

LAST STRESSED SYLLABLE AND GROUP ACCENT IN VENEZUELAN SPANISH

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ABSTRACT

This study presents the results of an acoustic analysis to clarify the features which define "group accent" in Venezuelan Spanish and its various dialectal varieties. The corpus which was used consists of a series of phrases extracted from the spontaneous speech of ten speakers. The signal was digitized and analyzed with the CSL of Kay Elemetrics. In order to establish the differences between "lexical" and "group" accent, the values of duration, fundamental frequency and intensity of the syllable carrying the first and last stress were compared to those of other stressed syllables. We conclude that the last stressed syllable of the intonation unit has a behavior which is different from the rest of the stressed syllables, manifested through a longer duration, a descent of f_0 and diminishing of intensity. These characteristics are significantly different in the various dialects of the same language variety

1. INTRODUCTION

Group accent or nuclear accent has been defined as that which presents the highest level of prominence in a given sequence, whose appearance is most frequent in the accent generating element situated on the right of the intonation unit, which dominates the melody of the unit and marks the beginning of the final contour. This prosodic characteristic has been associated with the focusing element of the phrase, that is with new or essential information from the point of view of communication. Nuclear accent can be considered as a focusing accent, but it is necessary to mention that the term "focus" is not being considered here as the emphasis, but as designating the part of the message containing the informative contribution, semantic or dialectal, that the speaker wants the hearer to interpret as the most pertinent from the perspective of his communication intention. With respect to this Ladd [1] says that "the special significance of the last accent, then, lies not in any actual phonetic prominence it may have, but in the key role it plays in defining the pattern of prominence. It need not be specially prominent; it need only be present"(204).

In Spanish, accent is typically lexical in nature, but there is also another type of accent, a nuclear or group accent whose domain is the phrase, and which can be manifested acoustically in the same place as lexical accent, amalgamating with it. In relation to this, the theory proposed by Contreras [2] about word order in Spanish mentions the presence of a "sentence accent" in the Spanish of Chile, and concludes that this accent is associated with the last stressed syllable of the rhematic element of the phrase. In this respect, Fant [3] observes the phenomenon for peninsular Spanish and out of three types of stress proposed by him for the declarative phrase: normal accent (A), with a maximum in a medium range, accent plus+ (A+) with a maximum in an acute range and zero accent (0) maintained in a

medium range or descending to an inferior level, the accent which could be closer to the category of nuclear accent is accent plus+, whose position of preference is the initial position, manifested as a signal of tonal accent or emphasis. Although his data do not back the presence of this accent for the peninsular variety studied by him, he does not discard the possibility of nuclear accent being manifested in any variety of Latin American Spanish. On the other hand, Sosa [4] considers that, in Spanish, the nucleus placement rule assigns the nucleus to the last accented syllable in the intonation unit, and so the group nucleus coincides with the penultimate syllable of the melodic group. Hence, Spanish would be a fixed group accent language. Besides, he states that in Spanish the last tonal accent cannot be far from the end of the phrase, and that an eventual phrase accent would generate no contrast; consequently, a group accent would be redundant. La Cruz & Goilo [5] in a study on Venezuelan students of English observed that Spanish interference is present in "a tendency to place the nucleus on the last word of the intonation group – even when the last word conveys information already mentioned in the text or no emphasis or contrast is being made. The placement of the nuclear tone on the last word of the intonation group may be attributed to the interference of the intonation patterns of Spanish, which commonly assigns the nucleus to the last word of the intonation group"(37). This reference corroborates Garro & Parker [6] results reporting that word order in Spanish –in relative clauses– does not alter the intonation pattern of the phrase. This reinforces the fact that the focus occurs at the end of the phrase whatever the word order is.

On the basis of the above mentioned research, this study presents the acoustic characteristics defining group accent in Venezuelan Spanish and its particular realization in the different dialects of this language variety.

2. EXPERIMENTAL PROCEDURE

2.1. Corpus

The corpus used for this study consists of 300 declarative phrases taken from spontaneous speech of ten Venezuelan Spanish speakers. There were one male and one female speaker for each of the five Venezuelan Spanish regional dialects: Andes, Center, Plains, East, Zulia. The recordings were made in Mérida, Venezuela, in an anechoic room using an analog recorder and a Sennheiser MKH2 microphone. The phrases analyzed were chosen considering their syntactic and semantic coherence. Then a perceptive verification was carried out.

2.2. Analysis of the samples

The phrases selected were digitized at 16 kHz using a CSL 4300 by Key Elemetrics Corp. The unit of analysis in this study is the syllable, since, in several studies, it has been proved to be the fundamental unit in both speech production and perception.

About this Ducrot & Schaeffer [7] say: “La syllabe semble être l’unité fondamentale qui permet de décrire les schémas prosodiques fondamentaux d’une langue donnée”(343). The digitized signal was manually segmented into syllables using the spectrogram (auditory verification was done when needed). Assimilation and resyllabification processes were considered during the manual segmentation. Each syllable was tagged according to its position in the phrase and its stressed or non-stressed character. Stressed syllables were classified into three categories: first stressed, last stressed and other stressed position.

2.2.1. Parameters studied. In this study, duration, F0, and intensity were analyzed following these criteria: intensity was measured at the peak of the vowel belonging to the accented syllable; the value for F0 was the mean of F0 during the voiced part of the syllable; duration was the time in ms the syllable lasted. The values obtained for syllable duration were normalized using the z transform [8], while the values of F0 were normalized using the ERB scale [9].

A variance analysis of the data was performed. Duration, F0 and intensity were taken as dependant variables, while position of the accent on the first syllable, on the last syllable, and anywhere else within the syllable were taken as independent variables. variance analysis was carried out first taking the entire data base as a single group to determine the general tendencies in Venezuelan Spanish, and then analyses were performed for each regional dialect in particular.

2.3. Results

2.3.1. Group accent in Venezuelan Spanish. The acoustic parameters considered in this study (duration, F0 and intensity) showed the following tendencies: according to duration, the relation of all stressed syllables to the last stressed syllable is significant ($p=.0001$). As it can be observed (figure 1), the last stressed syllable showed a longer duration than the rest of the stressed syllables. Compared to the other non-final phrase stressed syllables, the first stressed syllable did not show significant differences; however, significant differences were found comparing this to the last stressed syllable. The first stressed syllable is slightly shorter than the other non-final stressed syllables, but significantly shorter than the last one.

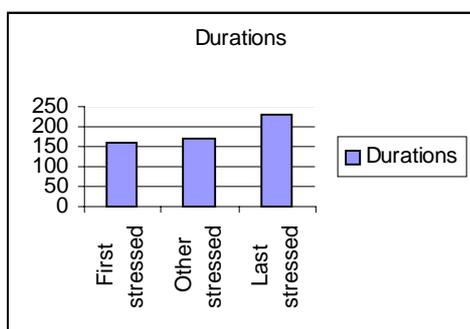


Figure 1. Average duration of studied syllables

As far as F0 is concerned, the relation between first and other stressed syllables and the last stressed syllable is significant ($p=.00431$). There is a tendency (figure 2) to have a F0 fall on the

last stressed syllable of the intonation unit. The first stressed syllable did not show significant values for F0 compared to the other non-final stressed syllables. However, significant differences were obtained in comparison with the last stressed syllable. Kvakik [10] reported this aspect in other Spanish varieties.

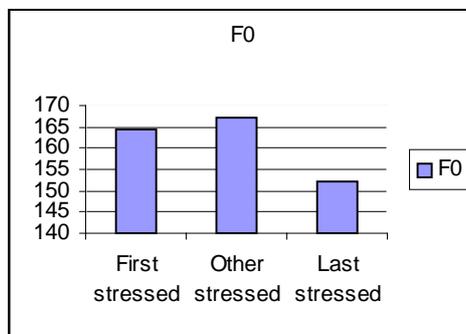


Figure 2. Average F0 of studied syllables.

According to intensity (fig. 3), the last accented syllable showed no significant values for decrease in intensity compared to the first accented syllable and to other non-final syllables.

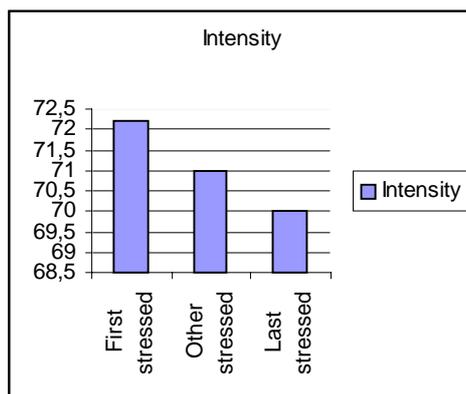


Fig.3 Intensity means of studied syllables

Considering this data, it can be inferred that, for Venezuelan Spanish, the group accent –the center of the prosodic structure of the phrase– is found on the last stressed syllable, and this shows well defined duration and F0 characteristics, as well as a tendency to decrease in intensity.

2.3.2. Group accent and non-final phrases. In a parallel study [11] it has been observed that the distinction between final phrases and non-final phrases starts with the manifestation of group accent. In non-final phrases, the F0 trace starts to rise from the last stressed syllable, while in final phrases the trace falls from this syllable. Syllable lengthening is common for both types of phrases.

2.3.3. Group accent and dialectal varieties. The same analysis were done taking into consideration the different dialects and the last stressed syllable and we obtained the results shown in figure 4. The interaction between the duration of the last stressed syllable and the different dialects is significant ($p=.0013$), the

syllable carrying group accent is marked by lengthening with respect to the rest of the stressed, which presents very different values in each region. The order of lengthening rate is as follows: Andes<Center<Zulia<East<Plains.

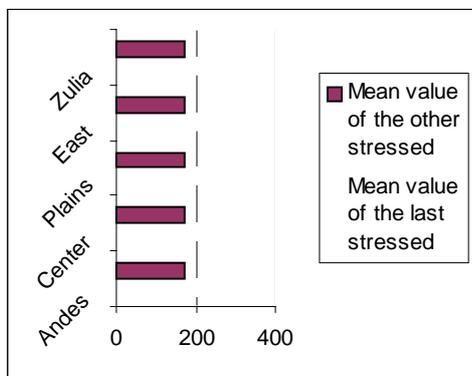


Fig.4. Duration averages of all stressed syllables vs. last stressed syllable for each regional dialect.

Concerning the fundamental frequency, we observed a falling in F0 on the last stressed syllable (figure 5). The syllable carrying the group accent has a tendency to fall with respect to the non-final stressed syllables. The values of this fall present significant difference for each region. In the Plains and East dialects, the last stressed syllable shows the smallest F0 fall in relation to non-final stressed syllables.

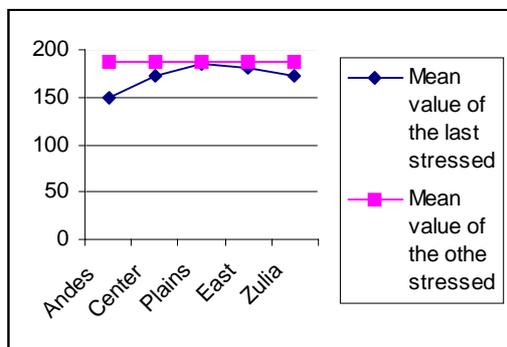


Figure 5. F0 means of all stressed syllables vs. last stressed syllable for each regional dialect.

As far as intensity is concerned, no significant difference was found ($p=.7829$) according to the regions. It was observed (fig. 6) that in all dialects, with exception of the region of the Plains, there is a non-significant decrease in intensity.

Although the data presented here were obtained for each individual acoustic parameter, it is important to mention that what defines the group accent –the nucleus of intonation unit– is the integration of these parameters during the utterance. This aspect allows us to identify final statements from non final statements, as well as the dialectal differences of a language.

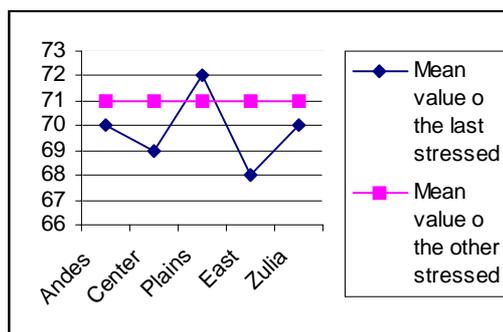


Figure 6. Intensity means of all stressed syllables vs. last stressed syllable for each regional dialect.

The statistical analyses of duration and F0 were done working in ms and Hz, as well as with the normalized values. Results in both cases coincided.

Duration is the feature that shows the greatest difference in relation to other syllables carrying lexical accent in all types of statements and in all regional varieties. Therefore, we believe that the group accent has a very important rhythmic function in the description of the language, and that this accent –center of the melody– marks a tonal and rhythmic focalization that allows us to characterize the given language and its dialectal varieties.

3. DISCUSSION

As we mentioned in the introduction of this article, group accent in Spanish has been considered from three different approaches [2,3,4]. The first one claims the existence of a group accent associated with the rheme of the phrase, which usually occurs on the last stressed syllable of the utterance. A second one does not reject the possibility of the presence of a phrase accent occurring, preferably, at the beginning of the phrase. Finally, the third one that claims that the group accent in Spanish is associated with the last stressed syllable of the melodic unit, and since in Spanish the preferred lexical pattern is the paroxytone, the group accent cannot occur far from the end of the phrase. Hence, the presence of an "eventual" phrase accent would generate no contrast and, therefore, it would be redundant.

According to our results, we consider that Contreras's [2] and Sosa's [4] approaches do not contradict each other. That is, the group accent in fact occurs on the last tonal accent, where the rheme of the phrase is commonly found. Besides, this accent usually occurs on the penultimate syllable of the intonation unit due to the fact that, in Spanish, the accent pattern is paroxytone by default. This agrees with La Cruz & Goilo's [5] results where the nucleus is placed on the last word of the intonation unit. Likewise, our results show that the group accent has specific tone characteristics, as well as certain duration and intensity features. Given the fact that the function and acoustic characteristics of the group accent are different to the other lexical accents in the intonation unit, it conveys a prosodic contrast. In other words, the group accent is a lexical accent with specific acoustic characteristics.

4. CONCLUSION

The aim of this study was to determine the location of the group accent in the intonation unit as a prosodic characteristic of

Venezuelan Spanish. We concluded that the group accent is located in the last accented syllable of the intonation unit and has well defined acoustic features that mark the center of the melody, the focus in final and non-final statements, and the beginning of the boundary of the intonation unit. On the other hand, these acoustic characteristics differ significantly in the regional varieties of the language. Based on the results, we believe that, in Venezuelan Spanish, the last syllable carrying a lexical accent is also the unit where the group accent occurs.

REFERENCES

- [1] Ladd, R. 1996. *Intonational Phonology*. Cambridge University Press.
- [2] Contreras, H. 1976. *A Theory of Word Order with Special Reference to Spanish*. Amsterdam: North Holland.
- [3] Fant, L. 1984. *Estructura informativa en español. Estudio sintáctico y entonativo*. Studia Romanica Upsaliensia 34. Doctoral dissertation at Uppsala University.
- [4] Sosa, J.M. 1991. *Fonética y Fonología de la entonación del español hispanoamericano*. Doctoral dissertation, Massachusetts University.
- [5] La Cruz, E and I. Goilo. 1997. Placement and Choice of the Intonation Nucleus: A contrastive study with special interest in Venezuelan students of English as a foreign language. *Entre Lenguas* 1 vol 2.: 35-39. Centro de Investigaciones en Lenguas Extranjeras, Universidad de Los Andes, Mérida
- [6] Garro, L and F. Parker. 1983. Relative clauses in Spanish: some suprasegmental characteristics. *Journal of Phonetics* 11, 85-99
- [7] Ducrot, O and J.M. Schaeffer 1995. *Nouveau Dictionnaire Encyclopédique des Sciences du Langage*, Seuil, Paris.
- [8] Campbell, W.N and S.D. Isard. 1991. "Segmental duration in a syllable frame", *Journal of Phonetics*, 19, 37-47.
- [9] Hermes, D.J and J.C. Van Gestel. 1991. "The frequency scale of speech intonation", *JASA*, 90 (1), 97-102.
- [10] Kvik, K. 1974. "An analysis of Sentences-initial and Final Intonational Data in two Spanish Dialects". *Journal of Phonetics*, 2, 351-361.
- [11] Mora , E., Villamizar, T. And Rodríguez, M. (forthcoming). "Fronteras prosódicas de la frase".