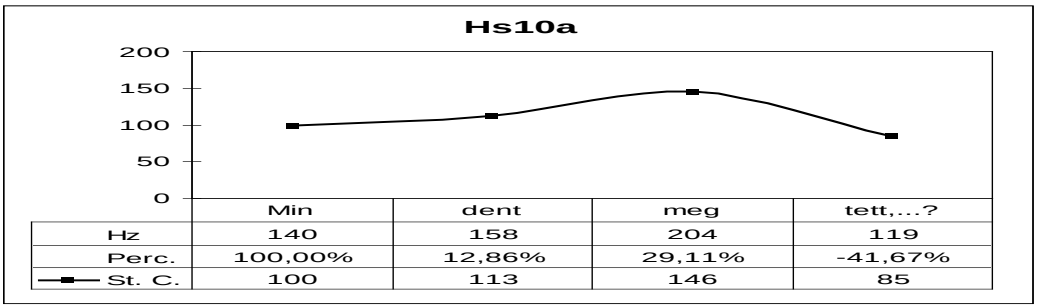
Code, gender, source	Hs9a, male, F
Pattern	HP7b
Pitch range	44
Average Pitch (Hz)	133

|… 'Gyurcsány Ferencet?|
Gyurcsány Ferenc-acc
'…Ferenc Gyurcsány (acc)?'



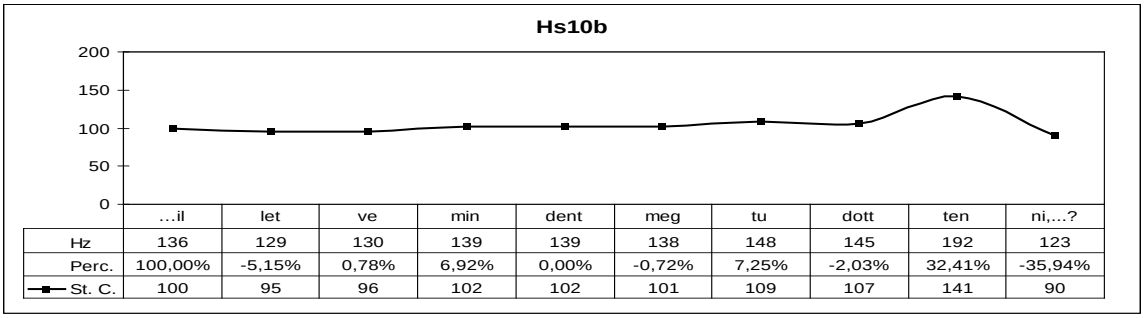
Code, gender, source	Hs9b, male, F
Pattern	HP7a
Pitch range	43
Average Pitch (Hz)	135

| 'Mindent megtett|,…
everything-acc did-3sg
'Did it/he/she do everything,…?'



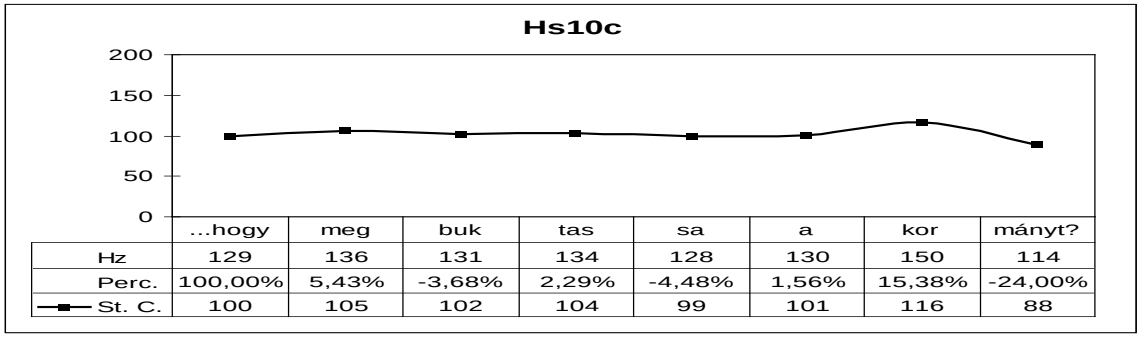
Code, gender, source	Hs10a, male, F
Pattern	HP7a
Pitch range	72
Average Pitch (Hz)	155

...| illetve 'mindent meg tudott tenni…?|
that-is everything-acc could-3sg do
'…or could it/he/she do everything,…?'



Code, gender, source	Hs10b, male, F
Pattern	HP7b
Pitch range	57
Average Pitch (Hz)	142

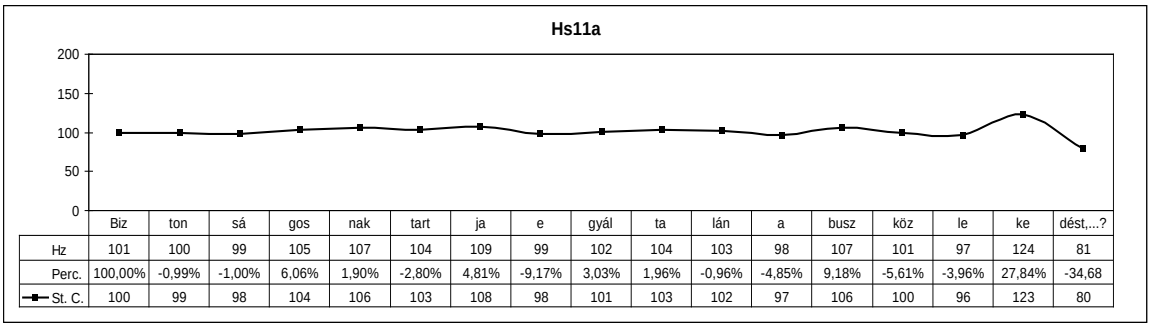
|... hogy 'megbuktassa a kormányt?|
that-compl overthrow-3sg-imp the government-acc
'…to overthrow the government?'



	...hogy	meg	buk	tas	sa	a	kor	mányt?
Hz	129	136	131	134	128	130	150	114
Perc.	100,00%	5,43%	-3,68%	2,29%	-4,48%	1,56%	15,38%	-24,00%
St. C.	100	105	102	104	99	101	116	88

Code, gender, source	Hs10c, male, F
Pattern	HP7b
Pitch range	32
Average Pitch (Hz)	131

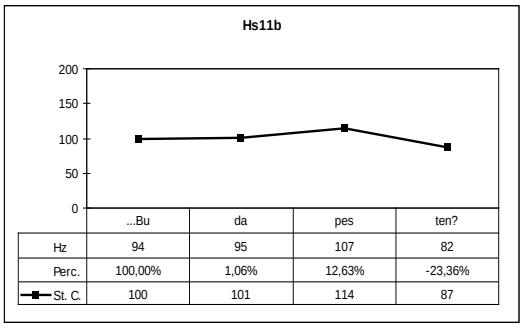
| 'Biztonságosnak tartja egyáltalán a buszközlekedést|...
safe-dat consider-3sg at-all the bus-services-acc
'Do you think bus services are safe at all…?'



	Biz	ton	sá	gos	nak	tart	ja	e	gyál	ta	lán	a	busz	köz	le	ke	dést,...?
Hz	101	100	99	105	107	104	109	99	102	104	103	98	107	101	97	124	81
Perc.	100,00%	-0,99%	-1,00%	6,06%	1,90%	-2,80%	4,81%	-9,17%	3,03%	1,96%	-0,96%	-4,85%	9,18%	-5,61%	-3,96%	27,84%	-34,68
St. C.	100	99	98	104	106	103	108	98	101	103	102	97	106	100	96	123	80

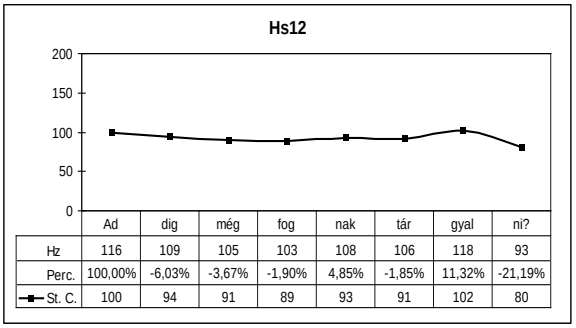
Code, gender, source	Hs11a, male, F
Pattern	HP7b
Pitch range	54
Average Pitch (Hz)	103

…|'Budapesten?|
Budapest-in
'…in Budapest?'



	...Bu	da	pes	ten?
Hz	94	95	107	82
Perc.	100,00%	1,06%	12,63%	-23,36%
St. C.	100	101	114	87

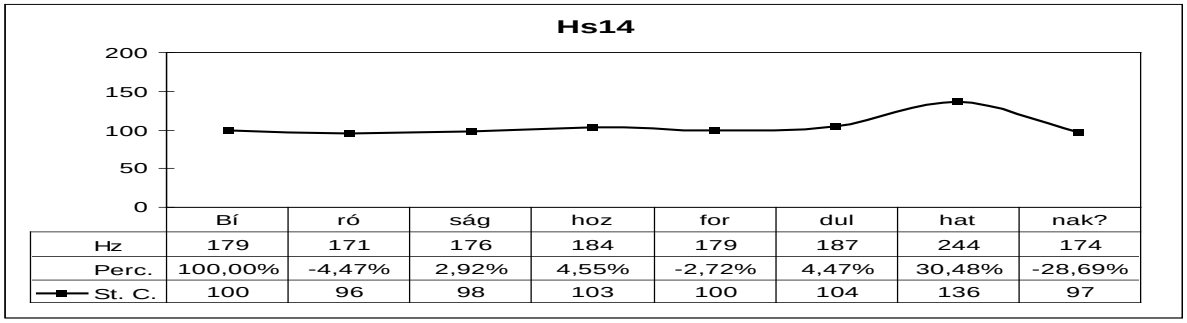
| Addig még 'fognak tárgyalni?|
then-till yet will-3pl negotiate
'Will you still negotiate till then?'



	Ad	dig	még	fog	nak	tár	gyal	ni?
Hz	116	109	105	103	108	106	118	93
Perc.	100,00%	-6,03%	-3,67%	-1,90%	4,85%	-1,85%	11,32%	-21,19%
St. C.	100	94	91	89	93	91	102	80

Code, gender, source	Hs11b, male, F	Hs12, male, F
Pattern	HP7b	HP7b
Pitch range	31	28
Average Pitch (Hz)	95	107

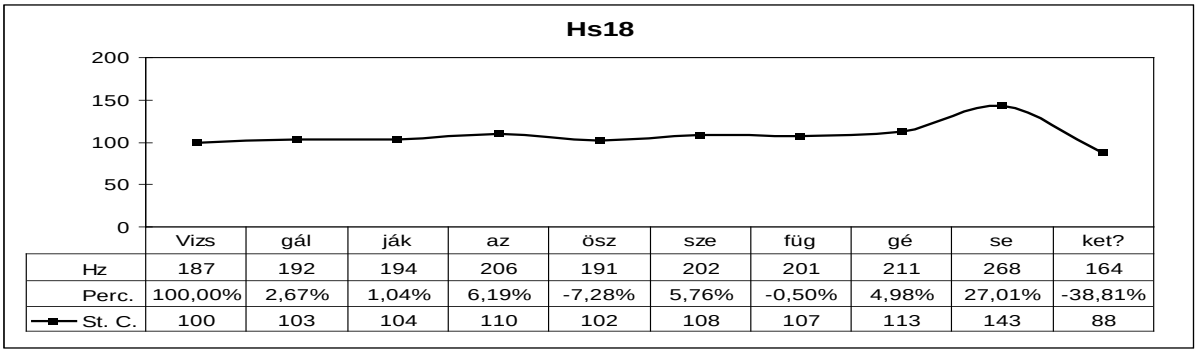
| 'Bírósághoz fordulhatnak?|
court-to turn-can-3pl
'Can you turn to law court?'



	Bí	ró	ság	hoz	for	dul	hat	nak?
Hz	179	171	176	184	179	187	244	174
Perc.	100,00%	-4,47%	2,92%	4,55%	-2,72%	4,47%	30,48%	-28,69%
St. C.	100	96	98	103	100	104	136	97

Code, gender, source	Hs14, female, F
Pattern	HP7b
Pitch range	42
Average Pitch (Hz)	186

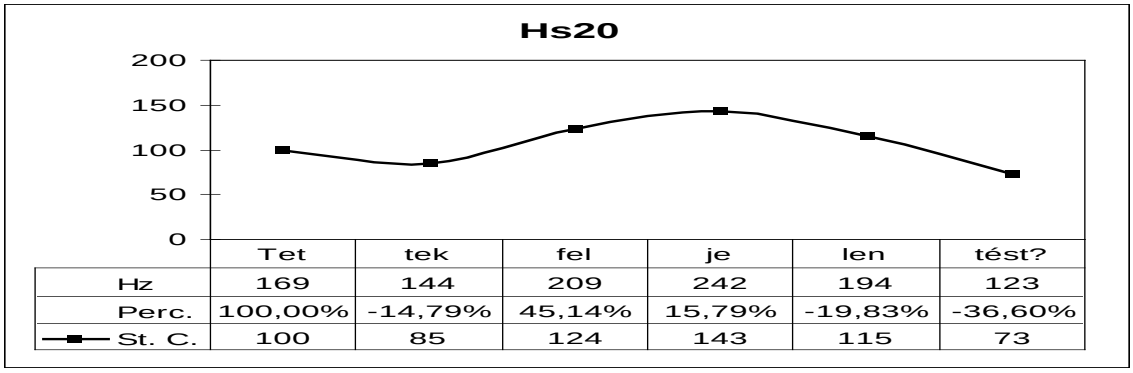
| 'Vizsgálják az összefüggéseket?|
examine-3pl the connections-acc
'Do you examine the connections?'



	Vizs	gál	ják	az	ösz	sze	füg	gé	se	ket?
Hz	187	192	194	206	191	202	201	211	268	164
Perc.	100,00%	2,67%	1,04%	6,19%	-7,28%	5,76%	-0,50%	4,98%	27,01%	-38,81%
St. C.	100	103	104	110	102	108	107	113	143	88

Code, gender, source	Hs18, female, F
Pattern	HP7b
Pitch range	63
Average Pitch (Hz)	185

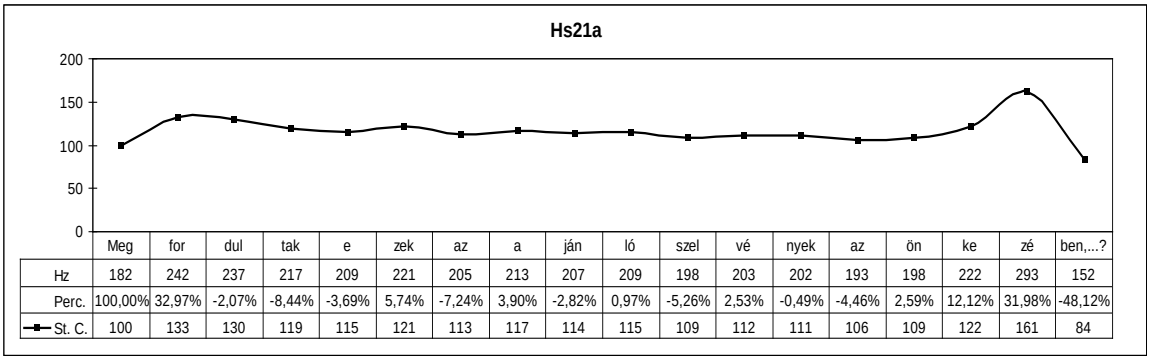
| 'Tettek feljelentést?|
did-3pl report-acc
'Did you report the case?'



	Tet	tek	fel	je	len	tést?
Hz	169	144	209	242	194	123
Perc.	100,00%	-14,79%	45,14%	15,79%	-19,83%	-36,60%
St. C.	100	85	124	143	115	73

Code, gender, source	Hs20, male, F
Pattern	Anomalous HP7a (Peak shifted to the left)
Pitch range	96
Average Pitch (Hz)	180

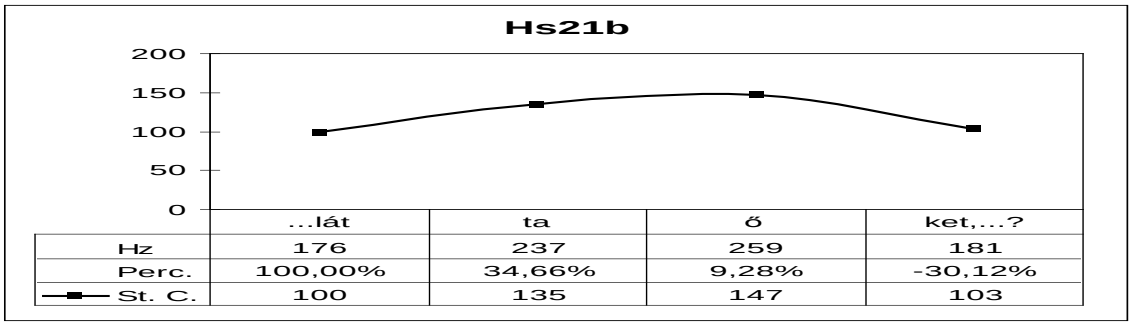
| 'Megfordultak ezek az ajánlószelvények az ön kezében|...
turned-3pl these the support-notes the your hand-in
‘Have these support notes been in your hands,…?’



	Meg	for	dul	tak	e	zek	az	a	ján	ló	szel	vé	nyek	az	ön	ke	zé	ben,...?
Hz	182	242	237	217	209	221	205	213	207	209	198	203	202	193	198	222	293	152
Perc.	100,00%	32,97%	-2,07%	-8,44%	-3,69%	5,74%	-7,24%	3,90%	-2,82%	0,97%	-5,26%	2,53%	-0,49%	-4,46%	2,59%	12,12%	31,98%	-48,12%
St. C.	100	133	130	119	115	121	113	117	114	115	109	112	111	106	109	122	161	84

Code, gender, source	Hs21a, male, F
Pattern	Hybrid of HP7b + HP7c
Pitch range	92
Average Pitch (Hz)	211

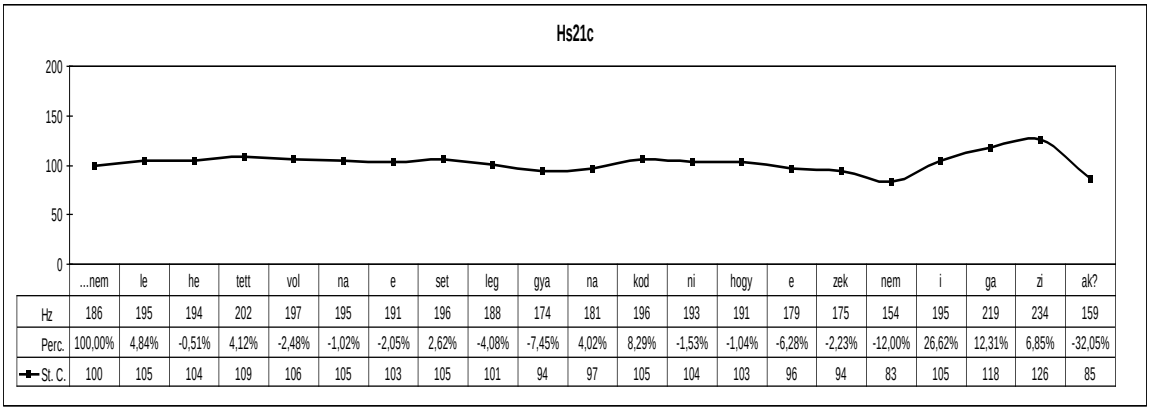
...| 'látta őket,|...
saw-3sg them
‘...have you seen them,...?’



	...lát	ta	ő	ket,...?
Hz	176	237	259	181
Perc.	100,00%	34,66%	9,28%	-30,12%
St. C.	100	135	147	103

Code, gender, source	Hs21b, male, F
Pattern	HP7a
Pitch range	47
Average Pitch (Hz)	213

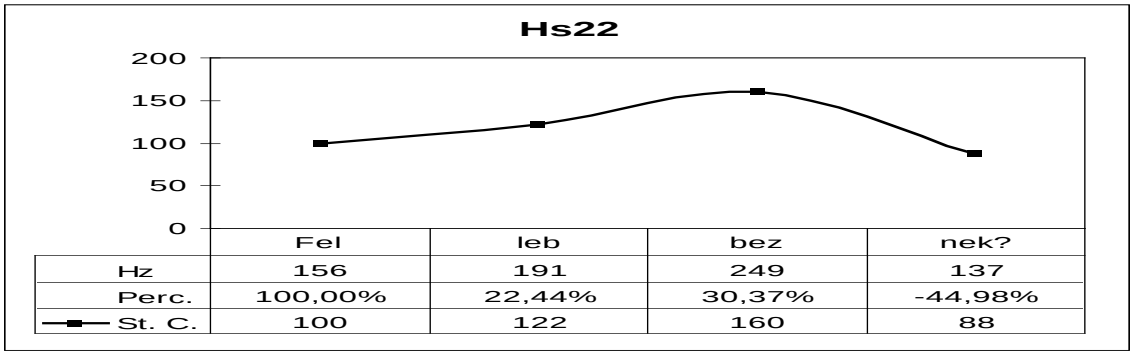
...| (és) 'nem lehetett volna esetleg 'gyanakodni, hogy ezek 'nem igaziak?|
not could-be COND perhaps suspect that these not real-pl
‘… (and) couldn’t one have suspected that they were not the real ones?’



	...nem	le	he	tett	vol	na	e	set	leg	gya	na	kod	ni	hogy	e	zek	nem	i	ga	zi	ak?
Hz	186	195	194	202	197	195	191	196	188	174	181	196	193	191	179	175	154	195	219	234	159
Perc.	100,00%	4,84%	-0,51%	4,12%	-2,48%	-1,02%	-2,05%	2,62%	-4,08%	-7,45%	4,02%	8,29%	-1,53%	-1,04%	-6,28%	-2,23%	-12,00%	26,62%	12,31%	6,85%	-32,05%
St. C.	100	105	104	109	106	105	103	105	101	94	97	105	104	103	96	94	83	105	118	126	85

Code, gender, source	Hs21c, male, F
Pattern	HP7a (preceded by a descending Body)
Pitch range	52
Average Pitch (Hz)	190

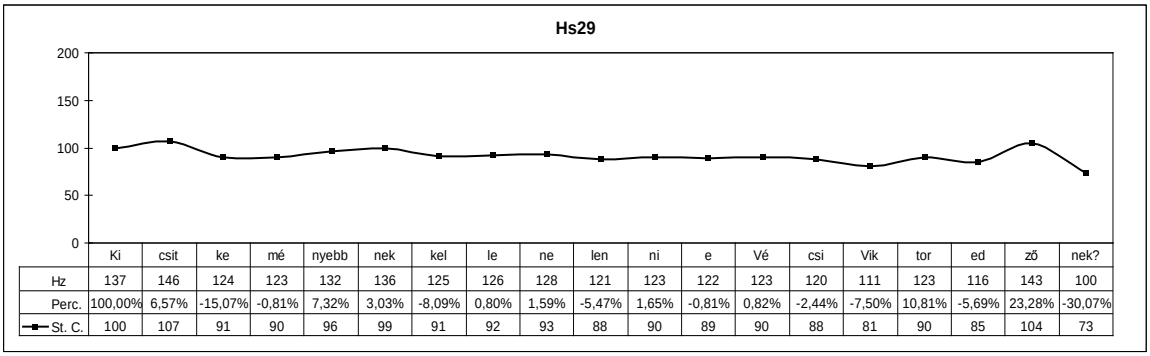
| 'Fellebbeznek?|
appeal-3pl
‘Will you appeal?’



	Fel	leb	bez	nek?
Hz	156	191	249	137
Perc.	100,00%	22,44%	30,37%	-44,98%
St. C.	100	122	160	88

Code, gender, source	Hs22, male, F
Pattern	HP7a
Pitch range	82
Average Pitch (Hz)	183

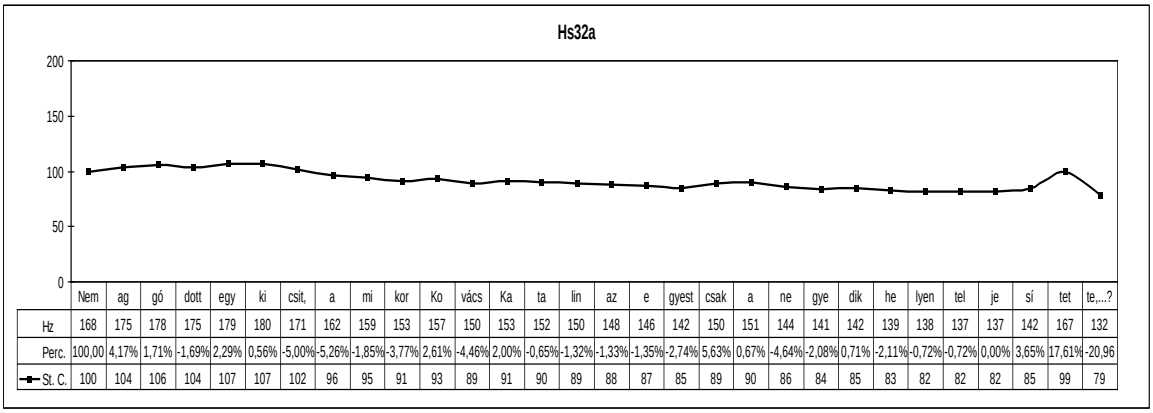
| Kicsit 'keményebbnek kellene lennie Vécsi Viktor edzőnek?|
a-bit-acc tougher-dat should-3sg be Vécsi Viktor coach-dat
‘Should Viktor Vécsi, the coach, be a bit tougher?’



	Ki	csit	ke	mé	nyebb	nek	kel	le	ne	len	ni	e	Vé	csi	Vik	tor	ed	ző	nek?
Hz	137	146	124	123	132	136	125	126	128	121	123	122	123	120	111	123	116	143	100
Perc.	100,00%	6,57%	-15,07%	-0,81%	7,32%	3,03%	-8,09%	0,80%	1,59%	-5,47%	1,65%	-0,81%	0,82%	-2,44%	-7,50%	10,81%	-5,69%	23,28%	-30,07%
St. C.	100	107	91	90	96	99	91	92	93	88	90	89	90	88	81	90	85	104	73

Code, gender, source	Hs29, male, F
Pattern	HP7b
Pitch range	47
Average Pitch (Hz)	125

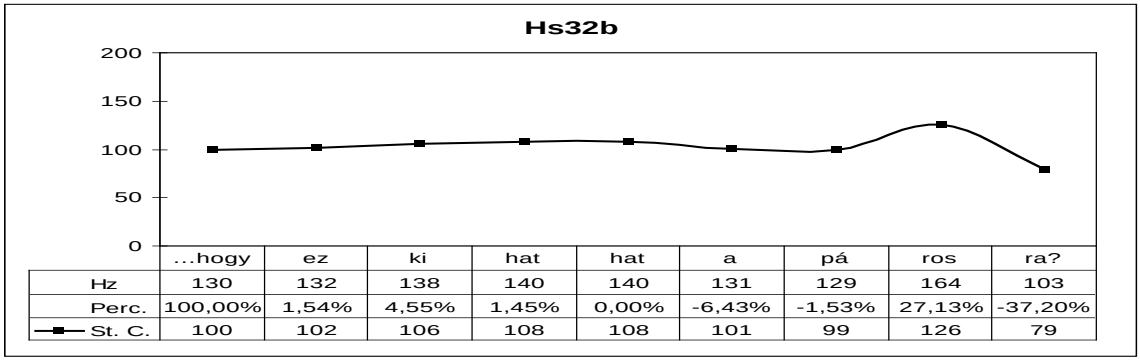
| 'Nem aggódott egy kicsit, amikor Kovács Katalin az egyest csak a 'negyedik helyen teljesítette,|...
not worried-3sg a little-acc when Kovács Katalin the singles-acc only the fourth place-in fulfilled-3sg
‘Weren’t you worried when Katalin Kovács had only a fourth place in the singles,…?’



	Nem	ag	gó	dott	egy	ki	csit,	a	mi	kor	Ko	vács	Ka	ta	lin	az	e	gyest	csak	a	ne	gye	dik	he	lyen	tel	je	sí	tet	te,...?
Hz	168	175	178	175	179	180	171	162	159	153	157	150	153	152	150	148	146	142	150	151	144	141	142	139	138	137	137	142	167	132
Perc.	100,00	4,17%	1,71%	-1,69%	2,29%	0,56%	-5,00%	-5,26%	-1,85%	-3,77%	2,61%	-4,46%	2,00%	-0,65%	-1,32%	-1,33%	-1,35%	-2,74%	5,63%	0,67%	-4,64%	-2,08%	0,71%	-2,11%	-0,72%	-0,72%	0,00%	3,65%	17,61%	-20,96
St. C.	100	104	106	104	107	107	102	96	95	91	93	89	91	90	89	88	87	85	89	90	86	84	85	83	82	82	82	85	99	79

Code, gender, source	Hs32a, male, F
Pattern	HP7b (preceded by a descending Body)
Pitch range	36
Average Pitch (Hz)	153

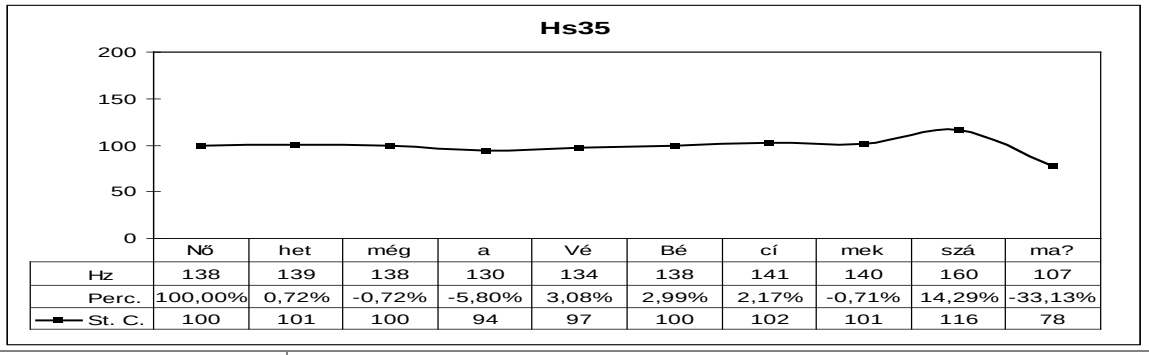
…| hogy ez kihathat a 'párosra?|
that-compl this affect-can-3sg the doubles-to
'…that it might affect the doubles?'



	...hogy	ez	ki	hat	hat	a	pá	ros	ra?
Hz	130	132	138	140	140	131	129	164	103
Perc.	100,00%	1,54%	4,55%	1,45%	0,00%	-6,43%	-1,53%	27,13%	-37,20%
St. C.	100	102	106	108	108	101	99	126	79

Code, gender, source	Hs32b, male, F
Pattern	HP7 (preceded by a descending Body)
Pitch range	47
Average Pitch (Hz)	134

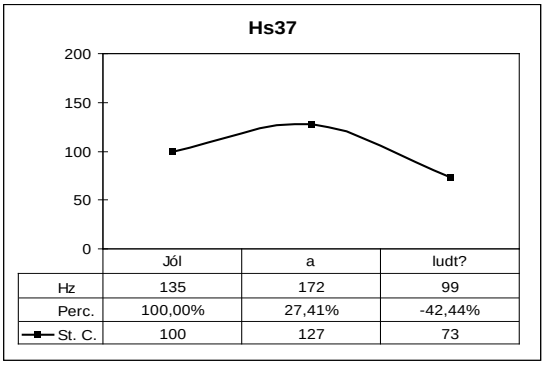
| 'Nőhet még a vb-címek száma?|
grow-can-3sg yet the World-Championship-medals number
'Can the number of World Championship medals grow?'



	Nő	het	még	a	Vé	Bé	cí	mek	szá	ma?
Hz	138	139	138	130	134	138	141	140	160	107
Perc.	100,00%	0,72%	-0,72%	-5,80%	3,08%	2,99%	2,17%	-0,71%	14,29%	-33,13%
St. C.	100	101	100	94	97	100	102	101	116	78

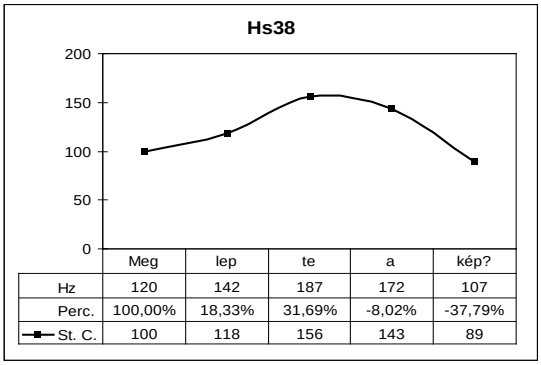
Code, gender, source	Hs35, male, F
Pattern	HP7b
Pitch range	49
Average Pitch (Hz)	137

| 'Jól aludt?|
well slept-3sg
'Did you sleep well?'



	Jól	a	ludt?
Hz	135	172	99
Perc.	100,00%	27,41%	-42,44%
St. C.	100	127	73

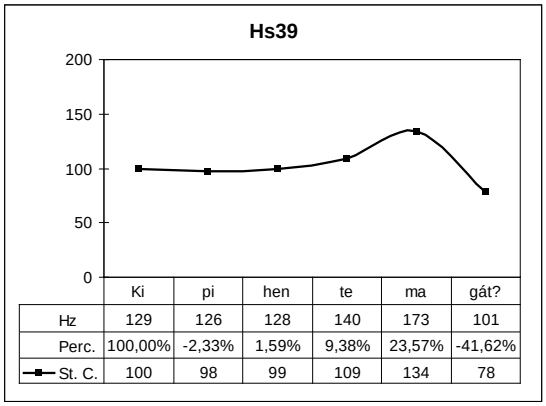
| 'Meglepte a kép?|
surprised-3sg the picture
'Were you surprised by the image?'



	Meg	lep	te	a	kép?
Hz	120	142	187	172	107
Perc.	100,00%	18,33%	31,69%	-8,02%	-37,79%
St. C.	100	118	156	143	89

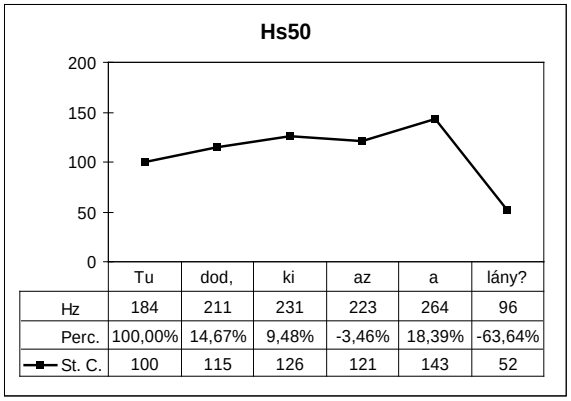
Code, gender, source	Hs37, male, F	Hs38, male, F
Pattern	HP7b	Anomalous HP7a (Peak shifted to the left)
Pitch range	74	76
Average Pitch (Hz)	135	146

| 'Kipihente magát?|
rested-3sg himself/herself-acc
‘Did you have a good rest?’



	Ki	pi	hen	te	ma	gát?
Hz	129	126	128	140	173	101
Perc.	100,00%	-2,33%	1,59%	9,38%	23,57%	-41,62%
St. C.	100	98	99	109	134	78

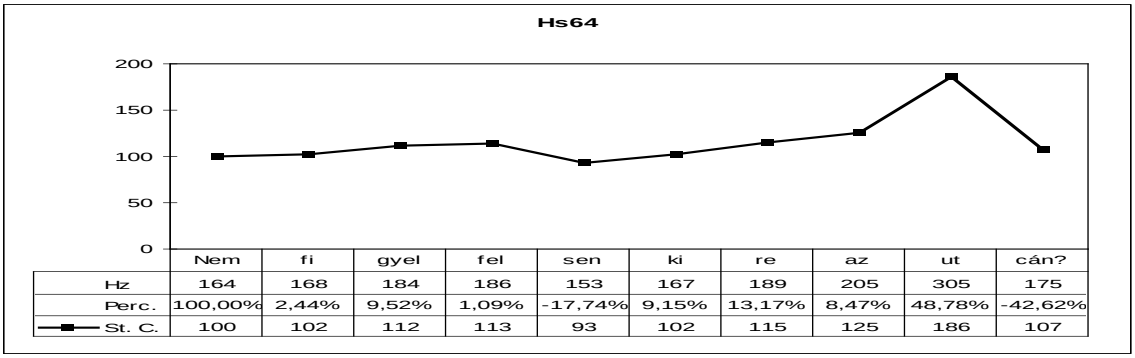
| 'Tudod, ki az a lány?|
know-2sg who that the girl
‘Do you know who that girl is?’



	Tu	dod,	ki	az	a	lány?
Hz	184	211	231	223	264	96
Perc.	100,00%	14,67%	9,48%	-3,46%	18,39%	-63,64%
St. C.	100	115	126	121	143	52

Code, gender, source	Hs39, male, F	Hs50, male, B
Pattern	HP7b	hybrid of HP7a and HP7b
Pitch range	72	175
Average Pitch (Hz)	133	202

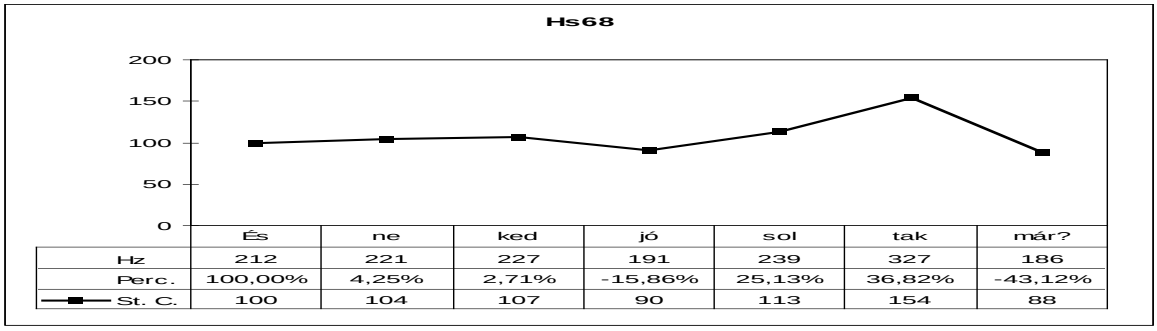
| 'Nem figyel fel 'senkire az utcán?|
not pay-attention-3sg nobody-to the street-in
‘You don’t pay attention to anyone in the street?’



	Nem	fi	gyel	fel	sen	ki	re	az	ut	cán?
Hz	164	168	184	186	153	167	189	205	305	175
Perc.	100,00%	2,44%	9,52%	1,09%	-17,74%	9,15%	13,17%	8,47%	48,78%	-42,62%
St. C.	100	102	112	113	93	102	115	125	186	107

Code, gender, source	Hs64, female, E
Pattern	HP7a (preceded by a descending Body)
Pitch range	100
Average Pitch (Hz)	190

| És neked 'jósoltak már?|
and you-dat told-the-fortune-3pl already
‘And have you been told the future already?’



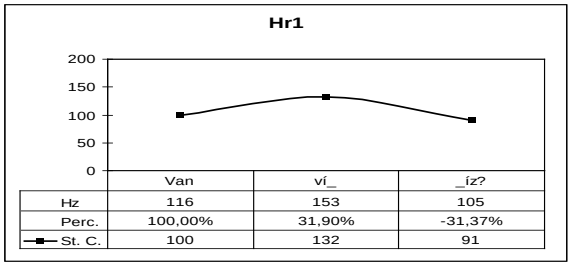
	És	ne	ked	jó	sol	tak	már?
Hz	212	221	227	191	239	327	186
Perc.	100,00%	4,25%	2,71%	-15,86%	25,13%	36,82%	-43,12%
St. C.	100	104	107	90	113	154	88

Code, gender, source	Hs68, female, D
Pattern	HP7a
Pitch range	75
Average Pitch (Hz)	229

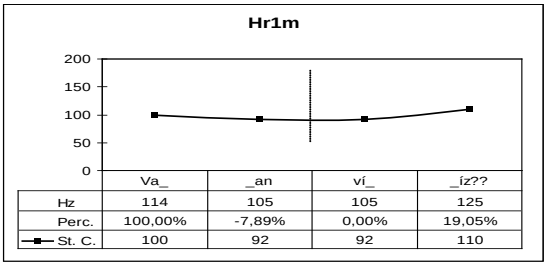
2. Marked yes-no questions

a. Incredulous-repetitive echo yes-no questions (in case of read sentences, ordinary yes-no questions are shown together with their incredulous-repetitive echo counterparts)

| 'Van víz?|
is water
'Is there any water?'

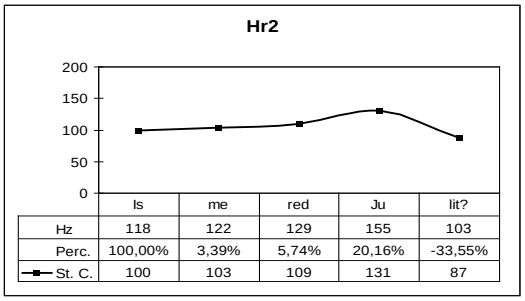


| 'Van | 'víz??|
is water
'Is there really some water?'

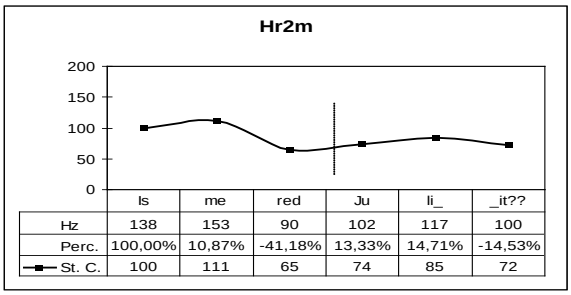


Code, gender, source	Hr1, male, G	Hr1m, male, G
Pattern	HP7	repeated HP7
Pitch range	45	20
Average Pitch (Hz)	125	112

| 'Ismered Julit?|
know-sg2 Juli-acc
'Do you know Julia?'

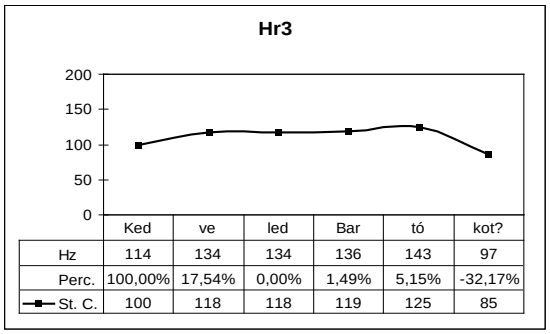


| 'Ismered | 'Julit??|
know-sg2 Juli-acc
'Do you really know Julia??'

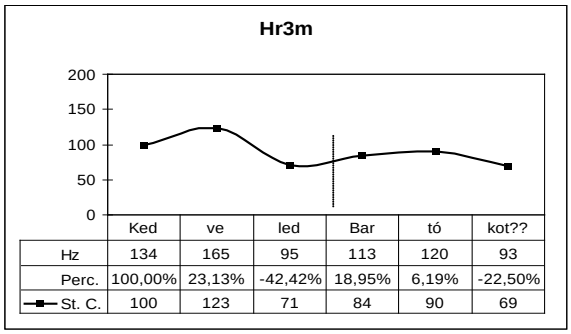


Code, gender, source	Hr2, male, G	Hr2m, male, G
Pattern	HP7b	Repeated HP7
Pitch range	55	54
Average Pitch (Hz)	125	117

| 'Kedveled Bartókot?|
like-2sg Bartók-acc
'Do you like Bartók?'

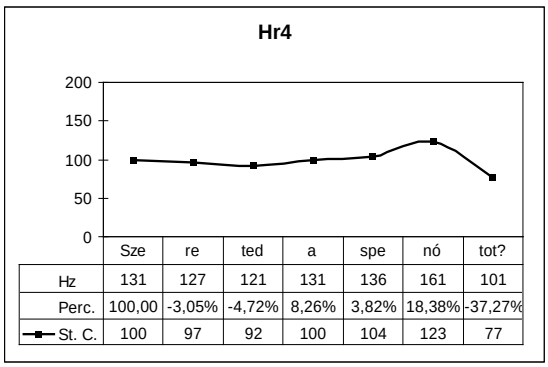


| 'Kedveled | 'Bartókot??|
like-2sg Bartók-acc
'Do you really like Bartók??'



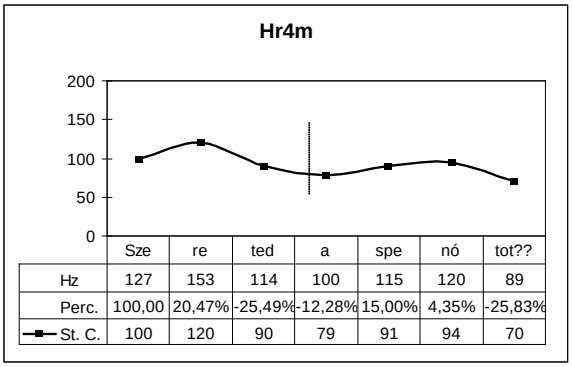
Code, gender, source	Hr3, male, G	Hr3m, male, G
Pattern	HP7c	Repeated HP7
Pitch range	47	78
Average Pitch (Hz)	126	120

| 'Szereted a spenótot?|
like-2sg the spinach-acc
‘Do you like spinach?’



	Sze	re	ted	a	spe	nó	tot?
Hz	131	127	121	131	136	161	101
Perc.	100,00	-3,05%	-4,72%	8,26%	3,82%	18,38%	-37,27%
St. C.	100	97	92	100	104	123	77

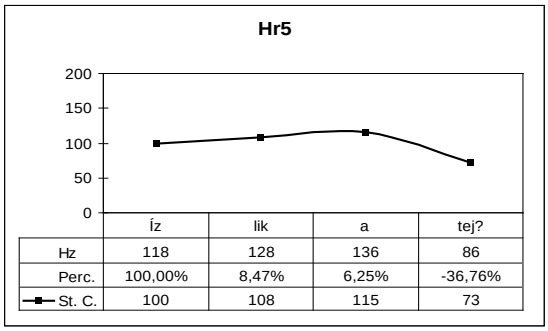
| 'Szereted | a 'spenótot??|
like-2sg the spinach-acc
‘Do you really like spinach?’



	Sze	re	ted	a	spe	nó	tot??
Hz	127	153	114	100	115	120	89
Perc.	100,00	20,47%	-25,49%	-12,28%	15,00%	4,35%	-25,83%
St. C.	100	120	90	79	91	94	70

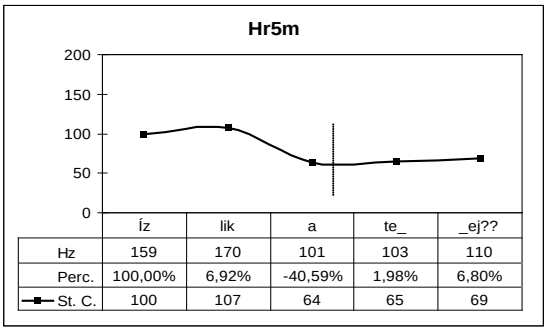
Code, gender, source	Hr4, male, G	Hr4m, male, G
Pattern	HP7b	HP7 + HP7a
Pitch range	60	71
Average Pitch (Hz)	113	117

| 'Ízlik a tej?|
taste-3sg the milk
‘Does the milk taste good?’



	Íz	lik	a	tej?
Hz	118	128	136	86
Perc.	100,00%	8,47%	6,25%	-36,76%
St. C.	100	108	115	73

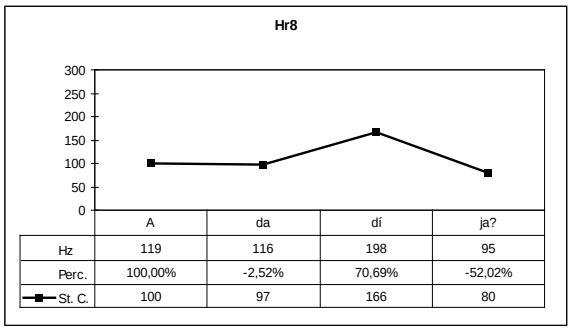
| 'Ízlik a | 'tej??|
taste-3sg the milk
‘Does the milk really taste good??’



	Íz	lik	a	te_	_ej??
Hz	159	170	101	103	110
Perc.	100,00%	6,92%	-40,59%	1,98%	6,80%
St. C.	100	107	64	65	69

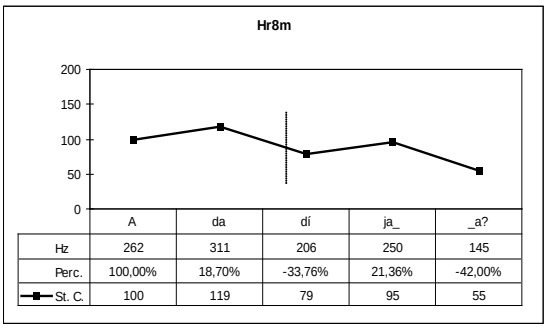
Code, gender, source	Hr5, male, G	Hr5m, male, G
Pattern	HP7a	Repeated HP7
Pitch range	58	67
Average Pitch (Hz)	117	128

| 'Ada díja?|
Ada (fem. name) prize-his/her
‘Ada’s prize?’



	A	da	dí	ja?
Hz	119	116	198	95
Perc.	100,00%	-2,52%	70,69%	-52,02%
St. C.	100	97	166	80

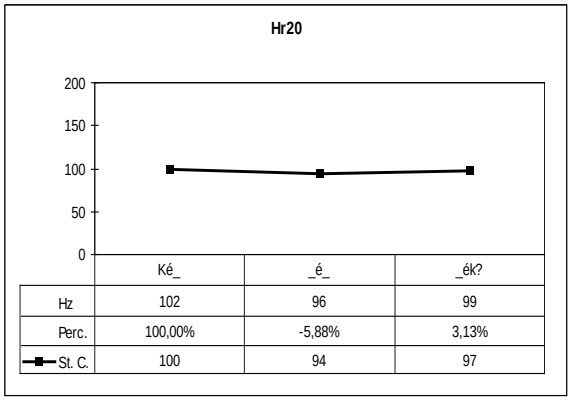
| 'Ada | 'díja??|
Ada (fem. name) prize-his/her
‘Ada’s prize??’



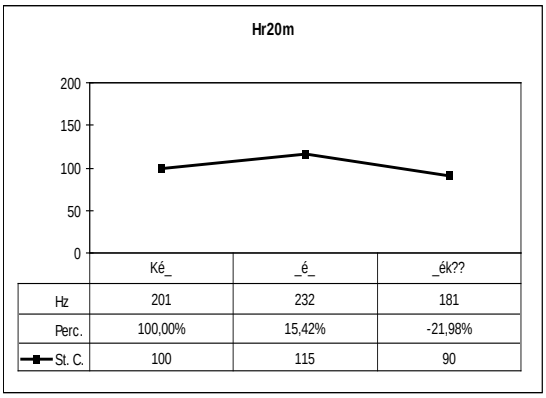
	A	da	dí	ja_	_a?
Hz	262	311	206	250	145
Perc.	100,00%	18,70%	-33,76%	21,36%	-42,00%
St. C.	100	119	79	95	55

Code, gender, source	Hr8, male, G	Hr8m, female, G
Pattern	HP7b	Repeated HP7
Pitch range	108	116
Average Pitch (Hz)	132	235

| 'Kék?|
‘Blue?’

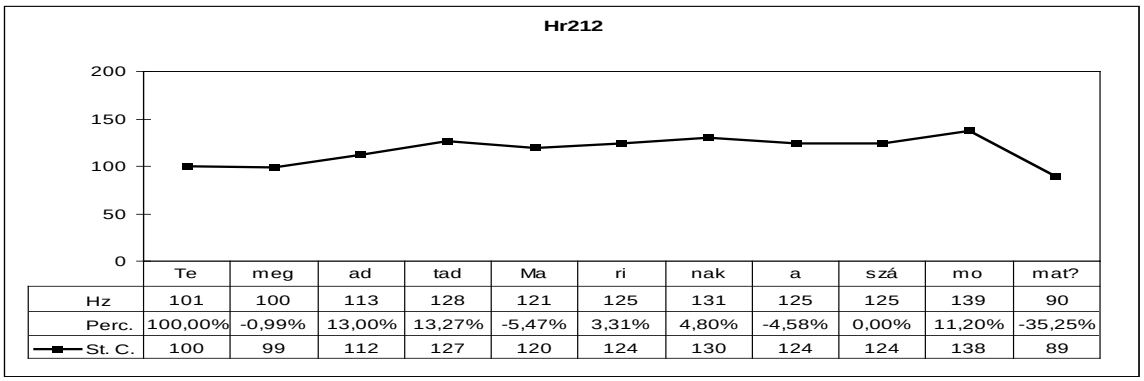


| 'Kék??|
‘Blue??’



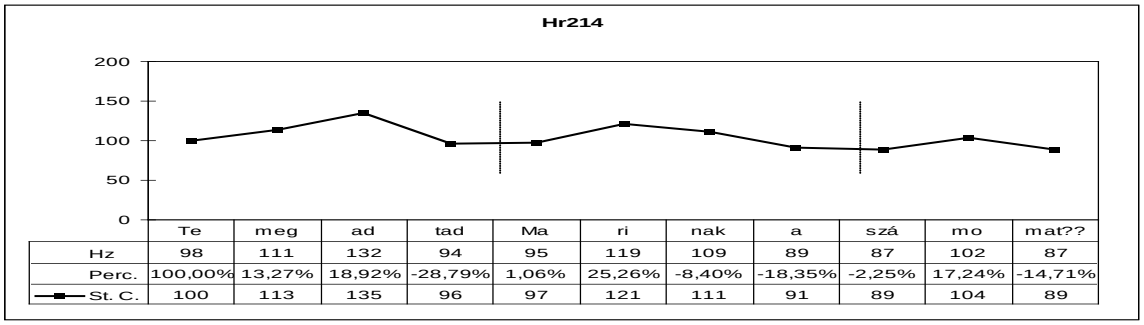
Code, gender, source	Hr20, male, G	Hr20m, male, G
Pattern	HP7	HP7
Pitch range	6	28
Average Pitch (Hz)	99	204

| Te 'megadtad Marinak a számomat?|
you-sg gave-2sg Mary-to the number-my-acc
‘Have you given my number to Mary?’



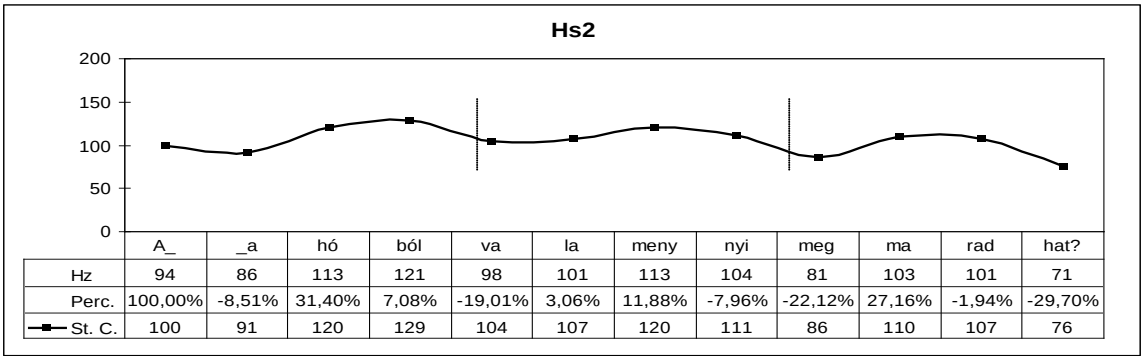
Code, gender, source	Hr212, male, G
Pattern	Hybrid of HP7a + HP7b
Pich variation	55
Average Pitch (Hz)	118

| Te 'megadtad | 'Marinak a | 'számomat???|
you-sg gave-2sg Mary-to the number-my-acc
‘Have you given my number to Mary?’ (Am I right in assuming this?)



Code, gender, source	Hr214, male, G
Pattern	HP7a + HP7a + HP7 (the second pattern is anomalous: peak shifted to the left)
Pich variation	52
Average Pitch (Hz)	102

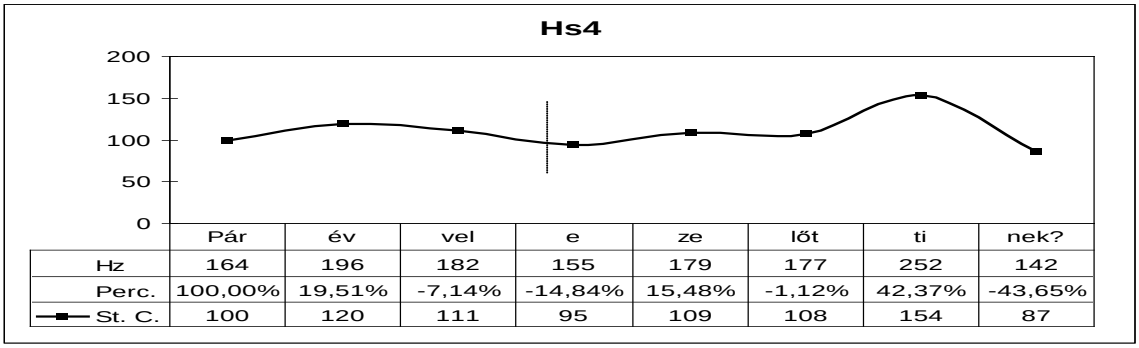
|A 'hóból | 'valamennyi | 'megmaradhat?|
the snow-from some can-remain-3sg
'Can some of the snow remain?'



	A_	_a	hó	ból	va	la	meny	nyi	meg	ma	rad	hat?
Hz	94	86	113	121	98	101	113	104	81	103	101	71
Perc.	100,00%	-8,51%	31,40%	7,08%	-19,01%	3,06%	11,88%	-7,96%	-22,12%	27,16%	-1,94%	-29,70%
St. C.	100	91	120	129	104	107	120	111	86	110	107	76

Code, gender, source	Hs2, male, F
Pattern	HP7 + HP7b + HP7c (the third pattern is anomalous: peak shifted to the left)
Pitch range	70
Average Pitch (Hz)	99

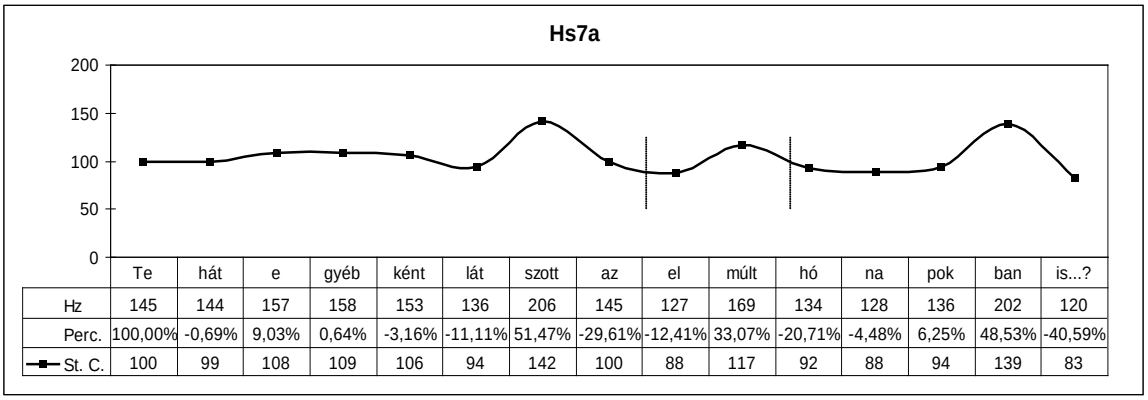
| 'Pár évvel | 'ezelőttinek?|
some years-with this-before-to-of
'To one a few years ago?'



	Pár	év	vel	e	ze	lőt	ti	nek?
Hz	164	196	182	155	179	177	252	142
Perc.	100,00%	19,51%	-7,14%	-14,84%	15,48%	-1,12%	42,37%	-43,65%
St. C.	100	120	111	95	109	108	154	87

Code, gender, source	Hs4, female, F
Pattern	HP7 + HP7b
Pitch range	77
Average Pitch (Hz)	180

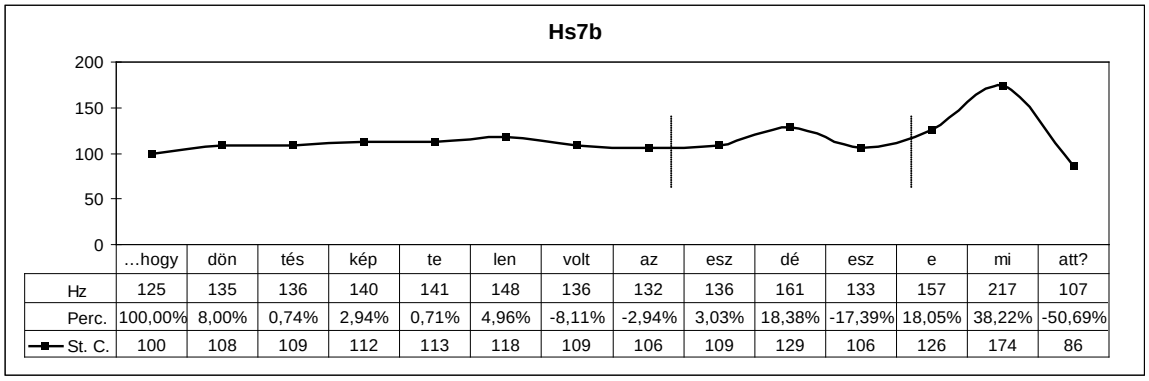
| Tehát egyébként 'látszott az | 'elmúlt | 'hónapokban is|…
so by-the-way seemed-3sg the past months-in too
'So it was seen in the previous months as well…?'



	Te	hát	e	gyéb	ként	lát	szott	az	el	múlt	hó	na	pok	ban	is...?
Hz	145	144	157	158	153	136	206	145	127	169	134	128	136	202	120
Perc.	100,00%	-0,69%	9,03%	0,64%	-3,16%	-11,11%	51,47%	-29,61%	-12,41%	33,07%	-20,71%	-4,48%	6,25%	48,53%	-40,59%
St. C.	100	99	108	109	106	94	142	100	88	117	92	88	94	139	83

Code, gender, source	Hs7a, male, F
Pattern	HP7b + HP7 + HP7b
Pitch range	67
Average Pitch (Hz)	151

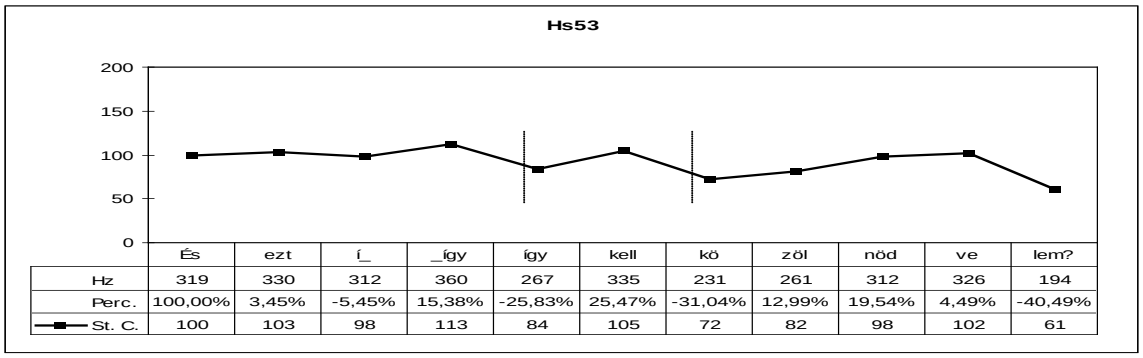
…| hogy 'döntésképtelen volt | az 'EszDéEsz | 'emiatt?
That-compl unable-to-decide was-3sg the SzDSz this-because-of
'… that the SzDSz was unable to decide because of that?', where SzDSz = Association of Free Democrats



	...hogy	dön	tés	kép	te	len	volt	az	esz	dé	esz	e	mi	att?
Hz	125	135	136	140	141	148	136	132	136	161	133	157	217	107
Perc.	100,00%	8,00%	0,74%	2,94%	0,71%	4,96%	-8,11%	-2,94%	3,03%	18,38%	-17,39%	18,05%	38,22%	-50,69%
St. C.	100	108	109	112	113	118	109	106	109	129	106	126	174	86

Code, gender, source	Hs7b, male, F
Pattern	Repeated HP7b, with the last one having the largest range
Pitch range	102
Average Pitch (Hz)	143

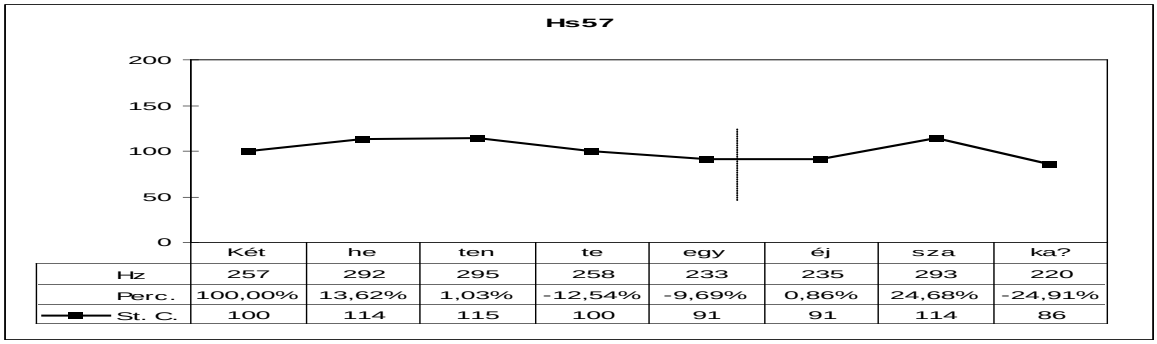
| És ezt 'így | 'így kell | 'közölnöd velem??|
and this-acc so so must communicate-2sg me-with
'And is this the way you have to tell me this?'



	És	ezt	í_	_így	így	kell	kö	zöl	nöd	ve	lem?
Hz	319	330	312	360	267	335	231	261	312	326	194
Perc.	100,00%	3,45%	-5,45%	15,38%	-25,83%	25,47%	-31,04%	12,99%	19,54%	4,49%	-40,49%
St. C.	100	103	98	113	84	105	72	82	98	102	61

Code, gender, source	Hs53, female, A
Pattern	HP7 + HP7 + HP7a
Pitch range	85
Average Pitch (Hz)	295

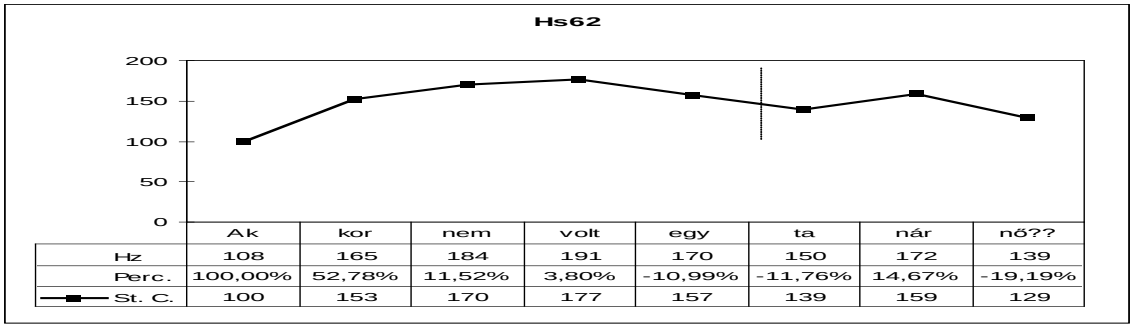
| 'Kéthetente | egy 'éjszaka??|
two-weekly one night
'A night every two weeks??'



	Két	he	ten	te	egy	éj	sza	ka?
Hz	257	292	295	258	233	235	293	220
Perc.	100,00%	13,62%	1,03%	-12,54%	-9,69%	0,86%	24,68%	-24,91%
St. C.	100	114	115	100	91	91	114	86

Code, gender, source	Hs57, female,C
Pattern	Hp7a + HP7b
Pitch range	34
Average Pitch (Hz)	260

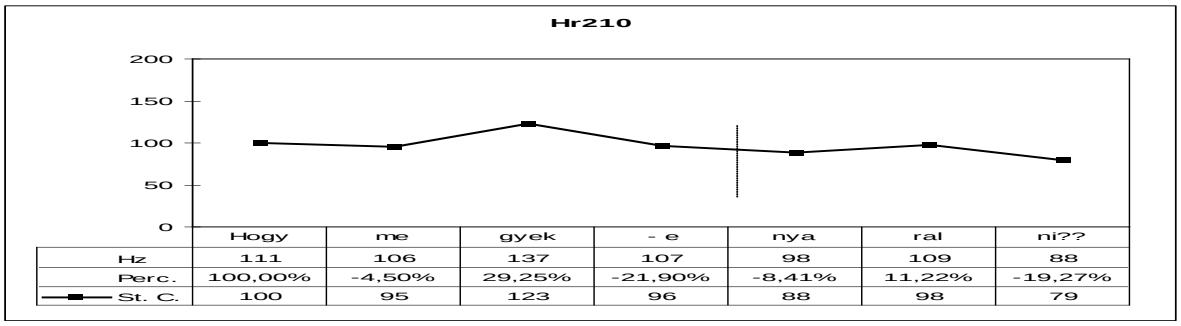
| Akkor 'nem volt egy | 'tanárnő??|
then not was-3sg a teacher-fem
Then was there no female teacher??



Code, gender, source	Hs62, female, E
Pattern	Hp7a + HP7
Pitch range	77
Average Pitch (Hz)	160

b. Clarifying-exclamative echo yes-no questions

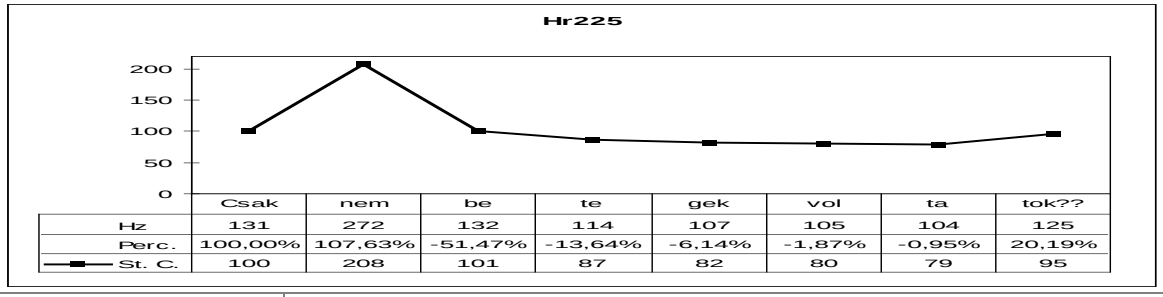
| Hogy 'megyek-e | 'nyaralni?|
that-compl go-1sg-whether have-a-holiday
'Am I going on holiday?' (Is that what you're asking?)



Code, gender, source	Hr210, male, G
Pattern	Repeated HP7
Pitch range	56
Average Pitch (Hz)	108

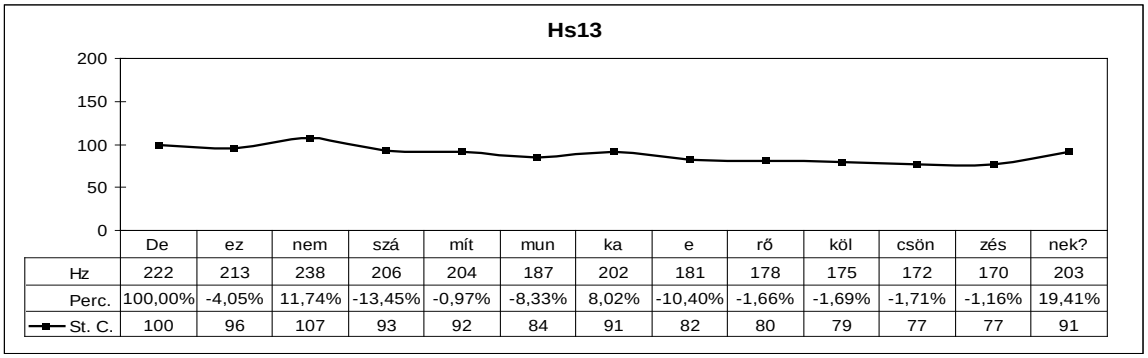
c. Yes-no questions with a grammatical particle or special grammatical structure (bold type in the transcription and the glosses)

| **Csak 'nem** betegek voltatok?|
just not ill-pl were-2pl
'You weren't ill, I hope?'



Code, gender, source	Hr225, male, G
Pattern	HP3a
Pitch range	163
Average Pitch (Hz)	136

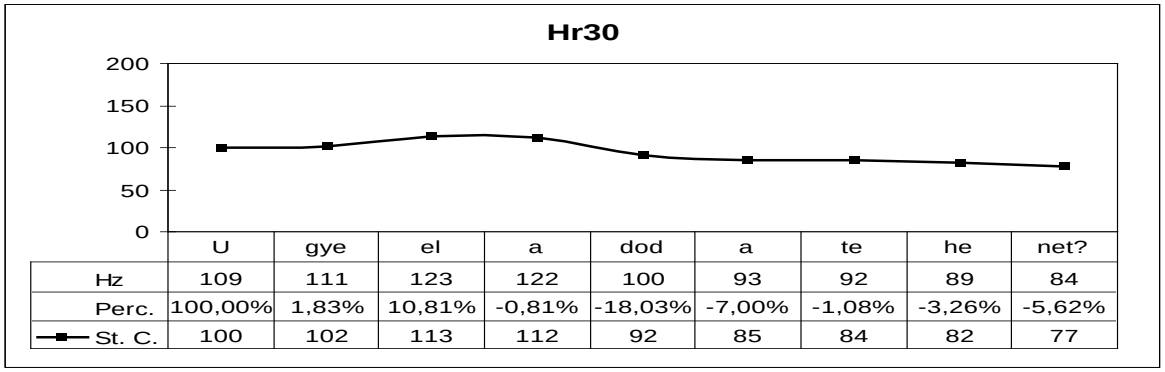
| **De** ez '**nem** számít munkaerő kölcsönzésnek?|
but this **not** count-3sg work-power borrowing-dat
'But is this not considered to be labour-borrowing?'



	De	ez	nem	szá	mít	mun	ka	e	rő	köl	csön	zés	nek?
Hz	222	213	238	206	204	187	202	181	178	175	172	170	203
Perc.	100,00%	-4,05%	11,74%	-13,45%	-0,97%	-8,33%	8,02%	-10,40%	-1,66%	-1,69%	-1,71%	-1,16%	19,41%
St. C.	100	96	107	93	92	84	91	82	80	79	77	77	91

Code, gender, source	Hs13, female, F
Pattern	HP3a
Pitch range	39
Average Pitch (Hz)	196

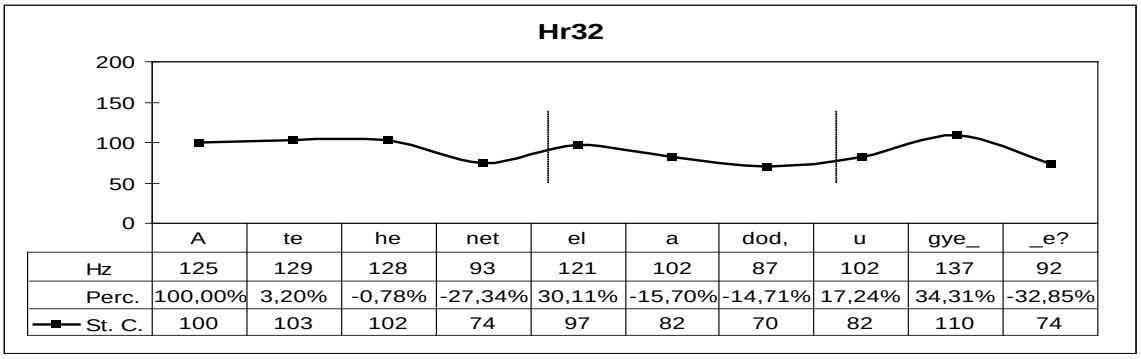
| **Ugye** 'eladod a tehenet?|
am-I-right sell-2sg the cow-acc
'You will sell the cow, won't you?'



	U	gye	el	a	dod	a	te	he	net?
Hz	109	111	123	122	100	93	92	89	84
Perc.	100,00%	1,83%	10,81%	-0,81%	-18,03%	-7,00%	-1,08%	-3,26%	-5,62%
St. C.	100	102	113	112	92	85	84	82	77

Code, gender, source	Hr30, male, G
Pattern	HP1 (anomalous, because the big drop is between the 2nd and the 3rd syllables)
Pitch range	47
Average Pitch (Hz)	103

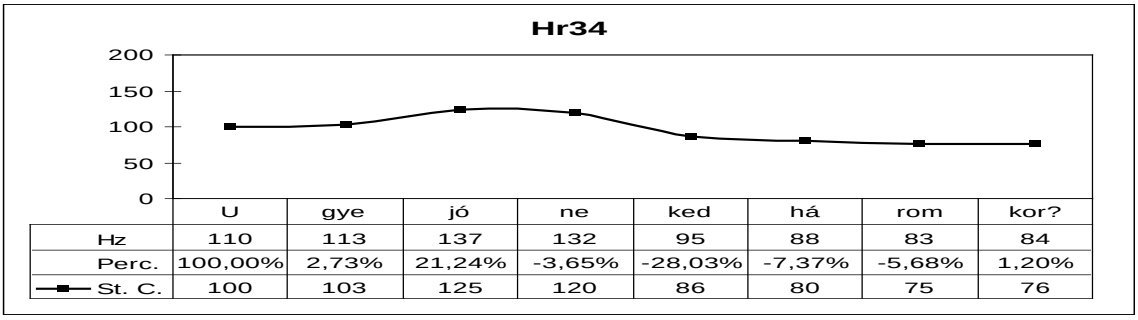
| A 'tehenet | 'eladod, | '**ugye**?|
the cow-acc sell-2sg **am-I-right**
'You will sell the cow, won't you?'



	A	te	he	net	el	a	dod,	u	gye_	_e?
Hz	125	129	128	93	121	102	87	102	137	92
Perc.	100,00%	3,20%	-0,78%	-27,34%	30,11%	-15,70%	-14,71%	17,24%	34,31%	-32,85%
St. C.	100	103	102	74	97	82	70	82	110	74

Code, gender, source	Hr32, male, G
Pattern	HP9 + flattened HP1 + HP7b
Pitch range	(in the third pattern) 49
Average Pitch (Hz)	(in the third pattern) 110

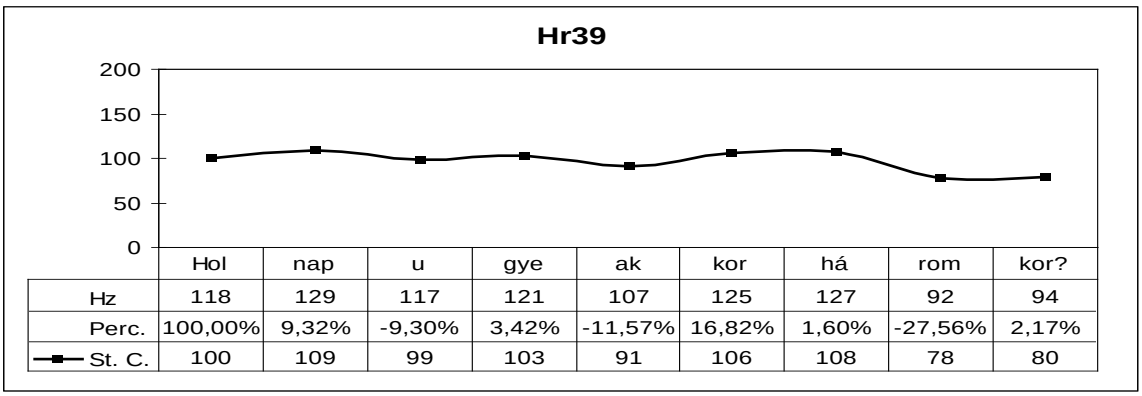
| **Ugye** 'jó neked háromkor?|
am-I-right good you-2sg-dat three-at
'It is convenient for you at three o'clock, isn't it?'



	U	gye	jó	ne	ked	há	rom	kor?
Hz	110	113	137	132	95	88	83	84
Perc.	100,00%	2,73%	21,24%	-3,65%	-28,03%	-7,37%	-5,68%	1,20%
St. C.	100	103	125	120	86	80	75	76

Code, gender, source	Hr34, male, G
Pattern	HP1 (anomalous, as the big drop is between the 2nd and the 3rd syllables)
Pitch range	67
Average Pitch (Hz)	105

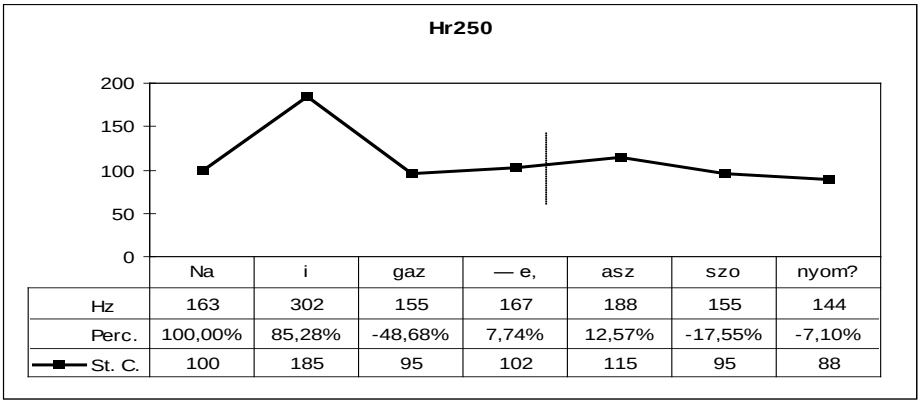
| Holnap **ugye** akkor 'háromkor?|
tomorrow **am-I-right** then three-at
'Tomorrow at three o'clock then, isn't it?|



	Hol	nap	u	gye	ak	kor	há	rom	kor?
Hz	118	129	117	121	107	125	127	92	94
Perc.	100,00%	9,32%	-9,30%	3,42%	-11,57%	16,82%	1,60%	-27,56%	2,17%
St. C.	100	109	99	103	91	106	108	78	80

Code, gender, source	Hr39, male, G
Pattern	HP1
Pitch range	36
Average Pitch (Hz)	114

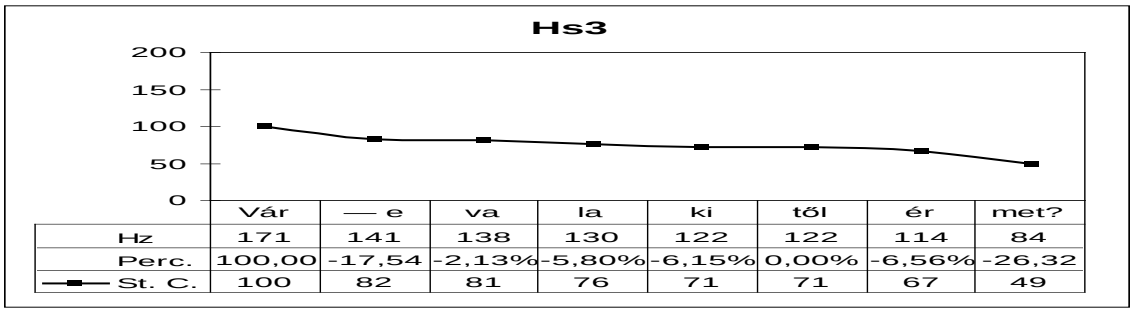
|Na 'igaz-**e**, | 'asszonyom?|
so true-**whether** madam-my
'Now, is that true, Madam?'



	Na	i	gaz	— e,	asz	szo	nyom?
Hz	163	302	155	167	188	155	144
Perc.	100,00%	85,28%	-48,68%	7,74%	12,57%	-17,55%	-7,10%
St. C.	100	185	95	102	115	95	88

Code, gender, source	Hr250, female
Pattern	HP3 + HP1
Pitch range	95(in the first pattern)
Average Pitch (Hz)	197 (in the first pattern)

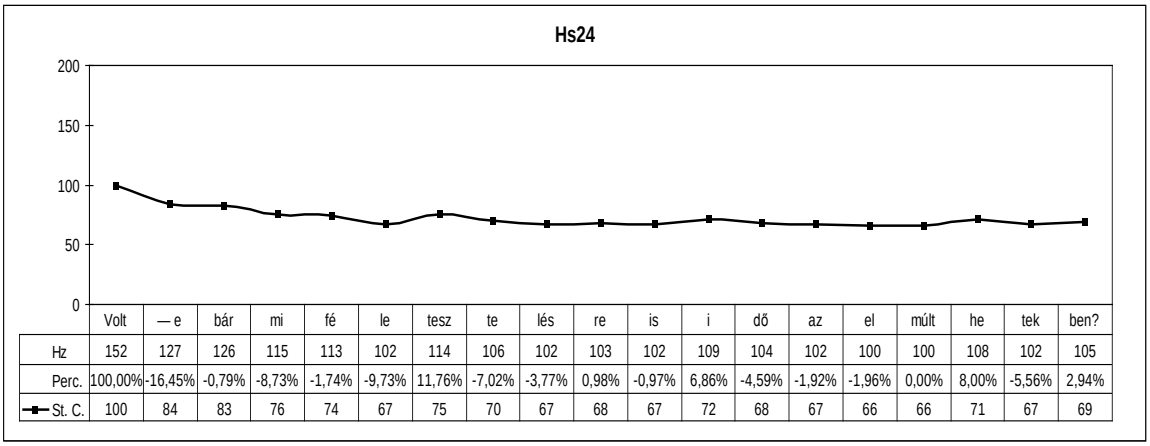
| 'Vár-**e** valakitől 'érmet?|
expect-3sg-**whether** somebody-from medal-acc
'Do you expect any medals from anyone?'



	Vár	— e	va	la	ki	től	ér	met?
Hz	171	141	138	130	122	122	114	84
Perc.	100,00	-17,54	-2,13%	-5,80%	-6,15%	0,00%	-6,56%	-26,32
St. C.	100	82	81	76	71	71	67	49

Code, gender, source	Hs3, male, F
Pattern	HP1 (preceded by a descendent Body)
Pitch range	104
Average Pitch (Hz)	128

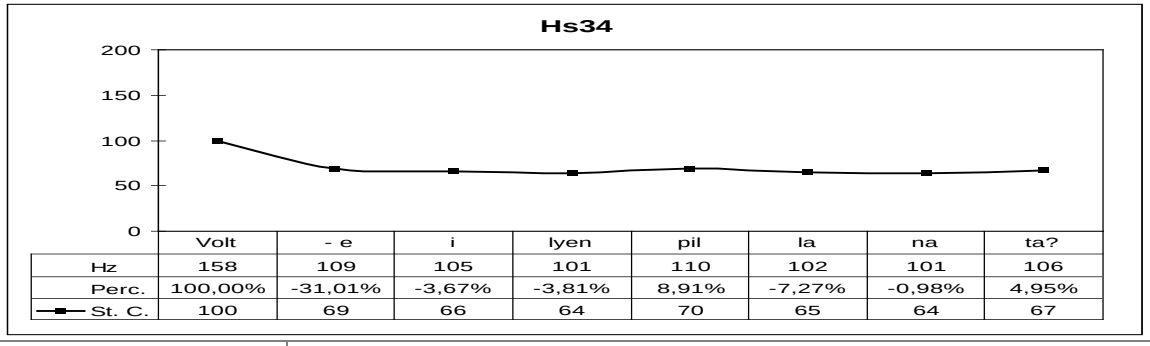
| 'Volt-**e** bármiféle 'tesztelésre is idő az elmúlt hetekben?|
was-3sg-**whether** any-kind-of testing too time the past weeks-in
'Did you have time for any sort of testing in the last few weeks?'



	Volt	— e	bár	mi	fé	le	tesz	te	lés	re	is	i	dő	az	el	múlt	he	tek	ben?
Hz	152	127	126	115	113	102	114	106	102	103	102	109	104	102	100	100	108	102	105
Perc.	100,00%	-16,45%	-0,79%	-8,73%	-1,74%	-9,73%	11,76%	-7,02%	-3,77%	0,98%	-0,97%	6,86%	-4,59%	-1,92%	-1,96%	0,00%	8,00%	-5,56%	2,94%
St. C.	100	84	83	76	74	67	75	70	67	68	67	72	68	67	66	66	71	67	69

Code, gender, source	Hs24, male, F
Pattern	HP1 (preceded by a half-falling Body)
Pitch range	52
Average Pitch (Hz)	110

| 'Volt-**e** ilyen pillanata?|
was-3sg-**whether** such moment-its
'Did it have such a moment?'

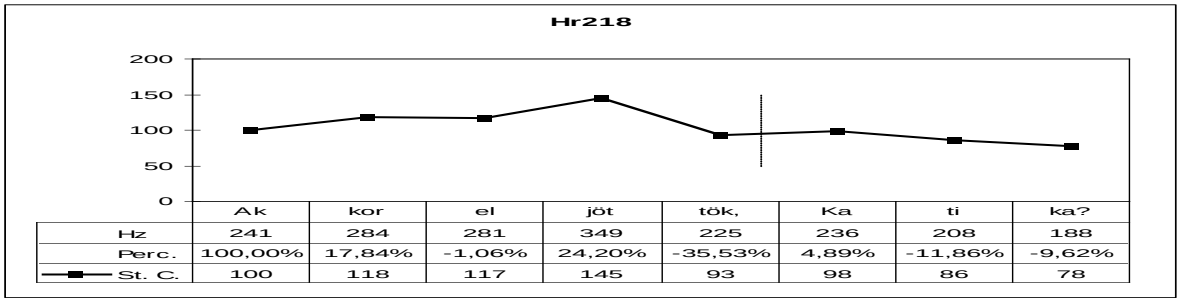


	Volt	- e	i	lyen	pil	la	na	ta?
Hz	158	109	105	101	110	102	101	106
Perc.	100,00%	-31,01%	-3,67%	-3,81%	8,91%	-7,27%	-0,98%	4,95%
St. C.	100	69	66	64	70	65	64	67

Code, gender, source	Hs34, male, F
Pattern	HP1
Pitch range	56
Average Pitch (Hz)	112

3. Yes-no question + vocative sequences

| Akkor 'eljöttök, | 'Katika?|
then come-2pl Kate-diminutive
‘Then will you come, Katie?’



Code, gender, source	Hr218, female, G
Pattern	HP7 + HP1
Pitch range	(in the first pattern) 56
Average Pitch (Hz)	(in the first pattern) 276

APPENDIX 3

Corpus 3: Spanish sentences by Hungarian learners of Spanish

Corpus 3 contains Spanish sentences produced by 30 Hungarian learners of Spanish (who have been learning Spanish for one year). It consists of two parts: in Corpus 3A the sentences are read, in Corpus 3B, they are semi-spontaneous.

The symbols, abbreviations and graphics are the same as for Appendix 1-2. The average pitch height is not measured, as the students, because of their age, have higher average pitch height in this corpus anyway than the informants of the previous corpora.

Corpus 3A: Spanish sentences read by Hungarian learners of Spanish

This corpus was provided by sentences from a dialogue in a Spanish coursebook, *Gente 1* (Baulenas et al., 2004, Unit 17/2.). The short text could be read once before reading it out loud, so the students supposedly knew what they were saying.

The text contained 5 yes-no questions, of which only the 4 non-monosyllabic ones were analysed. Here I reproduce the text, with the analysed yes-no questions in boxes:

TITLE: -¿Hacen deporte los españoles$_a$? 'Do the Spanish do sports?'

SPEAKER A: -¿Usted, señora, hace deporte$_b$? 'You (formal), madam, do you do any sport?'
SPEAKER B: -Sí, sí. Hago natación. Media hora cada día. 'Yes, yes. I swim. Half an hour every day.'
SPEAKER A: -¿Cada día$_c$? 'Every day?'
SPEAKER B: -Sí, sí. Y algunos días dos veces: mañana y tarde. 'Yes, yes. And sometimes twice: in the morning and in the afternoon.'
SPEAKER A: -¿Y usted también, caballero?$_d$ 'And you sir, too?'
SPEAKER C: -Yo, también. Pero sólo los fines de semana, ¿eh?. Todos los fines de semana salgo en bici, con los amigos. Hacemos un promedio de 35 ó 40 kilómetros. 'Me too. But only at weekends, you know. Every weekend I ride a bike with my friends. We do an average of 30 or 40 kilometres.'
SPEAKER A: -¿Y entre semana? ¿Algo más? 'And at weekdays? Something else?'
SPEAKER C: -No, la verdad es que no tengo tiempo. 'No, to tell the truth I don't have time.'

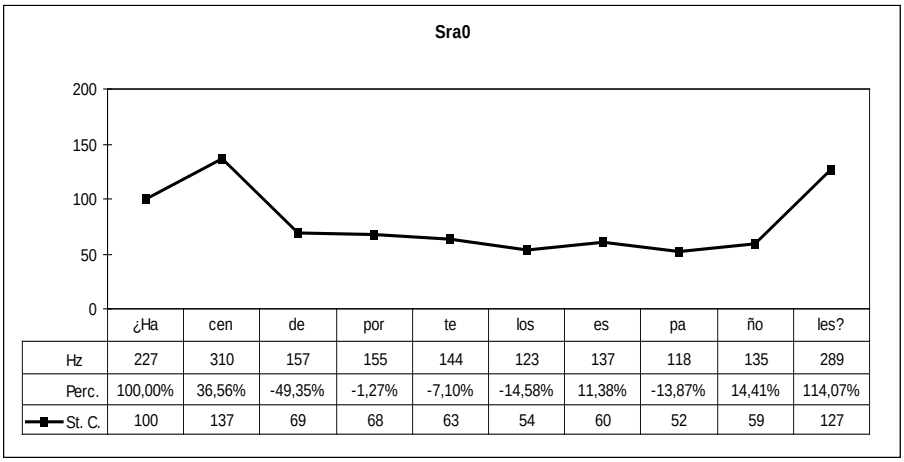
The analysed sentences fell into the following categories:
-utterances "a" and "b" are ordinary yes-no interrogatives, with ordinary yes-no question intonation (SP2).
-utterance "c" is an incredulous-repetitive yes-no question, with SP9;

-utterance “d” is a yes-no question + vocative sequence, with two SP1 patterns, a rising FI in both parts.

The original sentences read by Spanish speakers, from Gente 1 (Unit 17 / 2).

Explanation of the codes:
Sr: Spanish read;
a,b,c,d: Sentence a,b,c,d;
0: original sentences, read by a Spanish speaker

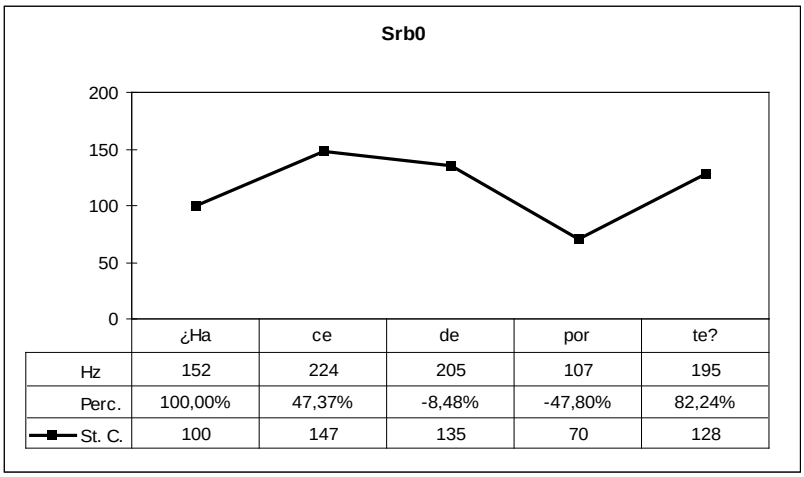
| ¿'Hacen deporte los espa'ñoles?|
do-3pl sport the Spanish
‘Do the Spanish do sports?



	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	227	310	157	155	144	123	137	118	135	289
Perc.	100,00%	36,56%	-49,35%	-1,27%	-7,10%	-14,58%	11,38%	-13,87%	14,41%	114,07%
St. C.	100	137	69	68	63	54	60	52	59	127

Code	Sra0
Pattern	SP2
Pitch Range	163

| ¿'Hace de'porte?|
do-2sg sport
‘Do you do any sport?’

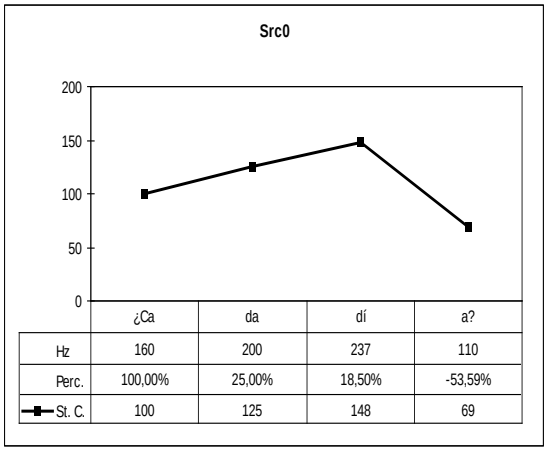


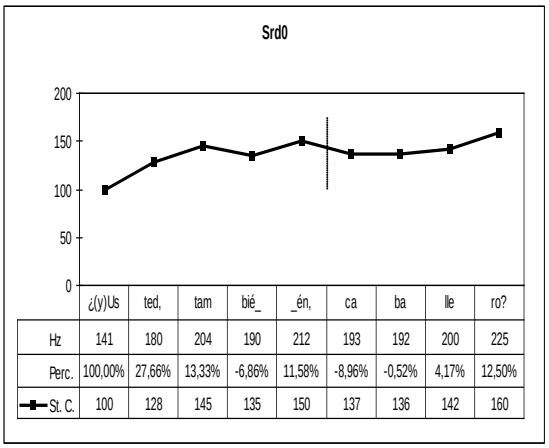
	¿Ha	ce	de	por	te?
Hz	152	224	205	107	195
Perc.	100,00%	47,37%	-8,48%	-47,80%	82,24%
St. C.	100	147	135	70	128

Code	Srb0
Pattern	SP2
Pitch Range	110

| ¿'Cada día?|
Every day
'Every day?'

| ¿(Y) Us'ted tam'bién, | caba'llero?|
and you-sg-fml too sir
'And you too, sir?'



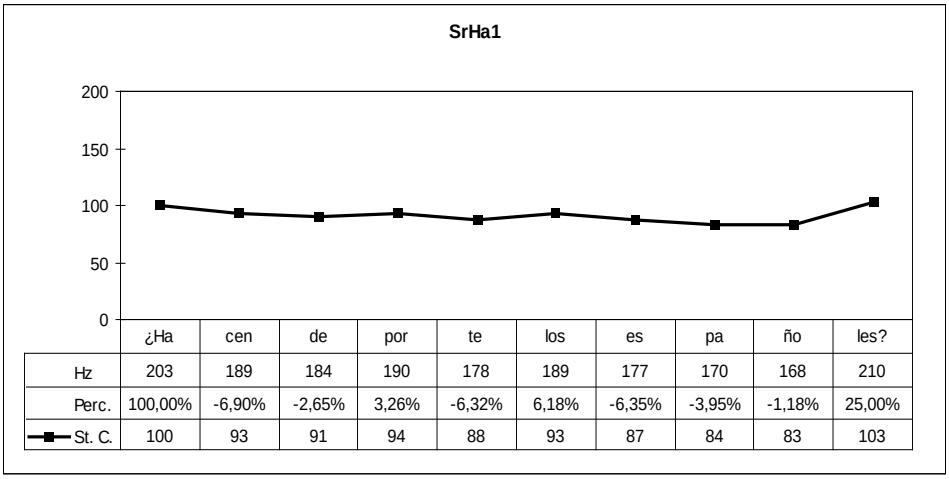


Code	Src0	Srd0
Pattern	SP9	SP1 + SP1
Pitch Range	81	(only first pattern): 50

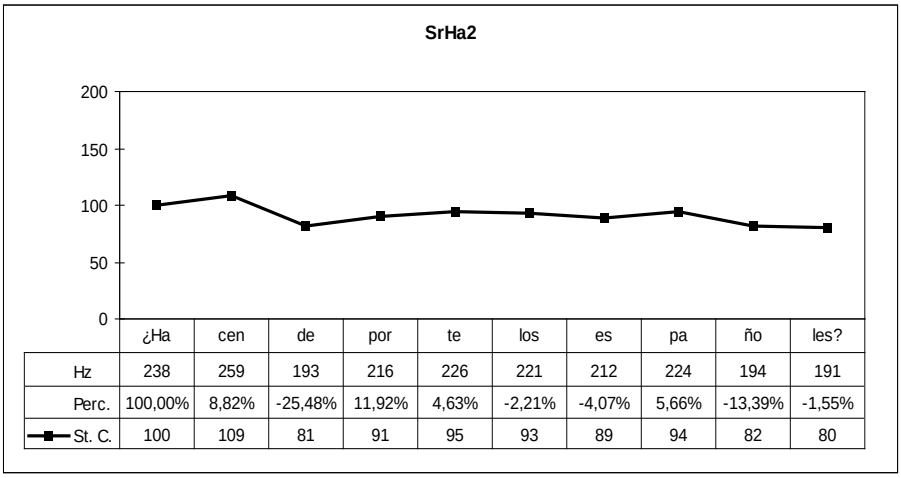
Renditions by by Hungarian learners of Spanish

The following section contains 111 Spanish sentences read by 30 Hungarian learners of Spanish, aged 14-16, who have been learning Spanish for less than one year.

Explanation of the codes:
SrH: Spanish sentence read by a Hungarian speaker
A,b,c,d: sentence a,b,c,d
1-30: speaker 1-30

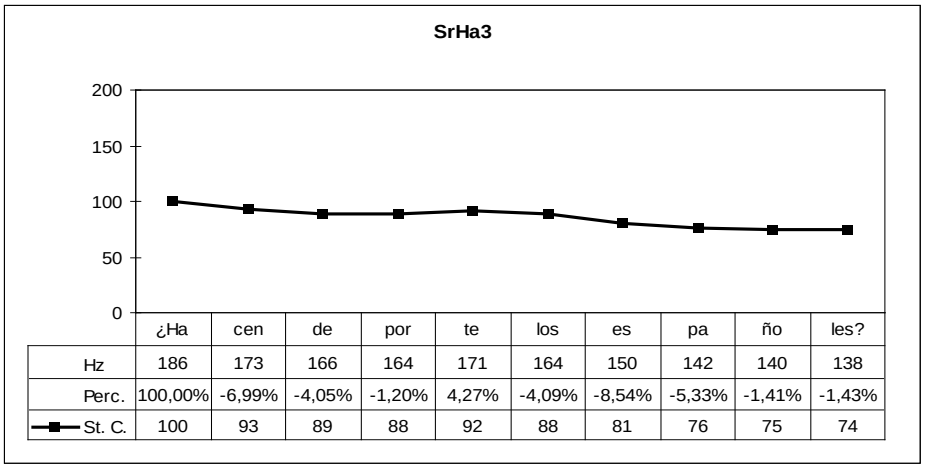


Code	SrHa1, male
Pattern	SP6a
Pitch Range	24



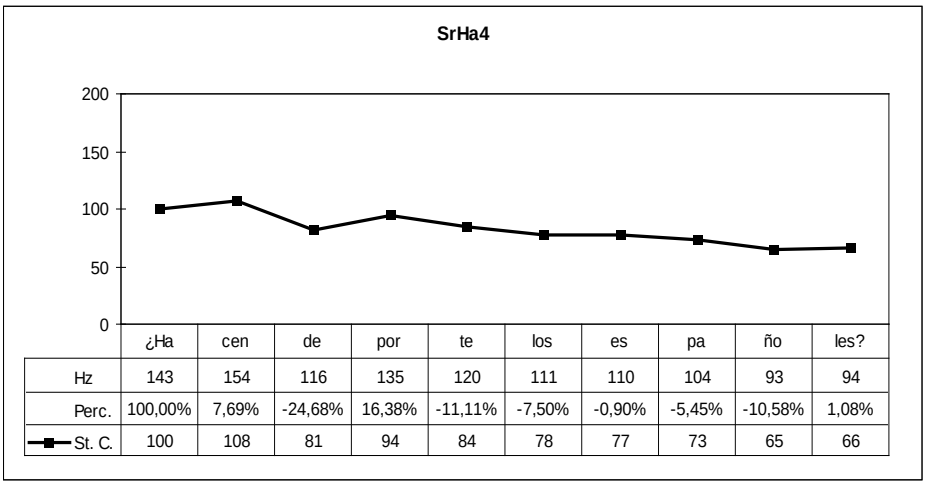
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	238	259	193	216	226	221	212	224	194	191
Perc.	100,00%	8,82%	-25,48%	11,92%	4,63%	-2,21%	-4,07%	5,66%	-13,39%	-1,55%
St. C.	100	109	81	91	95	93	89	94	82	80

Code	SrHa2, female
Pattern	SP1, possibly HP1
Pitch Range	36



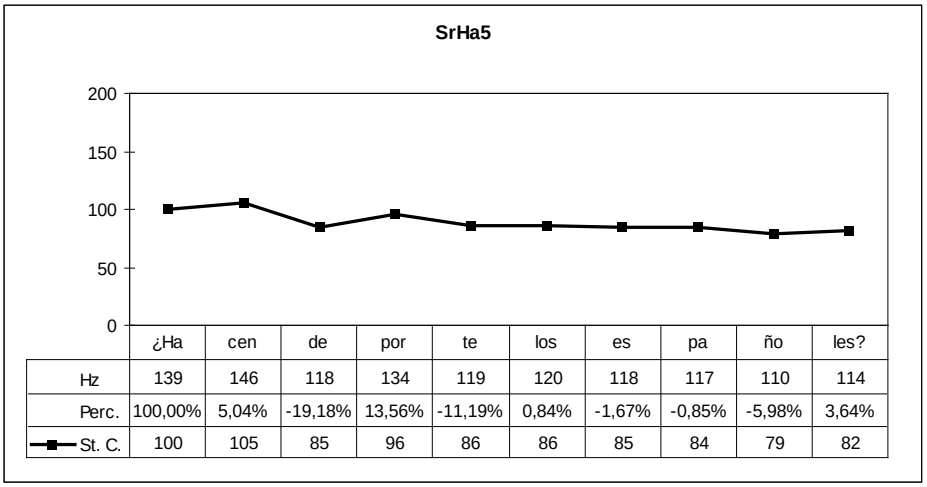
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	186	173	166	164	171	164	150	142	140	138
Perc.	100,00%	-6,99%	-4,05%	-1,20%	4,27%	-4,09%	-8,54%	-5,33%	-1,41%	-1,43%
St. C.	100	93	89	88	92	88	81	76	75	74

Code	SrHa3, female
Pattern	SP1
Pitch Range	26



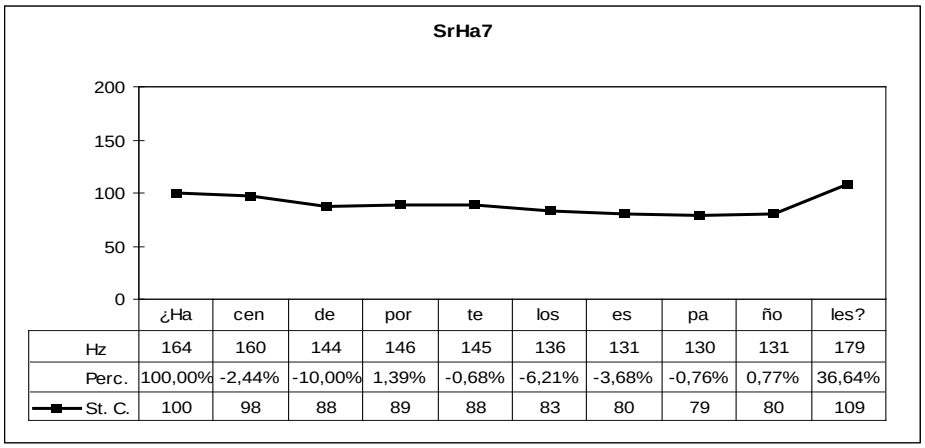
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	143	154	116	135	120	111	110	104	93	94
Perc.	100,00%	7,69%	-24,68%	16,38%	-11,11%	-7,50%	-0,90%	-5,45%	-10,58%	1,08%
St. C.	100	108	81	94	84	78	77	73	65	66

Code	SrHa4, male
Pattern	SP1, possibly HP1
Pitch Range	66



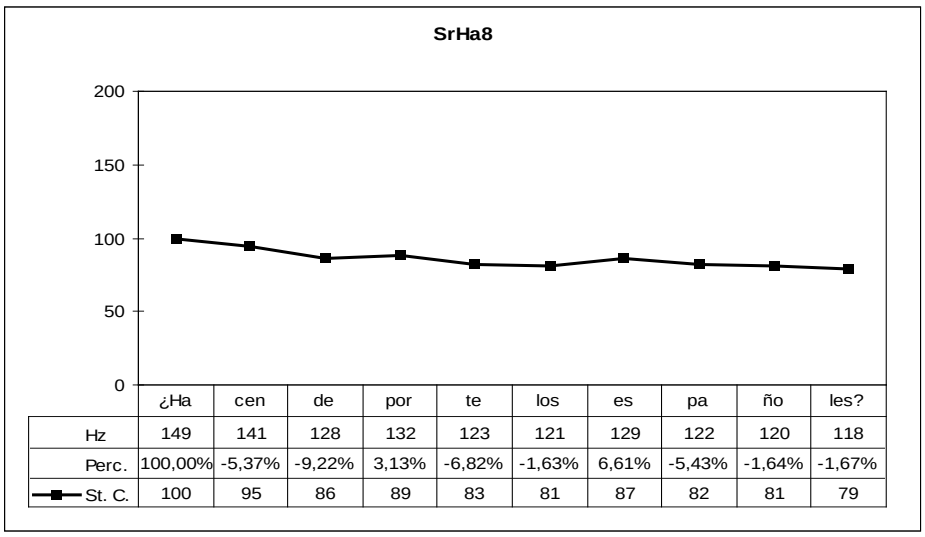
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	139	146	118	134	119	120	118	117	110	114
Perc.	100,00%	5,04%	-19,18%	13,56%	-11,19%	0,84%	-1,67%	-0,85%	-5,98%	3,64%
St. C.	100	105	85	96	86	86	85	84	79	82

Code	SrHa5, male
Pattern	SP1, possibly HP1
Pitch Range	33



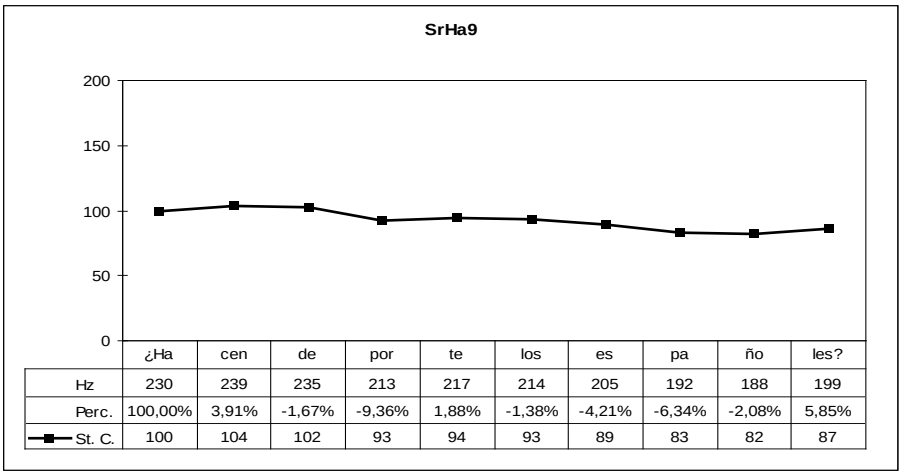
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	164	160	144	146	145	136	131	130	131	179
Perc.	100,00%	-2,44%	-10,00%	1,39%	-0,68%	-6,21%	-3,68%	-0,76%	0,77%	36,64%
St. C.	100	98	88	89	88	83	80	79	80	109

Code	SrHa7, male
Pattern	SP6a
Pitch Range	38



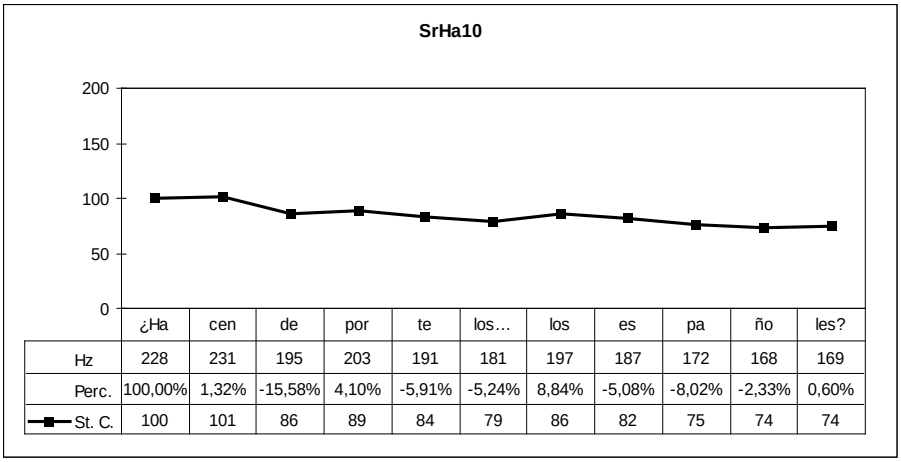
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	149	141	128	132	123	121	129	122	120	118
Perc.	100,00%	-5,37%	-9,22%	3,13%	-6,82%	-1,63%	6,61%	-5,43%	-1,64%	-1,67%
St. C.	100	95	86	89	83	81	87	82	81	79

Code	SrHa8, male
Pattern	SP1
Pitch Range	27



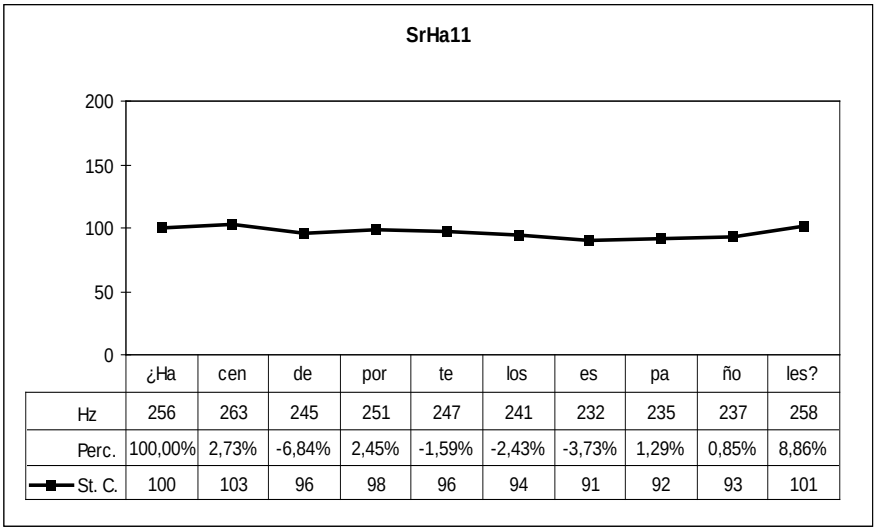
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	230	239	235	213	217	214	205	192	188	199
Perc.	100,00%	3,91%	-1,67%	-9,36%	1,88%	-1,38%	-4,21%	-6,34%	-2,08%	5,85%
St. C.	100	104	102	93	94	93	89	83	82	87

Code	SrHa9, female
Pattern	SP1
Pitch Range	23



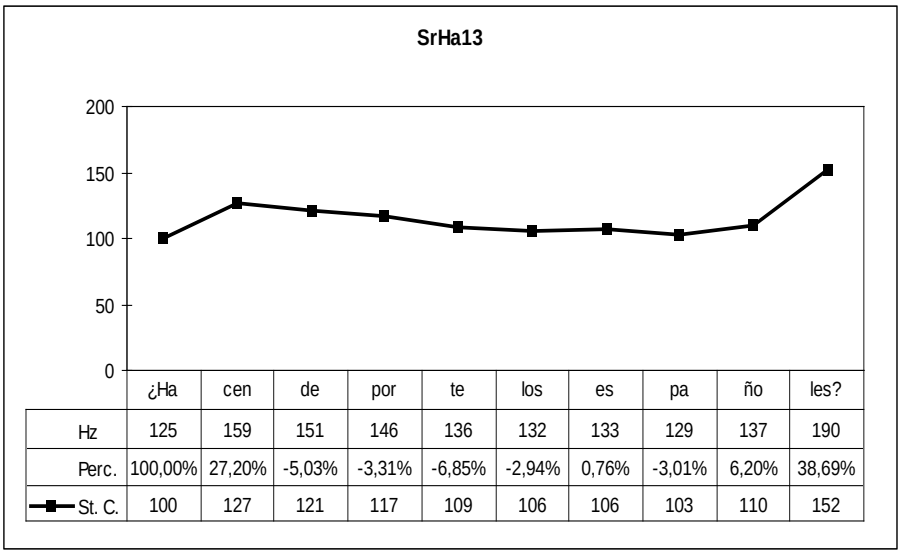
	¿Ha	cen	de	por	te	los…	los	es	pa	ño	les?
Hz	228	231	195	203	191	181	197	187	172	168	169
Perc.	100,00%	1,32%	-15,58%	4,10%	-5,91%	-5,24%	8,84%	-5,08%	-8,02%	-2,33%	0,60%
St. C.	100	101	86	89	84	79	86	82	75	74	74

Code	SrHa10, female
Pattern	SP1
Pitch Range	36



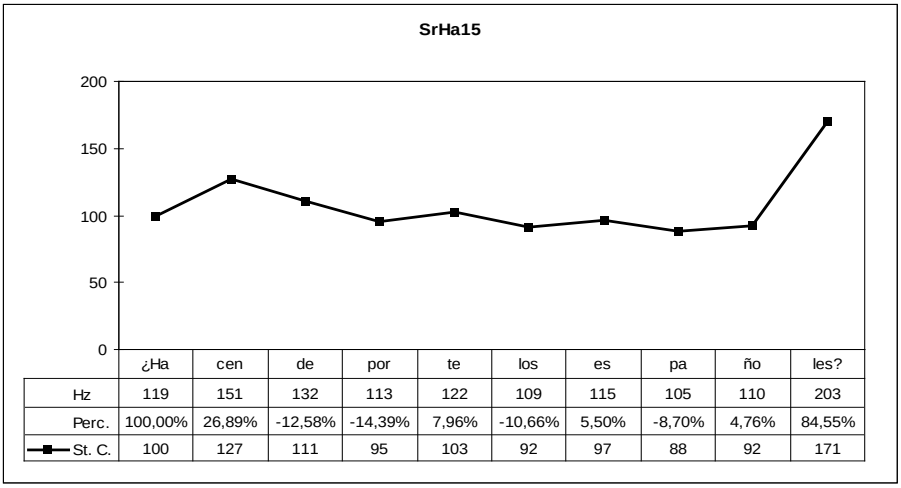
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	256	263	245	251	247	241	232	235	237	258
Perc.	100,00%	2,73%	-6,84%	2,45%	-1,59%	-2,43%	-3,73%	1,29%	0,85%	8,86%
St. C.	100	103	96	98	96	94	91	92	93	101

Code	SrHa11, female
Pattern	SP1
Pitch Range	13



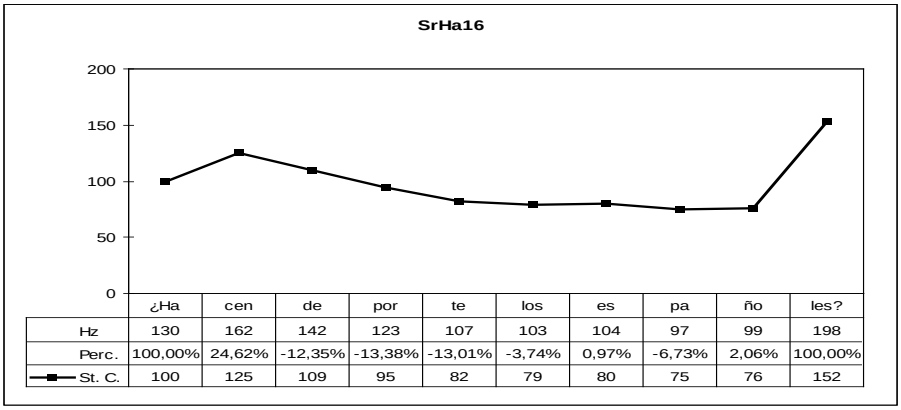
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	125	159	151	146	136	132	133	129	137	190
Perc.	100,00%	27,20%	-5,03%	-3,31%	-6,85%	-2,94%	0,76%	-3,01%	6,20%	38,69%
St. C.	100	127	121	117	109	106	106	103	110	152

Code	SrHa13, male
Pattern	SP6b
Pitch Range	52



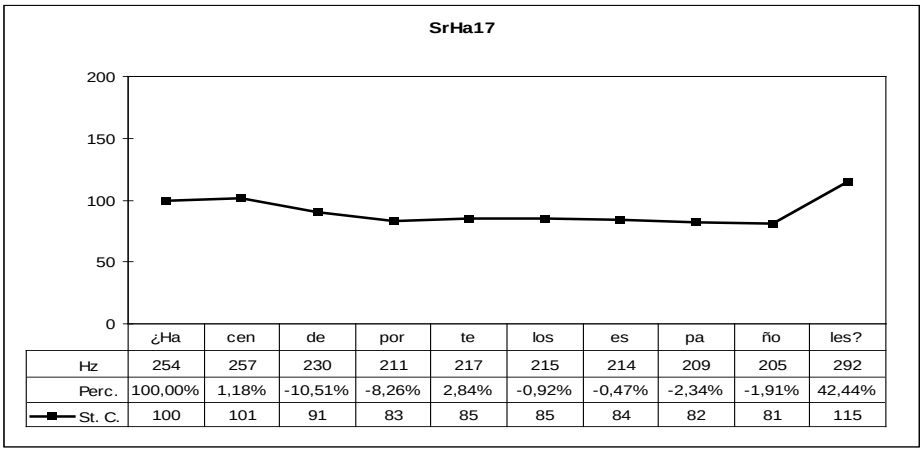
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	119	151	132	113	122	109	115	105	110	203
Perc.	100,00%	26,89%	-12,58%	-14,39%	7,96%	-10,66%	5,50%	-8,70%	4,76%	84,55%
St. C.	100	127	111	95	103	92	97	88	92	171

Code	SrHa15, male
Pattern	SP2 (First Peak lower than the endpoint of the FI)
Pitch Range	94



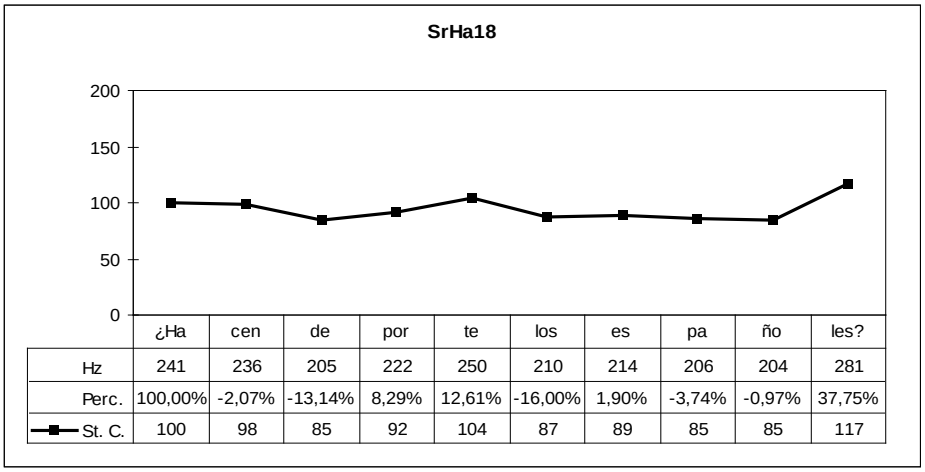
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	130	162	142	123	107	103	104	97	99	198
Perc.	100,00%	24,62%	-12,35%	-13,38%	-13,01%	-3,74%	0,97%	-6,73%	2,06%	100,00%
St. C.	100	125	109	95	82	79	80	75	76	152

Code	SrHa16, male
Pattern	SP2 (First Peak lower than the endpoint of the FI)
Pitch Range	103



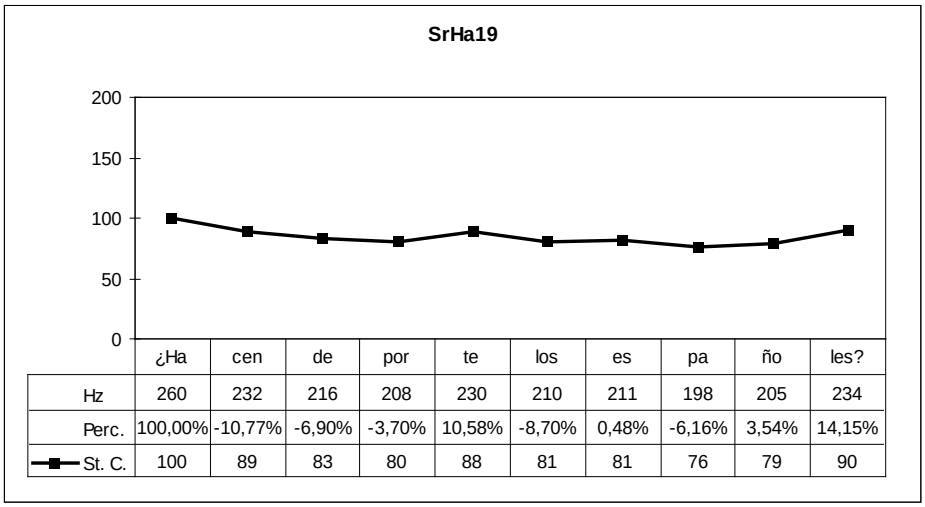
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	254	257	230	211	217	215	214	209	205	292
Perc.	100,00%	1,18%	-10,51%	-8,26%	2,84%	-0,92%	-0,47%	-2,34%	-1,91%	42,44%
St. C.	100	101	91	83	85	85	84	82	81	115

Code	SrHa17, female
Pattern	SP3
Pitch Range	42



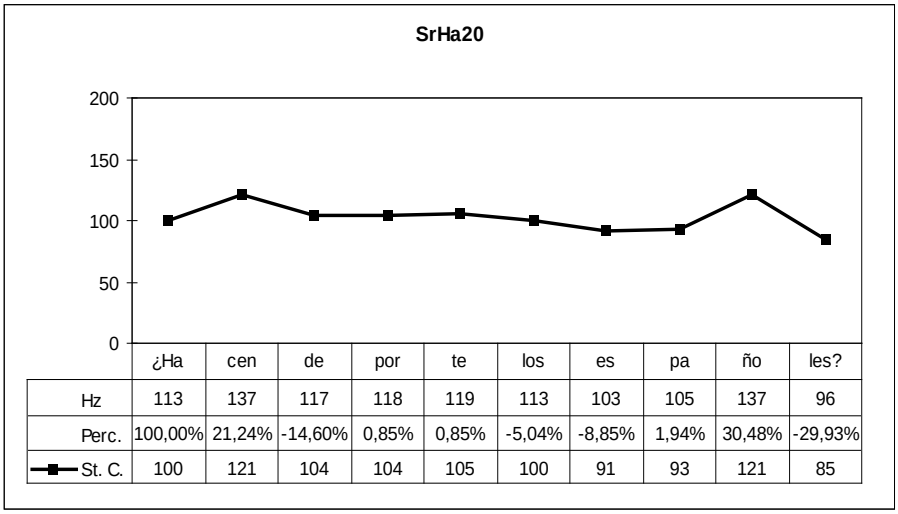
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	241	236	205	222	250	210	214	206	204	281
Perc.	100,00%	-2,07%	-13,14%	8,29%	12,61%	-16,00%	1,90%	-3,74%	-0,97%	37,75%
St. C.	100	98	85	92	104	87	89	85	85	117

Code	SrHa18, female
Pattern	SP6a
Pitch Range	38



	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	260	232	216	208	230	210	211	198	205	234
Perc.	100,00%	-10,77%	-6,90%	-3,70%	10,58%	-8,70%	0,48%	-6,16%	3,54%	14,15%
St. C.	100	89	83	80	88	81	81	76	79	90

Code	SrHa19, female
Pattern	SP1
Pitch Range	23

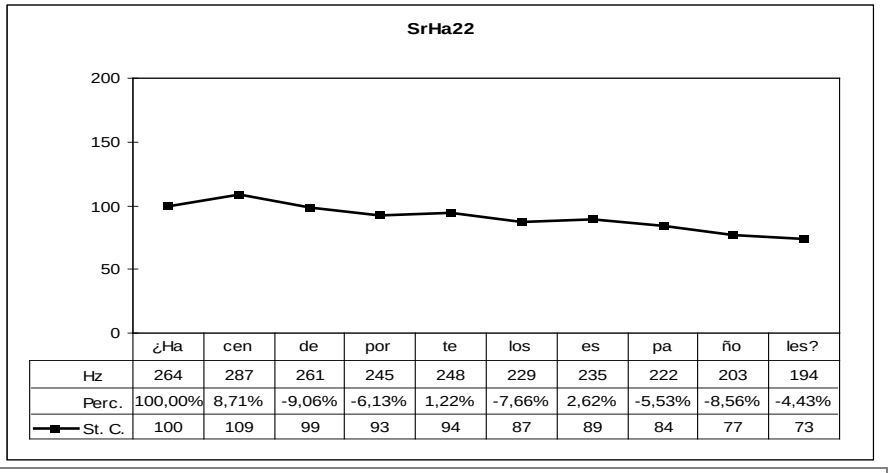


	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	113	137	117	118	119	113	103	105	137	96
Perc.	100,00%	21,24%	-14,60%	0,85%	0,85%	-5,04%	-8,85%	1,94%	30,48%	-29,93%
St. C.	100	121	104	104	105	100	91	93	121	85

Code	SrHa20, male
Pattern	SP7, possibly HP7b
Pitch Range	42

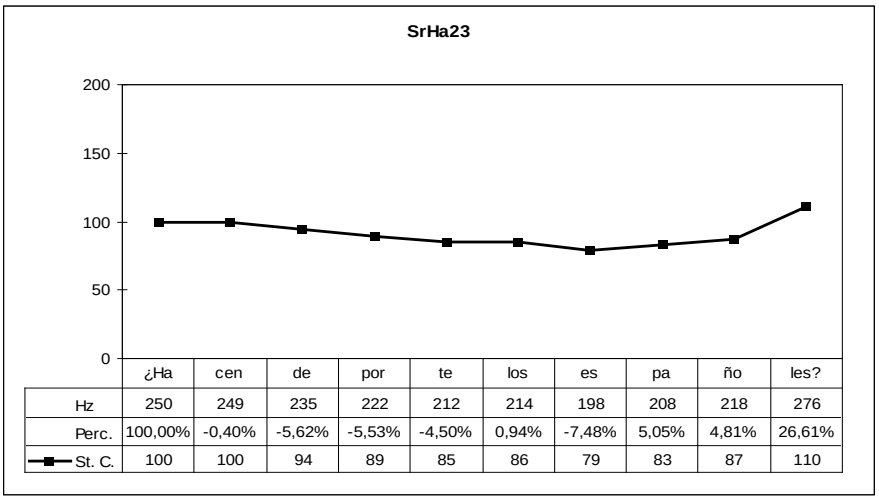
	¿Ha	cen	de	por	tes	*sos	es	pa	ño	les?
Hz	114	115	116	117	108	108	101	117	128	77
Perc.	100,00%	0,88%	0,87%	0,86%	-7,69%	0,00%	-6,48%	15,84%	9,40%	-39,84%
St. C.	100	101	102	103	95	95	89	103	112	68

Code	SrHa21, male
Pattern	SP7, possibly HP7a from *españoles*
Pitch Range	65



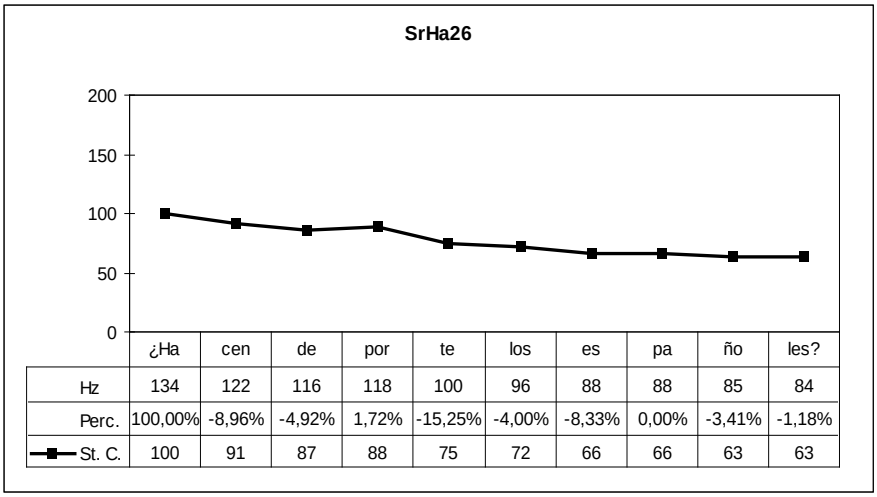
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	264	287	261	245	248	229	235	222	203	194
Perc.	100,00%	8,71%	-9,06%	-6,13%	1,22%	-7,66%	2,62%	-5,53%	-8,56%	-4,43%
St. C.	100	109	99	93	94	87	89	84	77	73

Code	SrHa22, female
Pattern	SP1
Pitch Range	49



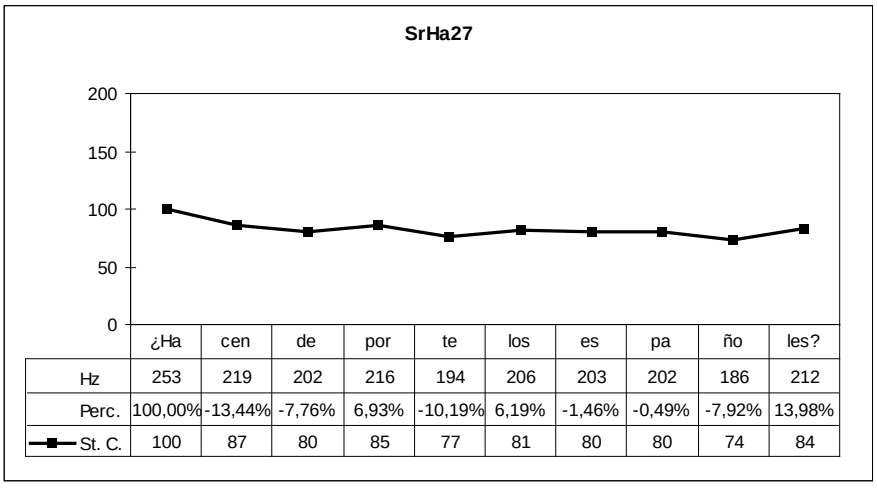
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	250	249	235	222	212	214	198	208	218	276
Perc.	100,00%	-0,40%	-5,62%	-5,53%	-4,50%	0,94%	-7,48%	5,05%	4,81%	26,61%
St. C.	100	100	94	89	85	86	79	83	87	110

Code	SrHa23, female
Pattern	SP6a
Pitch Range	33



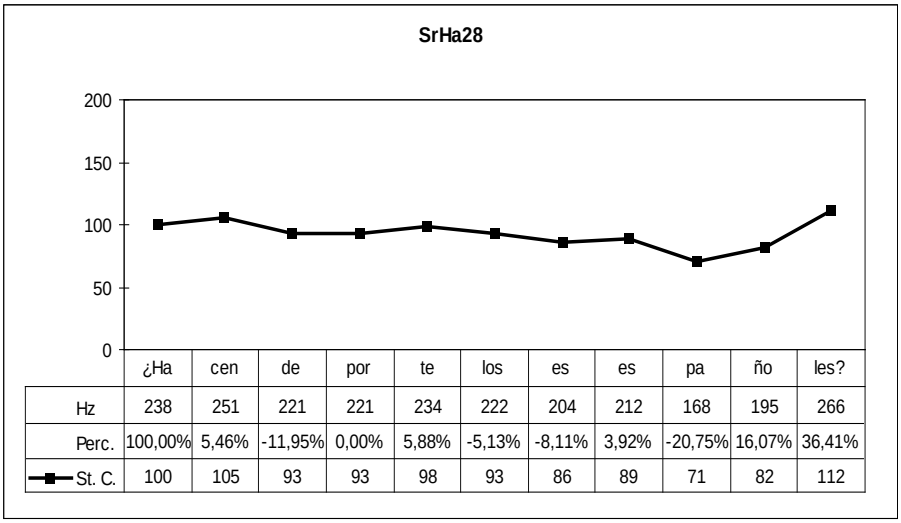
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	134	122	116	118	100	96	88	88	85	84
Perc.	100,00%	-8,96%	-4,92%	1,72%	-15,25%	-4,00%	-8,33%	0,00%	-3,41%	-1,18%
St. C.	100	91	87	88	75	72	66	66	63	63

Code	SrHa26, male
Pattern	SP1
Pitch Range	59



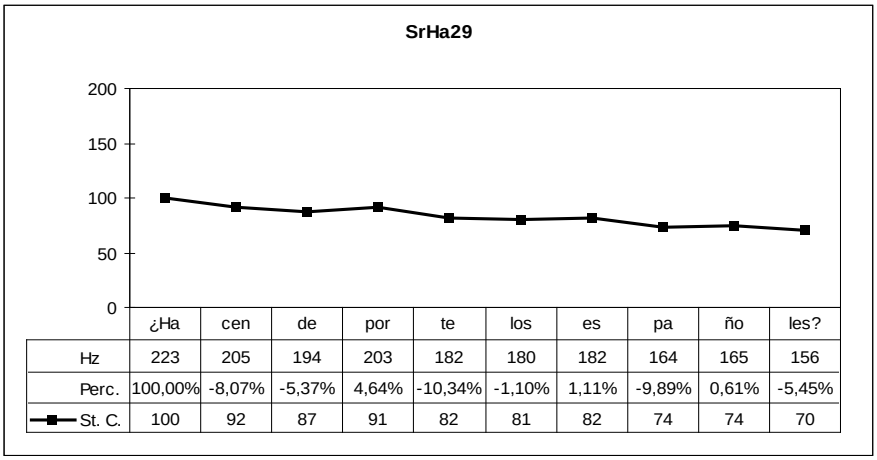
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	253	219	202	216	194	206	203	202	186	212
Perc.	100,00%	-13,44%	-7,76%	6,93%	-10,19%	6,19%	-1,46%	-0,49%	-7,92%	13,98%
St. C.	100	87	80	85	77	81	80	80	74	84

Code	SrHa27, female
Pattern	SP1, possibly HP1
Pitch Range	35



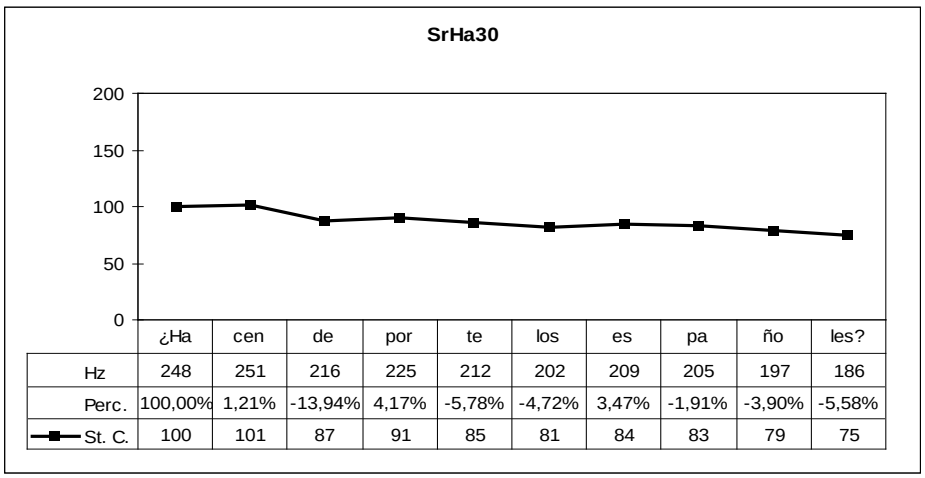
	¿Ha	cen	de	por	te	los	es	es	pa	ño	les?
Hz	238	251	221	221	234	222	204	212	168	195	266
Perc.	100,00%	5,46%	-11,95%	0,00%	5,88%	-5,13%	-8,11%	3,92%	-20,75%	16,07%	36,41%
St. C.	100	105	93	93	98	93	86	89	71	82	112

Code	SrHa28, female
Pattern	SP6b
Pitch Range	58



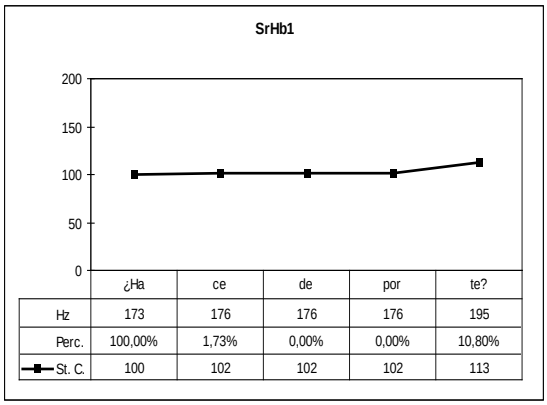
	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	223	205	194	203	182	180	182	164	165	156
Perc.	100,00%	-8,07%	-5,37%	4,64%	-10,34%	-1,10%	1,11%	-9,89%	0,61%	-5,45%
St. C.	100	92	87	91	82	81	82	74	74	70

Code	SrHa29, male
Pattern	SP1
Pitch Range	43

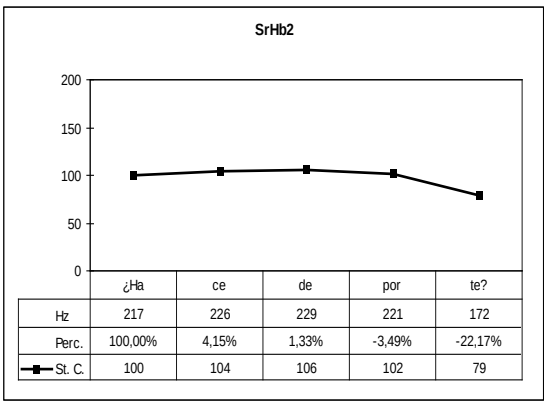


	¿Ha	cen	de	por	te	los	es	pa	ño	les?
Hz	248	251	216	225	212	202	209	205	197	186
Perc.	100,00%	1,21%	-13,94%	4,17%	-5,78%	-4,72%	3,47%	-1,91%	-3,90%	-5,58%
St. C.	100	101	87	91	85	81	84	83	79	75

Code	SrHa30, male
Pattern	SP1
Pitch Range	35

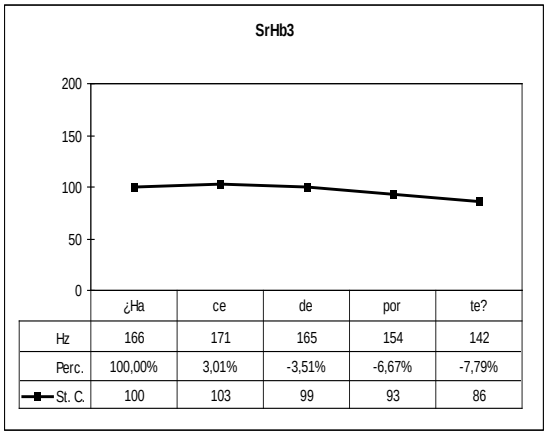


	¿Ha	ce	de	por	te?
Hz	173	176	176	176	195
Perc.	100,00%	1,73%	0,00%	0,00%	10,80%
St. C.	100	102	102	102	113

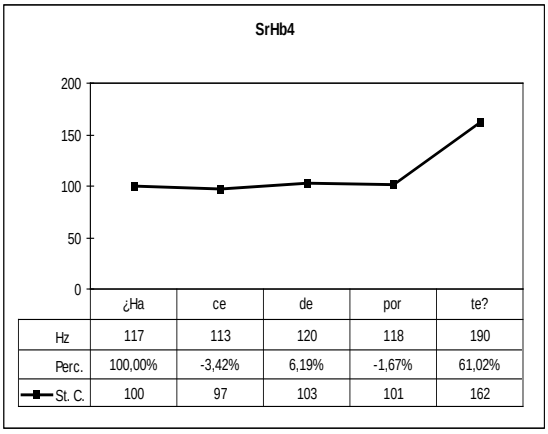


	¿Ha	ce	de	por	te?
Hz	217	226	229	221	172
Perc.	100,00%	4,15%	1,33%	-3,49%	-22,17%
St. C.	100	104	106	102	79

Code	SrHb1, male	SrHb2, female
Pattern	SP1	SP1, possible HP8
Pitch Range	13	34

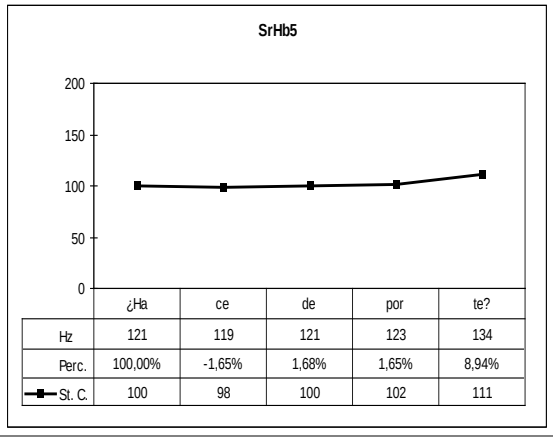


	¿Ha	ce	de	por	te?
Hz	166	171	165	154	142
Perc.	100,00%	3,01%	-3,51%	-6,67%	-7,79%
St. C.	100	103	99	93	86

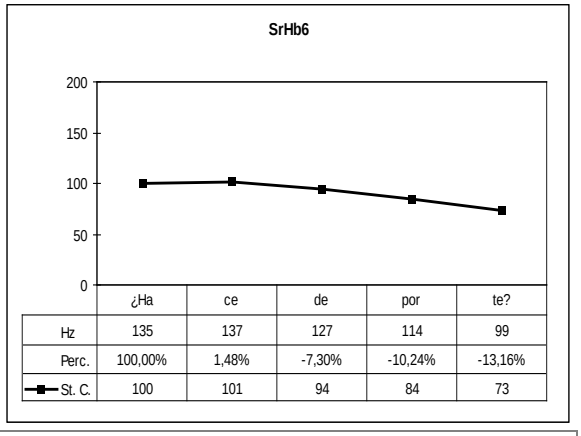


	¿Ha	ce	de	por	te?
Hz	117	113	120	118	190
Perc.	100,00%	-3,42%	6,19%	-1,67%	61,02%
St. C.	100	97	103	101	162

Code	SrHb3, female	SrHb4, male
Pattern	SP1	SP6a
Pitch Range	16	67

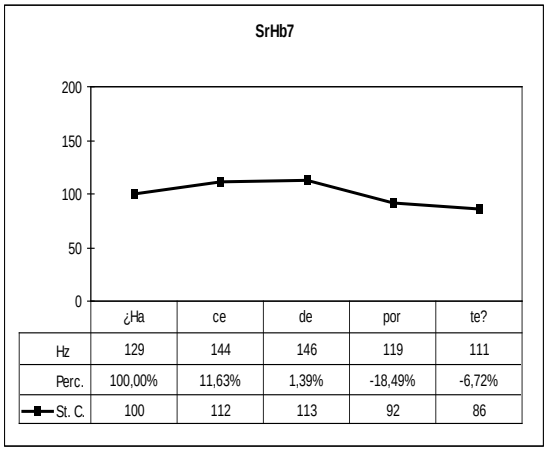


	¿Ha	ce	de	por	te?
Hz	121	119	121	123	134
Perc.	100,00%	-1,65%	1,68%	1,65%	8,94%
St. C.	100	98	100	102	111

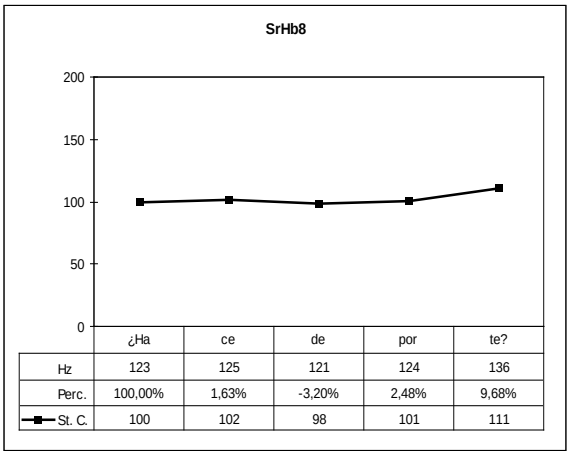


	¿Ha	ce	de	por	te?
Hz	135	137	127	114	99
Perc.	100,00%	1,48%	-7,30%	-10,24%	-13,16%
St. C.	100	101	94	84	73

Code	SrHb5, male	SrHb6, male
Pattern	SP1	SP1
Pitch Range	13	34

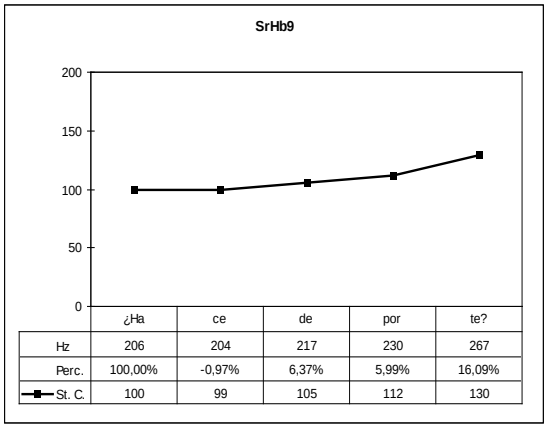


	¿Ha	ce	de	por	te?
Hz	129	144	146	119	111
Perc.	100,00%	11,63%	1,39%	-18,49%	-6,72%
St. C.	100	112	113	92	86

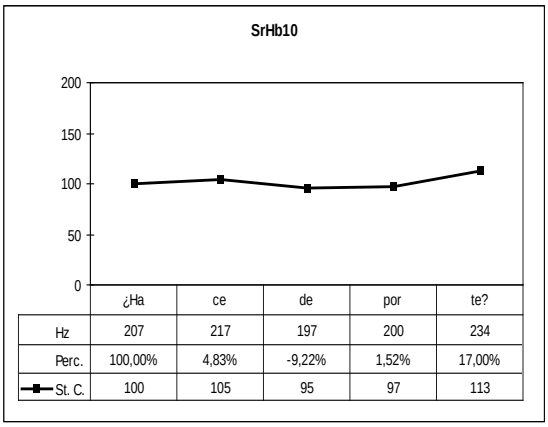


	¿Ha	ce	de	por	te?
Hz	123	125	121	124	136
Perc.	100,00%	1,63%	-3,20%	2,48%	9,68%
St. C.	100	102	98	101	111

Code	SrHb7, male	SrHb8, male
Pattern	SP1	SP1
Pitch Range	31	13

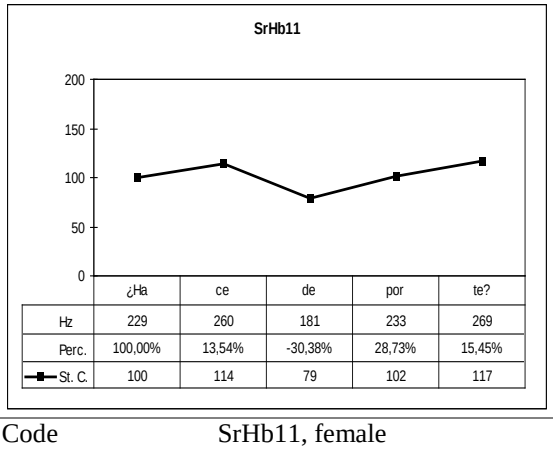


	¿Ha	ce	de	por	te?
Hz	206	204	217	230	267
Perc.	100,00%	-0,97%	6,37%	5,99%	16,09%
St. C.	100	99	105	112	130

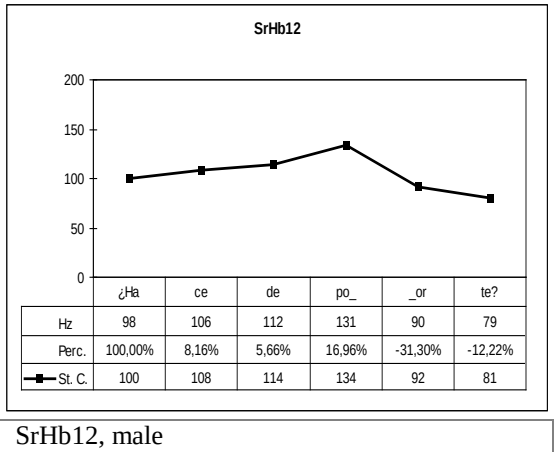


	¿Ha	ce	de	por	te?
Hz	207	217	197	200	234
Perc.	100,00%	4,83%	-9,22%	1,52%	17,00%
St. C.	100	105	95	97	113

Code	SrHb9, female	SrHb10, female
Pattern	SP6a	SP6b
Pitch Range	31	19

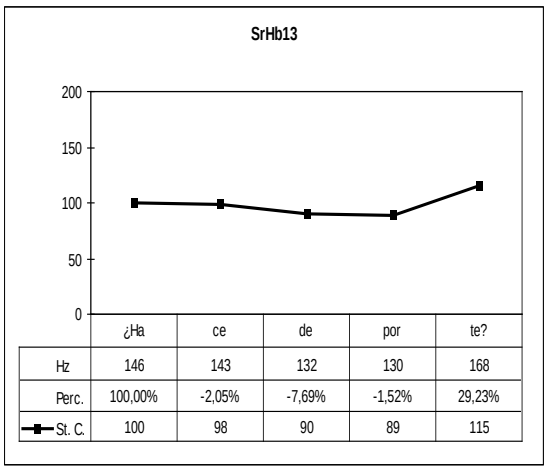


	¿Ha	ce	de	por	te?
Hz	229	260	181	233	269
Perc.	100,00%	13,54%	-30,38%	28,73%	15,45%
St. C.	100	114	79	102	117

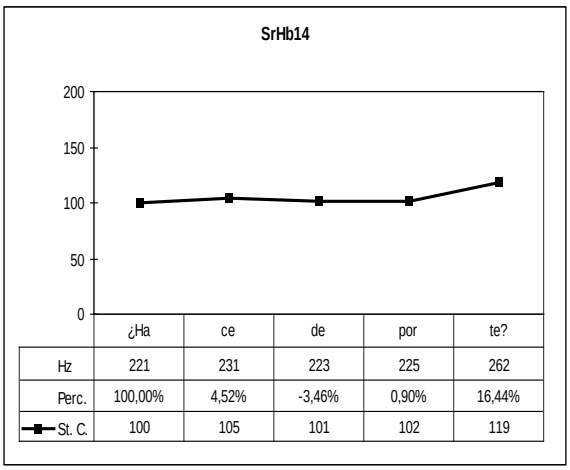


	¿Ha	ce	de	po_	_or	te?
Hz	98	106	112	131	90	79
Perc.	100,00%	8,16%	5,66%	16,96%	-31,30%	-12,22%
St. C.	100	108	114	134	92	81

Code	SrHb11, female	SrHb12, male
Pattern	SP6b	SP1, possibly HP7b
Pitch Range	48	65

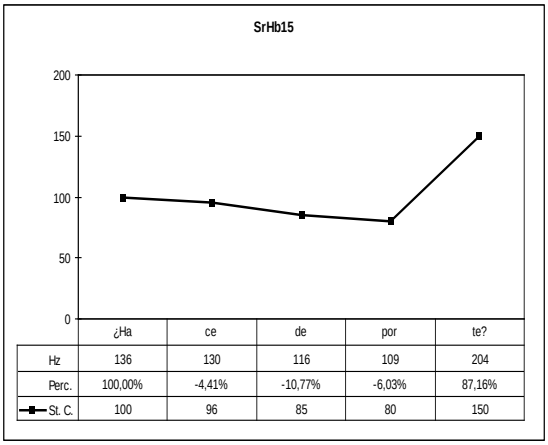


	¿Ha	ce	de	por	te?
Hz	146	143	132	130	168
Perc.	100,00%	-2,05%	-7,69%	-1,52%	29,23%
St. C.	100	98	90	89	115

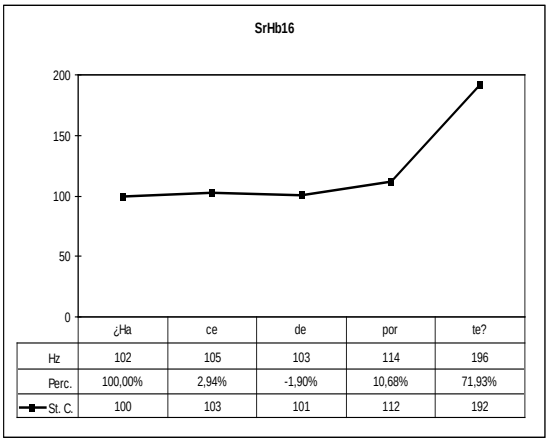


	¿Ha	ce	de	por	te?
Hz	221	231	223	225	262
Perc.	100,00%	4,52%	-3,46%	0,90%	16,44%
St. C.	100	105	101	102	119

Code	SrHb13, male	SrHb14, female
Pattern	SP6a	SP6b
Pitch Range	29	17

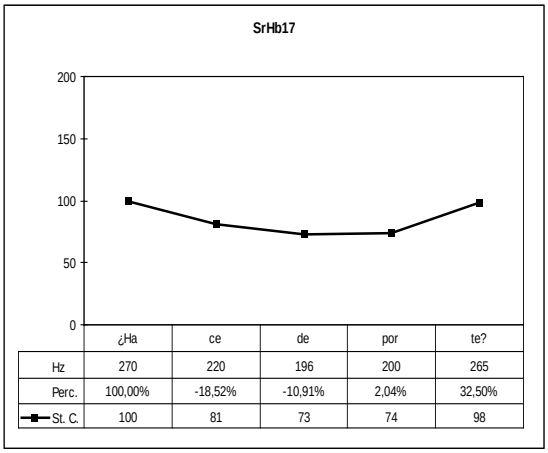


	¿Ha	ce	de	por	te?
Hz	136	130	116	109	204
Perc.	100,00%	-4,41%	-10,77%	-6,03%	87,16%
St. C.	100	96	85	80	150

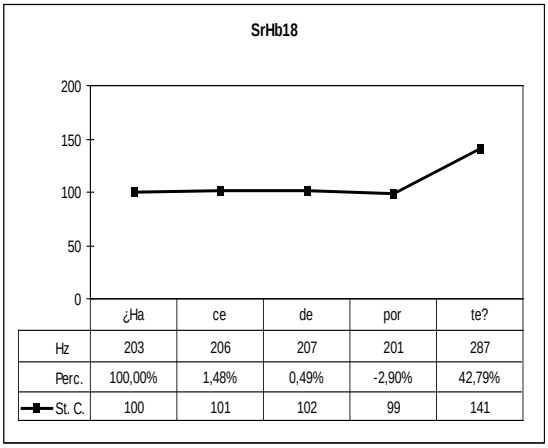


	¿Ha	ce	de	por	te?
Hz	102	105	103	114	196
Perc.	100,00%	2,94%	-1,90%	10,68%	71,93%
St. C.	100	103	101	112	192

Code	SrHb15, male	SrHb16, male
Pattern	SP2 (First Peak lower than the endpoint of the FI)	SP2 (First Peak lower than the endpoint of the FI)
Pitch Range	88	92

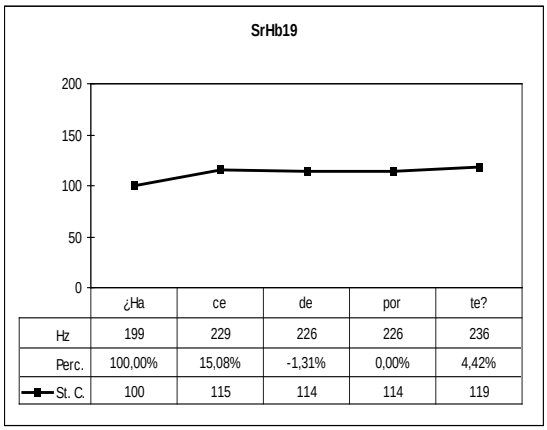


	¿Ha	ce	de	por	te?
Hz	270	220	196	200	265
Perc.	100,00%	-18,52%	-10,91%	2,04%	32,50%
St. C.	100	81	73	74	98

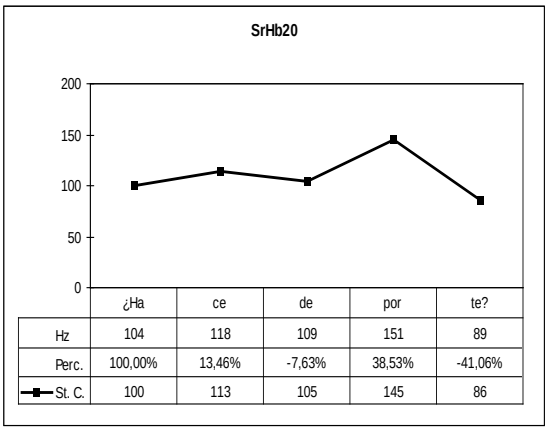


	¿Ha	ce	de	por	te?
Hz	203	206	207	201	287
Perc.	100,00%	1,48%	0,49%	-2,90%	42,79%
St. C.	100	101	102	99	141

Code	SrHb17, female	SrHb18, female
Pattern	SP6a	SP3
Pitch Range	37	42

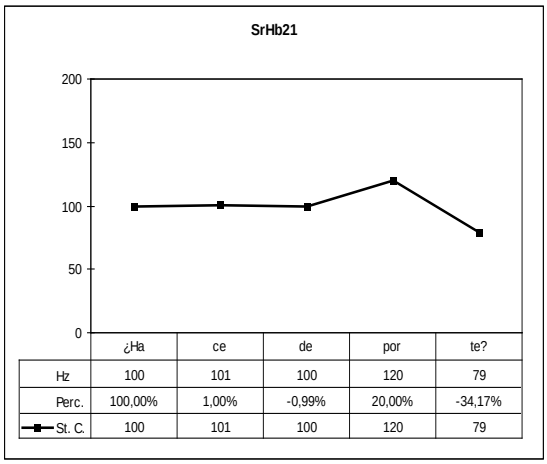


	¿Ha	ce	de	por	te?
Hz	199	229	226	226	236
Perc.	100,00%	15,08%	-1,31%	0,00%	4,42%
St. C.	100	115	114	114	119

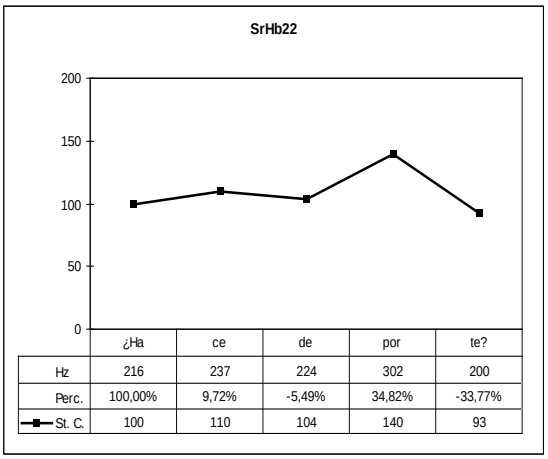


	¿Ha	ce	de	por	te?
Hz	104	118	109	151	89
Perc.	100,00%	13,46%	-7,63%	38,53%	-41,06%
St. C.	100	113	105	145	86

Code	SrHb19, female	SrHb20, male
Pattern	SP1	SP7, possibly HP7 from *deporte*
Pitch Range	19	69

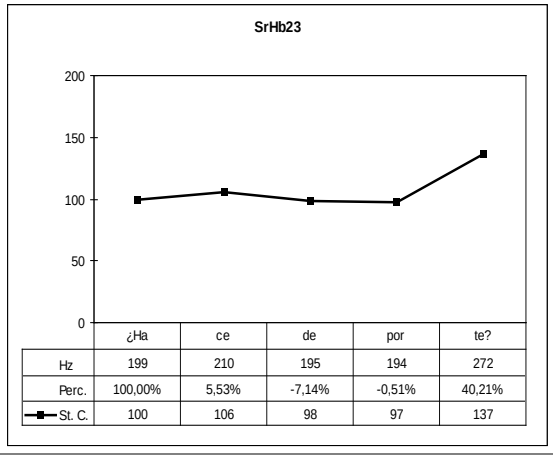


	¿Ha	ce	de	por	te?
Hz	100	101	100	120	79
Perc.	100,00%	1,00%	-0,99%	20,00%	-34,17%
St. C.	100	101	100	120	79

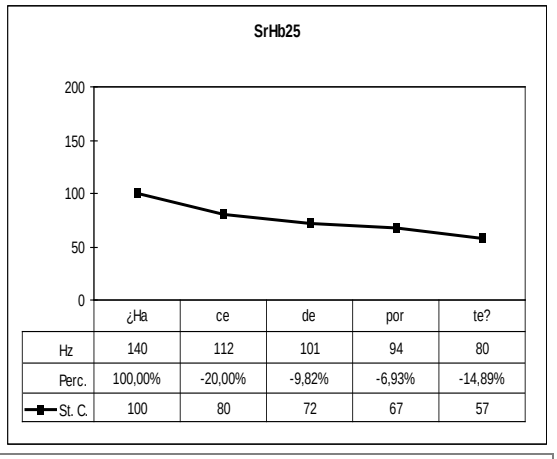


	¿Ha	ce	de	por	te?
Hz	216	237	224	302	200
Perc.	100,00%	9,72%	-5,49%	34,82%	-33,77%
St. C.	100	110	104	140	93

Code	SrHb21, male	SrHb22, female
Pattern	SP7, possible HP7	SP7, possibly HP7 from *deporte*
Pitch Range	52	51

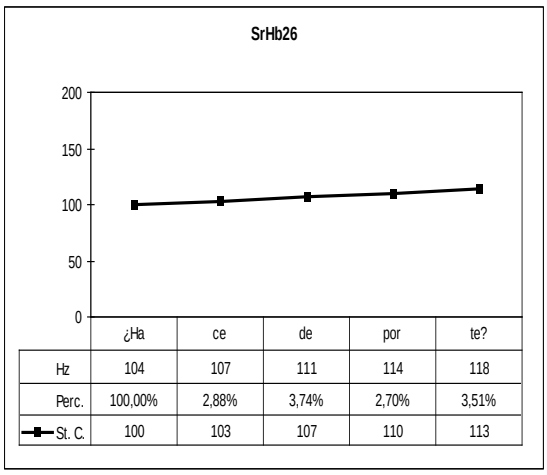


	¿Ha	ce	de	por	te?
Hz	199	210	195	194	272
Perc.	100,00%	5,53%	-7,14%	-0,51%	40,21%
St. C.	100	106	98	97	137

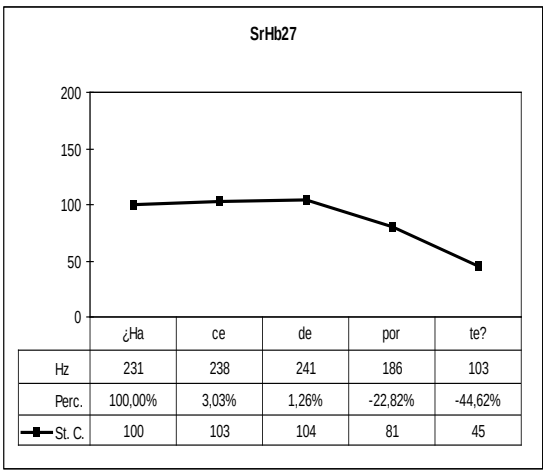


	¿Ha	ce	de	por	te?
Hz	140	112	101	94	80
Perc.	100,00%	-20,00%	-9,82%	-6,93%	-14,89%
St. C.	100	80	72	67	57

Code	SrHb23, female	SrHb25, male
Pattern	SP3	SP1, possible HP1
Pitch Range	41	75

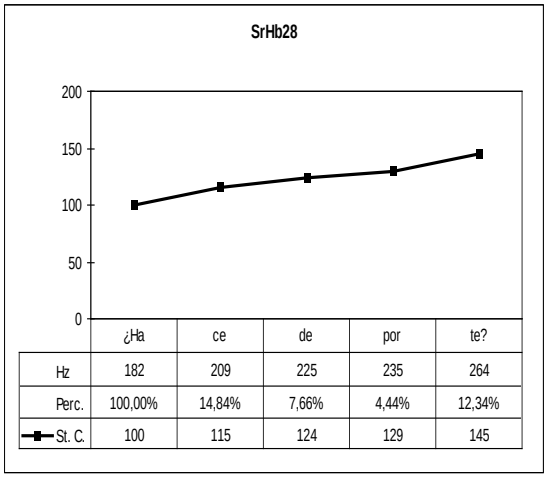


	¿Ha	ce	de	por	te?
Hz	104	107	111	114	118
Perc.	100,00%	2,88%	3,74%	2,70%	3,51%
St. C.	100	103	107	110	113

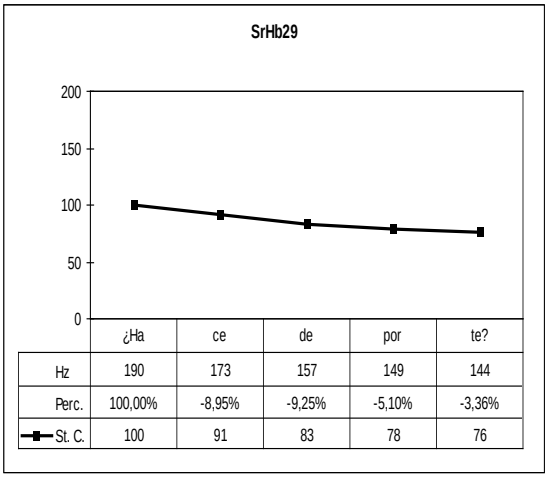


	¿Ha	ce	de	por	te?
Hz	231	238	241	186	103
Perc.	100,00%	3,03%	1,26%	-22,82%	-44,62%
St. C.	100	103	104	81	45

Code	SrHb26, male	SrHb27, female
Pattern	SP1 + Rising Body	SP9
Pitch Range	13	131

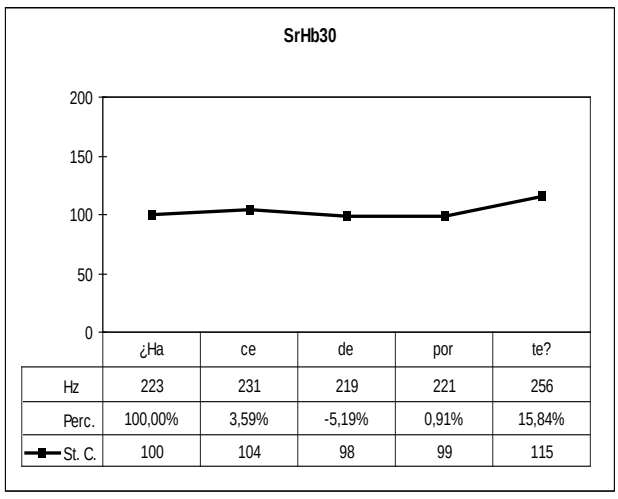


	¿Ha	ce	de	por	te?
Hz	182	209	225	235	264
Perc.	100,00%	14,84%	7,66%	4,44%	12,34%
St. C.	100	115	124	129	145



	¿Ha	ce	de	por	te?
Hz	190	173	157	149	144
Perc.	100,00%	-8,95%	-9,25%	-5,10%	-3,36%
St. C.	100	91	83	78	76

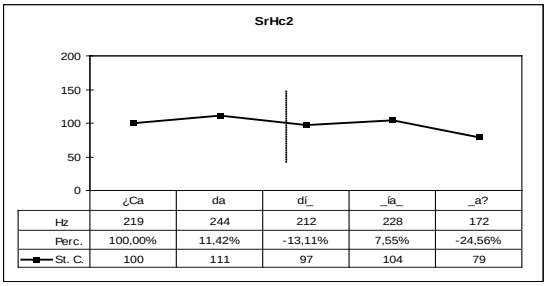
Code	SrHb28, female	SrHb29, male
Pattern	SP13	SP1
Pitch Range	45	32



	¿Ha	ce	de	por	te?
Hz	223	231	219	221	256
Perc.	100,00%	3,59%	-5,19%	0,91%	15,84%
St. C.	100	104	98	99	115

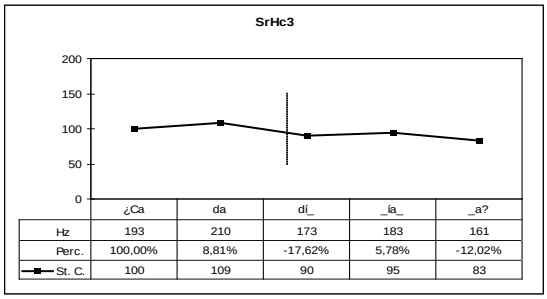
Code	SrHb30, male
Pattern	SP6b
Pitch Range	17

	¿Ca	da	dí_	_ía_	_a?
Hz	178	204	161	186	128
Perc.	100,00%	14,61%	-21,08%	15,53%	-31,18%
St. C.	100	115	90	104	72

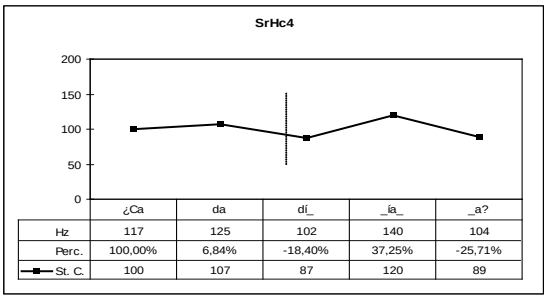


	¿Ca	da	dí_	_ía_	_a?
Hz	219	244	212	228	172
Perc.	100,00%	11,42%	-13,11%	7,55%	-24,56%
St. C.	100	111	97	104	79

Code	SrHc1, male	SrHc2, female
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	60	41

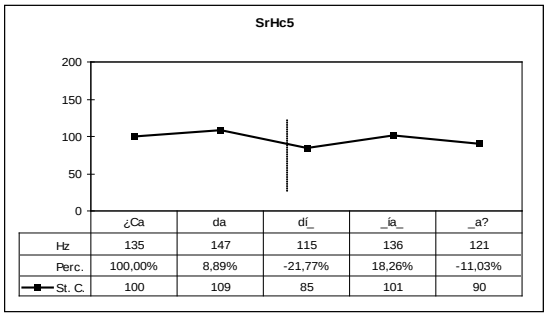


	¿Ca	da	dí_	_ía_	_a?
Hz	193	210	173	183	161
Perc.	100,00%	8,81%	-17,62%	5,78%	-12,02%
St. C.	100	109	90	95	83

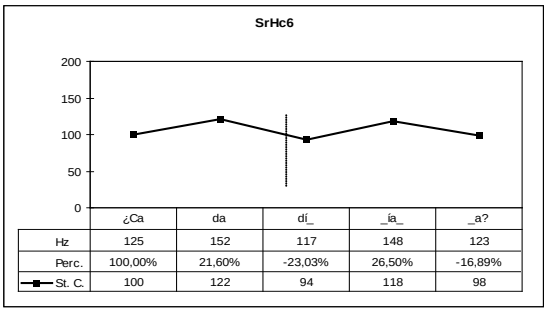


	¿Ca	da	dí_	_ía_	_a?
Hz	117	125	102	140	104
Perc.	100,00%	6,84%	-18,40%	37,25%	-25,71%
St. C.	100	107	87	120	89

Code	SrHc3, female	SrHc4, male
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	31	38

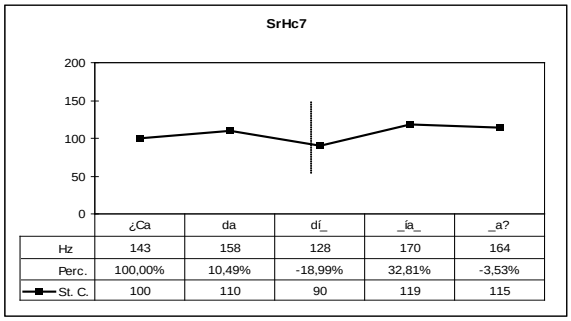


	¿Ca	da	dí_	_ía_	_a?
Hz	135	147	115	136	121
Perc.	100,00%	8,89%	-21,77%	18,26%	-11,03%
St. C.	100	109	85	101	90

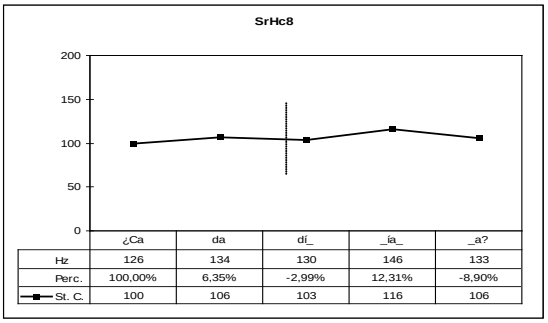


	¿Ca	da	dí_	_ía_	_a?
Hz	125	152	117	148	123
Perc.	100,00%	21,60%	-23,03%	26,50%	-16,89%
St. C.	100	122	94	118	98

Code	SrHc5, male	SrHc6, male
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	28	30

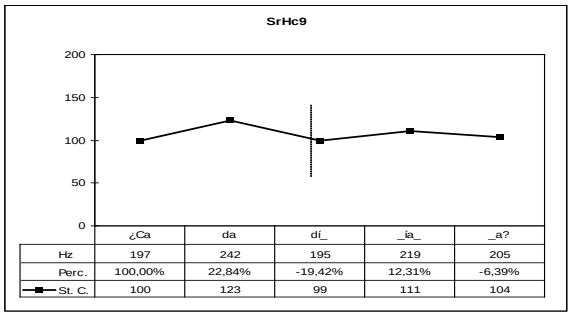


	¿Ca	da	dí_	_ía_	_a?
Hz	143	158	128	170	164
Perc.	100,00%	10,49%	-18,99%	32,81%	-3,53%
St. C.	100	110	90	119	115

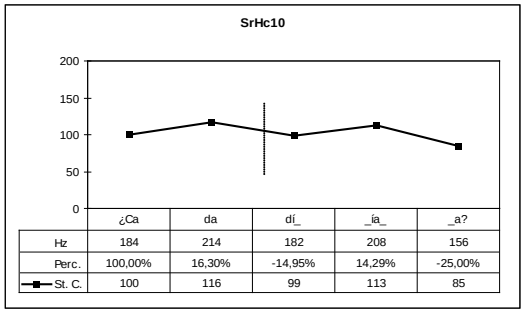


	¿Ca	da	dí_	_ía_	_a?
Hz	126	134	130	146	133
Perc.	100,00%	6,35%	-2,99%	12,31%	-8,90%
St. C.	100	106	103	116	106

Code	SrHc7, male	SrHc8, male
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	32	16

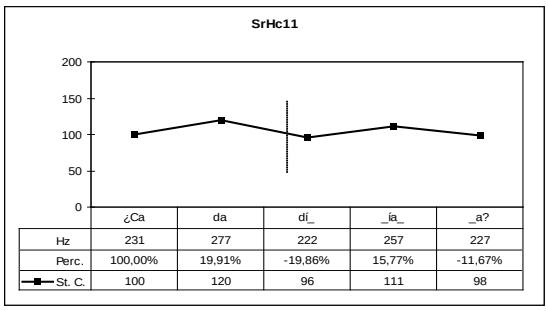


	¿Ca	da	dí_	_ía_	_a?
Hz	197	242	195	219	205
Perc.	100,00%	22,84%	-19,42%	12,31%	-6,39%
St. C.	100	123	99	111	104

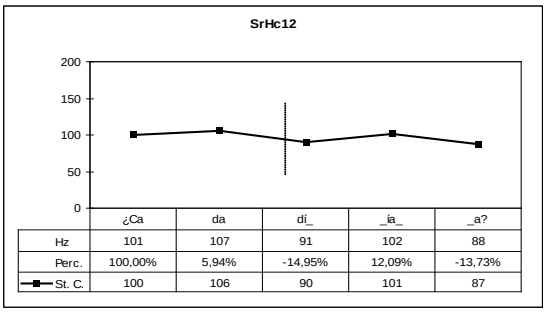


	¿Ca	da	dí_	_ía_	_a?
Hz	184	214	182	208	156
Perc.	100,00%	16,30%	-14,95%	14,29%	-25,00%
St. C.	100	116	99	113	85

Code	SrHc9, female	SrHc10, female
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	24	36

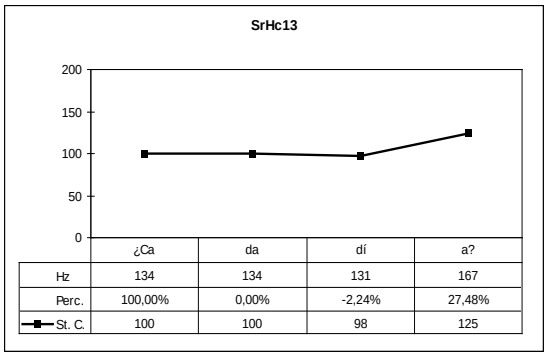


	¿Ca	da	dí_	_ía_	_a?
Hz	231	277	222	257	227
Perc.	100,00%	19,91%	-19,86%	15,77%	-11,67%
St. C.	100	120	96	111	98

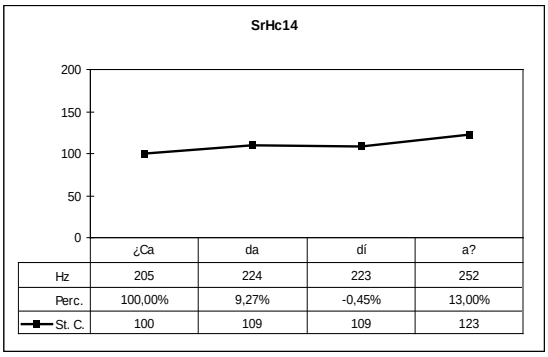


	¿Ca	da	dí_	_ía_	_a?
Hz	101	107	91	102	88
Perc.	100,00%	5,94%	-14,95%	12,09%	-13,73%
St. C.	100	106	90	101	87

Code	SrHc11, female	SrHc12, male
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	25	22

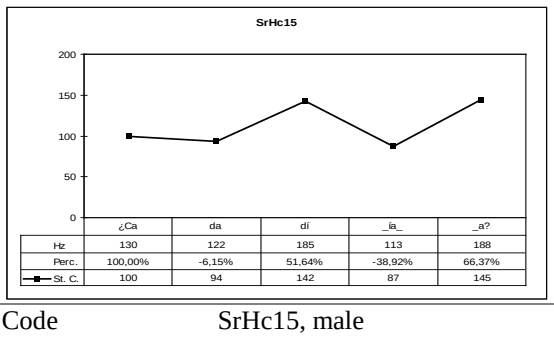


	¿Ca	da	dí	a?
Hz	134	134	131	167
Perc.	100,00%	0,00%	-2,24%	27,48%
St. C.	100	100	98	125

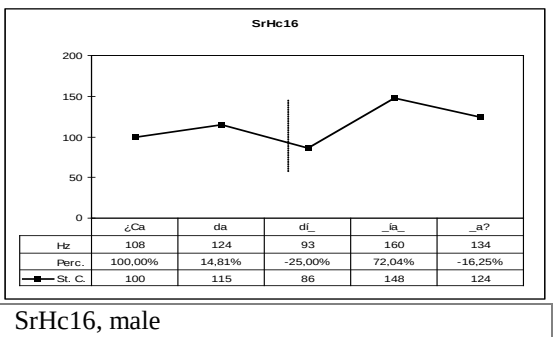


	¿Ca	da	dí	a?
Hz	205	224	223	252
Perc.	100,00%	9,27%	-0,45%	13,00%
St. C.	100	109	109	123

Code	SrHc13, male	SrHc14, female
Pattern	SP6	SP13
Pitch Range	28	23

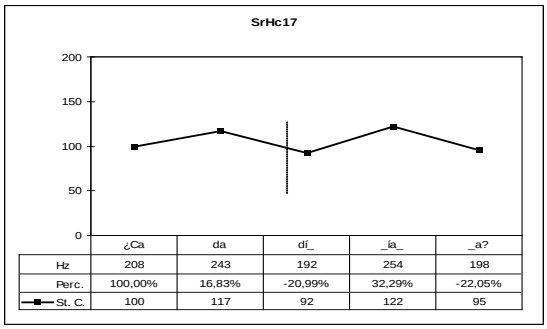


	¿Ca	da	dí	_ía_	_a?
Hz	130	122	185	113	188
Perc.	100,00%	-6,15%	51,64%	-38,92%	66,37%
St. C.	100	94	142	87	145

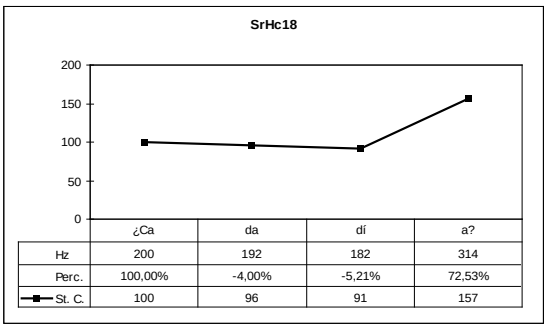


	¿Ca	da	dí_	_ía_	_a?
Hz	108	124	93	160	134
Perc.	100,00%	14,81%	-25,00%	72,04%	-16,25%
St. C.	100	115	86	148	124

Code	SrHc15, male	SrHc16, male
Pattern	SP10b	SP4, possibly HP7, repeated
Pitch Range	67	72

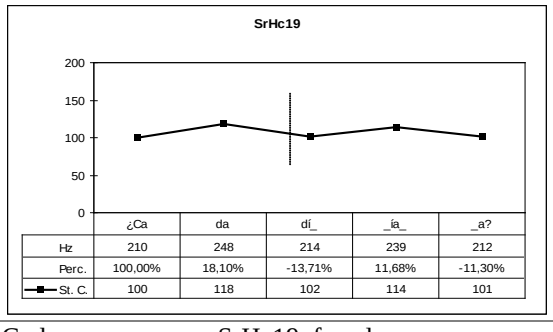


	¿Ca	da	dí_	_ía_	_a?
Hz	208	243	192	254	198
Perc.	100,00%	16,83%	-20,99%	32,29%	-22,05%
St. C.	100	117	92	122	95

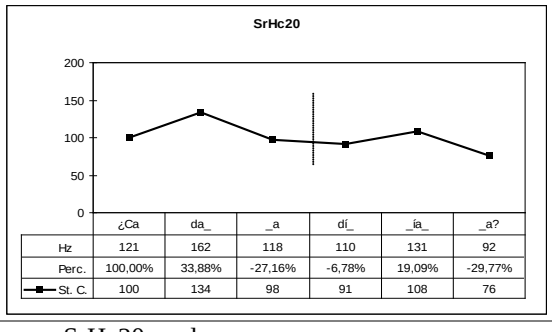


	¿Ca	da	dí	a?
Hz	200	192	182	314
Perc.	100,00%	-4,00%	-5,21%	72,53%
St. C.	100	96	91	157

Code	SrHc17, female	SrHc18, female
Pattern	SP4, possibly HP7, repeated	SP2
Pitch Range	28	72

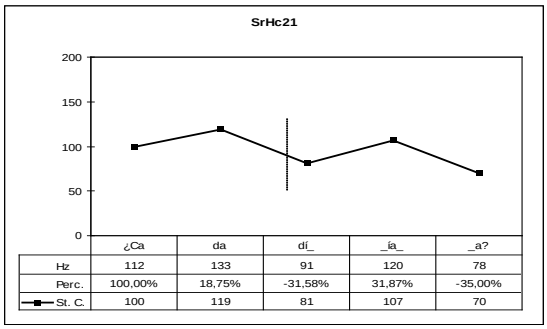


	¿Ca	da	dí_	_ía_	_a?
Hz	210	248	214	239	212
Perc.	100,00%	18,10%	-13,71%	11,68%	-11,30%
St. C.	100	118	102	114	101

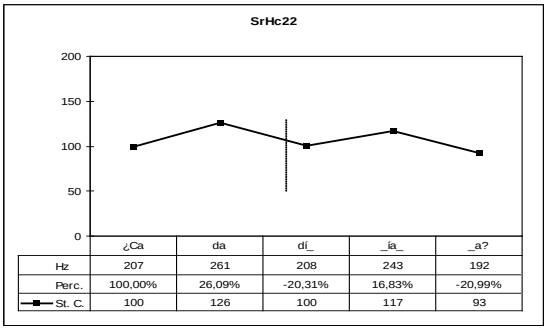


	¿Ca	da_	_a	dí_	_ía_	_a?
Hz	121	162	118	110	131	92
Perc.	100,00%	33,88%	-27,16%	-6,78%	19,09%	-29,77%
St. C.	100	134	98	91	108	76

Code	SrHc19, female	SrHc20, male
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	18	76

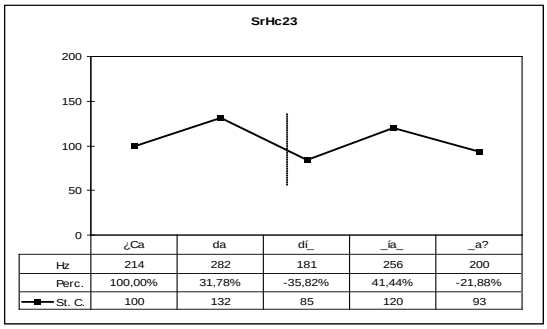


	¿Ca	da	dí_	_ía_	_a?
Hz	112	133	91	120	78
Perc.	100,00%	18,75%	-31,58%	31,87%	-35,00%
St. C.	100	119	81	107	70

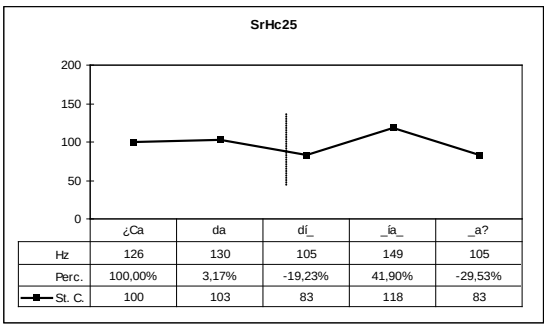


	¿Ca	da	dí_	_ía_	_a?
Hz	207	261	208	243	192
Perc.	100,00%	26,09%	-20,31%	16,83%	-20,99%
St. C.	100	126	100	117	93

Code	SrHc21, male	SrHc22, female
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	70	34

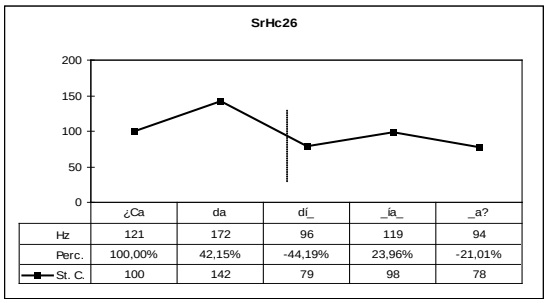


	¿Ca	da	dí_	_ía_	_a?
Hz	214	282	181	256	200
Perc.	100,00%	31,78%	-35,82%	41,44%	-21,88%
St. C.	100	132	85	120	93

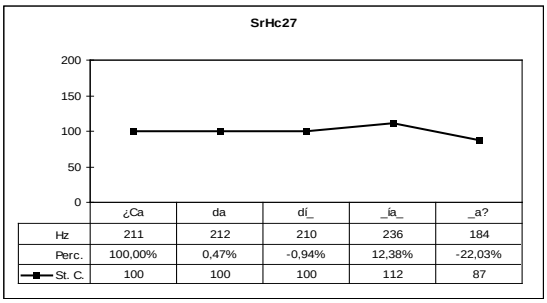


	¿Ca	da	dí_	_ía_	_a?
Hz	126	130	105	149	105
Perc.	100,00%	3,17%	-19,23%	41,90%	-29,53%
St. C.	100	103	83	118	83

Code	SrHc23, female	SrHc25, male
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	55	42

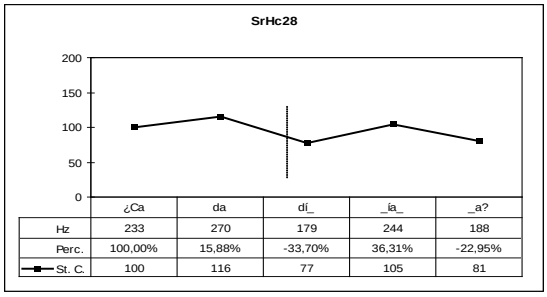


	¿Ca	da	dí_	_ía_	_a?
Hz	121	172	96	119	94
Perc.	100,00%	42,15%	-44,19%	23,96%	-21,01%
St. C.	100	142	79	98	78

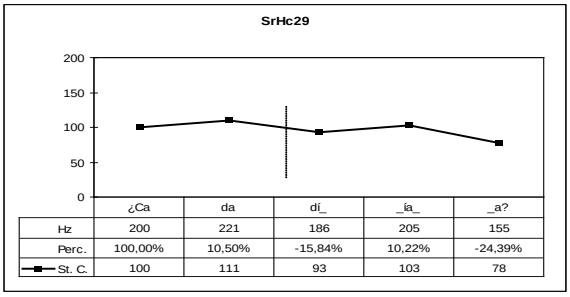


	¿Ca	da	dí_	_ía_	_a?
Hz	211	212	210	236	184
Perc.	100,00%	0,47%	-0,94%	12,38%	-22,03%
St. C.	100	100	100	112	87

Code	SrHc26, male	SrHc27, female
Pattern	SP4, possibly HP7, repeated	SP4b, possibly HP7b
Pitch Range	82	29

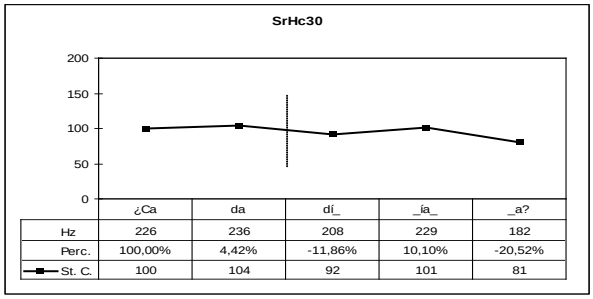


	¿Ca	da	dí_	_ía_	_a?
Hz	233	270	179	244	188
Perc.	100,00%	15,88%	-33,70%	36,31%	-22,95%
St. C.	100	116	77	105	81



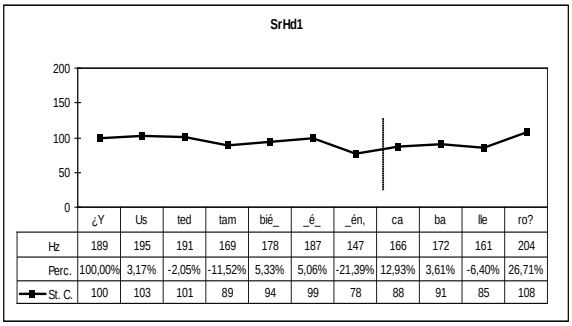
	¿Ca	da	dí_	_ía_	_a?
Hz	200	221	186	205	155
Perc.	100,00%	10,50%	-15,84%	10,22%	-24,39%
St. C.	100	111	93	103	78

Code	SrHc28, female	SrHc29, male
Pattern	SP4, possibly HP7, repeated	SP4, possibly HP7, repeated
Pitch Range	51	42

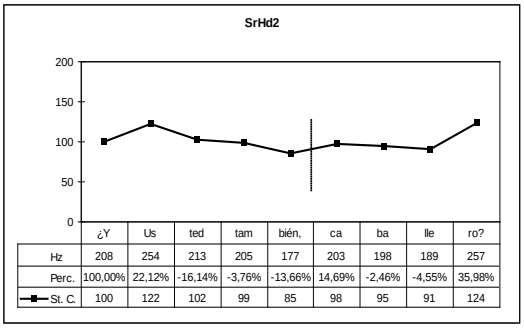


	¿Ca	da	dí_	_ía_	_a?
Hz	226	236	208	229	182
Perc.	100,00%	4,42%	-11,86%	10,10%	-20,52%
St. C.	100	104	92	101	81

Code	SrHc30, male
Pattern	SP4, possibly HP7, repeated
Pitch Range	28

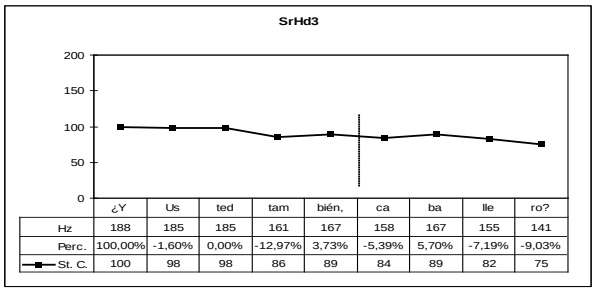


	¿Y	Us	ted	tam	bié_	_é_	_én,	ca	ba	lle	ro?
Hz	189	195	191	169	178	187	147	166	172	161	204
Perc.	100,00%	3,17%	-2,05%	-11,52%	5,33%	5,06%	-21,39%	12,93%	3,61%	-6,40%	26,71%
St. C.	100	103	101	89	94	99	78	88	91	85	108

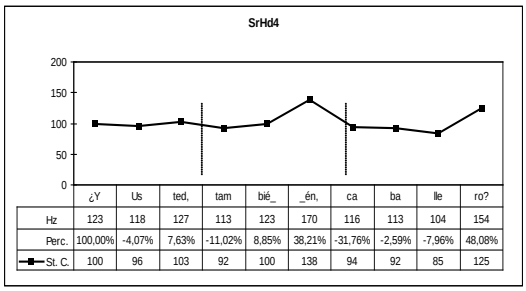


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	208	254	213	205	177	203	198	189	257
Perc.	100,00%	22,12%	-16,14%	-3,76%	-13,66%	14,69%	-2,46%	-4,55%	35,98%
St. C.	100	122	102	99	85	98	95	91	124

Code	SrHd1, male	SrHd2, female
Pattern	SP4b + SP6 (possibly HP7a + SP6)	SP1 (last syllable only one mora) + SP6
Pitch Range	(only first pattern) 32	(only first pattern) 43

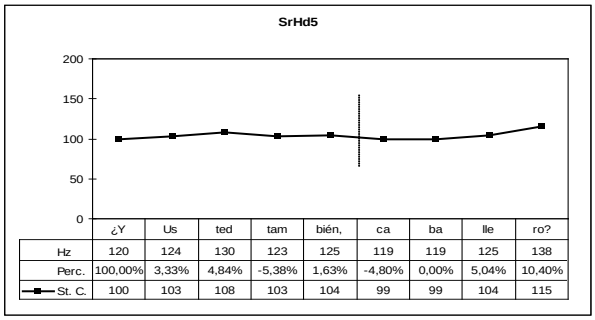


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	188	185	185	161	167	158	167	155	141
Perc.	100,00%	-1,60%	0,00%	-12,97%	3,73%	-5,39%	5,70%	-7,19%	-9,03%
St. C.	100	98	98	86	89	84	89	82	75

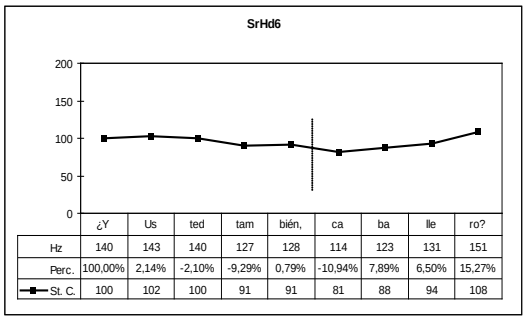


	¿Y	Us	ted,	tam	bié_	_én,	ca	ba	lle	ro?
Hz	123	118	127	113	123	170	116	113	104	154
Perc.	100,00%	-4,07%	7,63%	-11,02%	8,85%	38,21%	-31,76%	-2,59%	-7,96%	48,08%
St. C.	100	96	103	92	100	138	94	92	85	125

Code	SrHd3, female	SrHd4, male
Pattern	SP1(last syllable only one mora) + SP1	SP1 + SP6a + SP3
Pitch Range	(only first pattern) 16	(only second pattern) 50



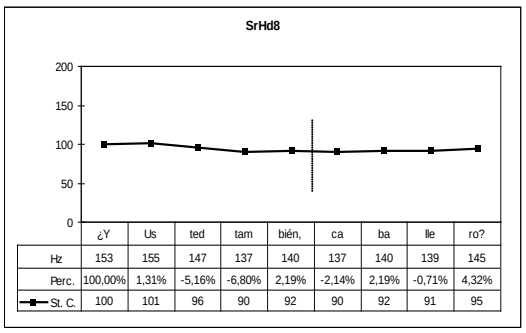
	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	120	124	130	123	125	119	119	125	138
Perc.	100,00%	3,33%	4,84%	-5,38%	1,63%	-4,80%	0,00%	5,04%	10,40%
St. C.	100	103	108	103	104	99	99	104	115



	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	140	143	140	127	128	114	123	131	151
Perc.	100,00%	2,14%	-2,10%	-9,29%	0,79%	-10,94%	7,89%	6,50%	15,27%
St. C.	100	102	100	91	91	81	88	94	108

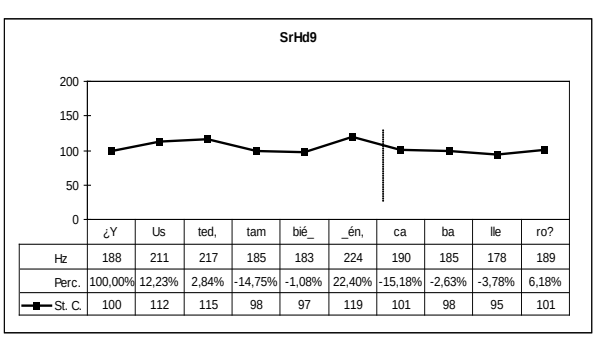
Code	SrHd5, male	SrHd6, male
Pattern	SP1(last syllable only one mora) + SP1	SP1(last syllable only one mora) + SP13
Pitch Range	(only first pattern) 8	(only first pattern) 12

	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	152	157	166	137	142	136	135	135	199
Perc.	100,00%	3,29%	5,73%	-17,47%	3,65%	-4,23%	-0,74%	0,00%	47,41%
St. C.	100	103	109	90	93	89	89	89	131

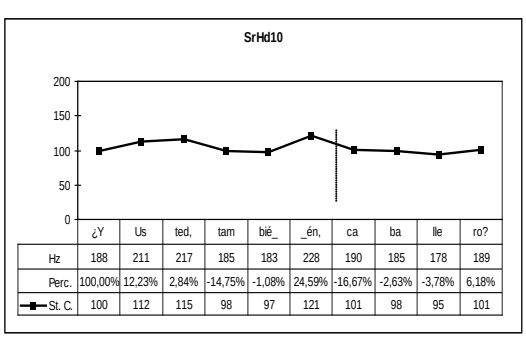


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	153	155	147	137	140	137	140	139	145
Perc.	100,00%	1,31%	-5,16%	-6,80%	2,19%	-2,14%	2,19%	-0,71%	4,32%
St. C.	100	101	96	90	92	90	92	91	95

Code	SrHd7, male	SrHd8, male
Pattern	SP1 (last syllable only one mora) + SP3	SP1(last syllable only one mora) + SP1
Pitch Range	(only first pattern) 21	(only first pattern) 12

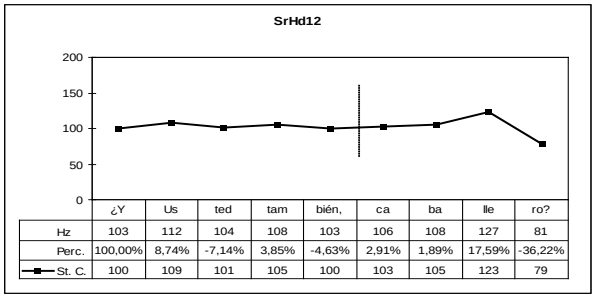


	¿Y	Us	ted,	tam	bié_	_én,	ca	ba	lle	ro?
Hz	188	211	217	185	183	224	190	185	178	189
Perc.	100,00%	12,23%	2,84%	-14,75%	-1,08%	22,40%	-15,18%	-2,63%	-3,78%	6,18%
St. C.	100	112	115	98	97	119	101	98	95	101

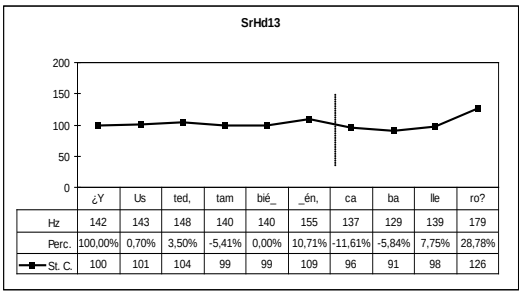


	¿Y	Us	ted,	tam	bié_	_én,	ca	ba	lle	ro?
Hz	188	211	217	185	183	228	190	185	178	189
Perc.	100,00%	12,23%	2,84%	-14,75%	-1,08%	24,59%	-16,67%	-2,63%	-3,78%	6,18%
St. C.	100	112	115	98	97	121	101	98	95	101

Code	SrHd9, female	SrHd10, female
Pattern	SP6a + SP6	SP6a + SP1
Pitch Range	(only first pattern) 23	(only first pattern) 25

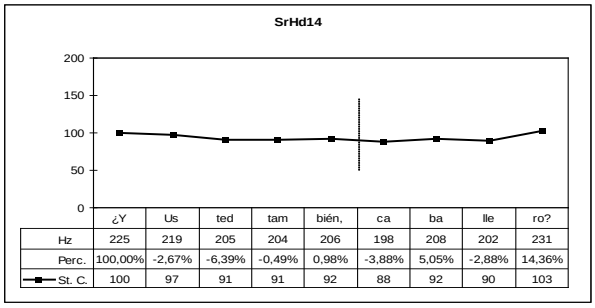


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	103	112	104	108	103	106	108	127	81
Perc.	100,00%	8,74%	-7,14%	3,85%	-4,63%	2,91%	1,89%	17,59%	-36,22%
St. C.	100	109	101	105	100	103	105	123	79

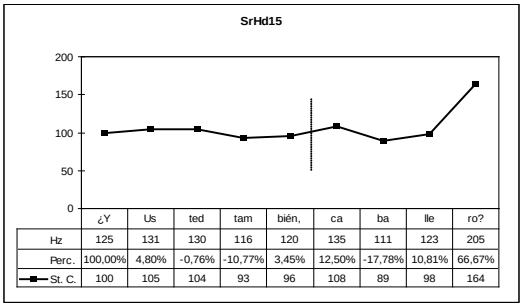


	¿Y	Us	ted,	tam	bié_	_én,	ca	ba	lle	ro?
Hz	142	143	148	140	140	155	137	129	139	179
Perc.	100,00%	0,70%	3,50%	-5,41%	0,00%	10,71%	-11,61%	-5,84%	7,75%	28,78%
St. C.	100	101	104	99	99	109	96	91	98	126

Code	SrHd12, male	SrHd13, male
Pattern	SP1 (last syllable only one mora) + SP7 (=HP7b)	SP1 + SP6
Pitch Range	(only first pattern) 9	(only first pattern) 10

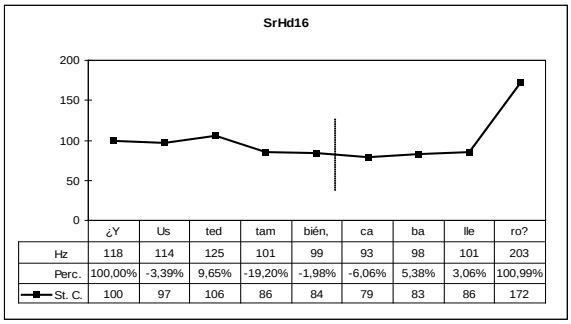


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	225	219	205	204	206	198	208	202	231
Perc.	100,00%	-2,67%	-6,39%	-0,49%	0,98%	-3,88%	5,05%	-2,88%	14,36%
St. C.	100	97	91	91	92	88	92	90	103

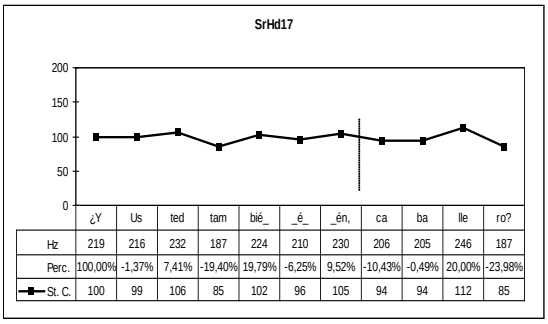


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	125	131	130	116	120	135	111	123	205
Perc.	100,00%	4,80%	-0,76%	-10,77%	3,45%	12,50%	-17,78%	10,81%	66,67%
St. C.	100	105	104	93	96	108	89	98	164

Code	SrHd14, female	SrHd15, male
Pattern	SP1 (last syllable only one mora) + SP1	SP1(last syllable only one mora) + SP3
Pitch Range	(only first pattern) 10	(only first pattern) 13

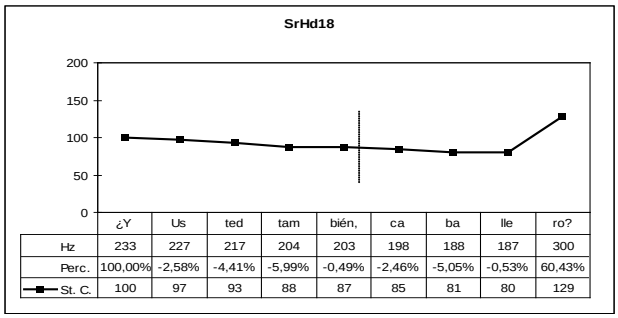


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	118	114	125	101	99	93	98	101	203
Perc.	100,00%	-3,39%	9,65%	-19,20%	-1,98%	-6,06%	5,38%	3,06%	100,99%
St. C.	100	97	106	86	84	79	83	86	172

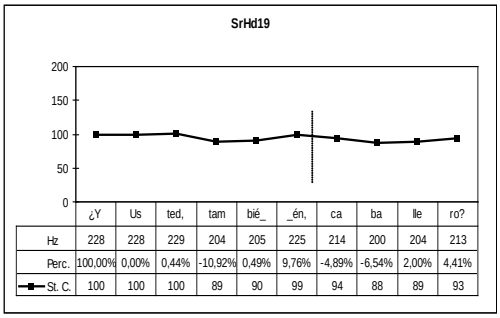


	¿Y	Us	ted	tam	bié_	_é_	_én,	ca	ba	lle	ro?
Hz	219	216	232	187	224	210	230	206	205	246	187
Perc.	100,00%	-1,37%	7,41%	-19,40%	19,79%	-6,25%	9,52%	-10,43%	-0,49%	20,00%	-23,98%
St. C.	100	99	106	85	102	96	105	94	94	112	85

Code	SrHd16, male	SrHd17, female
Pattern	SP1 (last syllable only one mora) + SP2	SP10b + SP7 (=HP7b)
Pitch Range	(only first pattern) 26	(only first pattern) 25

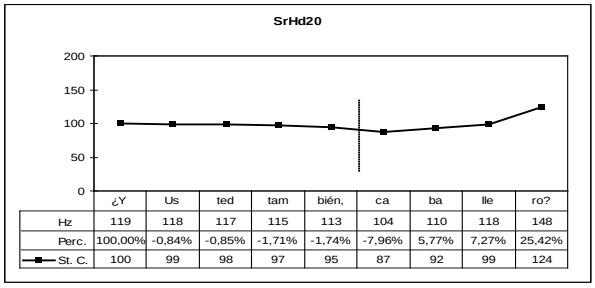


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	233	227	217	204	203	198	188	187	300
Perc.	100,00%	-2,58%	-4,41%	-5,99%	-0,49%	-2,46%	-5,05%	-0,53%	60,43%
St. C.	100	97	93	88	87	85	81	80	129

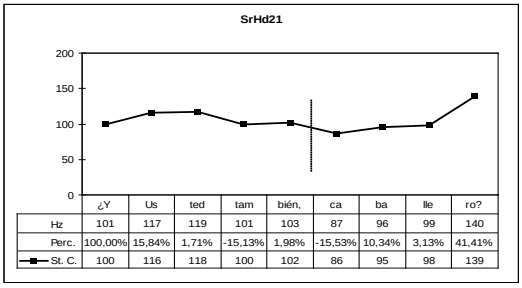


	¿Y	Us	ted,	tam	bié_	_én,	ca	ba	lle	ro?
Hz	228	228	229	204	205	225	214	200	204	213
Perc.	100,00%	0,00%	0,44%	-10,92%	0,49%	9,76%	-4,89%	-6,54%	2,00%	4,41%
St. C.	100	100	100	89	90	99	94	88	89	93

Code	SrHd18, female	SrHd19, female
Pattern	SP1 (last syllable only one mora) + SP3	SP1 + SP1
Pitch Range	(only first pattern) 15	(only first pattern) 11

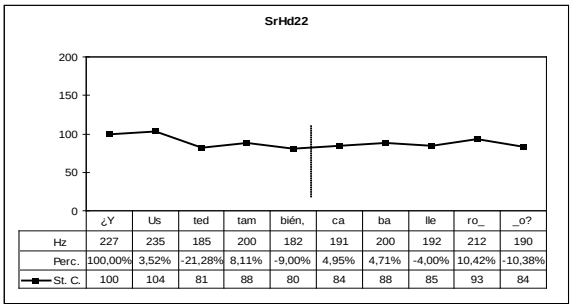


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	119	118	117	115	113	104	110	118	148
Perc.	100,00%	-0,84%	-0,85%	-1,71%	-1,74%	-7,96%	5,77%	7,27%	25,42%
St. C.	100	99	98	97	95	87	92	99	124

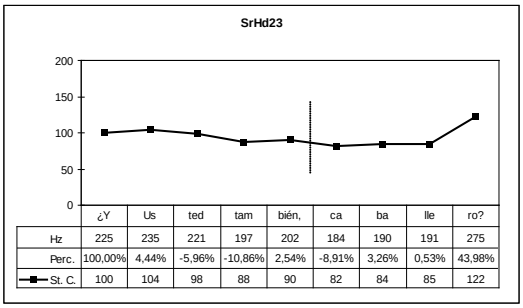


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	101	117	119	101	103	87	96	99	140
Perc.	100,00%	15,84%	1,71%	-15,13%	1,98%	-15,53%	10,34%	3,13%	41,41%
St. C.	100	116	118	100	102	86	95	98	139

Code	SrHd20, male	SrHd21, male
Pattern	SP1 (last syllable only one mora) + SP6	SP1 (last syllable only one mora) + SP3
Pitch Range	(only first pattern) 5	(only first pattern) 18

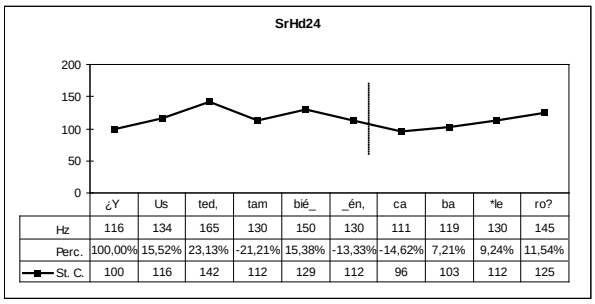


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro_	_o?
Hz	227	235	185	200	182	191	200	192	212	190
Perc.	100,00%	3,52%	-21,28%	8,11%	-9,00%	4,95%	4,71%	-4,00%	10,42%	-10,38%
St. C.	100	104	81	88	80	84	88	85	93	84

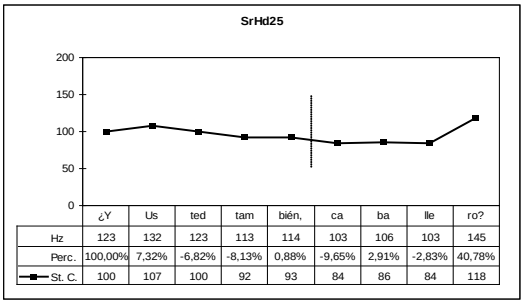


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	225	235	221	197	202	184	190	191	275
Perc.	100,00%	4,44%	-5,96%	-10,86%	2,54%	-8,91%	3,26%	0,53%	43,98%
St. C.	100	104	98	88	90	82	84	85	122

Code	SrHd22, female	SrHd23, female
Pattern	SP1 (last syllable only one mora) + SP4	SP1 (last syllable only one mora) + SP3
Pitch Range	(only first pattern) 30	(only first pattern) 18

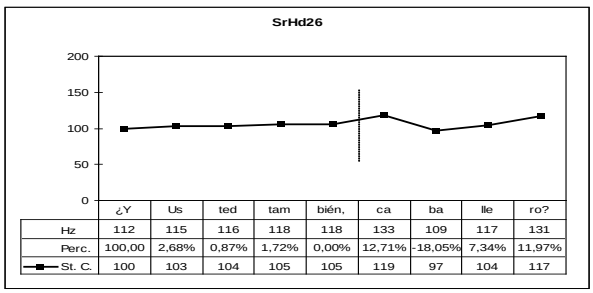


	¿Y	Us	ted,	tam	bié_	_én,	ca	ba	*le	ro?
Hz	116	134	165	130	150	130	111	119	130	145
Perc.	100,00%	15,52%	23,13%	-21,21%	15,38%	-13,33%	-14,62%	7,21%	9,24%	11,54%
St. C.	100	116	142	112	129	112	96	103	112	125

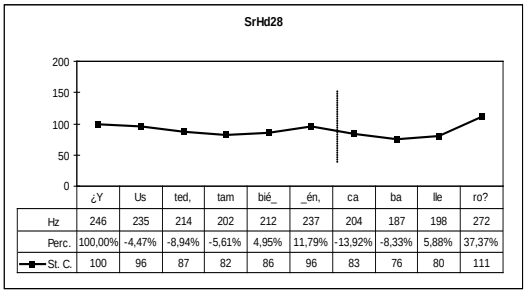


	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	123	132	123	113	114	103	106	103	145
Perc.	100,00%	7,32%	-6,82%	-8,13%	0,88%	-9,65%	2,91%	-2,83%	40,78%
St. C.	100	107	100	92	93	84	86	84	118

Code	SrHd24, male	SrHd25, male
Pattern	SP1, possibly HP7 + SP1	SP1 (last syllable only one mora) + SP3
Pitch Range	(only first pattern) 42	(only first pattern) 15

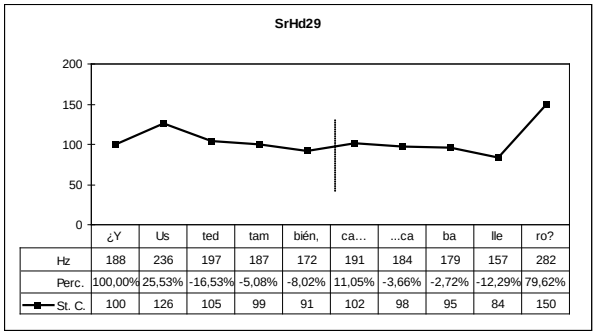


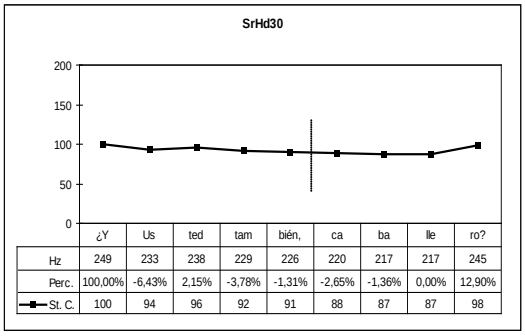
	¿Y	Us	ted	tam	bién,	ca	ba	lle	ro?
Hz	112	115	116	118	118	133	109	117	131
Perc.	100,00	2,68%	0,87%	1,72%	0,00%	12,71%	-18,05%	7,34%	11,97%
St. C.	100	103	104	105	105	119	97	104	117



	¿Y	Us	ted,	tam	bié_	_én,	ca	ba	lle	ro?
Hz	246	235	214	202	212	237	204	187	198	272
Perc.	100,00%	-4,47%	-8,94%	-5,61%	4,95%	11,79%	-13,92%	-8,33%	5,88%	37,37%
St. C.	100	96	87	82	86	96	83	76	80	111

Code	SrHd26, male	SrHd28, female
Pattern	SP1(last syllable only one mora) + SP1	SP1 + SP6
Pitch Range	(only first pattern) 5	(only first pattern) 22





Code	SrHd29, female	SrHd30, male
Pattern	SP1(last syllable only one mora) + SP2	SP1 (last syllable only one mora) + SP1
Pitch Range	(only first pattern) 38	(only first pattern) 10

Corpus 3B: Semi-spontaneous Spanish sentences produced by Hungarian learners

The following section contains 64 semi-spontaneous Spanish sentences, uttered by 21 Hungarian learners of Spanish, aged 17-18, who have been learning Spanish for three years.

The students were unaware of the exact purpose of the recording, they were only told that it was a practice for a special exam in which two students were evaluated at the same time. The material of the study was provided by an interview; one of the students had to collect data on the travelling customs of the other.

The questionnaire on which the interview was based is reproduced here:

Datos personales 'personal details'

Sexo 'sex': hombre 'masculine' mujer 'femenine'
Edad 'Age': ....
Escuelas 'schools': primaria 'primary school' secundaria 'secondary school' superior 'superior'
Profesión 'occupation': .....

Preferencias 'preferences'	**✓ = sí 'yes' ✖ = no 'no'**
Viajar al extranjero	'travelling abroad'
Viajar con su familia	'travelling with his/her family'
Participar en viajes organizados	'participating in organized journeys'
Llevar dinero en euros	'taking money in euros'
Tener seguro de viajes	'having travel insurance'
Comprar regalos para los amigos	'buying gifts for the friends'
Escribir postales a la gente en casa	'writing postcards to the people at home'
Tomar el sol	'sunbathing'
Visitar museos	'visiting museums'
Probar la comida típica	'trying the country's typical dishes'

The interviewed students had to ask the "reporter" student whether the questionnaire was anonymous; whether (s)he had to tell the truth, and whether (s)he got a present at the end.

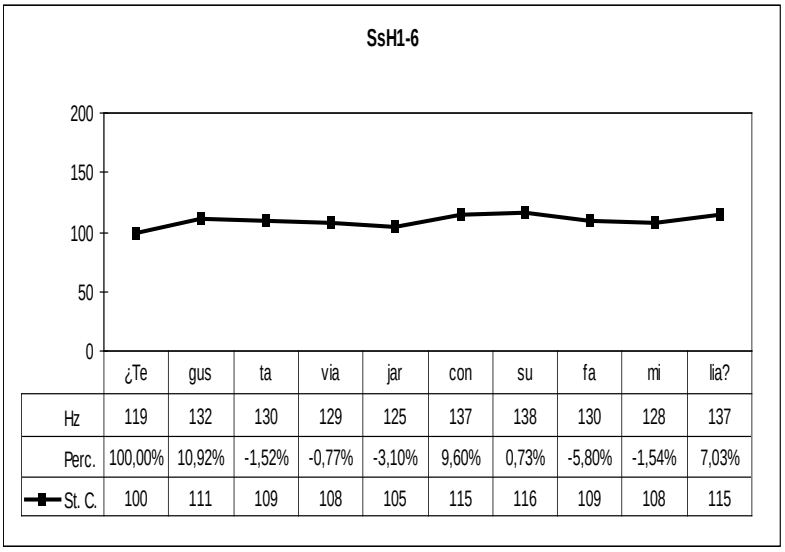
Symbols

The same as for the read Spanish sentences (Corpus 3A), except for:

SsH: **S**panish (semi-)**s**pontaneous sentences uttered by **H**ungarians
First number: the number of the speaker; second number: the number of the speaker's sentence.

1. Ordinary yes-no questions

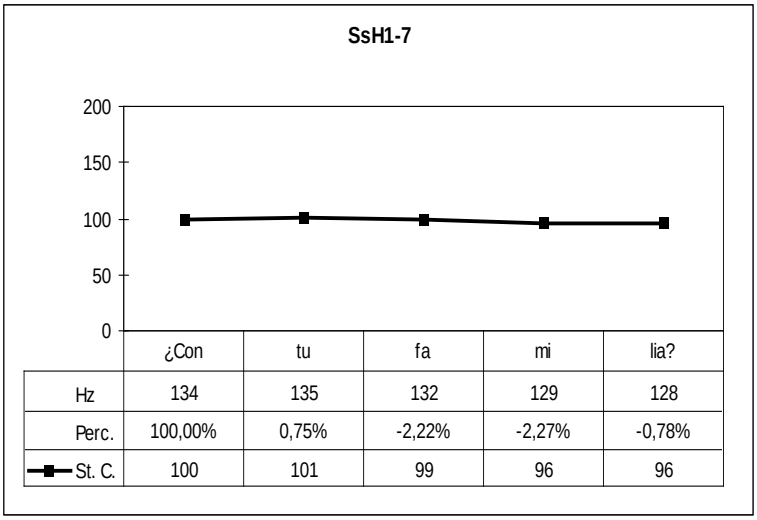
| ¿Te 'gusta viajar con tu fa'milia?|
you-sg-dat like-3sg travel with your family
'Do you like traveling with your family?'



	¿Te	gus	ta	via	jar	con	su	fa	mi	lia?
Hz	119	132	130	129	125	137	138	130	128	137
Perc.	100,00%	10,92%	-1,52%	-0,77%	-3,10%	9,60%	0,73%	-5,80%	-1,54%	7,03%
St. C.	100	111	109	108	105	115	116	109	108	115

Code	SsH1-6, male
Pattern	SP1
Pitch Range	16

| ¿Con tu fa'milia?|
with your family
'With your family?'

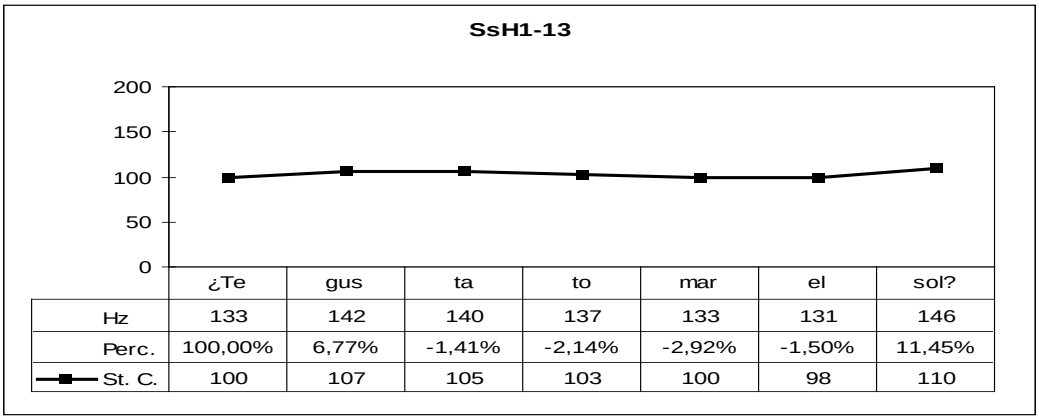


	¿Con	tu	fa	mi	lia?
Hz	134	135	132	129	128
Perc.	100,00%	0,75%	-2,22%	-2,27%	-0,78%
St. C.	100	101	99	96	96

Code	SsH1-7, male
Pattern	SP1
Pitch Range	5

| ¿Te 'gusta tomar el sol?|

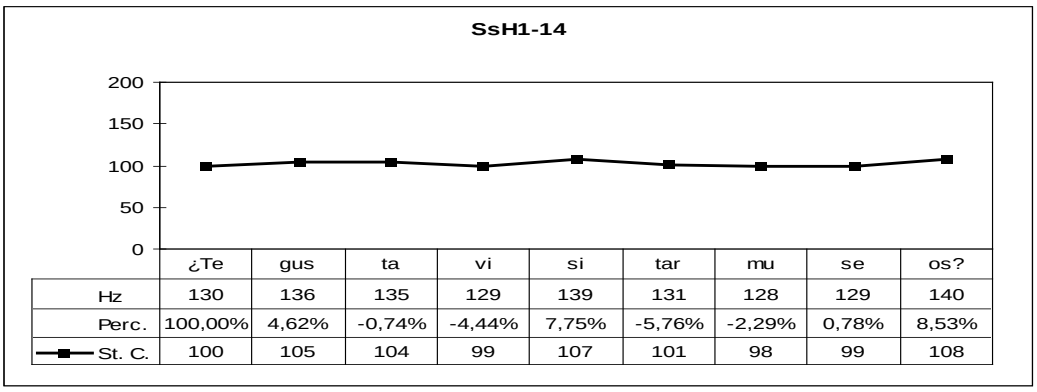
you-dat-sg. like-3sg take the sun
‘Do you like sunbathing?



	¿Te	gus	ta	to	mar	el	sol?
Hz	133	142	140	137	133	131	146
Perc.	100,00%	6,77%	-1,41%	-2,14%	-2,92%	-1,50%	11,45%
St. C.	100	107	105	103	100	98	110

Code	SsH1-13, male
Pattern	SP1
Pitch Range	12

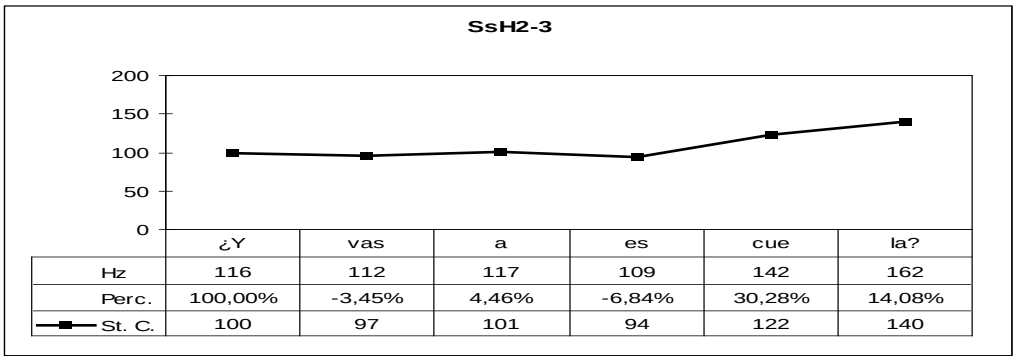
| ¿Te 'gusta visitar mu'seos?|
you-dat-sg like-3sg visit museums
‘Do you like visiting museums?’



	¿Te	gus	ta	vi	si	tar	mu	se	os?
Hz	130	136	135	129	139	131	128	129	140
Perc.	100,00%	4,62%	-0,74%	-4,44%	7,75%	-5,76%	-2,29%	0,78%	8,53%
St. C.	100	105	104	99	107	101	98	99	108

Code	SsH1-14, male
Pattern	SP1
Pitch Range	10

| ¿Y vas a es'cuela?|
and go-2sg to school
‘And do you go to school?’

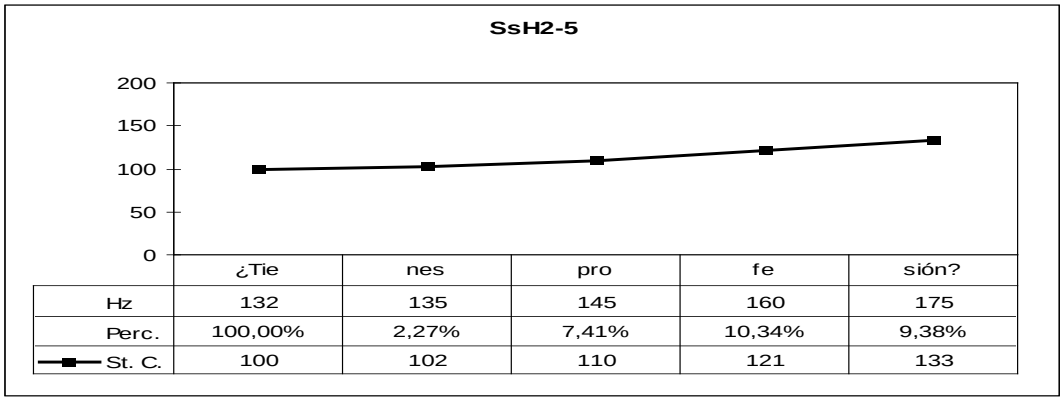


	¿Y	vas	a	es	cue	la?
Hz	116	112	117	109	142	162
Perc.	100,00%	-3,45%	4,46%	-6,84%	30,28%	14,08%
St. C.	100	97	101	94	122	140

Code	SsH2-3, male
Pattern	SP1 (anomalous as Synt. Accent high)
Pitch Range	49

| ¿'Tienes profe'sión?|
have-2sg profession

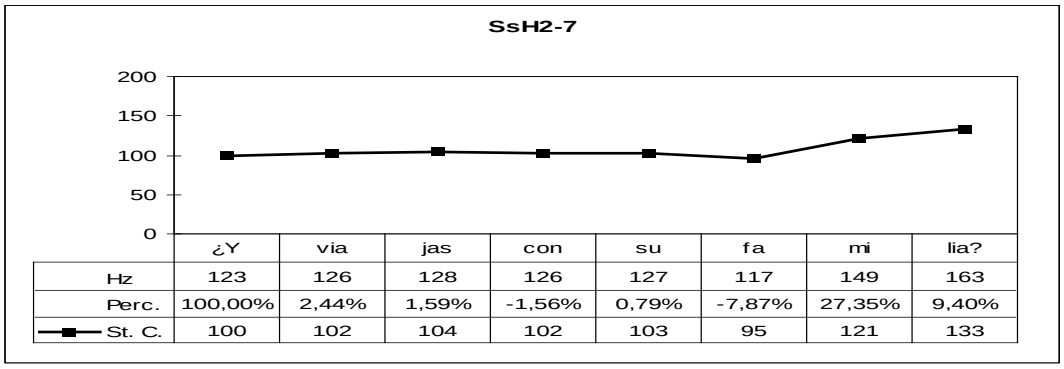
‘Do you have a profession?’



	¿Tie	nes	pro	fe	sión?
Hz	132	135	145	160	175
Perc.	100,00%	2,27%	7,41%	10,34%	9,38%
St. C.	100	102	110	121	133

Code	SsH2-5, male
Pattern	SP13
Pitch Range	33

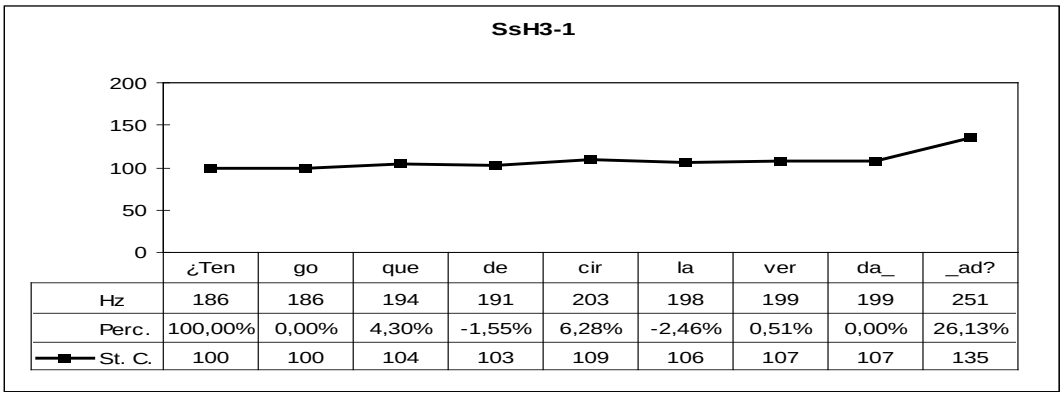
| ¿Y 'viajas con su fa'milia?|
and travel-2sg with his/her family
‘And do you travel with his/her family?’



	¿Y	via	jas	con	su	fa	mi	lia?
Hz	123	126	128	126	127	117	149	163
Perc.	100,00%	2,44%	1,59%	-1,56%	0,79%	-7,87%	27,35%	9,40%
St. C.	100	102	104	102	103	95	121	133

Code	SsH2-7, male
Pattern	SP1 (anomalous, with high Syntagmatic Accent)
Pitch Range	33

| ¿'Tengo que decir la ver'dad?|
have-1sg that-compl tell the truth
‘Do I have to tell the truth?’

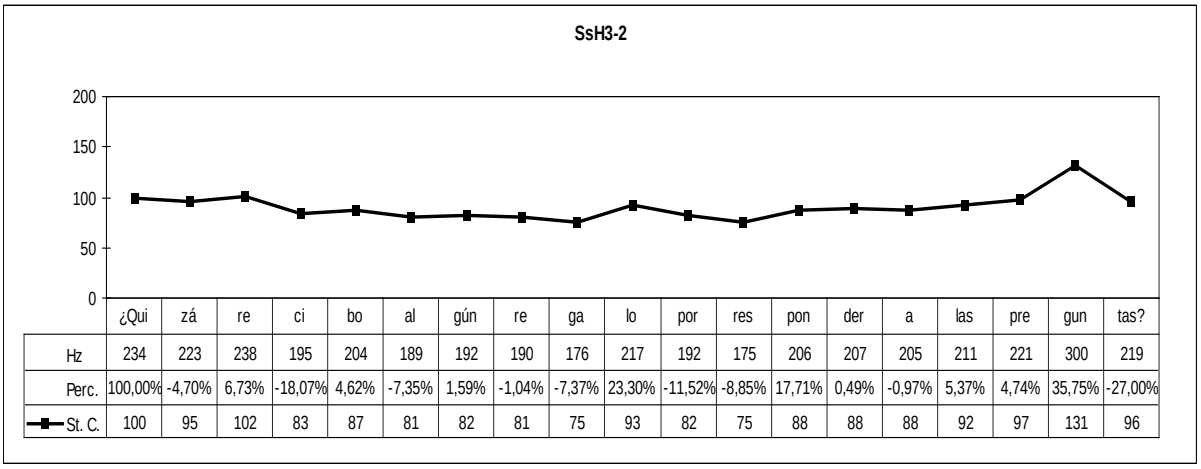


	¿Ten	go	que	de	cir	la	ver	da_	_ad?
Hz	186	186	194	191	203	198	199	199	251
Perc.	100,00%	0,00%	4,30%	-1,55%	6,28%	-2,46%	0,51%	0,00%	26,13%
St. C.	100	100	104	103	109	106	107	107	135

Code	SsH3-1, female
Pattern	SP13
Pitch Range	35

| ¿Quizá re'cibo algún regalo por responder a las pre'guntas?|
maybe receive-1sg some present for answer to the questions

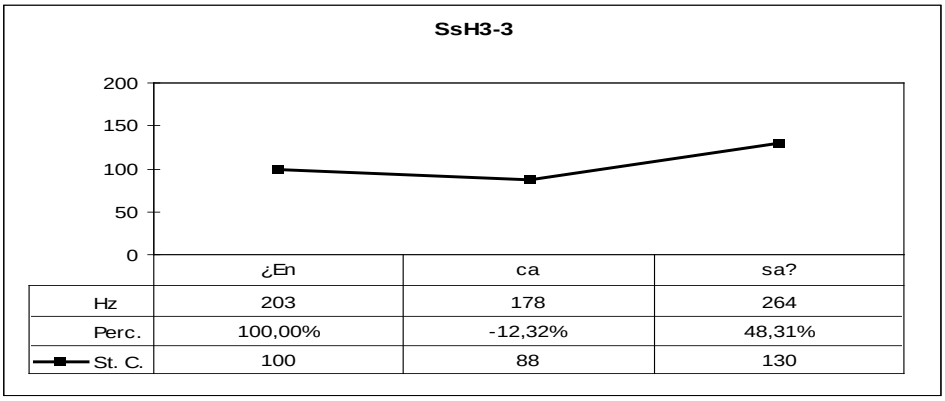
‘And I might receive some present for answering the questions?’



	¿Qui	zá	re	ci	bo	al	gún	re	ga	lo	por	res	pon	der	a	las	pre	gun	tas?
Hz	234	223	238	195	204	189	192	190	176	217	192	175	206	207	205	211	221	300	219
Perc.	100,00%	-4,70%	6,73%	-18,07%	4,62%	-7,35%	1,59%	-1,04%	-7,37%	23,30%	-11,52%	-8,85%	17,71%	0,49%	-0,97%	5,37%	4,74%	35,75%	-27,00%
St. C.	100	95	102	83	87	81	82	81	75	93	82	75	88	88	88	92	97	131	96

Code	SsH3-2, female
Pattern	SP7, possibly HP7b
Pitch Range	75

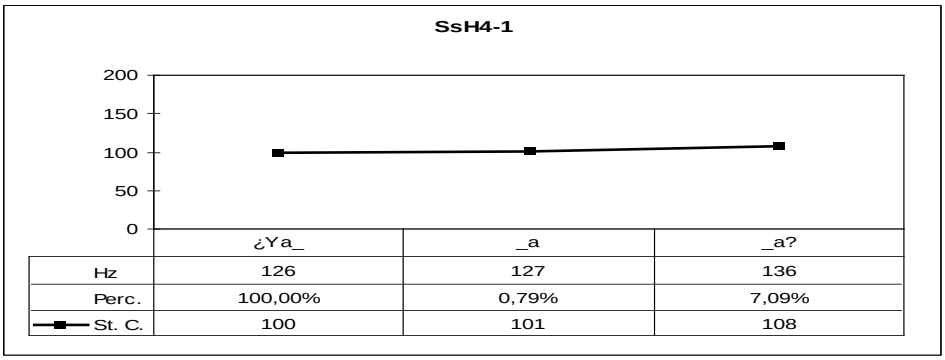
| ¿En 'casa?|
in home
‘At home?’



	¿En	ca	sa?
Hz	203	178	264
Perc.	100,00%	-12,32%	48,31%
St. C.	100	88	130

Code	SsH3-3, female
Pattern	SP3
Pitch Range	47

| ¿Ya?|
‘Already?’

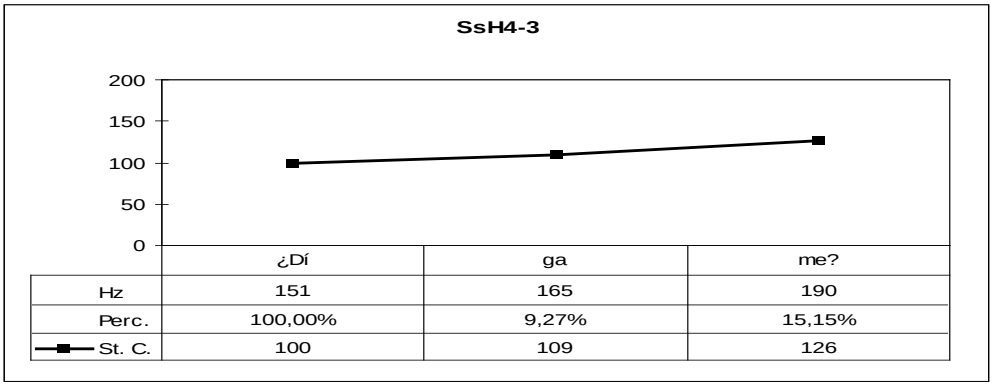


	¿Ya_	_a	_a?
Hz	126	127	136
Perc.	100,00%	0,79%	7,09%
St. C.	100	101	108

Code	SsH4-1, male
Pattern	SP1
Pitch Range	8

| ¿Dígame?|
Tell-2sg-subj-me-dat

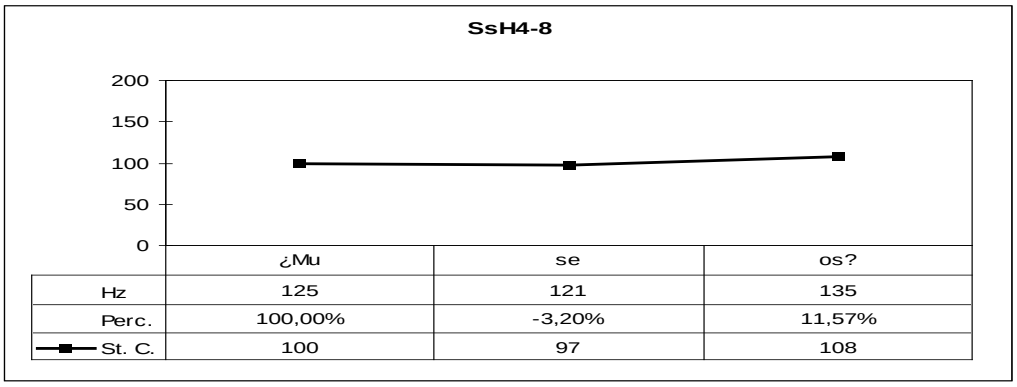
‘Hallo?’



	¿Dí	ga	me?
Hz	151	165	190
Perc.	100,00%	9,27%	15,15%
St. C.	100	109	126

Code	SsH4-3, male
Pattern	SP13
Pitch Range	26

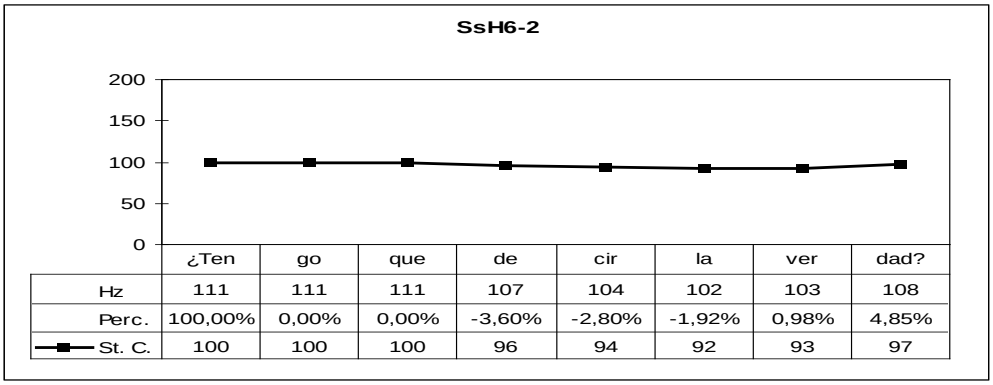
| ¿Mu'seos?|
‘Museums?’



	¿Mu	se	os?
Hz	125	121	135
Perc.	100,00%	-3,20%	11,57%
St. C.	100	97	108

Code	SsH4-8, male
Pattern	SP1
Pitch Range	11

| ¿'Tengo que decir la ver'dad?|
have-1sg that-compl tell the truth
‘Do I have to tell the truth?’

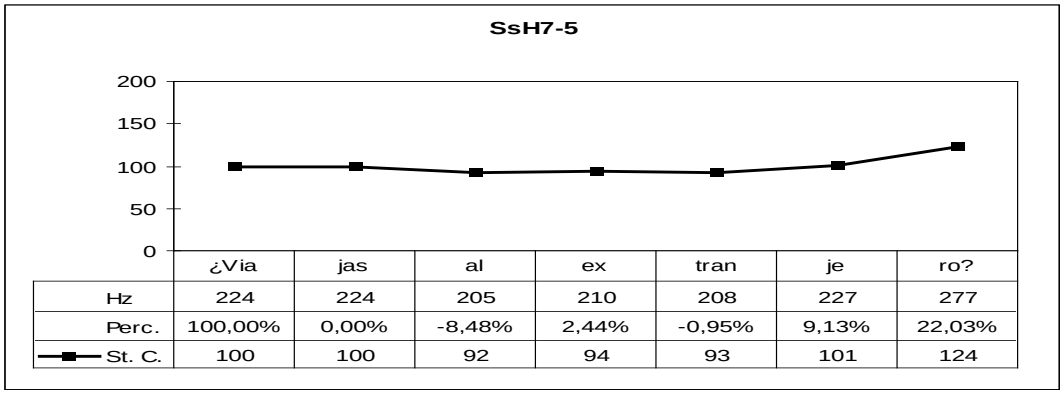


	¿Ten	go	que	de	cir	la	ver	dad?
Hz	111	111	111	107	104	102	103	108
Perc.	100,00%	0,00%	0,00%	-3,60%	-2,80%	-1,92%	0,98%	4,85%
St. C.	100	100	100	96	94	92	93	97

Code	SsH6-2, male
Pattern	SP1, last syllable not given two moras
Pitch Range	9

| ¿'Viajas al extran'jero?|
travel-2sg to-the abroad

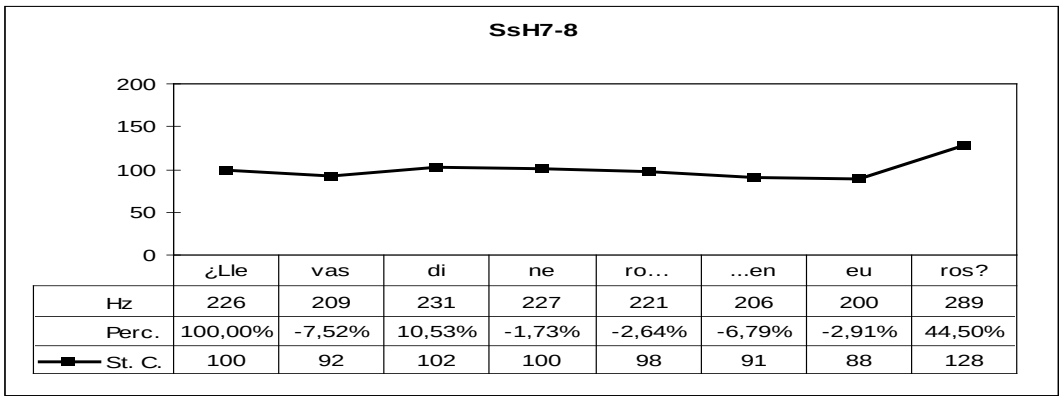
‘Do you travel abroad?’



	¿Via	jas	al	ex	tran	je	ro?
Hz	224	224	205	210	208	227	277
Perc.	100,00%	0,00%	-8,48%	2,44%	-0,95%	9,13%	22,03%
St. C.	100	100	92	94	93	101	124

Code	SsH7-5, female
Pattern	SP6a
Pitch Range	33

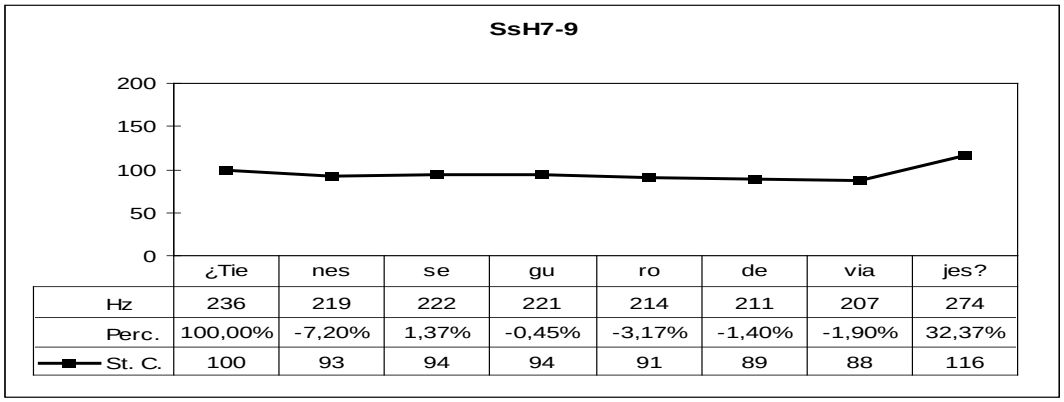
| ¿ 'Llevas dinero… en 'euros?|
take-2sg money in euros
‘Do you take money in euros?’



	¿Lle	vas	di	ne	ro…	…en	eu	ros?
Hz	226	209	231	227	221	206	200	289
Perc.	100,00%	-7,52%	10,53%	-1,73%	-2,64%	-6,79%	-2,91%	44,50%
St. C.	100	92	102	100	98	91	88	128

Code	SsH7-8, female
Pattern	SP6a
Pitch Range	45

| ¿'Tienes seguro de 'viajes?|
have-2sg insurance of journeys
‘Do you have travel insurance?’

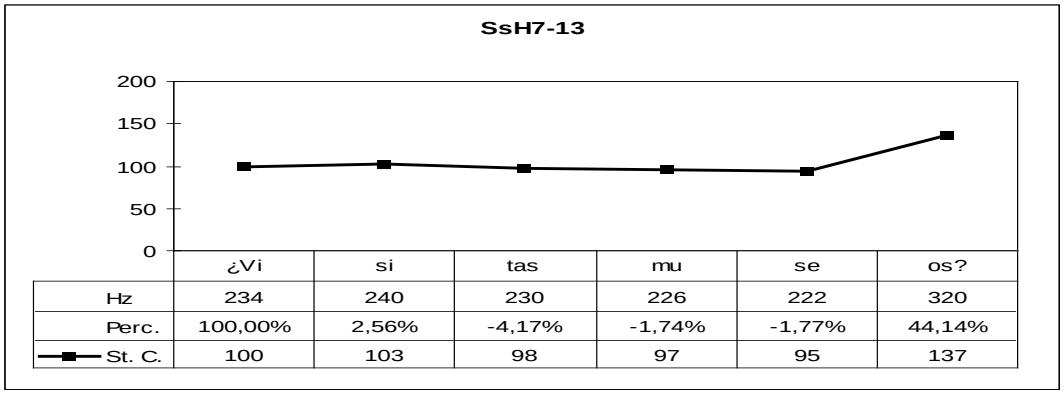


	¿Tie	nes	se	gu	ro	de	via	jes?
Hz	236	219	222	221	214	211	207	274
Perc.	100,00%	-7,20%	1,37%	-0,45%	-3,17%	-1,40%	-1,90%	32,37%
St. C.	100	93	94	94	91	89	88	116

Code	SsH7-9, female
Pattern	SP6a
Pitch Range	32

| ¿Vi'sitas mu'seos?|
visit-2sg museums

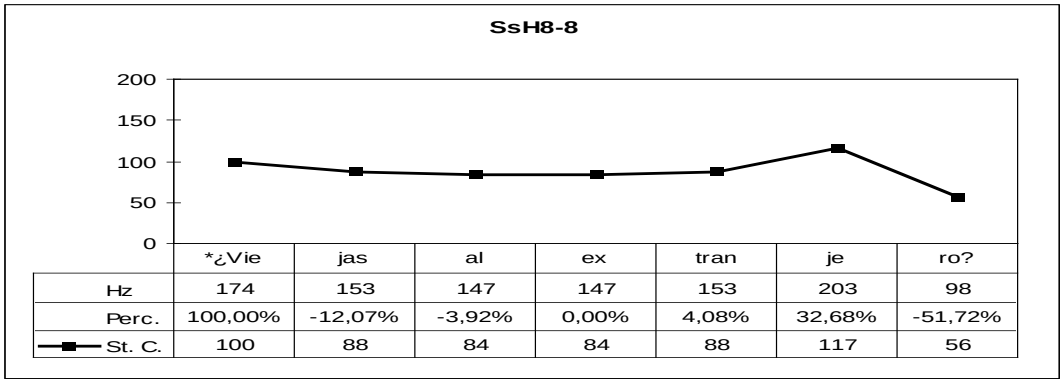
‘Do you visit museums?’



	¿Vi	si	tas	mu	se	os?
Hz	234	240	230	226	222	320
Perc.	100,00%	2,56%	-4,17%	-1,74%	-1,77%	44,14%
St. C.	100	103	98	97	95	137

Code	SsH7-13, female
Pattern	SP6a
Pitch Range	44

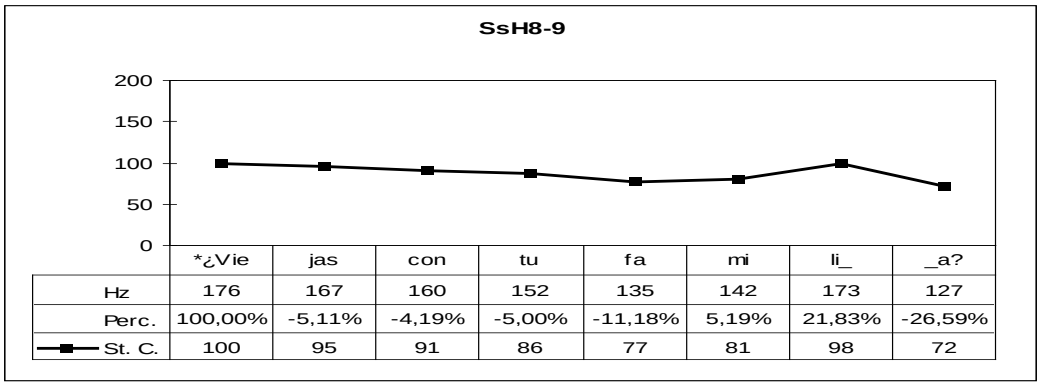
| *¿'Viejas al extran'jero?| correctly: viajas
travel-2sg to-the abroad
‘Do you travel abroad?’



	*¿Vie	jas	al	ex	tran	je	ro?
Hz	174	153	147	147	153	203	98
Perc.	100,00%	-12,07%	-3,92%	0,00%	4,08%	32,68%	-51,72%
St. C.	100	88	84	84	88	117	56

Code	SsH8-8, male
Pattern	SP7 (possibly HP7b)
Pitch Range	109

| *¿ 'Viejas con tu fa'milia?| correctly: viajas
travel-2sg with your family
‘Do you travel with your family?’

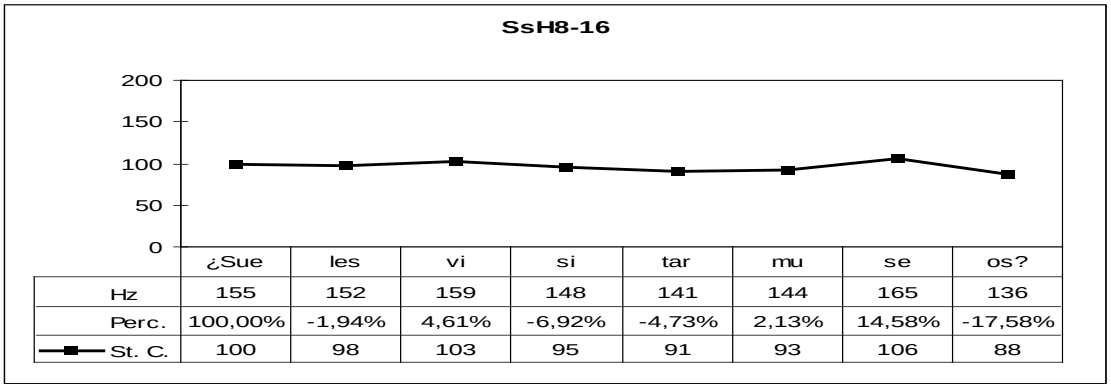


	*¿Vie	jas	con	tu	fa	mi	li_	_a?
Hz	176	167	160	152	135	142	173	127
Perc.	100,00%	-5,11%	-4,19%	-5,00%	-11,18%	5,19%	21,83%	-26,59%
St. C.	100	95	91	86	77	81	98	72

Code	SsH8-9, male
Pattern	SP4b, possibly HP7b
Pitch Range	39

| ¿'Sueles visitar mu'seos?|
usually-do-2sg visit muesums

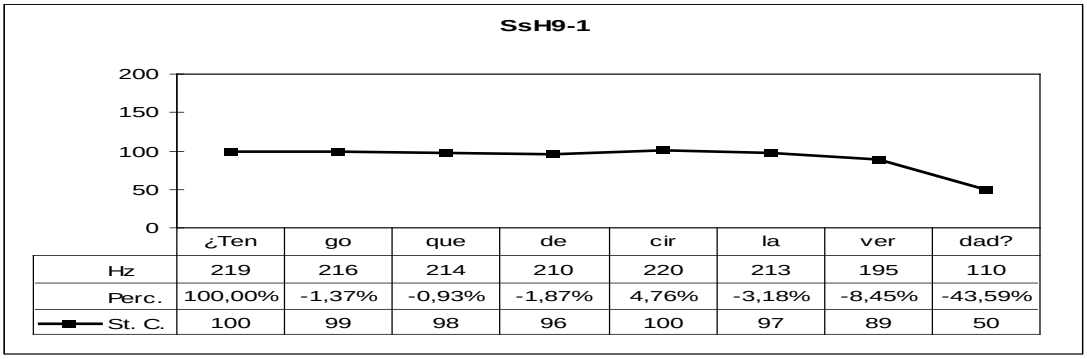
‘Do you usually visit museums?’



	¿Sue	les	vi	si	tar	mu	se	os?
Hz	155	152	159	148	141	144	165	136
Perc.	100,00%	-1,94%	4,61%	-6,92%	-4,73%	2,13%	14,58%	-17,58%
St. C.	100	98	103	95	91	93	106	88

Code	SsH8-16, male
Pattern	SP7, possibly HP7b
Pitch Range	20

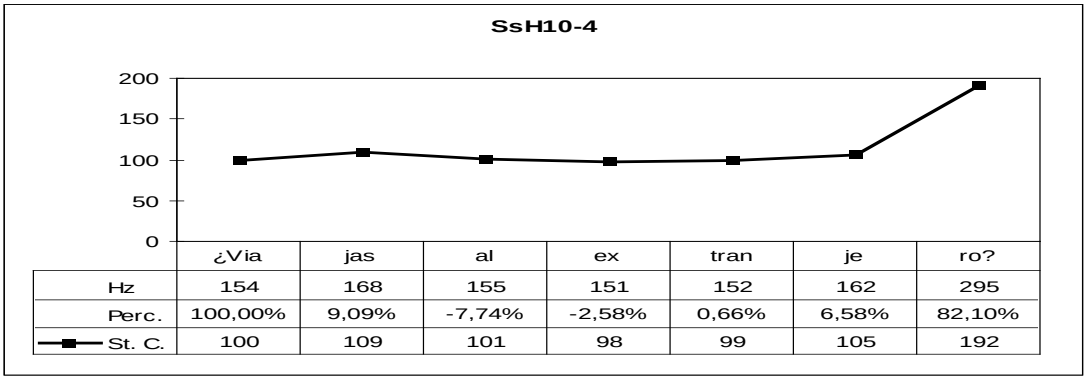
| ¿'Tengo que decir la ver'dad?|
have-1sg that-compl tell the truth
‘Do I have to tell the truth?’



	¿Ten	go	que	de	cir	la	ver	dad?
Hz	219	216	214	210	220	213	195	110
Perc.	100,00%	-1,37%	-0,93%	-1,87%	4,76%	-3,18%	-8,45%	-43,59%
St. C.	100	99	98	96	100	97	89	50

Code	SsH9-1, female
Pattern	SP9, last syllable not given two moras
Pitch Range	100

| ¿'Viajas al extran'jero?|
travel-2sg to-the abroad
‘Do you travel abroad?

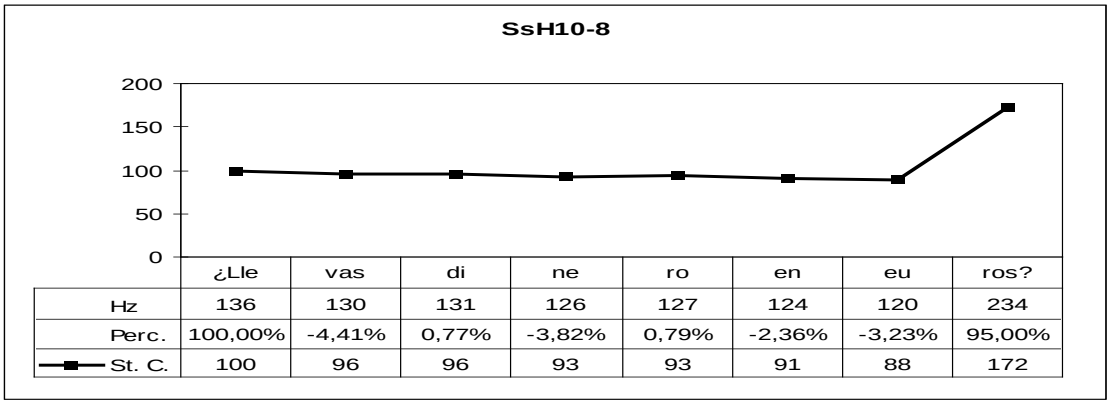


	¿Via	jas	al	ex	tran	je	ro?
Hz	154	168	155	151	152	162	295
Perc.	100,00%	9,09%	-7,74%	-2,58%	0,66%	6,58%	82,10%
St. C.	100	109	101	98	99	105	192

Code	SsH10-4, male
Pattern	SP2
Pitch Range	96

| ¿ 'Llevas dinero en 'euros?|
take-2sg money in euros

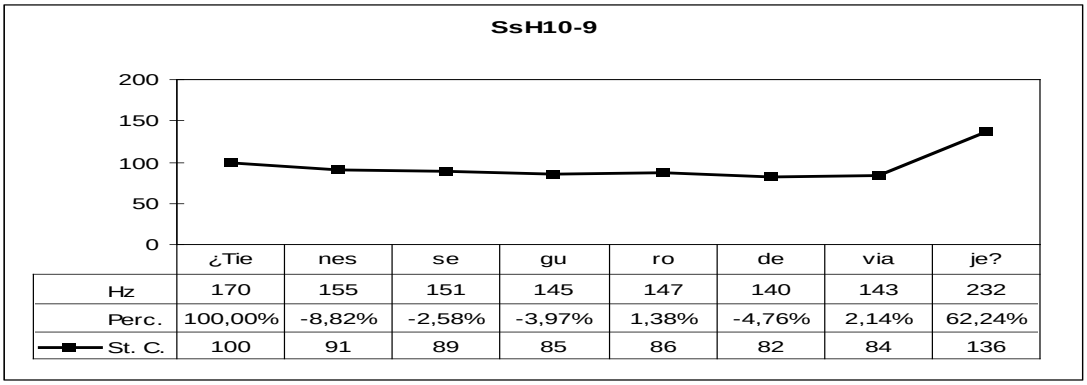
‘Do you take money in euros?’



	¿Lle	vas	di	ne	ro	en	eu	ros?
Hz	136	130	131	126	127	124	120	234
Perc.	100,00%	-4,41%	0,77%	-3,82%	0,79%	-2,36%	-3,23%	95,00%
St. C.	100	96	96	93	93	91	88	172

Code	SsH10-8, male
Pattern	SP2
Pitch Range	96

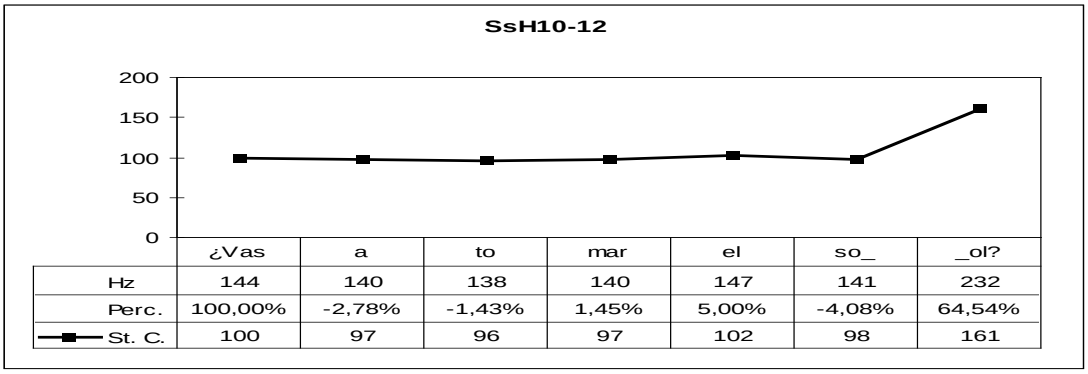
| ¿'Tienes seguro de 'viaje?|
have-2sg insurance of journey
‘Do you have travel insurance?’



	¿Tie	nes	se	gu	ro	de	via	je?
Hz	170	155	151	145	147	140	143	232
Perc.	100,00%	-8,82%	-2,58%	-3,97%	1,38%	-4,76%	2,14%	62,24%
St. C.	100	91	89	85	86	82	84	136

Code	SsH10-9, male
Pattern	SP6a
Pitch Range	66

| Vas a to'mar el sol?|
go-2sg to take the sun
‘Will you sunbathe?’

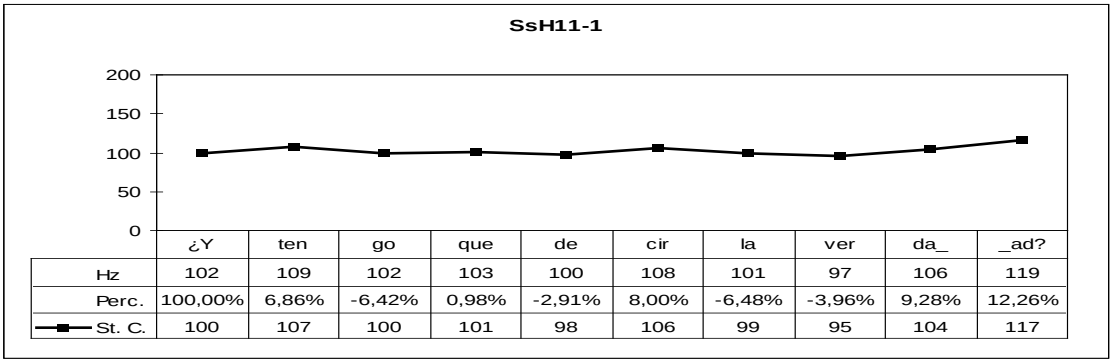


	¿Vas	a	to	mar	el	so_	_ol?
Hz	144	140	138	140	147	141	232
Perc.	100,00%	-2,78%	-1,43%	1,45%	5,00%	-4,08%	64,54%
St. C.	100	97	96	97	102	98	161

Code	SsH10-12, male
Pattern	SP3
Pitch Range	68

| ¿Y 'tengo que decir la ver'dad?|
and have-1sg that-compl tell the truth

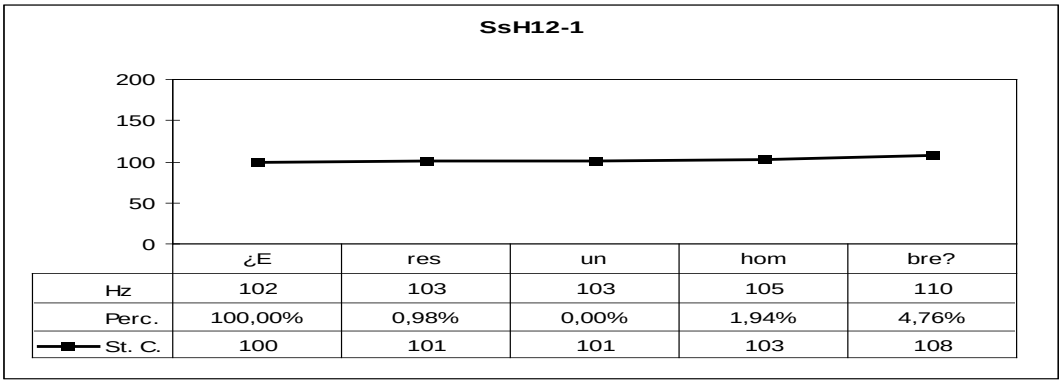
‘Do I have to tell the truth?’



	¿Y	ten	go	que	de	cir	la	ver	da_	_ad?
Hz	102	109	102	103	100	108	101	97	106	119
Perc.	100,00%	6,86%	-6,42%	0,98%	-2,91%	8,00%	-6,48%	-3,96%	9,28%	12,26%
St. C.	100	107	100	101	98	106	99	95	104	117

Code	SsH11-1, male
Pattern	SP1
Pitch Range	23

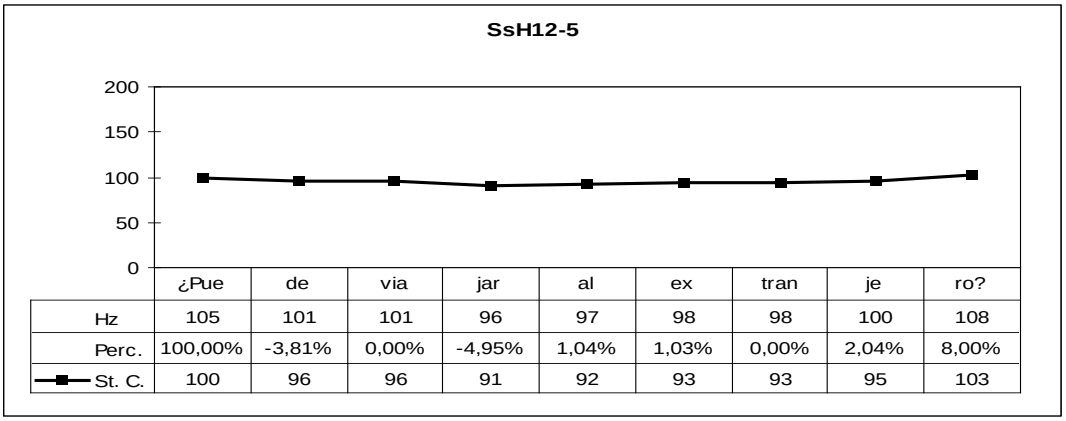
| ¿'Eres un 'hombre?|
be-2sg a man
‘Are you a man?’



	¿E	res	un	hom	bre?
Hz	102	103	103	105	110
Perc.	100,00%	0,98%	0,00%	1,94%	4,76%
St. C.	100	101	101	103	108

Code	SsH12-1, male
Pattern	SP1
Pitch Range	8

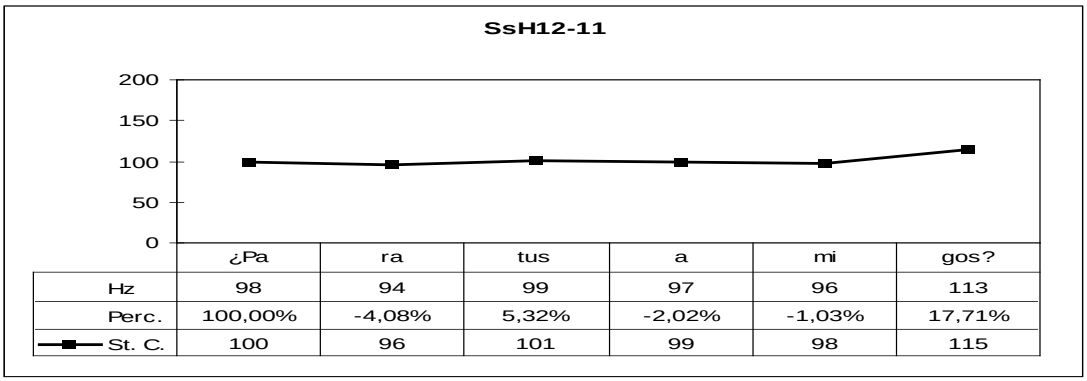
| ¿'Puede viajar al extran'jero?|
can-3sg travel to-the abroad
‘Can you travel abroad?’



	¿Pue	de	via	jar	al	ex	tran	je	ro?
Hz	105	101	101	96	97	98	98	100	108
Perc.	100,00%	-3,81%	0,00%	-4,95%	1,04%	1,03%	0,00%	2,04%	8,00%
St. C.	100	96	96	91	92	93	93	95	103

Code	SsH12-5, male
Pattern	SP1
Pitch Range	13

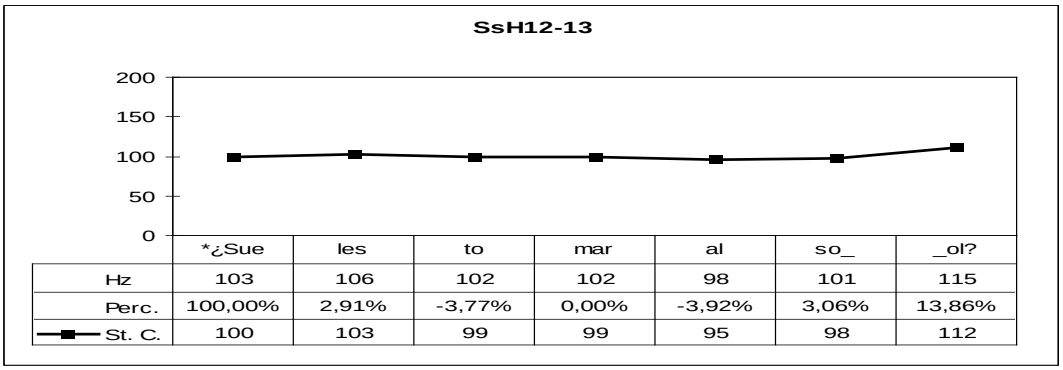
| ¿'Para tus a'migos?|
for your friends
‘For your friends?’



	¿Pa	ra	tus	a	mi	gos?
Hz	98	94	99	97	96	113
Perc.	100,00%	-4,08%	5,32%	-2,02%	-1,03%	17,71%
St. C.	100	96	101	99	98	115

Code	SsH12-11, male
Pattern	SP6a
Pitch Range	17

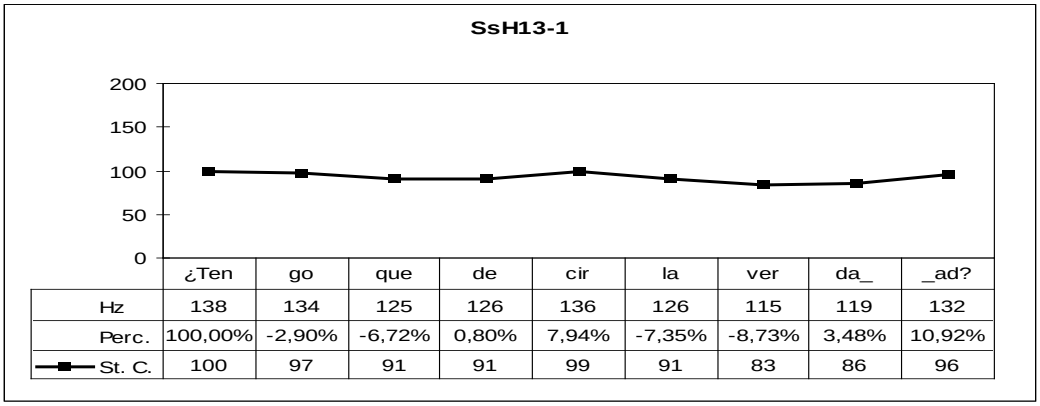
| *¿'Sueles tomar al sol?| correctly: el sol
usually-do-2sg take the sun
'Do you usually sunbathe?'



	*¿Sue	les	to	mar	al	so_	_ol?
Hz	103	106	102	102	98	101	115
Perc.	100,00%	2,91%	-3,77%	0,00%	-3,92%	3,06%	13,86%
St. C.	100	103	99	99	95	98	112

Code	SsH12-13, male
Pattern	SP1
Pitch Range	18

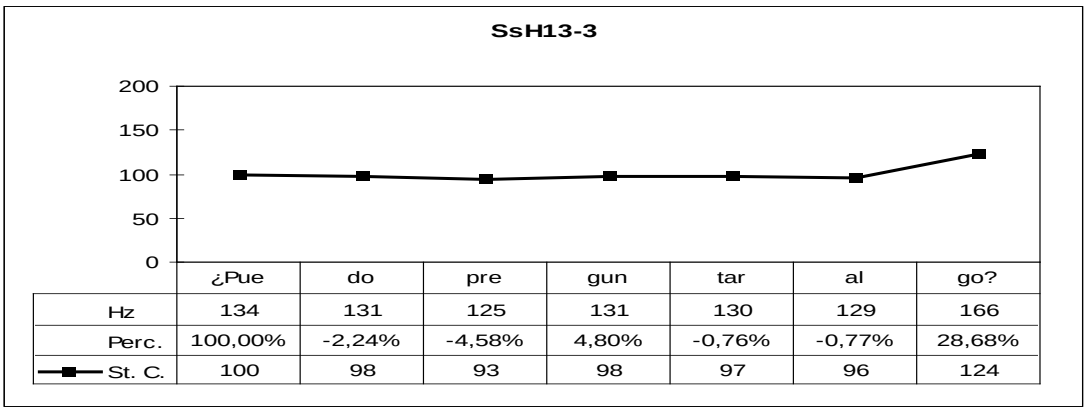
| ¿'Tengo que decir la ver'dad?|
have-1sg that-compl tell the truth
'Do I have to tell the truth?'



	¿Ten	go	que	de	cir	la	ver	da_	_ad?
Hz	138	134	125	126	136	126	115	119	132
Perc.	100,00%	-2,90%	-6,72%	0,80%	7,94%	-7,35%	-8,73%	3,48%	10,92%
St. C.	100	97	91	91	99	91	83	86	96

Code	SsH13-1, male
Pattern	SP1
Pitch Range	20

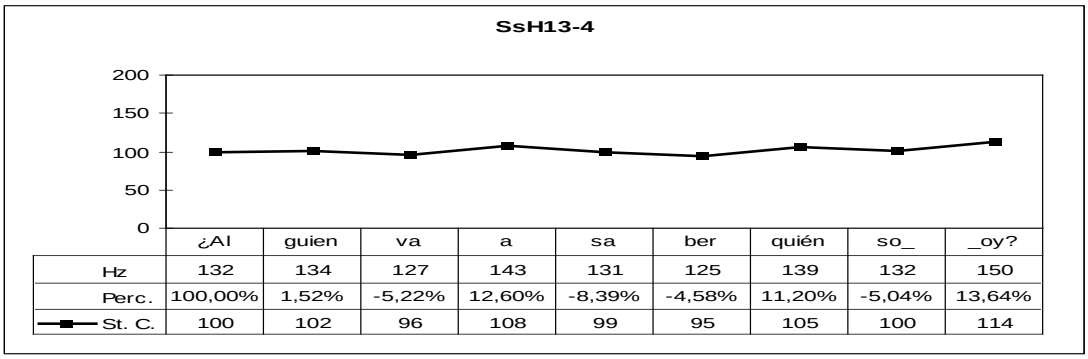
| ¿'Puedo preguntar 'algo?|
can-1sg ask something
'Can I ask something?'



	¿Pue	do	pre	gun	tar	al	go?
Hz	134	131	125	131	130	129	166
Perc.	100,00%	-2,24%	-4,58%	4,80%	-0,76%	-0,77%	28,68%
St. C.	100	98	93	98	97	96	124

Code	SsH13-3, male
Pattern	SP6b
Pitch Range	33

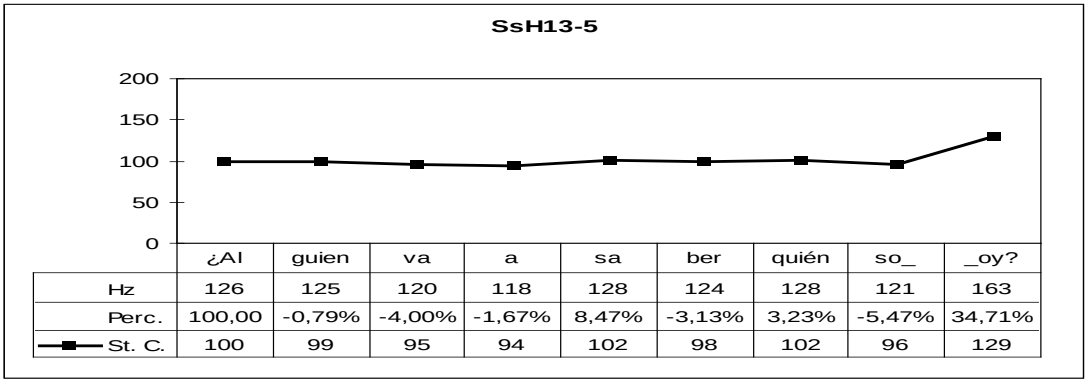
| ¿'Alguien va a saber quién soy?|
somebody go-3sg to know who am
'Will somebody know who I am?'



	¿Al	guien	va	a	sa	ber	quién	so_	_oy?
Hz	132	134	127	143	131	125	139	132	150
Perc.	100,00%	1,52%	-5,22%	12,60%	-8,39%	-4,58%	11,20%	-5,04%	13,64%
St. C.	100	102	96	108	99	95	105	100	114

Code	SsH13-4, male
Pattern	SP1
Pitch Range	20

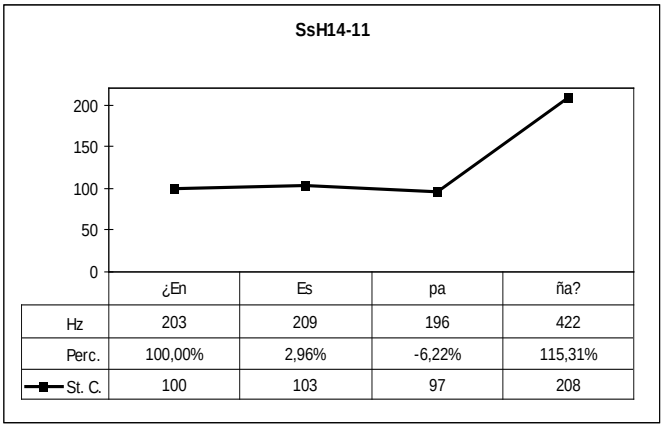
| ¿'Alguien va a saber quién soy?|
somebody go-3sg to know who am
'Will somebody know who I am?'



	¿Al	guien	va	a	sa	ber	quién	so_	_oy?
Hz	126	125	120	118	128	124	128	121	163
Perc.	100,00	-0,79%	-4,00%	-1,67%	8,47%	-3,13%	3,23%	-5,47%	34,71%
St. C.	100	99	95	94	102	98	102	96	129

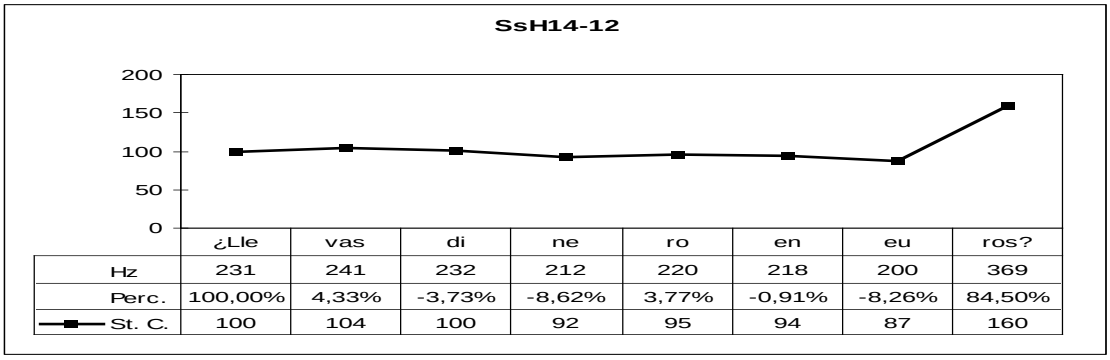
Code	SsH13-5, male
Pattern	SP6a
Pitch Range	37

| En Es'paña?|
in Spain
'In Spain?'



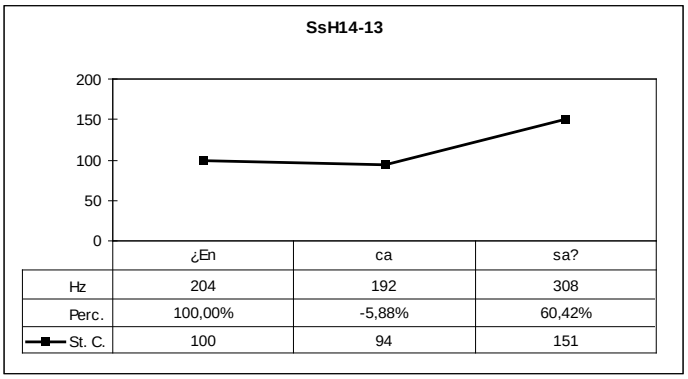
Code	SsH14-11, female
Pattern	SP2
Pitch Range	114

| ¿ 'Llevas dinero en 'euros?|
take-2sg money in euros
'Do you take money in euros?'



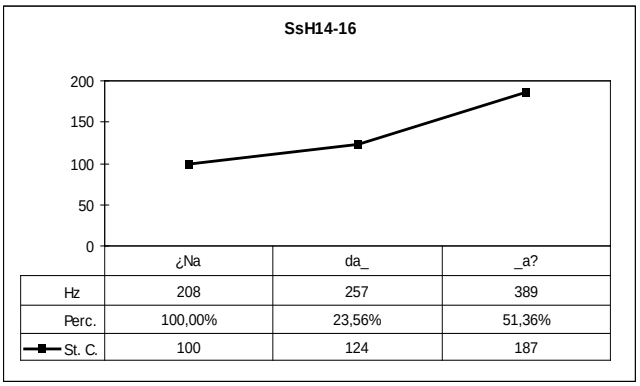
Code	SsH14-12, female
Pattern	SP2
Pitch Range	84

| ¿En 'casa?|
in home
'At home?'



Code	SsH14-13 , female
Pattern	SP3, possibly HP7 on a disyllabic word
Pitch Range	61

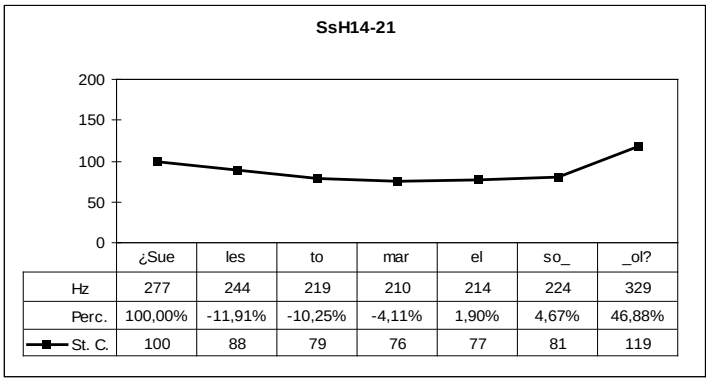
| ¿'Nada?|
'Nothing?



	¿Na	da_	_a?
Hz	208	257	389
Perc.	100,00%	23,56%	51,36%
St. C.	100	124	187

Code	SsH14-16 , female
Pattern	SP6, possibly HP7 on a disyllabic word
Pitch Range	87

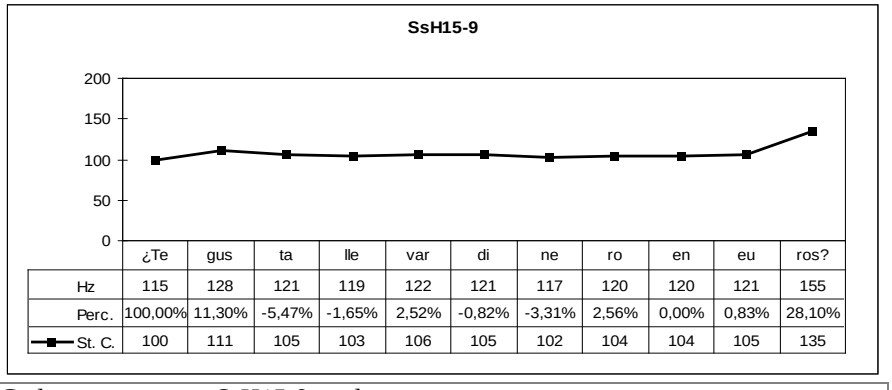
| ¿'Sueles tomar el sol?|
usually-do-2sg take the sun
'Do you usually sunbathe?'



	¿Sue	les	to	mar	el	so_	_ol?
Hz	277	244	219	210	214	224	329
Perc.	100,00%	-11,91%	-10,25%	-4,11%	1,90%	4,67%	46,88%
St. C.	100	88	79	76	77	81	119

Code	SsH14-21 , female
Pattern	SP6a
Pitch Range	57

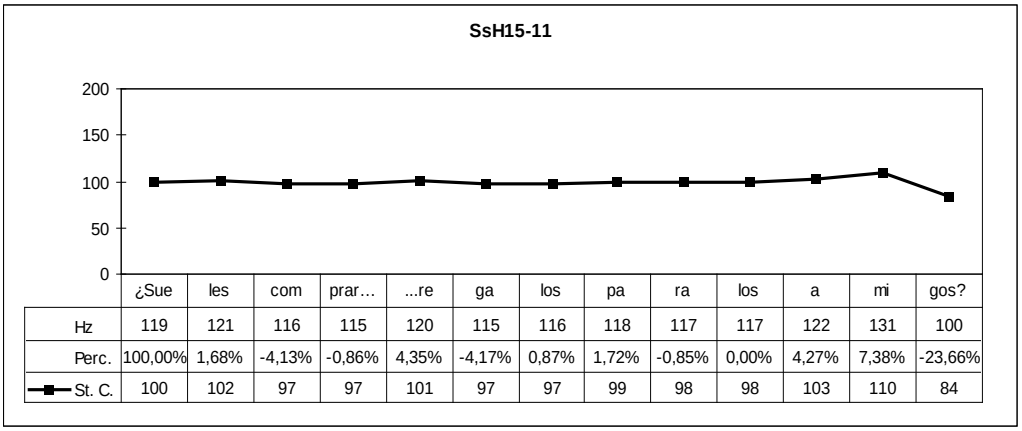
| ¿Te 'gusta llevar dinero en 'euros?|
you-dat-2sg like-3sg take money in euros
'Do you like taking money in euros?'



	¿Te	gus	ta	lle	var	di	ne	ro	en	eu	ros?
Hz	115	128	121	119	122	121	117	120	120	121	155
Perc.	100,00%	11,30%	-5,47%	-1,65%	2,52%	-0,82%	-3,31%	2,56%	0,00%	0,83%	28,10%
St. C.	100	111	105	103	106	105	102	104	104	105	135

Code	SsH15-9, male
Pattern	SP6a
Pitch Range	35

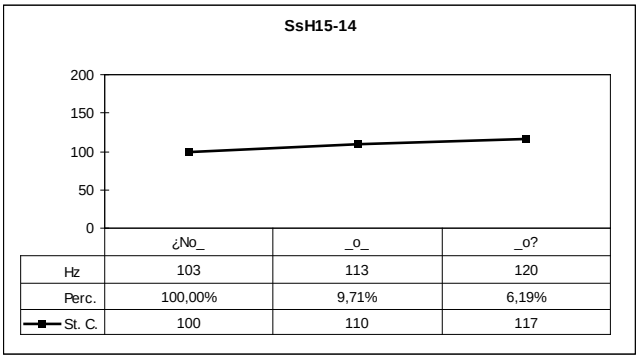
| ¿'Sueles comprar… regalos para los a'migos?|
ususally-do-2sg buy gifts for the-pl-masc friends
'Do you usually take gifts for the friends?'



	¿Sue	les	com	prar…	...re	ga	los	pa	ra	los	a	mi	gos?
Hz	119	121	116	115	120	115	116	118	117	117	122	131	100
Perc.	100,00%	1,68%	-4,13%	-0,86%	4,35%	-4,17%	0,87%	1,72%	-0,85%	0,00%	4,27%	7,38%	-23,66%
St. C.	100	102	97	97	101	97	97	99	98	98	103	110	84

Code	SsH15-11, male
Pattern	SP7, possibly HP7b
Pitch Range	31

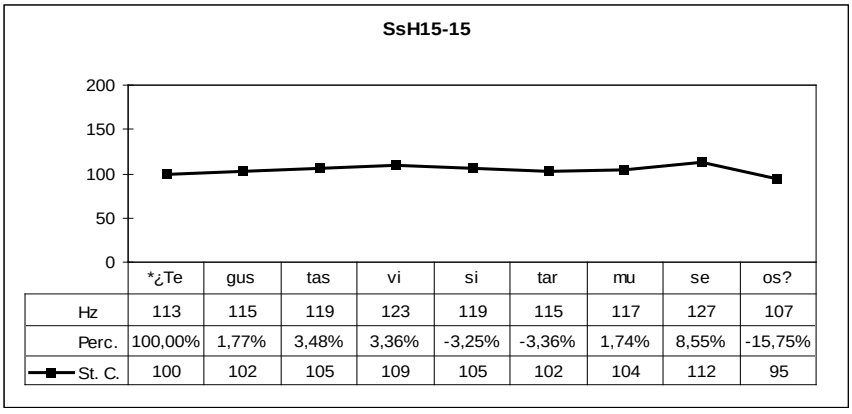
| ¿No?|
‘No?’



	¿No_	_o_	_o?
Hz	103	113	120
Perc.	100,00%	9,71%	6,19%
St. C.	100	110	117

Code	SsH15-14, male
Pattern	SP6 (or SP13)
Pitch Range	17

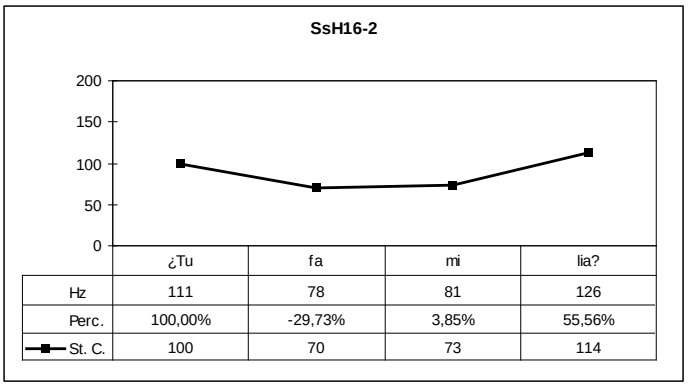
| *¿Te gustas visitar mu'seos?| correctly: gusta
you-dat-sing like-2sg visit museums
‘Do you like visiting museums?’



	*¿Te	gus	tas	vi	si	tar	mu	se	os?
Hz	113	115	119	123	119	115	117	127	107
Perc.	100,00%	1,77%	3,48%	3,36%	-3,25%	-3,36%	1,74%	8,55%	-15,75%
St. C.	100	102	105	109	105	102	104	112	95

Code	SsH15-15, male
Pattern	SP7, possibly HP7b
Pitch Range	18

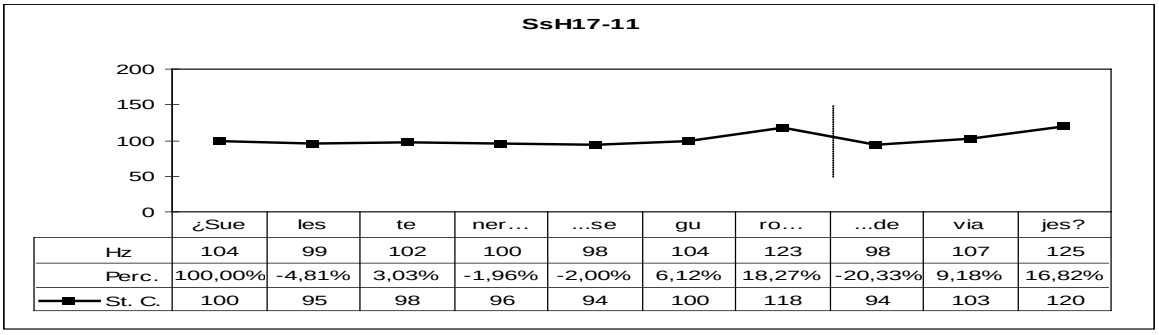
| ¿Tu fa'milia?|
your family
‘Your family?’



	¿Tu	fa	mi	lia?
Hz	111	78	81	126
Perc.	100,00%	-29,73%	3,85%	55,56%
St. C.	100	70	73	114

Code	SsH16-2, female
Pattern	SP3
Pitch Range	63

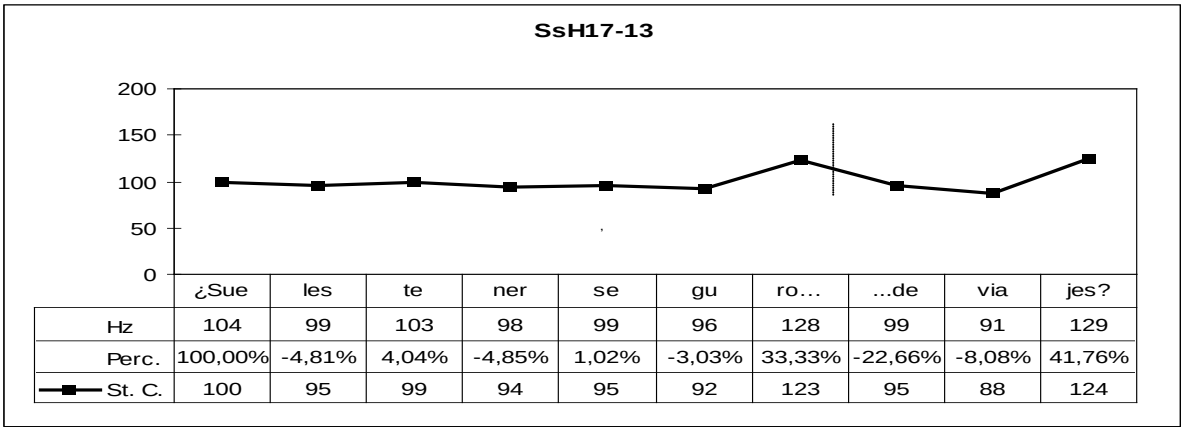
| ¿'Sueles tener… seguro… |de 'viajes?|
usually-do-2sg have insurance of journeys
'Do you ususally have travel insurance?'



	¿Sue	les	te	ner…	…se	gu	ro…	…de	via	jes?
Hz	104	99	102	100	98	104	123	98	107	125
Perc.	100,00%	-4,81%	3,03%	-1,96%	-2,00%	6,12%	18,27%	-20,33%	9,18%	16,82%
St. C.	100	95	98	96	94	100	118	94	103	120

Code	SsH17-11, male
Pattern	SP6a + SP6
Pitch Range	(only second pattern) 28

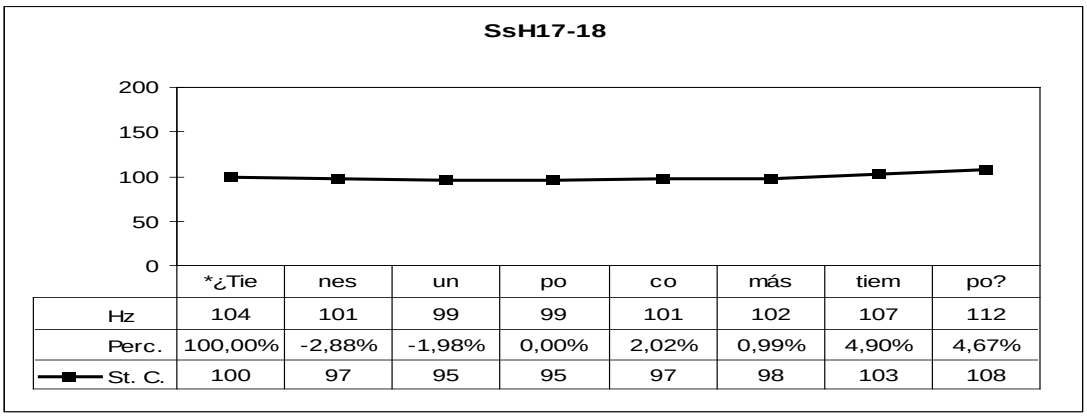
| ¿'Sueles tener seguro… de 'viajes?|
usually-do-2sg have insurance of journeys
'Do you ususally have travel insurance?'



	¿Sue	les	te	ner	se	gu	ro…	…de	via	jes?
Hz	104	99	103	98	99	96	128	99	91	129
Perc.	100,00%	-4,81%	4,04%	-4,85%	1,02%	-3,03%	33,33%	-22,66%	-8,08%	41,76%
St. C.	100	95	99	94	95	92	123	95	88	124

Code	SsH17-13, male
Pattern	SP6a + SP3
Pitch Range	(only second pattern) 41

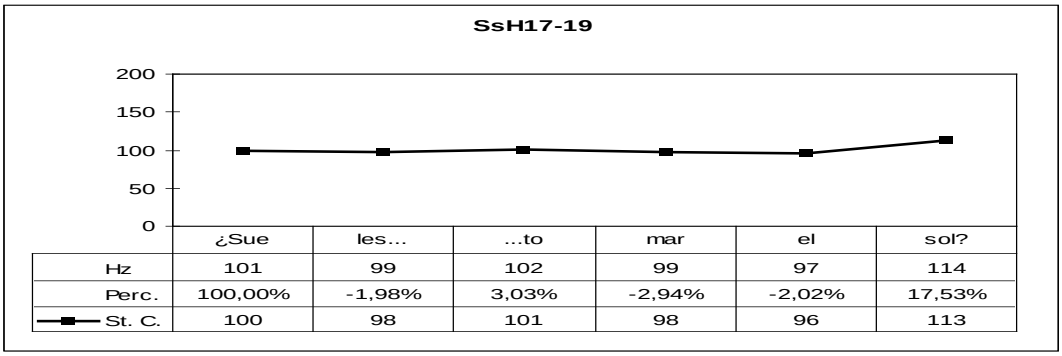
| *¿'Tienes un poco más 'tiempo?| correctly: más de
Have-2sg a bit more time
'Do you have a bit more time?'



	*¿Tie	nes	un	po	co	más	tiem	po?
Hz	104	101	99	99	101	102	107	112
Perc.	100,00%	-2,88%	-1,98%	0,00%	2,02%	0,99%	4,90%	4,67%
St. C.	100	97	95	95	97	98	103	108

Code	SsH17-18, male
Pattern	SP1
Pitch Range	14

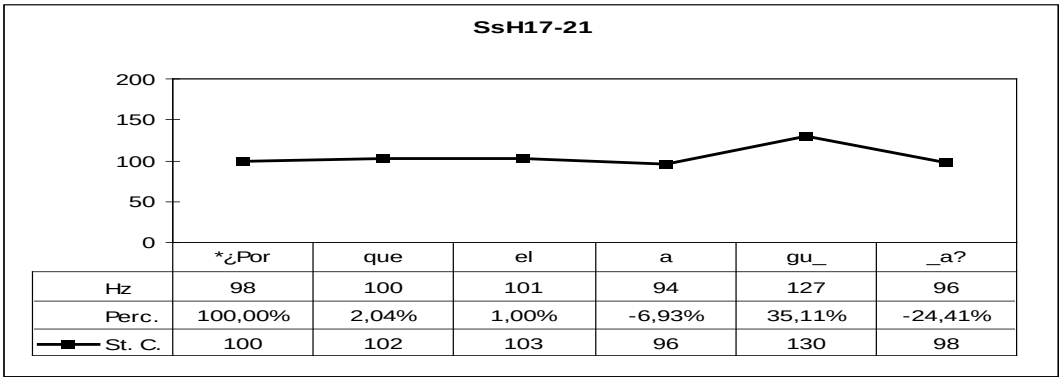
| ¿'Sueles tomar el sol?|
ususally-do-2sg take the sun
'Do you ususally sunbathe?'



	¿Sue	les…	…to	mar	el	sol?
Hz	101	99	102	99	97	114
Perc.	100,00%	-1,98%	3,03%	-2,94%	-2,02%	17,53%
St. C.	100	98	101	98	96	113

Code	SsH17-19, male
Pattern	SP6a, Syntagmatic Accent high but not given two moras
Pitch Range	18

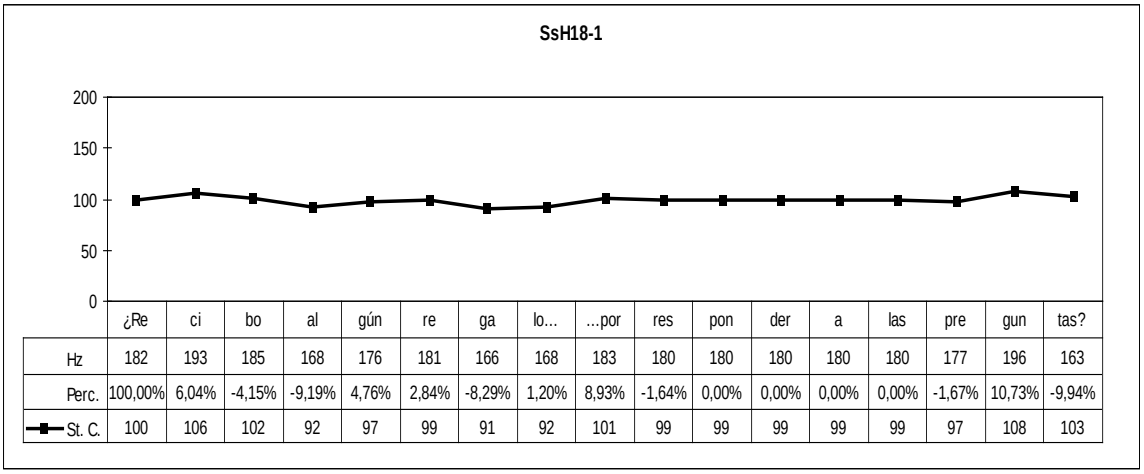
| ¿'Porque el 'agua?|
because the water
'Because of the water?'



	*¿Por	que	el	a	gu_	_a?
Hz	98	100	101	94	127	96
Perc.	100,00%	2,04%	1,00%	-6,93%	35,11%	-24,41%
St. C.	100	102	103	96	130	98

Code	SsH17-21, male
Pattern	SP4b, possibly HP7b
Pitch Range	35

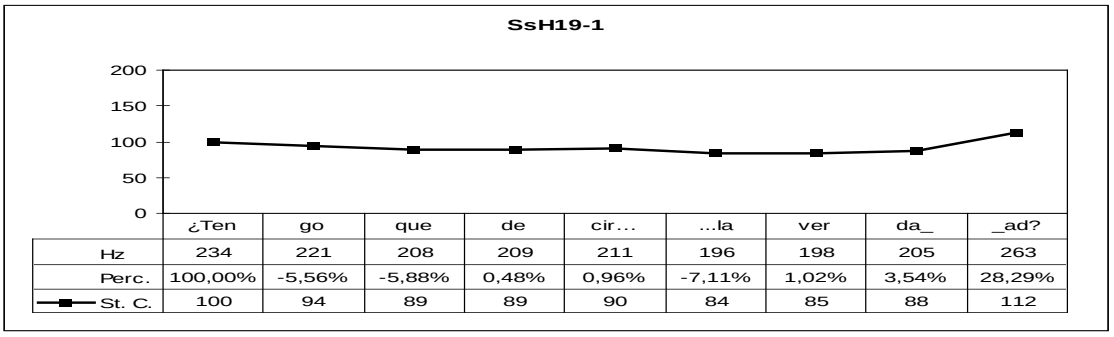
| ¿Re'cibo algún regalo… por responder a las pre'guntas?|
receive-1sg some gift for answer to the questions?
'Will I receive some gift if I answer the questions?'



	¿Re	ci	bo	al	gún	re	ga	lo...	...por	res	pon	der	a	las	pre	gun	tas?
Hz	182	193	185	168	176	181	166	168	183	180	180	180	180	180	177	196	163
Perc.	100,00%	6,04%	-4,15%	-9,19%	4,76%	2,84%	-8,29%	1,20%	8,93%	-1,64%	0,00%	0,00%	0,00%	0,00%	-1,67%	10,73%	-9,94%
St. C.	100	106	102	92	97	99	91	92	101	99	99	99	99	99	97	108	103

Code	SsH18-1, female
Pattern	SP7, possibly HP7
Pitch Range	19

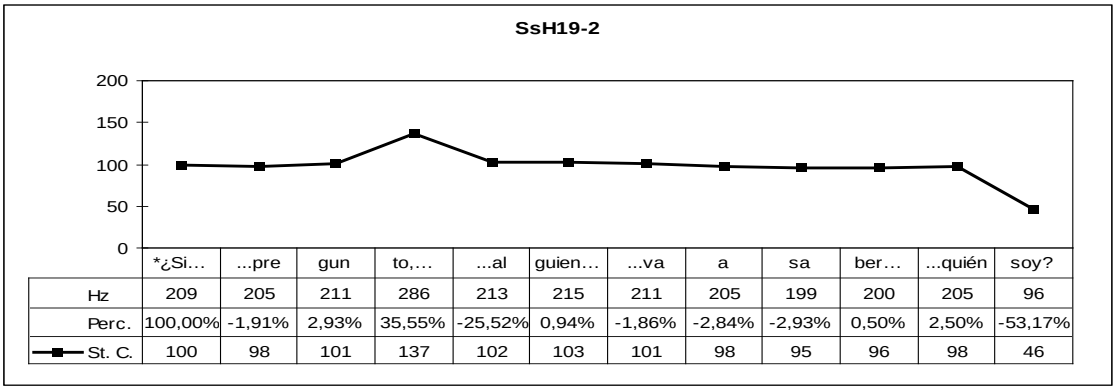
| ¿'Tengo que decir … la ver'dad?|
have-1sg that-compl tell the truth
'Do I have to tell … the truth?'



	¿Ten	go	que	de	cir...	...la	ver	da_	_ad?
Hz	234	221	208	209	211	196	198	205	263
Perc.	100,00%	-5,56%	-5,88%	0,48%	0,96%	-7,11%	1,02%	3,54%	28,29%
St. C.	100	94	89	89	90	84	85	88	112

Code	SsH19-1, female
Pattern	SP6a
Pitch Range	33

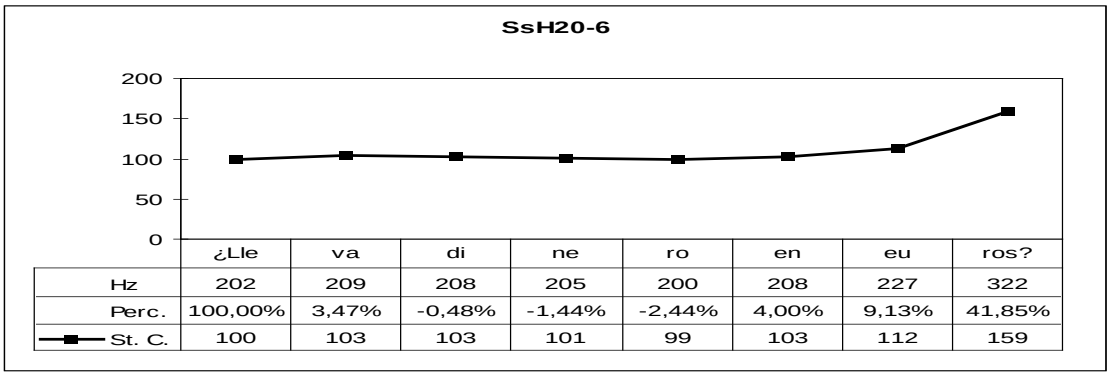
| *¿Si… pre'gunto…, alguien… va a saber… quién soy?| correctly: si respondo
if question-1sg somebody go-3sg to know who be-1sg
'If I answer (the questions), will somebody know who I am?'



	*¿Si...	...pre	gun	to,...	...al	guien...	...va	a	sa	ber...	...quién	soy?
Hz	209	205	211	286	213	215	211	205	199	200	205	96
Perc.	100,00%	-1,91%	2,93%	35,55%	-25,52%	0,94%	-1,86%	-2,84%	-2,93%	0,50%	2,50%	-53,17%
St. C.	100	98	101	137	102	103	101	98	95	96	98	46

Code	SsH19-2, female
Pattern	SP9, last syllable not given two moras
Pitch Range	198

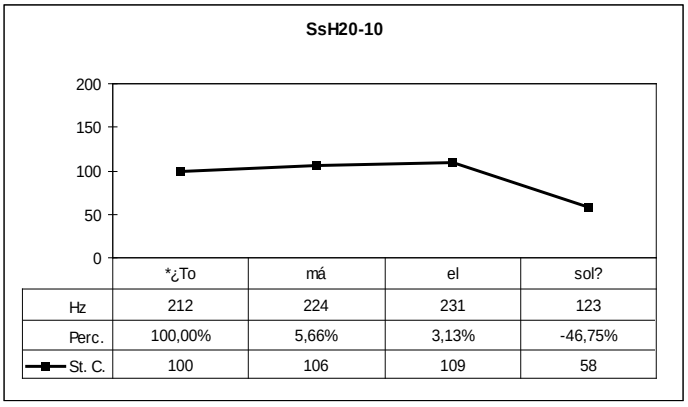
| ¿'Lleva dinero en 'euros?|
take-3sg money in euros
'Do you take money in euros?'



	¿Lle	va	di	ne	ro	en	eu	ros?
Hz	202	209	208	205	200	208	227	322
Perc.	100,00%	3,47%	-0,48%	-1,44%	-2,44%	4,00%	9,13%	41,85%
St. C.	100	103	103	101	99	103	112	159

Code	SsH20-6, female
Pattern	SP3
Pitch Range	61

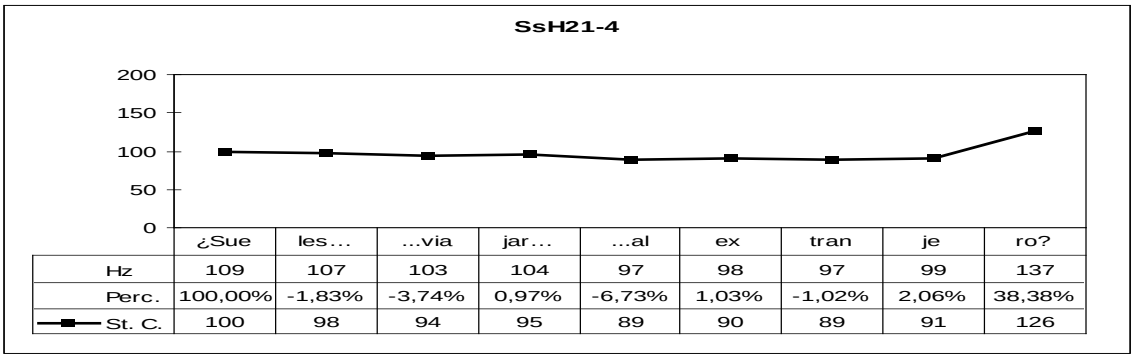
| ¿*Tomá el sol?| correctly: toma
take-3sg the sun
'Do you (formal) sunbathe?'



	*¿To	má	el	sol?
Hz	212	224	231	123
Perc.	100,00%	5,66%	3,13%	-46,75%
St. C.	100	106	109	58

Code	SsH20-10, female
Pattern	SP9, last syllable not given two moras, possibly HP7a
Pitch Range	88

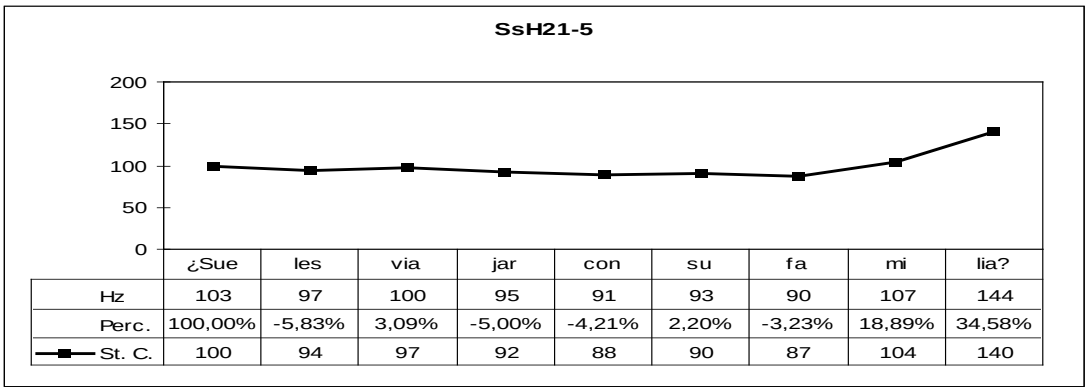
| ¿'Sueles… viajar… al extran'jero?|
ususally-do-2sg travel to-the abroad
'Do you usually travel abroad?'



	¿Sue	les…	…via	jar…	…al	ex	tran	je	ro?
Hz	109	107	103	104	97	98	97	99	137
Perc.	100,00%	-1,83%	-3,74%	0,97%	-6,73%	1,03%	-1,02%	2,06%	38,38%
St. C.	100	98	94	95	89	90	89	91	126

Code	SsH21-4, male
Pattern	SP6a
Pitch Range	42

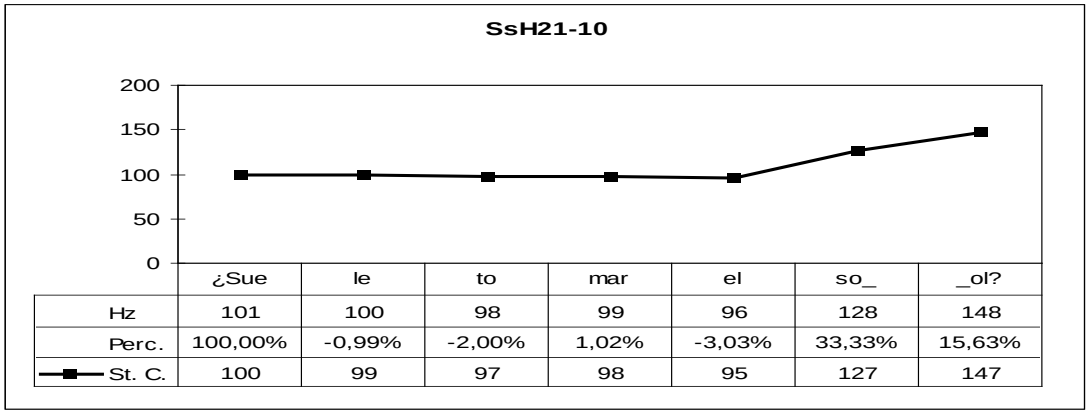
| ¿'Sueles viajar con su fa'milia?|
usually-do-2sg travel with his/her family
'Do you ussually travel with his/her family?'



	¿Sue	les	via	jar	con	su	fa	mi	lia?
Hz	103	97	100	95	91	93	90	107	144
Perc.	100,00%	-5,83%	3,09%	-5,00%	-4,21%	2,20%	-3,23%	18,89%	34,58%
St. C.	100	94	97	92	88	90	87	104	140

Code	SsH21-5, male
Pattern	SP6a
Pitch Range	61

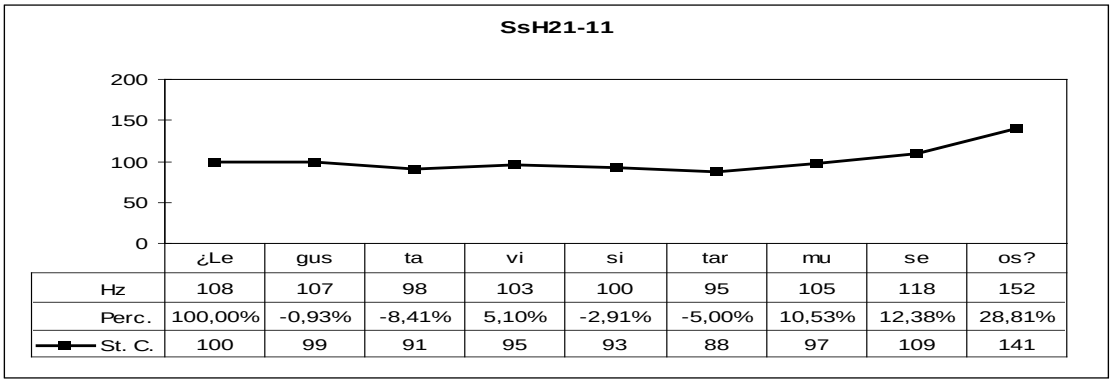
| ¿'Suele tomar el sol?|
ususally-do-3sg take the sun
'Do you (formal) ususally sunbathe?'



	¿Sue	le	to	mar	el	so_	_ol?
Hz	101	100	98	99	96	128	148
Perc.	100,00%	-0,99%	-2,00%	1,02%	-3,03%	33,33%	15,63%
St. C.	100	99	97	98	95	127	147

Code	SsH21-10, male
Pattern	SP6a
Pitch Range	55

| ¿Le 'gusta visitar mu'seos?|
(s)he-dat like-3sg visist museums
'Do you like visiting museums?'

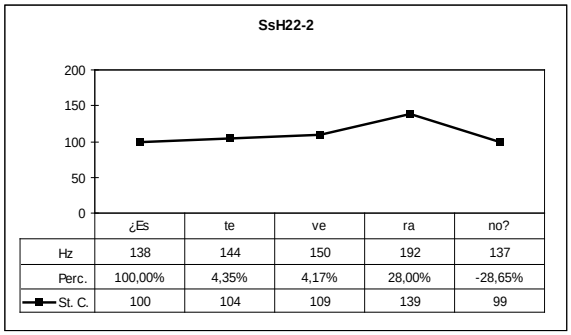


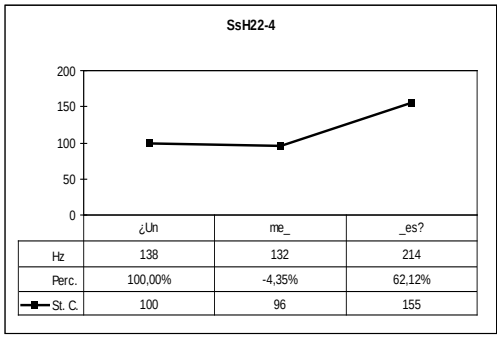
	¿Le	gus	ta	vi	si	tar	mu	se	os?
Hz	108	107	98	103	100	95	105	118	152
Perc.	100,00%	-0,93%	-8,41%	5,10%	-2,91%	-5,00%	10,53%	12,38%	28,81%
St. C.	100	99	91	95	93	88	97	109	141

Code	SsH21-11, male
Pattern	SP6a
Pitch Range	60

| ¿'Este ve'rano?|
this summer
'This summer?'

| ¿Un mes?|
a month
'A month?'

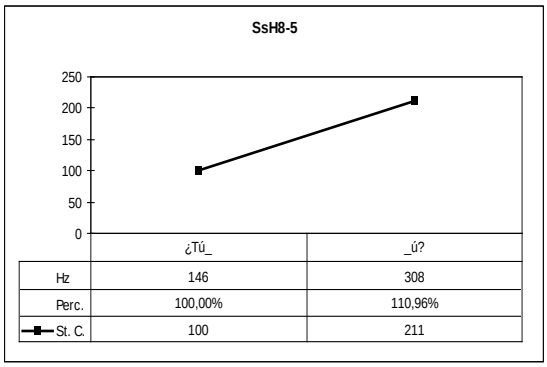




Code	SsH22-2, male	SsH22-4, male
Pattern	SP7, possibly HP7b	SP3, possibly HP7 on a disyllabic word
Pitch Range	40	63

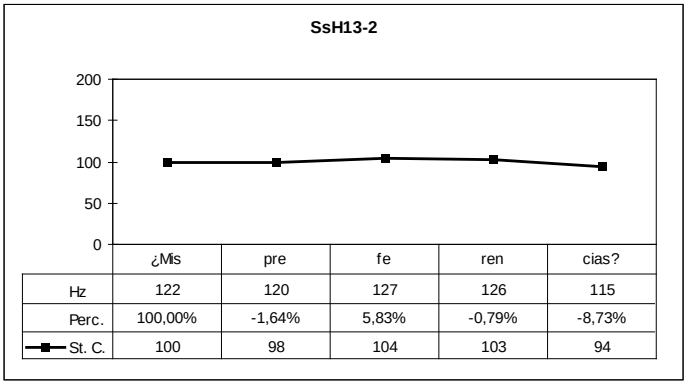
2. Echo yes-no questions

| ¿Tú?|
‘You?’



Code	SsH8-5, male
Pattern	SP2
Pitch Range	111

| ¿Mis prefe'rencias?|
my-pl preferences
‘My preferences?’



Code	SsH13-2, male
Pattern	SP1
Pitch Range	11

References

Adriaens, L. M. H. (1991): *Ein Modell deutscher Intonation. Eine experimentell-phonetische Untersuchung nach den perzeptiv relevanten Grundfrequenzänderungen in vorgelesenem Text*. PhD thesis, Technological University of Eindhoven.

Alarcos Llorach, E. (1950): *Fonología española*. Madrid: Gredos.

Alcina Franch, J. — Blecua, J. M. (1975): *Gramática española*. Barcelona: Ariel.

Alcoba, S.— Murillo, J. (1998): Intonation in Spanish. In: Hirst — Di Cristo (1998: 152-166).

Álvarez Martínez, M. Á.— Canales, A. B.— Torrens Álvarez, M. J.— Alarcón Pérez, C. (2005): *Vuela 1*, Universidad de Alcalá: Editorial Anaya.

Armstrong, L. E. — Ward, I. (1926): *A handbook of English intonation*. Leipzig and Berlin: Teubner.

Arvaniti, A. — Baltazani, M. (2005): Intonational analysis and prosodic annotation of Greek spoken corpora. In: Sun-Ah Jun (ed.), (2005) *Prosodic Typology: The Phonology of Intonation and Phrasing*, Oxford: Oxford University Press. 84-117.

Baditzné Pálvölgyi, K. (in press, a) Az eldöntendő kérdések intonációja a magyar és a spanyol nyelvben.

Baditzné Pálvölgyi, K. (in press, b): Emelkedő végű intonációs dallamok a magyar eldöntendő kérdésekben.

Baditzné Pálvölgyi, K. (2011): A spanyol és a magyar eldöntendő kérdésekben alkalmazott eső végű intonációs dallamok összevetése, Déri, B. et al. (eds): *Per Multos Annos. Faluba Kálmán tanár úr 70. születésnapjára.* L'Harmattan, Budapest.

Baditzné Pálvölgyi, K. (2012): Hangterjedelem és hangfekvés a magyar és a spanyol eldöntendő kérdésekben. *Argumentum* 8: 1-11, Debrecen.

Baqué, L. — Estruch, M. (2003): Modelo de Aix-en-Provence. In: Prieto (2003: 123-153).

Bartók, J. (1978). A négyféle kérdő hanglejtés. *Magyar Fonetikai Füzetek* 1: 97-103.

Baulenas, N. — Peris, M. (2004): *Gente 2*. Barcelona: Difusión.

Beaugendre F. (1994) : *Une étude perceptive de l'intonation du français*, PhD Thesis, University of Paris XI, Orsay, France.

Beckman, M. E. — Ayers, G. M. (1994): *Guidelines for ToBI labelling*. Version 2.0. Columbus: Ohio State University , Department of Linguistics.

Beckman, M. — Díaz-Campos, M. — Tevis McGory, J. — Morgan, T. (2002): Intonation across Spanish in the Tones and Break Indices Framework. *Probus* 14.: 9-36.

Beckham, M.—Hirschberg, J. (1999): *ToBI Framework Homepage*. The Ohio State University Department of Linguistics. http://www.ling.ohio-state.edu/~tobi/ (consulted 15/16/2011).

Boersma, P. — Weenink, D. (1992-2011): *Praat. Doing phonetics by computer*. Version 5.0.32. www.praat.org.

Bolinger, D.L., (1954): English prosodic stress and Spanish sentence order. *Hispania* 37: 2, 152-156.

Bolinger, D. (1955): Intersections of stress and intonation, *Word* 11: 195-203.

Bolinger (1957-58): Intonation and grammar. *Language Learning* 8: 31-38.

Bolinger, D. (1958): A theory of pitch accents in English, *Word* 14: 109-149.

Bolinger, D. (1972): (ed.), *Intonation, Selected Readings*, Penguin Books, Baltimore.

Bolinger, D. (1986): *Intonation and its parts.* Stanford: Stanford University Press.

Bóna, J. — Imre, A. (2007): A hangsúlyeltolódás hatása a beszédfeldolgozásra. *Beszédkutatás* 2007. MTA Kempelen Farkas Beszédkutató Laboratórium. 75-82.

Bóna, J. — Markó, A. (2009): Hétköznapi fonetika: feladatjavaslatok a hangtan oktatásához. *Anyanyelv Pedagógia* 2009/1.

Bowen, J. D. (1956): A comparison on the intonation patterns of English and Spanish, *Hispania* 39: 30-35.

Bowen, J. D. — Stockwell, R. P. (1960): *Patterns of Spanish pronunciation*. Chicago, The University of Chicago Press.

Brazil, D. (1981): Intonation. In: Coulthard, M. — Montgomery, M. (eds.): *Studies in discourse analysis*. London: Routledge and Kegan Paul. 39-50.

Brazil, D., Coulthard, M., and Johns, C. (1980): *Discourse intonation and language teaching*. London: Longman.

Cabrera-Abreu, M. (1996): *A Phonological Model for Intonation Without Low Tone*, Doctoral Dissertation, London: University College London.

Canellada, M. J. —Madsen, J. K. (1987): *Pronunciación del español*. Madrid: Castalia.

Cantero Serena, F. J. (1995): *Estructura de los modelos entonativos: interpretación fonológica del acento y la entonación en castellano*. Barcelona: Publicaciones de la Univ. de Barcelona (Microform 1997).

Cantero Serena, F. J. (1988): Ensayo de cuantificación de las entonaciones lingüísticas. *Estudios de Fonética Experimental* 3: 111-134. Barcelona: P. P. U.

Cantero Serena, F. J., (2002): *Teoría y análisis de la entonación*, Barcelona: Ed. Universitat de Barcelona.

Cantero Serena, F. J. — Alfonso, R. — Bartolí, M. — Corrales, A. — Vidal, M. (2005): Rasgos melódicos de énfasis en español. Laboratori de Fonètica Aplicada – LFA, *Phonica* vol.1. http://www.ub.edu/lfa/phonica/htm. (consulted 07/04/2009).

Cantero Serena, F. J. — Devís, A. (in press): Análisis melódico del español hablado por italianos. XXVI CILPR. Congrès International de Lingüistique et de Philologies Romanes. Valencia. 2010.

Cantero Serena, F. J. — Font-Rotchés, D. (2007): Entonación del español peninsular en habla espontánea: patrones melódicos y márgenes de dispersion. *Moenia* 13: 69-92.

Cantero Serena, F. J. — Font-Rotchés, D. (2009): Protocolo para el análisis melódico del habla, *Estudios de Fonética Experimental* 18: 17-32. http://www.ub.edu/labfon/public.htm (last consulted 2/7/2011).

Congosto, Y. — Fabián, M. D. — Fernández Barranco, C. (2008): Picos tonales, acentos y límites sintagmáticos en enunciados declarativos e interrogativos absolutos sin expansión vs. con expansión (en el sujeto y en el objeto). *Language Design. Journal of Theoretical and Experimental Linguistics. Special Issue 2: Experimental Prosody*. 203-212. Retrieved from http://elies.rediris.es/Language_Design/LD-SI-2/23-Congosto-Martin-Barranco-BREVE.pdf (last consulted 24/06/2011).

Contreras, H. (1978): *El Orden de Palabras en Español.* Madrid: Cátedra.

Cortés, M. (2000): *Adquisición de la entonación española por parte de hablantes nativos de chino*. Universitat de Barcelona. PhD publicada en microforma.

Cortés, M. (2004): Análisis acústico de la producción de la entonación española por parte de sinohablantes, *Estudios de Fonética Experimental* 13: 79-110.

Cruttenden, A. (1986): *Intonation*. C.U.P. Sp. transl. by Mascaró i Pons (1990): *Entonación*. Barcelona: Teide

Cruttenden, A. (1997): *Intonation* (2nd ed.) Cambridge: CUP.

Crystal, D. (1969): *Prosodic systems and intonation in English*. London: CUP.

Cunningham, U. (1983): Aspects of the Intonation of Spanish, *Nottingham Linguistic Circular* 12: 21-54.

Csűry, B. (1925): A szamosháti nyelvjárás hanglejtésformái. *A Magyar Nyelvtudományi Társaság Közleményei* 22.

Csűry, B. (1935): A mondathanglejtés. *Debreceni Szemle* 9: 105-19.

Csűry, B. (1939): A magyar kiejtés kérdése. *Magyar Nyelv* 35: 32-9.

Daneš, F. (1960): Sentence intonation from a functional point of view. *Word* 16, 34-54.

Delattre, P. (1965): *Comparing the Phonetic Features of English, German, Spanish and French*. Heidelberg: Julius Groos Verlag.

Deme, L. (1962): Hangsúly, szórend, hanglejtés, szünet. In: J. Tompa (ed.), *A Mai Magyar Nyelv Rendszere* vol. II. Budapest: Akadémiai Kiadó. 457-522.

Di Cristo, A. (1982): *Prolegomènes à l'étude de l'intonation. Micromelodie.* Paris: CNRS.

Díaz Tejera, A. (1973): La frase interrogativa como modalidad. *Revista Española de Lingüística* 3: 95-116. http://dialnet.unirioja.es/servlet/articulo?codigo=40926 (last consulted on 24/06/11).

Durand, J. (1992): *Fundamentos de Fonología Generativa y No Lineal*. Barcelona: Teide.

Elekfi, L. (1964): Az aktuális mondattagolás egyik alapformája a magyarban. *Nyelvtudományi Közlemények* 66: 331-70.

Elekfi, L. (1968): Mondatformák és mondathangsúlyok fonetikai vetülete. *Nyelvtudományi Közlemények* 70: 329-50.

É. Kiss, K. — Kiefer, F. — Siptár, P. (2003): *Új Magyar Nyelvtan*. Budapest: Osiris Kiadó

Estruch, M. — Garrido, J. M. — Gudayol, F. — Jiménez, J. M. — Riera, M. (1999): Validación perceptiva de un sistema de estilización automática de contornos melódicos. Actas del 'I Congrés de Fonètica Experimental', *Universitat Rovira i Virgili, Tarragona, 22-24 febrero 1999*. 217-223.

Estruch, M. — Garrido, J. M. — Llisterri, J. — Riera, M. (2007): Técnicas y procedimientos para la representación de las curvas melódicas. *RLA, Revista de Lingüística Teórica y Aplicada* 45: 59-87. http://liceu.uab.es/~joaquim/publicacions/Estruch_Garrido_Llisterri_Riera_Metodos_Entonacion_07.pdf (last consulted on 26/06/11).

Face, T. (2006): Narrow focus intonation in Castilian Spanish absolute interrogatives. *Journal of Language and Linguistics* 5: 295-311. http://www.jllonline.co.uk/journal/5_2/LING%209.pdf (last consulted 24/06/11).

Face, T. L. (2007): The role of intonational cues in the perception of declaratives and absolute interrogatives in Castilian Spanish. *Estudios de Fonética Experimental*, 16: 185-226. http://www.ub.edu/labfon/XVI-10.pdf (last consulted 24/06/11).

Face, T. — Prieto, P. (2006/2007): Rising accents in Castilian Spanish. A revision of Sp_ToBI. *Journal of Portuguese Linguistics* 5.

Fernández Planas, A.M. — Martínez Celdrán, E. — Salcioli, V. — Toledo, J. — Castellví, J. (2001): Taxonomía autosegmental en la entonación del español peninsular., *Actas del II Congreso Nacional de Fonética Experimental*, Sevilla: Universidad. 180-186.

Fernández Planas, A. M. — Martínez Celdrán, E. (2003): El tono fundamental y la duración: Dos aspectos de la taxonomía prosódica en dos modalidades del habla (enunciativa e interrogativa) del español. *Estudios de Fonética Experimental* 12: 165-200. Retrieved from http://www.ub.es/labfon/XII-10.pdf (last consulted on 24/06/11).

Fónagy, I. (1998): Intonation in Hungarian. In: Hirst, D. — Di Cristo (1998): 331-347

Fónagy, I. — Magdics, K. (1967): *A magyar beszéd dallama.* Budapest: Akadémiai Kiadó.

Fonseca, A. — Cantero, F.J. (2011): Características da da entonação do espanhol falado por brasileiros. *Actas do VII congresso internacional da ABRALIN*. Curitiba, (Brasil) 2011. 84-98.

Font-Rotchés, D. (2005): *L'entonació del català. Patrons melòdics, tonemes i marges de dispersió.* Laboratori de Fonètica Aplicada, Universitat de Barcelona. Tesi Doctoral publicada l'any 2006 a http://www.tdx.cesca.es/TDX-0802106-114003/.

Font-Rotchés, D. (2006): Corpus oral de parla espontània. Gràfics i arxius de veu. *Biblioteca Phonica*, 4 a http://www.ub.edu/lfa.

Font-Rotchés, D. (2007): *L'entonació del català,* Biblioteca Milà i Fontanals 53. Barcelona: Publicacions de l'Abadia de Montserrat.

Font-Rotchés, D. (2008): Els patrons entonatius de les interrogatives absolutes del català central. *Llengua i Literatura* 19: 299-329.

Font-Rotchés, D. (2009): Les interrogatives pronominals del català central. Anàlisi melòdica i patrons entonatius. *Els Marges. Revista de llengua i literatura* 87: 41-64.

Font-Rotchés, D. — Cantero Serena, F. J. (2009): Melodic Analysis of Speech Method (MAS) applied to Spanish and Catalan. *Phonica* 5: 33-47. http://www.ub.edu/lfa/ consulted on 2/7/2011.

Font-Rotchés, D. — Mateo, M. (2011): Absolute interrogatives in Spanish: a new melodic pattern. *Actas do VII congresso internacional da ABRALIN*. Curitiba (Brasil), 2011. 1111-1125.

Fujisaki, H. — Nagashima, S. (1969): A model for the synthesis of pitch contours of connected speech. *Annual Report of Engineering Research Institute,* vol. 28. University of Tokyo. 53-60.

García-Lecumberri, M. L. (1995): *Intonational signalling of information structure in English and Spanish*. Bilbao: Servicio Editorial Universidad del País Vasco.

García-Lecumberri, M. L. (1996): Realizaton of English and Spanish early focal accents. Department of Phonetics and Linguistics, UCL, http://www.phon.ucl.ac.uk/home/shl9/mluisa/mluisa.htm (consulted on 7/06/11).

García-Lecumberri, M. L. — Cabrera Abreu, M. — Maidment, J. A. (1997): Accentual realisation of focus in Spanish and English. In: Antonio Botinis — Georgios Kouroupetroglou — George Carayíannis (eds.) *Intonation: Theory, models and applications.* Proceedings of an ESCA workshop. Athens: European Speech Communication Association. 141-144.

Garrido, J. M. (1991): *Modelización de patrones melódicos del español para la síntesis y el reconocimiento*. Bellaterra: Departament de Filologia Espanyola, Universitat Autònoma de Barcelona. http://liceu.uab.cat/juanma/Web/Postscript/Garrido91.ps

Garrido, J. M. (1996): *Modelling Spanish Intonation for Text-to-Speech Applications*. Tesis doctoral. Departament de Filologia Espanyola, Universitat Autònoma de Barcelona.

Garrido, J. M. (2003): La escuela holandesa: el modelo IPO. In: Prieto (2003: 97-122).

Gil Fernández, J. (1988): *Los sonidos del lenguaje*. Madrid: Síntesis.

Gili Gaya, S. (1924): Influencia del acento y de las consonantes en las curvas de entonación. *Revista de Filología Española* 11: 154-177.

Gili Gaya, S. (1950). *Elementos de fonética general*. Madrid: Gredos.

Gimson, A. C. (1989): An introduction to the Pronunciation of English. 4th ed. London: Edward Arnold.

Gleason, H. A. (1961): *An introduction to descriptive linguistics*. Revised ed., New York: Holt, Rinehart and Winston.

Godjevac, S. (2000): An autosegmental/metrical analysis of Serbo-Croatian intonation. *Ohio State Working Papers in Linguistics* 54: 79-42.

Gósy, M. (1993): A kiegészítendő kérdések felismerésének sajátosságai. *Magyar Nyelv* 89: 413-424.

Grice, M. (1995): Leading tones and downstep in English. In: *Phonology* 12: 183-233.

Grice, M. — Ladd, D. R. — Arvaniti, A. (2000): On the place of phrase accents in intonation phonology, *Phonology* 17: 143-185.

Grice, M. — Baumann, S. (2002): Deutsche Intonation und GToBI. *Linguistische Berichte* 191: 267-298.

Gussenhoven, C. (1983): *A semantic analysis of the nuclear tones in English*. Bloomington: Indiana University Linguistic Club.

Gussenhoven, C. (2004): *The Phonology of Tone and Intonation*. Cambridge: Cambridge University Press.

Gussenhoven, C. (2007): The phonology of intonation. In: Paul de Lacy (ed.) (2007): *The Cambridge Handbook of Phonology*, Cambridge: CUP. 253-280.

Gussenhoven, C. — Rietveld, T. — Kerkhoff, J. — Terken, J. (2003): ToDI second ed. Transcription of Dutch Intonation. http://todi.let.kun.nl/ (last consulted 16/06/2011).

Halliday, M. A. K. (1967): *Intonation and grammar in British English*. The Hague, Mouton.

Halliday, M. A. K. (1970): *A course in spoken English: intonation*. London: CUP.

Harris, J. W. (1996): Stress Assignment in Spanish. In: Calabrese, A. (ed.) *Romance Phonology. A Reader*. Budapest: Doctoral Programme in Romance Philology, Eötvös Loránd University.

Henriksen, N. C. (2010): Nuclear rises and final rises in Manchego Peninsular Spanish yes/no questions. *Speech prosody 2010. Fifth international conference on speech prosody*. Chicago, Illinois, USA. May 11-14, 2010. Retrieved from http://aune.lpl.univ-aix.fr/~sprosig/sp2010/papers/100212.pdf (last consulted on 24/06/11).

Hetzron, R. (1980): Ízelítő a magyar tonoszintaxisból. *Nyelvtudományi Értekezések* 104: 389-98.

Hirst, D. — Di Cristo, A. (eds.) (1998): *Intonation Systems. A survey of twenty languages.* Oxford: University Press.

Hirst, D. (2004): Lexical and Non-lexical Tone and Prosodic Typology. *Proceedings of International Symposium on Tonal Aspects of Languages*. Beijing, March 2004, 81-88 http://halshs.archives-ouvertes.fr/docs/00/13/14/43/PDF/1987.pdf (last consulted 22/06/2011).

Hockett, C. F. (1955): *A manual of phonology*. Indiana University Publications in Anthropology and Linguistics, Memoir II of IJAL. Baltimore, Md.: Waverley Press.

Hombert, J. M. (1978): Consonantal types, vowel quality and tone, In: Fromkin, V. A. (ed.) *Tone: a linguistic survey*. New York: Academic Press.

Hultzén, L. S. (1955): Stress and intonation. *General Linguistics* 1: 35-43.

Hultzén, L. S. (1964): Grammatical intonation. In: Abercrombie, D. et al. (eds.), *In Honour of Daniel Jones*, London: Longmans, Green. 85-95.

Hunyadi, L. (2002): *Hungarian Sentence Prosody and Universal Grammar*. (Metalinguistica Volume 13.) Frankfurt-am-Main: Peter Lang.

Hunyadi, L. (2006): Grouping, the Cognitive Basis of Recursion in Language. **Argumentum** 2: 67-114.

Jiménez Gómez, J. J. (2010): Claves acústicas en la distinción fonológica interrogativa-declarativa en español: La estructura formántica de las vocales. *Estudios de Fonética Experimental* 19: 293-322. http://www.raco.cat/index.php/EFE/article/view/218612 (last consulted 24/06/11).

Jones, D. (1964): *An Outline of English Phonetics*. Cambridge: W. Heffer & Sons.

Jun, Sun-Ah. (2000): K-ToBI (Korean ToBI) labeling conventions. http://www.linguistics.ucla.edu/people/jun/ktobi/K-tobi.html (last consulted 15/06/2011).

Kálmán, L. — Nádasdy, Á. (1994): A hangsúly. In: Kiefer, F. (1994: 393-466).

Kao, Wei-li (2011): La entonación de enunciados declarativos e interrogativos en chino mandarín hablado por taiwaneses. Trabajo de investigación final de Máster. Laboratori de Fonètica Aplicada de la UB.

Kassai, I. (1991): Socio-psycholinguistic notes on foreign accent. *Acta Linguistica Hungarica* 40: 383-400.

Kassai, I. (1995): Pszicho-szociolinvisztikai jegyzetek az akcentusról. *Általános Nyelvészeti Tanulmányok* 18: 103-115.

Kiefer, F. (1994): *Strukturális magyar nyelvtan 2. Fonológia*. Budapest: Akadémiai Kiadó.

Kingdon, R. (1958): *The Groundwork of English Intonation*. London: Longmans, Green.

Kornai, A. — Kálmán, L. (1989): Hungarian sentence intonation. In: van der Hulst, H. — Smith, N. (eds.) *Autosegmental Studies in Pitch Accent*, Dordrecht: Foris. 183-195.

Kozma, E. (1974): A magyar intonáció funkcionális vizsgálatának újabb lehetőségei Brizgunova elmélete alapján. *Magyar Nyelvőr* 98: 476-88.

Kozma, E. — Szende, T. (1981): Elmenni elmehetek…?! Egy önálló szövegfonológiai dallamtípus elemzése. *Magyar Nyelv* 77: 141-8.

Laziczius, Gy. (1944): *Fonetika.* Budapest: Királyi Magyar Egyetemi Nyomda

Ladd, D. R. (1996): *Intonational Phonology*. Cambridge: CUP.

Ladd, D. R. (2008): *Intonational Phonology* (2nd ed.). Cambridge: University Press.

Le Besnerais, M. (1995): *Contribution à l'étude des parameters rythmiques de la parole. Analyse contrastive de realisations phoniques en espagnol et en français*. PhD Thesis. Universitat Autònoma de Barcelona.

Liu, Y.H. (2003): *La entonación del español hablado por taiwaneses*. Universitat de Barcelona PhD.

Liu, Y.H. — Cantero, F.J. (2002): La entonación prelingüística del español hablado por taiwaneses: establecimiento de un corpus. *II Congreso de Fonética Experimental*. Sevilla. 238-242.

Llisterri, J. (2011): General phonetics - Bibliography. In: http://liceu.uab.es/~joaquim/phonetics/fon_gen/Bib_fon_gen.html#Referencias_entonacio

Llisterri, J. — Machuca, M. J. — De la Mota, C. — Riera, M. — Ríos, A. (2003): Entonación y tecnologías del habla. In: Prieto (2003: 209-243).

Markó, A. (2007): Kérdő funkciójú hanglejtésformák a spontán beszédben. *Beszédkutatás* 2007, Fonetika és Pszicholingvisztika. MTA NyI. 2007 november 15-16. (http://fonetika.nytud.hu/letolt/kerdofunkchangl.pdf)

Martínez Celdrán, E. (1984): *Fonética*. Barcelona: Teide

Martínez Celdrán, E. (2003): Análisis por niveles: la Escuela Americana. In: Prieto (2003: 64-95).

Martorell, Laura (2010): *Les interrogatives absolutes de l'espanyol parlat per suecs*. Trabajo de investigación final de Máster. Laboratori de Fonètica Aplicada de la UB.

Mateo, A. (1988): Experimento sobre el tono intrínseco de las vocales castellanas. *Estudios de Fonética Experimental* 3: 157-179, Barcelona: P. P. U.

Mertens, P. (1987): *L'intonation du français. De la description linguistique à la reconnaissance automatique.* Unpublished Ph.D. thesis. Univ. Leuven, Belgium.

Molnár, I. (1954): A *magyar hanglejtés rendszere – A Magyar énekbeszéd recsitatívóban és ariozóban*. Budapest: Zeneműkiadó.

Monroy, R. (1980): *Aspectos fonéticos de las vocales españolas*. Madrid: SGEL

Mora, E. (1996): *Caractérisation prosodique de la variation dialectale de l'espagnol parlé au Vénézuéla*. PhD thesis. Université d'Aix-en-Provence.

Narbona Jiménez, A. (1989): *Sintaxis española: nuevos y viejos enfoques*. Barcelona: Ariel Lingüística.

Navarro Tomás, T. (1944): *Manual de entonación española*. New York: Hispanic Institute.

Navarro Tomás, T. (1966): *Manual de entonación española*. La Habana: Edición Revolucionaria.

Nibert, H. (2000): *Phonetic and Phonological Evidence for Intermediate Phrasing in Spanish Intonation.* PhD thesis. Univeristy of Illinois at Urbana-Champaign.

O'Connor, J. D. — Arnold, G. F. (1961): *Intonation of colloquial English*. London: Longmans

O'Connor, J. D. — Arnold, G. F. (1973): *Intonation of colloquial English*. (Revised ed.) London: Longmans

Odé, C. van Heuven, V. J. (1994): *Experimental studies of Indonesian prosody*. Dep. of Languages and Cultures of Southeast Asia and Oceania, University of Leiden.

Olaszy, G. (2001): Prozodémák fonetikai reprezentációja. *Beszédkutatás* 2001: 28-45.

Olaszy, G. (2002): A magyar kérdés dallamformáinak és intenzitásszerkezetének fonetikai vizsgálata. *Beszédkutatás* 2002: 83-99.

Olaszy, G. — Koutny, I. (2001): Intonation of Hungarian Questions and their prediction from text. In: Puppel, S.— Demenko, G. (eds.) *Prosody 2000, Speech recognition and synthesis*, Poznań 2001.

Ortiz Lira, H. (1994): *A Contrastive Analysis of English and Spanish Sentence Accentuation.* Unpublished Ph.D. thesis. University of Manchester, Manchester

Palmer, H. E. (1922): *English Intonation, with systematic exercises*. Cambridge: Heffer

Pálvölgyi, K. (2003): *The Prenuclear Part in English Intonation Units*. Budapest, ELTE (unpublished MA thesis).

Pálvölgyi, K. (2010): Fenómens tonals conflictius en la llengua catalana i l'hongaresa investigats en la interllengua hongaresa-catalana. *Actes del XIVè Col·loqui Internacional de Llengua i Literatura Catalanes, Budapest 2006.* Publicacions de l'Abadia de Montserrat, Volum III. 233-247.

Pamies, A. — Fernández Planas, A.M. — Martínez Celdrán, E. — Ortega, A. — Amorós, M. C. (2002): Umbrales tonales en español peninsular, en Díaz García, J. *Actas del II Congreso Nacional de Fonética Experimental* (2001). Sevilla: Universidad. 272-278.

Patiño, E. (2008): Prosodic Comparative Study of Mexico City and Madrid Spanish. Freie Universität Berlin, Germany. Escuela Nacional de Antropología e Historia, Mexico (http://aune.lpl.univ-aix.fr/~sprosig/sp2008/papers/id048.pdf, last consulted 16/06/2011).

Pierrehumbert, J. (1980): *The phonetics and phonology of English intonation*. PhD dissertation. Massachusetts Institute of Technology.

Prieto, P. (2002): *Entonació. Models, teoria, mètodes*. Barcelona: Ariel Lingüística.

Prieto, P. (ed.) (2003): *Teorías de la entonación*. Barcelona: Ariel Lingüística.

Quilis, A. (1975): Las unidades de la entonación, *Revista Española de Lingüística* 5: 261-279.

Quilis, A. (1983): Frecuencia de los esquemas acentuales en español, Estudios ofrecidos a E. Alarcos Llorach 5: 113-126.

Quilis, A. (1993): *Tratado de fonología y fonética españolas*. Biblioteca Románica Hispánica. Madrid: Editorial Gredos.

Quilis, A. (1981): *Fonética acústica de la lengua española.* Madrid: Gredos

Quilis, A. — Fernández, J. (1964): *Curso de Fonética y fonología españolas*. Madrid: CSIC.

Roach, P. (1991): *English phonetics and phonology*. *A practical course*. Cambridge: CUP.

Schubiger, M. (1958): *English Intonation: its form and function*. Tübingen: Max Niemeyer Verlag.

Seco, M. (1999): *Gramática esencial del español*. Madrid: Espasa.

Silva-Fuenzalida, I. (1956-57): La entonación en el español y su morfología, *Boletín de Filología*, volume IX. Santiago de Chile. 177-187.

Siptár, P. — Törkenczy, M. (2000): *The Phonology of Hungarian*. Oxford: University Press.

Sosa, Juan Manuel (1999): *Entonación española. Su estructura fónica, variabilidad y dialectología*. Madrid: Cátedra.

Stockwell, R. P. (1972): The role of intonation: reconsiderations and other considerations, In: Bolinger (1972: 87-109).

Sweet, H. (1892): *A primer in phonetics*. Oxford: Clarendon Press.

Tapia, M. (1995): Rasgos de entonación en preguntas absolutas y sus respuestas. *Revista de Lingüística Teórica y Aplicada* 33: 195-207. Retrieved from http://www2.udec.cl/~hvaldivi/articulos/tapia1995.pdf (last consulted 24/06/11).

Tench, P. (1996): *The Intonation Systems of English*. London: Cassell

t'Hart, J.; Collier — A. Cohen (1990): *A perceptual study of intonation. An experimental-phonetic approach to speech melody*. Cambridge: Cambridge University Press

Thorsen, N. (1979): Interpreting raw fundamental frequency tracings in Danish. *Phonetica* 36: 57-78.

Tolnai, V. (1915) Adatok a Magyar hanglejtéshez. *Magyar Nyelv* 11: 51-9, 108-16, 152-6.

Trager, G. L. — Smith, H. L. (1951): *An outline of English structure*. Washington: American Council of Learned Societies.

Vanderslice, R. — Ladefoged, P. (1972): Binary suprasegmental features and transformational word-accentuation rules, *Language* 48: 819-838.

Varga, L. (1981): A magyar intonáció − funkcionális szempontból. *Nyelvtudományi Közlemények* 83: 313-339.

Varga, L. (1988): Hozzászólás egy Hangsálytanulmányhoz. *Nyelvtudományi Közlemények* 89: 53-66.

Varga, L. (1994): A hanglejtés. In: Kiefer, F. (1994: 468-549).

Varga, L. (2002a): *Intonation and Stress: Evidence from Hungarian*. Houndmills, Basingstoke: Palgrave Macmillan

Varga, L. (2002b): The intonation of monosyllabic Hungarian Yes-No questions. *Acta Linguistica Hungarica* 49: 307-320.

Varga, L. (2008): The calling contour in Hungarian and English. *Phonology* 25: 469-497.

Venditti, Jennifer J. (2005): The J_ToBI model of Japanese intonation. In: Sun-Ah Jun (ed.) *Prosodic Typology: The Phonology of Intonation and Phrasing*, Oxford: Oxford University Press. 172-200.

Wacha, I. (1985): Beszéd: Szituáció, szöveg és hangzás együttese a rádióban és televízióban. In: L. Grétsy (ed.) *Nyelvészet és tömegkommunkiáció* Budapest: Tömegkommunikációs Kutatóközpont. 7-246.

Zamora, F. J. — Carrera, M. — Meléndez, M. M. (2005): Variación geoprosódica en dos entonaciones de Castilla y León: Análisis de frases declarativas e interrogativas sin expansión. *Estudios de Fonética Experimental* 14: 125-140. http://www.ub.es/labfon/XIV-9.pdf (last consulted on 24/06/11).