The intonation of lengthenings in northern and southern dialects of Spanish

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Abstract

This research focuses on the prosodic patterns of lengthenings attested in northern and southern dialects of European Spanish, more precisely, on their intonation. A corpus of 200 spontaneous utterances has been elaborated (including 100 utterances from the northern dialects and 100 utterances from the southern ones, produced by 16 male and 16 female informants, respectively). The analysis has been carried out following the standardization protocol offered by Cantero Serena & Font-Rotchés (2009), Cantero Serena (2019) and Cantero & Font-Rotchés (2020), in which the representative values of intonation (in Hz) are taken for each syllable, and then these values undergo a process of standardization, in order to be comparable objectively and speaker-independently. It is expected that lengthenings show no remarkable inter-dialectal melodic differences. Also, it is predicted that lengthenings do not present prominent prosodic features as compared to their context, because they may serve as a tool for the speaker to maintain the conversational turn, without interrupting the tonal movement of the utterance.

Keywords: dialects, European Spanish, lengthenings, intonation, standardization

1. Introduction

Disfluency phenomena include, for example, noises, repetitions, false starts, silent pauses, repairs, truncations, filled pauses and lengthenings (Eklund, 2004; Gósy, 2002; Lickley, 1994, 2015; Rodríguez et al., 2001; Shriberg, 1994), the last two phenomena being the two most common subtypes of hesitation (Deme & Markó, 2013).

Lengthenings form part of phenomena that are applied to gain time without implying necessarily the interruption of elocution. Their aim is to slow down the velocity of speech without affecting communication (Rebollo Couto, 1997, p. 667). Filled pauses and lengthenings are typically considered to be two

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different acoustic disfluency phenomena (Rodríguez et al., 2001, 2015), but for some, lengthenings are subsumed under filled pauses (Maclay & Osgood, 1959, cited by (Machuca Ayuso, 2018)), as a special, "lexical" type (Blondet, 2001; Villa Villa, 2017). Filled pauses in Spanish are characterized by the Spanish vowel [e] (Machuca Ayuso et al., 2015), or, in less cases, the Spanish vowel [a] or even the consonantal [m] (Garrido Almiñana et al., 2017). Lengthenings affect primordially unstressed syllables in Spanish (Rebollo Couto, 1997). The most common lengthened vowel is the [a], whereas amongst consonants, word-final [l], [n] or [s] (Baditzné Pálvölgyi, 2019). The following examples show how these hesitation phenomena are realized in their context (all the utterances are taken from my corpora):

(1) ECA-2-3 *Vale rodea...* [a:] *eh* [e:] *la...* [a:] 'Ok, then you go around eh the'

EMA-1-2 *Y tengo que ir a...* [a:] *la tienda Nueva Moda* 'And I have to go to the Shop New Fashion'

EGI-2-3 *Mmm* [m:] *pues continúa por allí* 'Mmm then you go on there'

EGI-2-5 *Eh* [e:] *continúas todo de frente y te vas a encontrar el...* [l:] *el ayuntamiento* 'Eh you go straight on and you will find the town council'

EOV-1-1 *Ves un* [n:] e*stablecimien*[n:]*to que se llama* [a:] *Modas Nuria* 'you see a building called Nuria Fashion'

EOV-1-3[a] *pues*[s:] *luego* 'well then'

The present research focuses on the prosody of lengthenings – more precisely, on their melodic characteristics – in two well-defined dialects of European Spanish.

Spanish is spoken by more than 400 million speakers all over the world, and due to this fact, its dialectology presents a considerable variation. We can distinguish two main dialectal areas in Europe that share several common characteristics in their pronunciation: those from the north (including also central varieties) and the dialects from the south (including the varieties spoken in the Canary Islands, cf. Hualde, 2014, 285–288). Taking into account this dichotomy,

my objective has been to compare the strategies of hesitation applied by the dialects of Spanish from north and south, in three aspects related to prosody: (a) intonation, (b) intensity and (c) the duration of prolonged segments and filled pauses (Baditzné Pálvölgyi, 2020). I conducted an investigation that compared 100 sentences provided by speakers of northern Spanish dialects with 100 sentences taken from informants of southern Spain. In both corpora the same methodology was applied, a three-phase prosodic analysis of speech proposed by Cantero Serena (2019), in order to answer two research questions:

1. Do these two dialects show prosodic differences in case of hesitation phenomena?
2. Are hesitation phenomena prosodically salient as compared to their adjacent context?

This study aims at answering part of the questions mentioned above: it describes the intonational aspects of lengthenings in northern and southern dialects of European Spanish.

It is essential to define where exactly dialectal differences take place within the scope of intonation. The dialectology of Spanish intonation traditionally was based on the description of the shape of the whole contour, focusing primordially on the characteristics of the final tonal movement parting from the last accented syllable (cf. Quilis, 1999, 454–483; Sosa, 1999, 177–245; Hualde, 2014, 280–281). Cantero Serena (2002, 86–88), however, claims that it is rather the parsing of speech into blocs indicated by the melodic changes anchoring in stressed syllables that makes dialectal accents recognizable. In this sense, it is the melody (and in a broader sense, prosody) of stressed syllables that is responsible for dialectal intonation. By accepting either of these two points of view, as lengthenings in Spanish generally affect unstressed segments (Rebollo Couto, 1997), it is expected that they are not responsible for considerable differences of dialectal intonation. Regarding Latin American Spanish dialects, Blondet (2001), who considers lengthenings as lexical filled pauses, did not find any considerable differences in the intonation of lengthenings in different Venezuelan

dialects. Apart from this work, no significant studies have been carried out in the field of comparative intonation of lengthenings. The lack of the treatment of hesitation phenomena in intonational studies can partly be explained by the fact that most of the comprehensive works are based on the analysis of read sentences (cf. Sosa, 1999; Quilis, 1999) – or even sentences taken from different literary genres such as novels, as in Navarro Tomás (1966). As read and rehearsed sentences are less characterized by hesitation phenomena than spontaneous conversations, it is not surprising that we do not find abundant papers concerning the intonation of lengthenings. Unfortunately, the extended dialectal study within the autosegmental framework, carried out by Prieto et al. (2010), which collected wide data of induced (but not read) and spontaneous sentences, does not include in its analysed samples spontaneous utterances either.

Based on what has been revealed so far, according to my first hypothesis concerning the intonation of lengthenings in Spanish dialects, (1) there will not be significant differences in the intonational aspect of lengthenings between northern and southern variants of European Spanish.

Regarding research question (2), my prediction is that lengthenings will show no salient tonal movements as compared to their immediate context. This hypothesis can be explained by the observation that hesitation phenomena such as lengthenings in general cannot only be defined as the blockers of fluency; they can also guarantee that the speaker will hold the dialogue turn, so their role in spoken discourse is definitely important. This is also true in case of Spanish, a language known for the so-called 'Mediterranean debate' rules, in which native speakers hold and gain conversational turns with apparent vehemence (Berry, 1994).

According to previous research, the melody of filled pauses is rather plain when the speaker has no specific communicative function with the hesitation, only 'gaining time', but if the vocalization is accompanied by an emotion or is used to check listeners' attention, they show special tonal movements, such as a fall-rise (Garrido Almiñana et al., 2017). As for lengthenings, Blondet (2001) found in Venezuelan Spanish that lengthenings typically showed a linear

melodic fall. This means that lengthenings completely adopted the by default descending melody of the declination observable in Spanish utterances, without interrupting it tonally.

For this reason, according to my assumption, utterance-internal lengthenings must not be prosodically prominent, as their only aim is to be a continuation to their context. If they presented abrupt movements, they would definitely break the prosody of the utterance, and might cause the speaker to lose his/her conversational turn.

Based on what has been revealed so far, in this study I focus on lengthenings from a prosodic point of view, more concretely, from a melodic perspective, by formulating two hypotheses:

1. utterance-internal lengthenings do not present different intonational behavior in the two examined dialects;
2. utterance-internal lengthenings are not characterized by prominent melodic movements compared to their adjacent context.

2. Corpus and informants

The corpus was obtained from the 'Map Task' activities in the interactive Atlas of Romance intonation compiled by Prieto et al. (2010–2014), on the one hand, and on the other, of spontaneous interviews uploaded to YouTube. I have analysed all the utterances that presented lengthenings in case of the Map Tasks, and this corpus was completed by the same number of utterances containing lengthenings in case of the interviews, in a way that male and female speakers were represented equally in both corpora. This way we obtained only spontaneous speech samples with the same speech style (spontaneous conversations, the speakers of which are aware of being recorded). 32 speakers were selected altogether, 16 informants from the north (8 men and 8 women), and 16 from the south of Spain (also 8 men and 8 women), from recordings of 291 minutes and 30 seconds in total. In the northern corpus, 116 lengthenings have

been detected, compared to the 120 cases in the southern corpus. Table 1 and table 2 sum up the data related to the informants.

Only monolingual areas were chosen for the analysis (leaving apart thus, territories such as Catalonia, Valencia or the Balearic Islands (Catalan-speaking zones), Galicia (Galician-speaking zone), the Basque Country and La Rioja (Basque-speaking zones), because these regions could have shown influences by other peninsular languages.

3. Method

The theoretical background used in this work is based on the intonational theory presented by Cantero Serena (2002), implemented later by a protocol for melodic analysis (Cantero Serena & Font-Rotchés, 2009; Cantero & Font-Rotchés, 2020), and a protocol for prosodic analysis (Cantero Serena, 2019).

Within this model, the smallest unit for the melodic analysis is the tonal segment with the relative tonal value of the syllabic nucleus (in Spanish, almost exclusively the vowel). Each vowel constitutes one tonal segment, except for accented vowels, which can constitute tonal inflections, that is, combinations of two or more tonal segments. Consonants occupy a marginal status in the syllable, except for nasals and liquids, which may, in certain cases, hold a tonal contrast alone.

For Cantero, intonation is defined as relevant f0 variations in the utterances (2002, p. 18). Other elements sometimes traditionally considered as part of intonation (such as tempo, intensity, duration, timbre) are out of his scope. Cantero holds that alterations in tempo or intensity are non-melodic changes, often analysed as emphatic features of intonation (2002, p. 178). Intensity is subsumed under the definition of intonation in Quilis (1981, p. 394), for example, but Cantero regards that intensity can add intonational information only in whispered speech, where there is no f0. Di Cristo (1982), Gili Gaya (1924), Hombert (1978) and Mateo (1988) all consider timbre as potentially part of intonation; Cantero, nevertheless, excludes this possibility (2002, p. 17–18).

Table 1: The informants' data

Northern Spanish data					
origin	**speakers**	**sex**	**age**	**no of utterances selected**	**duration**
Gijón (Map Task)	Speaker 1	f	24	5	5:49'
	Speaker 2	f	22	7	
Oviedo (Map Task)	Speaker 1	f	20	9	4:52'
	Speaker 2	f	25	6	
Cabezón de la Sal (Map Task)	Speaker 1	f	31	12	11:50'
	Speaker 2	f	31	2	
Madrid (Map Task)	Speaker 1	f	33	3	14:00'
	Speaker 2	f	37	5	
Salamanca (interviews)	Speaker 1	m	49	7	4:39'
	Speaker 2	m	57	6	21:36'
Burgos (interviews)	Speaker 1	m	59	6	15:53'
	Speaker 2	m	36	6	16:16'
Ávila (interviews)	Speaker 1	m	60	6	22:31'
	Speaker 2	m	59	7	25:23'
León (interviews)	Speaker 1	m	56	6	26:30'
	Speaker 2	m	51	6	27:24'
age (years; mean)				40,63	
utterances (total)				100	
Southern Spanish data					
origin	**speakers**	**sex**	**age**	**no of utterances selected**	**duration**
Canary Islands (Map Task)	Speaker 1	f	38	6	4:41'
	Speaker 2	m	38	8	
Jaén (Map Task)	Speaker 1	f	22	10	4:14'
	Speaker 2	m	21	1	
Constantina (Map Task)	Speaker 1	f	23	8	2:42'
	Speaker 2	f	22	8	
Jerez de la Frontera (Map Task)	Speaker 1	f	41	3	3:15'
	Speaker 2	m	46	6	
Málaga (interviews)	Speaker 1	m	49	6	14:05'
	Speaker 2	m	45	6	18:14'
Sevilla (interviews)	Speaker 1	f	50	7	15:19'
	Speaker 2	m	51	6	
Badajoz (interviews)	Speaker 1	m	47	6	12:18'
	Speaker 2	m	59	6	6:20'
Granada (interviews)	Speaker 1	f	55	6	8:37'
	Speaker 2	f	47	7	5:03'
age (years; mean)				40,88	
utterances (total)				100	

Pitch, duration and intensity are considered to be suprasegmental features, and as such, are relatively difficult to interpret. First, because we must neglect speaker-dependent characteristics that carry no linguistic significance, and second, because prosodic units must be understood as bearing relative prominence with respect to adjacent units, so they have no information alone.

A solution to overcome these difficulties is offered by Cantero's Melodic Analysis of Speech (MAS) (2009) and his latter implementation to the theory, Prosodic Analysis of Speech (PAS) (2019). As for melodic analysis, there is an acoustic phase, assisted by an acoustic analysis software. The second step is the melodic representation: in order to concentrate only on the melodically relevant features, it is necessary to ignore irrelevant micromelodic variations and reduce the intonational contour in case of each syllable to a characteristic frequency value (or in case of syllables with tonal instability, to two or three values, depending on the tonal inflection carried by the syllable). The third step is the melodic standardization: the contours are represented taking into account not the absolute values, but the relative ones, as each syllable is given a percentage based on its melodic rise/fall experienced with respect to the previous syllable (Baditzné Pálvölgyi, 2012). The same algorithm is used in case of intensity in the extended PAS model (the relative values are intensity peaks associated to each syllable with respect to the previous one) and duration (the relative duration of each syllable with respect to the previous one).

This analysis permits us to describe more objectively the prosodic features of a given language, and compare prosodically, for instance, dialects. The melodic process is presented in the next section, using examples from my corpora.

3.1. The standardization of tonal data in the MAS model

It is an essential step in the MAS model that the original f0 curve is reduced to a standardized copy of it without micromelodic variations, ultimately by the help of the analysis and synthesis program Praat (Boersma & Weenink, 2019). Standardization of contours was first done using semitones in the 'Dutch School', also known as the IPO model. The most emblematic work of this

approach is t'Hart et al. (1990), which was followed by various researches in different languages (Adriaens, 1991; Beaugendre, 1994; Odé & Heuven, 1994). In Spanish, Garrido (1991, 1996) and Estruch et al. (1999) worked with similar automatic stylization methods (Baditzné Pálvölgyi, 2012).

The difference between the standardized curves in the MAS model and the ones in the Dutch School is that the MAS model uses percentages for the standard values, which is 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 tonal position as compared to the previous syllable. If the syllable is located lower, it is a negative percentage, and if it is higher than the previous syllable, it is a positive one. The standardized contour, as in the case of the Dutch school, is submitted to perceptual tests so as to confirm that it is melodically identical to the original curve; if not, it is corrected manually. The percentages can show more than the autosegmental labels would, because they can express illocution (in Spanish, for example, an utterance-final rise of over 80% is perceived as interrogative tone). Still, according to Font-Rotchés, the MAS analysis is compatible with autosegmental labeling, as it is a model that also permits any subsequent type of annotation, including ToBI methodology, cf. (Font-Rotchés & Mateo Ruiz, 2011, p. 1112). Though first applied to Spanish intonation (Cantero Serena et al., 2005; Cantero Serena & Font-Rotchés, 2007; Font-Rotchés & Mateo Ruiz, 2011), it has been extended to the study of intonation in other languages as well, such as Catalan (Font-Rotchés, 2005, 2007, 2009), or Chinese (Kao, 2011). For a partial Spanish application see Patiño (2008). In Hungarian, a similar analysis was carried out in Olaszy & Koutny's investigation, also based on percentages and stylized contours. For them, however, the first value (100%) is not an arbitrary number, but the first abstract f0 value of declarative sentences. Yes-no questions start at 80% as compared to this value (Olaszy & Koutny, 2001, p. 182–183).

This model has also been applied in the description of the intonation of interlanguages, for example the Spanish spoken by Brazilians (Fonseca & Can-

tero Serena, 2011), Italians (Devís, 2011), Swedes (Martorell, 2011) or Hungarians (Baditzné Pálvölgyi, 2011, 2012, 2018, 2019).

3.2. The steps of tonal standardization

The first phase of the analysis guarantees that we get rid of irrelevant micromelodic variations, reducing each syllable to a characteristic tonal value. In case of tonal instability within a syllable, the extreme values of f0 are taken. The following figures exemplify the process.

Figure 1 below shows how the distinct tonal values can be perceived in the utterance *Y viendo el patrimonio monumental de la...* 'And seeing the monumental patrimony of the...' (an utterance from my corpus, with the speaker from Badajoz; the image is produced by the voice analysis software Praat, the text is my addition):

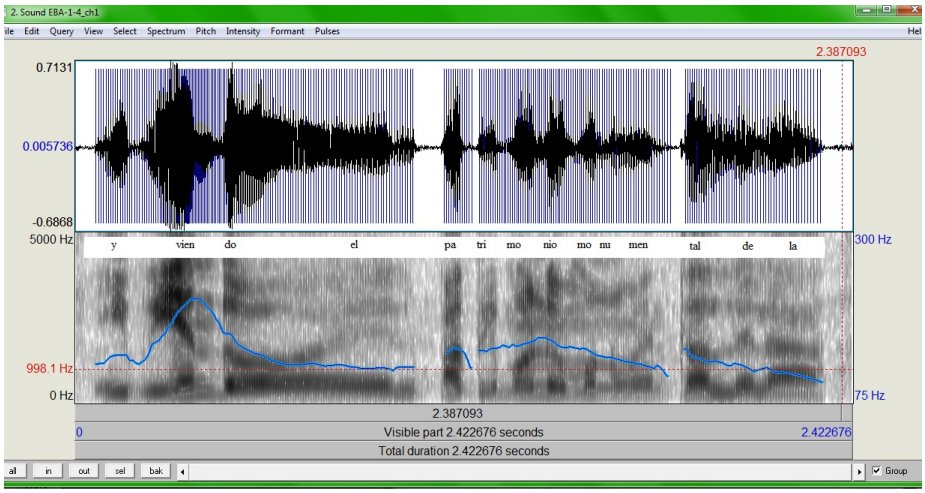


Figure 1: Tonal values of an utterance from Badajoz

The vowels of the utterance which are characterized by tonal stability are measured at their middle point. This is so in case of the first vowel [i] of the word *y*, as, though visually it appears to be tonally instable, in fact the tonal movement that characterizes the syllable is unperceivable. Figure 2 shows that the minimum value is 125,5 Hz, the maximum value is 138,4 Hz (measured in the

middle), so the difference between them does not reach the perception threshold of 10% (Font-Rotchés & Mateo Ruiz, 2011).

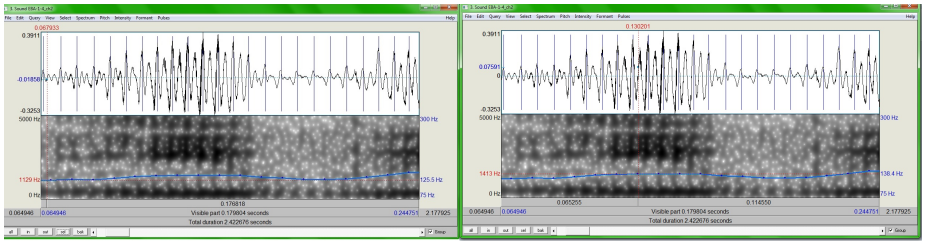


Figure 2: Amplified images of the tonal values for the syllable "y"

In the case of the syllable *vien-*, we cannot take the central value (which would be only 183 Hz), as the syllable is characterized by a tonal inflection and the melody reaches even 212 Hz at its highest point, so we must measure this extreme pitch value instead of the central one (cf. Fig. 3).

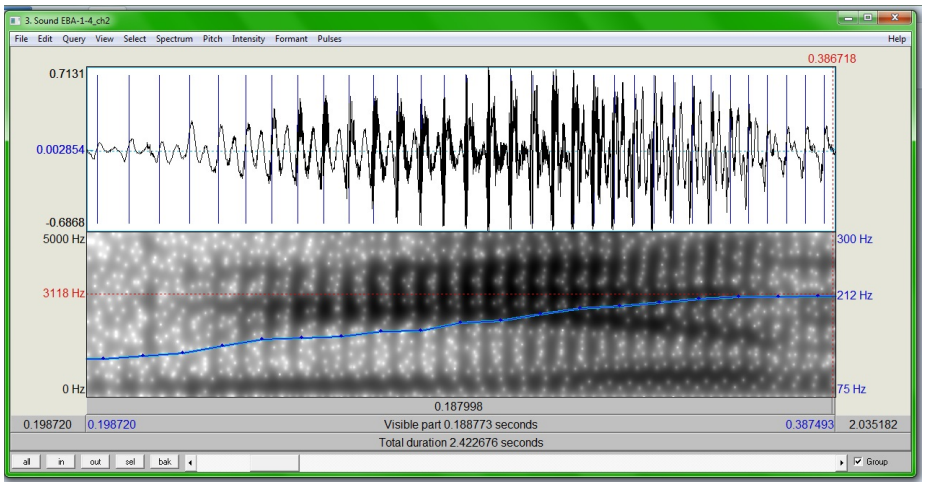


Figure 3: Amplified image of the tonal values for the syllable *vien-*

Bearing in mind this principle, we can display all the absolute f0 values measured for each syllable, and this is how we get the melody of the utterance reduced to only the relevant tonal information (Fig. 4). In case of the syllable *pa-*, as it is characterized by tonal instability superior to 10%, both extreme

values are represented in the curve (in my representation, the point before the vowel a indicates inner inflection in the syllable).

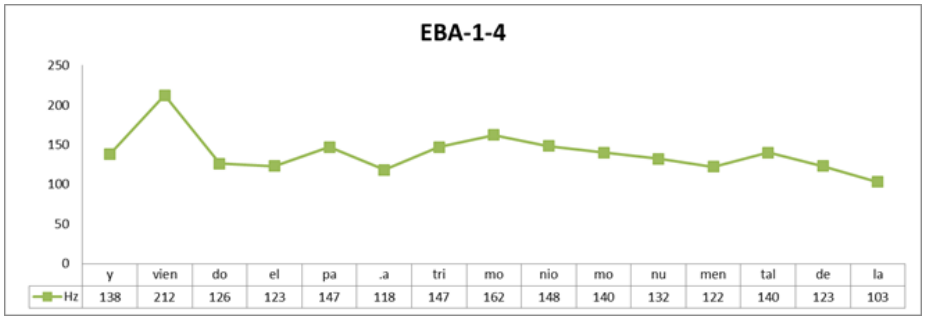


Figure 4: Absolute curve of the utterance "*Y viendo el patrimonio monumental de la...*"

After this phase, we proceed to the standardization. Each absolute value (measured in Hertz) becomes a relative value, depending on the previous value: the first value of the utterance is given an arbitrary value '100', and the following values represent the tonal distance measured in % with respect to the previous syllable. For example, a jump from 138 Hz to 212 Hz in the following syllable would result in the values of 100 and 154 respectively, since between 138 and 212 there is a rise of 52,52%. In Figure 5, we show how the absolute values obtained in Hertz (green line) are converted into relative values (blue line).

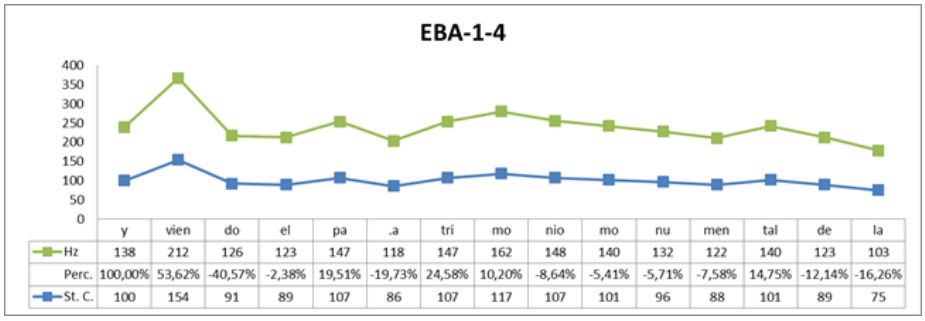


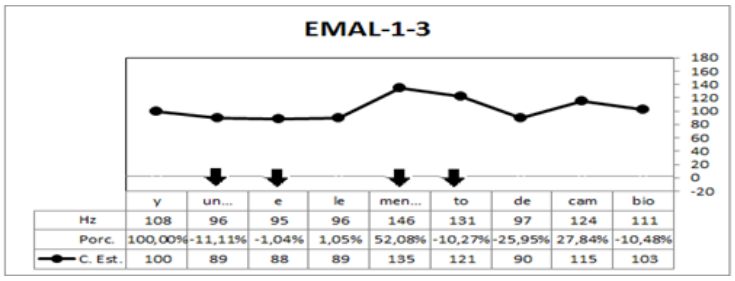
Figure 5: Standardized curve of the utterance "*Y viendo el patrimonio monumental de la...*"

The standardized curve thus ensures that the described melodies are objectively comparable to each other, regardless of the individual tonal characteristics

of the speakers (e.g. if it is a child with a tonal height much higher than in the case of a man; what would matter are the proportions of the tonal movements and not the absolute values of each curve). Both curves (the absolute one and the standardized copy) are melodically identical, though in order to validate whether the standardized copy sounds the same as the original, it can be synthesized in Praat and a series of perceptive tests can be applied. First, all f0 values are deleted and then replaced by the values of the standardized copy by using the function "Manipulate" in Praat. Both samples (the original and the synthesized) are submitted to the listeners' judgment. If correction is needed, it can be realized as a final phase (Cantero & Font-Rotchés, 2020, p. 34–35).

3.3. The use of melodic data in the present research

In accordance with my objectives, segments affected by lengthening will be examined from a tonal point of view, assuming that they are tonally irrelevant in their context (i.e. they present no prominent melodic changes compared to adjacent segments), and also assuming no significant differences between the two dialectal zones. In order to study their tonal behavior, two melodic data will be examined: the percentage of tonal movement **to** the lengthened segment from the previous one, and the percentage of the tonal movement **from** the lengthened one to the following. These data are indicated by arrows in the following plot (Figure 6).



	y	un...	e	le	men...	to	de	cam	bio
Hz	108	96	95	96	146	131	97	124	111
Porc.	100,00%	-11,11%	-1,04%	1,05%	52,08%	-10,27%	-25,95%	27,84%	-10,48%
C. Est.	100	89	88	89	135	121	90	115	103

Figure 6: Graph of an utterance from Málaga "*y un elemento de cambio*" 'and an element of change', with *un...* and *–men...-* as the lengthened segments. Arrows indicate the tonal movements to and from the lengthened segments (standardized melodic representation).

As we are analyzing relative prosodic values, we cannot take into consideration utterance-initial lengthenings when we measure the proportion of tonal movements to the lengthened segment, as these values cannot be contrasted with any previous value, so they cannot even be relativized. Similarly, we cannot analyze utterance-final hesitation phenomena from the point of view of the proportion of the tonal movement from the lengthened segment either, as there is no segment following them and thus no comparison can be made.

4. Results

In the following section we will focus on the analysis of the received data in order to validate our hypotheses, i.e. (1) lengthenings do not present different melodic behavior in the two examined dialectal zones; and (2) lengthenings are not characterized by prominent melodic movements compared to their adjacent context.

As in this study the focus is on lengthenings as disfluency phenomena, first we must define which segments were considered as part of this group.

The first criterion to fulfil was, obviously, that the segment should be prolonged. There are several ways to determine whether a segment should be considered lengthened. Lengthening is easily detectable by listeners by ear, so Deme & Markó (2013) based their judgement on perceptive tests: if a segment was recognized as lengthened by 6 out of 10 listeners (all linguists), it was considered lengthened. My choice was to base this judgement on durational data: as the minimum duration of filled pauses is considered to be 0,2s by Goldman-Eisler (1973) and Guaitella (1996), cited by (Blondet, 2001, p. 8), and filled pauses are generally longer in Spanish than lexical vowel lengthenings (Villa Villa, 2017, p. 167), I took 0,2s as the minimum value for lengthenings. The other criterion was, in case of non-initial segments, that it should be longer than the previous one.

As the study focuses on lengthenings as disfluency phenomena, we must also contemplate two cases in which lengthening is a natural by-product of certain

conditions but does not serve as a tool to gain time, thus, is definitely not a disfluency phenomenon, and exclude those samples from the analysis. First, we must bear in mind that phrase-final lengthening is a natural process in numerous languages, including Spanish (Gósy & Krepsz, 2018). Second, stressed position can also result in longer duration in Spanish (Ortega-Llebaria, 2006), so stressed syllables were also excluded from our analysis (though lengthenings in Spanish, as we have already seen, mostly affect unstressed segments anyway, cf. Rebollo Couto, 1997).

Based on what has been said, if a segment sounded prolonged but its duration was inferior to 0,2s, it was sentence-final or stressed, it was automatically excluded from the analysis. This can be seen in Table 2, which sums up the tonal movements related to the lengthenings attested in both corpora: in the northern corpus 116 cases were detected as compared to the 120 cases in the southern corpus. However, in the analysis only those were taken into consideration which were not utterance-final and were unstressed, so this number was reduced to 65 northern cases and 50 southern ones in case of the analysis of the tonal movement to the lengthened segment, as here utterance-initial segments could not have been analysed (there was not any tonal movement to an utterance-initial segment). In case of the analysis of the tonal movement from the lengthened segment, utterance-initial unstressed lengthenings were already taken into consideration, so we had 81 northern samples and 71 southern ones.

Regarding the melodic aspect, the average value of the proportion of the movement **to** the lengthened syllable, in case of the northern dialects, is $-1,56\%$, while in case of the southern ones, it is 0,85% (cf. Figure 7), with no significant difference between the means.

In the case of the proportion of the tonal movements **from** the lengthened syllable, the mean value is $-1,67\%$ in the case of the northern dialects and $-6,73\%$ in the case of the southern ones (cf. Figure 7), again without a significant difference between the means. This implies that prediction (1) about the same tonal behavior of the two examined dialects as far as lengthenings are concerned has proved to be true according to my corpora.

Table 2: Data related to the tonal movements of lengthenings

	North	South
lengthenings (total)	116	120
no of non-initial non-final lengthenings on unstressed syllables	65	50
lowest tonal movement to the syllable (%)	-54,46	-40,57
highest tonal movement to the syllable (%)	51	132
mean tonal movement to the syllable (%)	-1,56	0,85
rising tonal movement to the syllable (cases)	25 out of 65 (38%)	20 out of 50 (40%)
rising tonal movement superior to 10% to the syllable (cases)	8 out of 65 (12%)	9 out of 50 (18%)
no of non-final lengthenings on unstressed syllables	81	71
lowest tonal movement from the syllable (%)	-40,52	-56,25
highest tonal movement from the syllable (%)	52,58	68,31
mean tonal movement from the syllable (%)	-1,67	-6,73
rising tonal movement from the syllable (cases)	33 out of 81 (41%)	22 out of 71 (31%)
rising tonal movement superior to 10% from the syllable (cases)	12 out of 81 (15%)	11 out of 71 (15%)

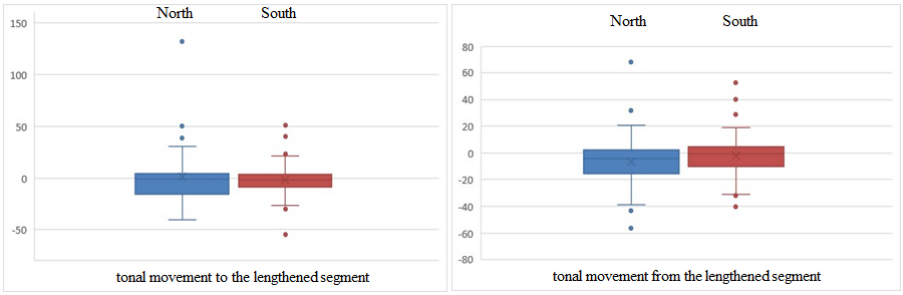


Figure 7: Boxplots of the tonal movement to and from the lengthened syllable in % in the two corpora (boxplots are generated by Excel 365 pro plus).

In order to examine hypothesis (2), we should analyse the average values of tonal movements associated to the prolonged segments. A salient tonal movement in Spanish is perceived if the listener is exposed to at least 10% of melodic variation between segments (Font-Rotchés & Mateo Ruiz, 2011). In this case, the average value of neither the tonal movement to the lengthened segment nor the one from the lengthened segment reaches this threshold in either of the two dialects. Rises – especially over the perception threshold of 10% - occur in less than 20% in both corpora. This means that based on our corpus, we can conclude that the average tonal movements associated to the prolonged segment – the movement from the previous segment to the prolonged one and the movement from the prolonged segment to the next one – cannot be considered as salient melodic differences with respect to their adjacent contexts.

5. Conclusions and discussion

In this study the two main dialectal areas of European Spanish were examined from the point of view of the melodic behavior of lengthenings. A corpus of 200 utterances (100 northern Spanish and 100 southern Spanish ones, taken from Map Task activities and spontaneous interviews downloaded from YouTube videos) were contrasted, in order to verify the following two hypotheses:

1. utterance-internal lengthenings do not present different intonational behavior in the two examined variants
2. utterance-internal lengthenings are not characterized by prominent melodic movements compared to their adjacent context

The first prediction is part of a more complex hypothesis set up by Baditzné Pálvölgyi (2020), assuming that as for prosody, southern and northern variants will only be different in relative duration values, but not in relative intensity or intonation values. This assumption is partly based on the observation that so far we have not discovered radical differences in the intonational characteristics between southern and northern variants of Spanish at segment level (and lengthenings affect segments), especially taking into consideration

unstressed syllables, and lengthenings in Spanish typically affect unstressed syllables (Rebollo Couto, 1997). As for duration, however, there is an argument to suppose that southern dialects present relatively longer hesitation phenomena in utterance-internal segments than their northern counterparts. This could be so because the southern variants are characterized by elision more frequently than the northern ones, thus, even if segments affected by hesitation are of the same absolute duration in both dialects, they are perceived relatively longer in the southern dialects where syllables are realized shorter due to elision than in the northern dialectal zone (Toledo, 2010).

We have seen based on the results that effectively, in case of relative tonal values from the previous segment to the one affected by lengthenings, the average percentage of the tonal movement was not significantly different in case of the two examined corpora. This was also true for the average percentage of tonal movements from the lengthened syllable to the following one. This means that the first hypothesis was validated. As for our second hypothesis, both corpora presented very low means as for intonational relevance of the lengthened segment compared to its context, not reaching 10% of tonal difference, which is considered a perception threshold in Spanish. As has been predicted, speakers did not realize lengthenings accompanied by striking melodic movements. It may be explained by the wish of the speakers not to interrupt melodically the utterance and provide this way tonal continuity, in order to maintain the conversational turn.

As for future research, more data should be collected in order to support our results, and other disfluency phenomena could be analysed. Also, as in this paper we have only seen the melodic aspect of lengthenings in European Spanish dialects, but there are other prosodic components to be analysed, intensity and duration. By the help of Cantero's (2019) extended Prosodic Analysis of Speech (PAS) model we could define prosodic features other than melody in case of hesitation phenomena. The PAS model offers a standardization protocol for intensity and duration similar to the procedure we have seen in the case of intonation; as for intensity, the standardized intensity curve is generated by

reducing every syllable to its prominent intensity peak value, and these values are standardized in terms of proportion always compared to the previous value. Duration standardization is a more complex process, the distance between intensity peaks is calculated for each segment, and thus the standardized curve is generated over these values. The perception threshold is not yet established unanimously for either intensity nor duration in case of Spanish, and without these values we cannot fully interpret the results.

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