

# PHONOLOGICAL ANALYSIS OF MEDIAL FOCAL ACCENT IN SPANISH AND ENGLISH<sup>1</sup>

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*This paper looks at the manifestation of medial-focus accents in Spanish and English, and at the way in which this phenomenon has been accounted for by a previous analysis included in García-Lecumberri et al. (1997). It is argued that the Spanish utterances must be accounted for in terms of two intonation groups, and that the English utterances must be accounted for in terms of a single intonation group. The analysis is performed by following the phonological framework proposed in Cabrera-Abreu (1996a), and it allows for both a descriptively and an explanatorily adequate account of medial-focus accents both in Spanish and English.*

## 1. Introduction

In García-Lecumberri et al. (1997) (henceforth GL et al.), a set of tonal sequences were put forward as possible analyses of medial-focus Spanish and English utterances. However, the proposals to account for the Spanish utterances resulted as being inconclusive, since two competing intonation structures were proposed for utterances showing the same type of phenomenon. More specifically, it was suggested that the manifestation of a step down in the F<sub>0</sub> contour could be analysed in terms of a specific tonal sequence organised in either two intonation groups, or one single intonation group. Unfortunately, the phonological model (Pierrehumbert 1980) followed in the analysis of such utterances was unable to lead us to a solution.

In this paper, I put forward an alternative analysis of medial-focus Spanish and English utterances, based on the model proposed in Cabrera-Abreu (1996a) (henceforth CA). As we shall see in 5.2, her model leads us to treat the manifestation of the step down in the F<sub>0</sub> contour as a phenomenon which occurs between two intonation groups, and not within a single intonation group. Such an analysis contrasts with medial-focus English utterances, which show a single intonation group.

My discussion will be structured as follows: in 2 I briefly describe the data to be analysed. Then, in 3, I present a summary of the path that leads the analysis presented in GL et al. (1997) to identify two intonation units to account for medial-focus Spanish utterances. After that, 4 introduces the main

1. This paper has benefited from insightful comments and suggestions from Toyomi Takahashi, to whom I am most grateful.

ideas of the model in CA which are necessary to account for the data under discussion. In 5, first, I show how medial-focus Spanish utterances are accounted for within the framework just described, and then, I compare their representation to that of the English utterances. I conclude the paper in '6 by arguing in favour of analysing medial-focus Spanish utterances in terms of two intonation units, and medial-focus English utterances in terms of a single intonation unit.

## 2. Spanish and English focus-medial utterances

Focus-medial utterances are of the type illustrated in the appendix. Figures 1 and 2 show the F0 contour over the Spanish sentences *MARga VENde muebles* ('Marga sells furniture') and *el PERro laMIO la correa* ('The dog licked the lead'). (I use the convention to show focused items as underlined, and accented items in uppercase). As can be seen in figure 1, first, the F0 contour rises over *MAR*, and then, there's a sharp dip, possibly due to the effects of micro-intonation. After that, notice that the pitch rises again, but this time, the peak is not as high as in the case of *MARGa*. This peak corresponds to *VENde*, and this is followed by a gradual fall in pitch over *muebles*. The F0 contour in figure 2 is rather similar to that in figure 1, the only difference being that there is a drop in pitch over the unstressed syllable *la*.

Figure 3 illustrates the utterance *GARy MANages their restaurant*. The intonation contour starts high and remains level (though slightly sagging) up to about *-ges*, where it drops. After that, it remains low and level.

## 3. GL et al.'s analysis

Let us now turn to consider the analysis put forward in GL et al. for the English utterance. The high level stretch of pitch over *GARy MAN-* is accounted for by two H\* accents associated to *GA-* and *MAN*. In such a sequence of tones, we frequently find a sag due to an interpolation between the two pitch accents. The falling movement corresponds to the

interpolation between H\* and L-. Finally, the low level portion over *-ges the restaurant* is accounted for by L- and L%.

In relation to the Spanish utterances, let us begin by presenting the analysis of the F0 contour in figure 1 in terms of two intonation groups. The initial rising movement over *MARGa* is accounted for by L\*+H. This is followed by H- which signals the rightmost edge of the first intonation group. The second intonation group starts with H\*, which accounts for high pitch over *VEN-*. As pointed out by GL et al., the problem with this proposal lies in the fact that the trigger (L\*+H) and target (H\*) of the step down in *VEN-* are separated by a tone, (H-). In this situation the theory does not predict the downstep effect to take place. However, the authors suggest that it might be possible to assume a prosodic structure in which pitch accents and phrase accents are computed at different prosodic levels. This being so, it is then possible to treat the trigger and target tones as being adjacent at some level in the prosodic hierarchy, without an intervening phrase accent. In such circumstances, structural required conditions would be met for downstep to take place.

An alternative analysis for the same utterance as a single intonation group is as follows: the initial pitch accent remains the same as before, (L\*+H), and this is followed by H\* associated to *VEN-*. This analysis counts as an improvement over the previous proposal, since now the trigger and target of downstep are clearly next to each other. Unfortunately, however, it remains unsatisfactory in the light of the piece of data illustrated in figure 2. Notice that the relatively low pitch-specification of *la-* remains unaccounted for, since the tonal specification in its surrounding area is H. The manifestation of relatively low pitch could become more obvious (and hence, more problematic to explain) if there was a longer stretch of unaccented syllables between the two accented syllables.

In order to account for such a stretch of relatively low pitch syllables, a different accent on *laMIO* would have to be assumed. GL et al. suggest L+H\*, but this is immediately rejected on the grounds that it misses to show a unified account of the same type of phenomenon which is illustrated in figure 1.

#### 4. Cabrera-Abreu (1996a)<sup>2</sup>

Current models of intonation which have flourished since Pierrehumbert (1980), assume that there are two tonal units in phonological structure: H(igh) and L(ow). Such models contrast sharply with that proposed by CA, in as much as the latter is based on a model in which L is non-existent. Her model is characterised by having a single T(one) only, which corresponds to former H. In addition, T can only be associated to boundaries (rather than to both boundaries and accented syllables, as was formerly customary). Such boundaries can be taken to correspond to the domain of pitch accents, and of intonation contours, and I shall informally refer to the former as a pitch constituent or domain. In this context, relatively high pitch is accounted for by the association of tone to a boundary, and consequently, relatively low pitch is accounted for by a toneless boundary.

Pitch constituents participate in licensing relations. That is to say, each constituent must be licensed by another constituent in the well-formed phonological representation. Tones receive phonetic interpretation only if they are associated to the boundaries of a well-formed constituent. Following the parallel with Government Phonology (Kaye, Lowenstamm & Vergnaud 1990), we may regard a licenser pitch constituent as being equivalent to a nucleus, (N) and a licensee pitch constituent to an onset (O). Then, onsets and nuclei enter into a binary licensing relation.<sup>3</sup> This is illustrated below in (1):

(1) O<<<N

Another characteristic of the model presented in CA is that some nuclei in phonological representation can remain empty (as already proposed in Government Phonology). Given this, CA claims that boundaries of an empty nucleus may not bear

T.<sup>4</sup> The relevance of this idea for the present paper lies in the fact that CA treats empty nuclei as the factor responsible for the phenomenon of downstep. The reasoning behind this thinking is the following: in order for the interpretation of Ts to be downdrifted, they must be preceded by an item which pulls them towards the baseline of the pitch range. There is no better candidate to perform this task other than the toneless boundaries to which we are referring here, since they are always understood as being mapped on to the acoustic signal as relatively low pitch.<sup>5</sup>

I shall illustrate how these principles operate in the following sections, where I offer a more suitable phonological representation to account for the data described in 2.

#### 5. English and Spanish focus-medial utterances re-analysed

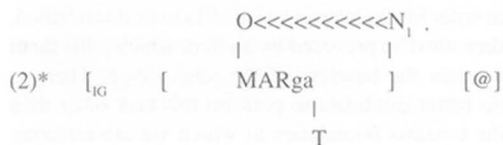
In the present section, first, I analyse the advantages of treating the above data as a single intonation group. As we shall soon discover in the following section, such an account is rejected on the grounds that it prevents us from drawing a general account of focus-medial utterances in Spanish. Thus, this will lead us to study the alternative of treating the data as the manifestation of two intonation domains in phonological structure. Finally, 5.3 shows a re-interpretation of the structure presented in GL et al for the English utterances in terms of CA's model.

##### 5.1. Spanish focus-medial utterances as the manifestation of a single word group

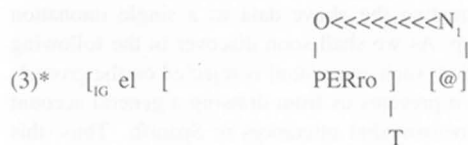
Let us start this section by considering the first hypothesis, that the downstep effect occurs within

- For the purposes of the present paper I make use of a slightly simplified and up-to-date version of CA's work. The interested reader is referred to Cabrera-Abreu (in preparation) for further reference.
- In CA, the fundamental principle of binarity had to be relaxed in order to account for some particular intonation contours. Such a move is highly undesirable, since binarity is a well-established principle in phonological theory. In Cabrera-Abreu (in preparation), I propose how binarity can be re-introduced in the phonological representation of intonation contours, in order to attain a degree of restrictiveness.
- For details of this proposal, the reader is referred to Cabrera-Abreu (1996a).
- See Cabrera-Abreu (1996b).

a single word group, and that it is triggered by the presence of toneless boundaries which belong to empty nuclei. The phonological structure which

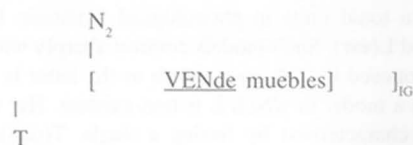


In the above structure there are two domains: the outer domain ( $]_{IG}$ ) corresponds to the intonation-group domain. The inner domains correspond to the pitch accent domains, which (as I pointed out earlier) CA refers to as the Onset (O) and the Nucleus ( $N_2$ ).  $N_2$  acts as the ultimate licenser of the prosodic structure (or DTE in Pierrehumbertian terms). The domain between the onset and nucleus is that of an empty nucleus ( $N_1$ ). One of its functions is to act as the licenser of the onset (this is shown by the arrow). The fact that the empty nucleus is present in phonological representation motivates the



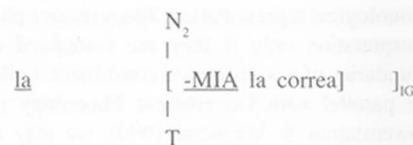
*-MIA la correa* corresponds to the nuclear constituent which counts as the ultimate licenser. The onset *PERro* is licensed by the empty nucleus, and the material to its left is treated as an *anacrusis* (O'Connor & Arnold 1969, 1973). *el* is treated as an unstressed syllable at the left edge of the intonation domain which, due to its nature, is not integrated to the pitch domain. Note that this representation already counts as an improvement over the tonal sequence following Pierrehumbert's model, and proposed by GL et al. The reason for this is that by treating the phonological representation of downstep as an independent choice of the presence/absence of an empty nucleus C and not as a particular tonal sequence C the pitch specification over *la-* can remain unspecified, and hence, can be interpreted as relatively low pitch.

accounts for the utterance in figure 1, then, looks as follows:



step down in the F0 contour. The phonological interpretation of the empty nucleus is manifested apparently in terms of the value of the following T, which is pulled down in fundamental frequency, so that its pitch value is never as high as the preceding T.

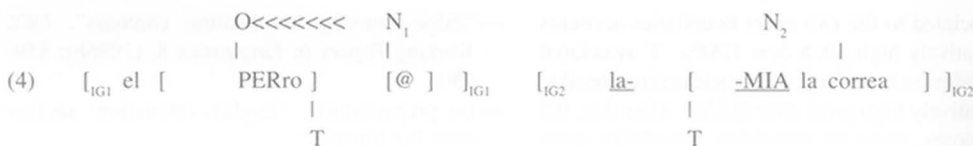
In relation to the analysis of the data in figure 2, the phonological representation is shown in (3) (note that the tonal structure remains the same as in figure 1, being the presence of *la-*, the only factor that has changed):



Unfortunately, however, this representation remains problematic, the offending factor being the non-integration of *la-* into a pitch domain. Note that  $N_2$  is left headed, and therefore, *la-* cannot be incorporated into its domain. Thus, it might be preferable to assume that this syllable belongs to the intonation group, as already shown in (3). However, no antecedent is found in intonational theory whereby syllables are left stranded in the middle of an intonation domain. Rather, such syllables are treated either as part of a preceding pitch domain, or as an anacrusis. The first alternative is rejected here, since the leftmost domain is an empty nucleus. Given these circumstances, I am forced to claim that the representation in (3) is ill-formed. In the following section, I shall analyse the second alternative.

### 5.2. Spanish focus-medial utterances as the manifestation of two word groups

The structure I propose here for *el PERro laMIA la correa* looks as follows:



The structure represented in (4) shows two intonation domains, ( $[\text{IG}_1]$  and  $[\text{IG}_2]$ ).  $[\text{IG}_1]$  is a well-formed sequence of an onset followed by a nucleus, and *el* is regarded as an anacrusis sanctioned by the leftmost intonation group boundary.  $[\text{IG}_1]$  is also well-formed since it shows just a single nucleus (without a complement, which is entirely optional). Most importantly for our present discussion, by treating *laMIA la correa* as an intonation domain, we can now claim that *la-* is also part of an anacrusis (exactly the same as *el* in  $[\text{IG}_1]$ ), and hence, that its presence is allowed for by the leftmost intonation-group boundary.

The fact in (4) compels us to assume a two intonation-group domain analysis of focus-medial



As can be seen in (2'), there are two intonation domains. The first one shows an onset-nucleus sequence, and the second one a nucleus.

In view of the analysis presented in (4) and (2') above, I can now claim that the intonation-domain boundaries, as well as empty nuclei, are responsible for the downstep-effect observed in the F<sub>0</sub> contour of the utterances in figures 1 and 2. In addition, by assuming empty nuclei as the factor responsible for downstep (rather than a bitonal pitch accent),

utterances: a structure with a single intonation domain (as in (2)), and a structure with two intonation domains (as in (4)). Obviously, this opposes the restrictive spirit of the framework adopted here, and most importantly, it misses a generalisation about the account of focus-medial utterances. Thus, it would be preferable to propose a phonological structure which captures the fact that the same phenomenon actually occurs in both utterances. Given this proposed analysis, let us now review the analysis proposed in (2).

The well-formed phonological structure I propose to account for *MARga VENde muebles* is illustrated in (2').

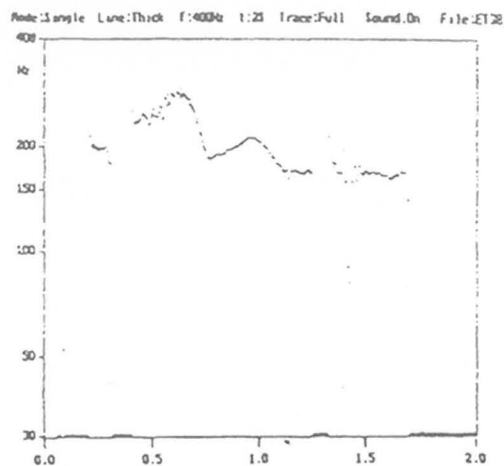
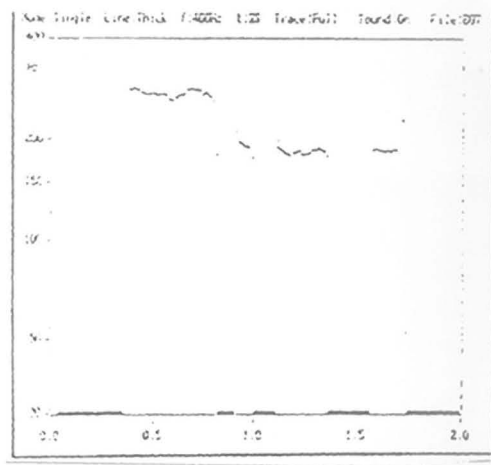
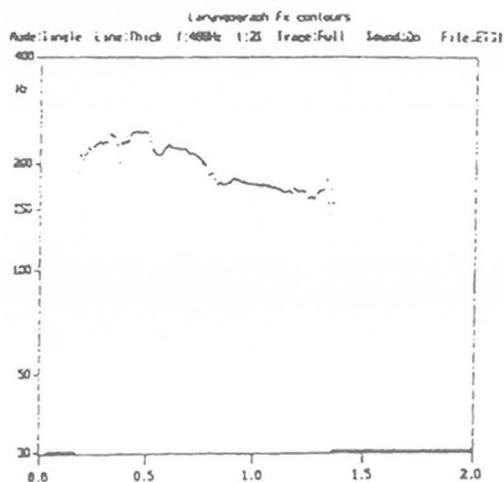
I elegantly account for downstep in both utterances.

### 5.3 English focus-medial utterances as the manifestation of a single word group

In this section, we turn to the English utterance, *GARY MANages the restaurant* in order to present a phonological analysis in terms of CA's model. The structure I propose here is the following:



## Appendix\*

Figure 1: MARGA VENde mueblesFigure 2: El PERro laMQA la correaFigure 3: GARY MANages their restaurant

\* The editors regret the poor quality of these figures. Unfortunately, better originals were not made available.

