INTONATION PATTERNS IN TYPICAL AND ATYPICAL SPEECH

OF BUENOS AIRES SPANISH

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ABSTRACT

The goal of the present study is to determine the intonation patterns of Buenos Aires Spanish (BAS) for declarative, wh-questions and excalamtory sentences in two different populations: (1) speakers with typical or normal speech (NS) and (2) speakers with atypical or pathological speech (PS). The results show that PS speakers consistently show more variation than NS. We also found variation for the sociolinguistic variables of gender and age for both groups. There was an inverse proportion between the difficulty of the sentence and the range of prosodic variation between BAS NS and PS speakers: (a) in the unmarked declarative sentences, the differences between NS and PS speakers were the greatest, (b) this was followed by the more difficult marked exclamatory sentences, while (c) in the most difficult, complex and highly marked wh-questions requiring the most direct, defined and fixed effort, the difference between NS and PS speakers appears to be neutralized

Keywords: intonation patterns, Buenos Aires Spanish, typical speech, atypical speech.

1. INTRODUCTION

The classic norms of Peninsular Spanish prosody were presented in Navarro Tomás [19], [20]. His findings were later supported for Ibero-Spanish and various Latin American dialects in Quilis [23], including Argentine Spanish ([2, 24], and for BAS [1, 5, 6, 10, 29]. All of these studies used a limited sample population composed exclusively of adult NS speakers. Enbe [10] and Enbe et al. [11] were the first studies to our knowledge that analyzed the variation in the intonation patterns of both children and adult NS and PS speakers. The goal of this research is to compare and contrast the intonation patterns of typical (NS) and atypical prosodic patterns (PS) in BAS. We selected different speech disorders (e.g: stuttering (St), neurological disorders (ND), acquired hearing impairment (H), developmental language disorder (DLD) and dysphonia (D)) representing different central or peripheral neurological damage known to alter prosody (e.g. [17]). We analyzed the melodic group, pitch accent and terminal contour preferences found for each sentence type in NS and PS in three age groups (5-8, 18-50, 51-78) of both genders.

2. SPEECH MATERIALS

The corpus contained three simple sentences: a) declarative: *el agua hierve* ('the water is boiling'), b) wh-question*: ¿dónde vive el nene?* ('Where does the boy live?') and c) exclamatory: *¡gol!* ('goal!') using a repetition task. This method was chosen because children and PS speakers may have difficulties with other elicitation tasks - such as reading aloud and spontaneous speech – that are associated with complex cerebral activities. Each utterance was repeated using the most natural prosodic patterns for the sentence type. We examined native, monolingual middle- class speakers of BAS - 72 of NS and 18 of PS. The analysis of the data were obtained using the notation of Autosegmental-Metrical Theory (AM-Theory) ([21]); the ToBI system ([2, 3]), and the ToBI adaptation for Argentine Spanish in particular - called 'ToBI ampliado' (ToBI-A)('*wider ToBI'*) ([14, 15, 16]). The results were analyzed and explained according to: (1) the defintion that language is a symbolic tool whose structure is shaped both by its communication function and by the characteristics of its users ([27, 28, 29]) and (2) the principle that language represents a compromise in the struggle to achieve maximum communication through minimal effort ([8, 9, 30]) associated with the theory of Phonology of Human Behavior (PHB) of the Columbia School of Linguistics.

3. RESULTS

3.1 Declarative sentence

In the unmarked declarative sentences, we found that BAS NS speakers conserve the classic Spanish prosodic patterns described by Navarro Tomás [19, 20]. The analysis of the declarative sentence *el agua hierve* ('the water is boiling'), indicate that 89%-100% of NS and 84%-92% of PS speakers divide the sentence into two melodic groups: the **subject** _el agua_ ('the water') and the **predicate** _hierve_ ('is boiling'). Only 3%-11% of NS speakers produce the sentence with only one melodic group while in the PS group, 8% show a random preference for three to four melodic groups (found principally in St and ND).

The majority of BAS NS (88%-97%) and 46%-55% of PS place the highest pitch accent of the sentence in the noun- subject (*agua*) according to gender (See figure 1 for NS and figure 2 for PS). However, we also found the following preferences: (a) 3%-6% of NS and 9%-18% of PS produce a low pitch accent; (b) 6% of NS and 18% of PS prefer a high pitch accent and; (c) 18%-27% of PS (found in particular in ND and St) show more than one pitch accent in the subject (they add another pitch accent in the article *el* ('the')).
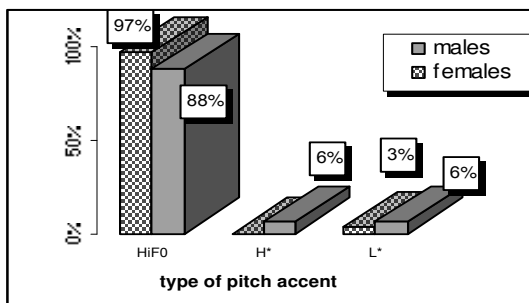
Figure 1. Declarative Sentence: Pitch accent preferences in typical speech according to gender.
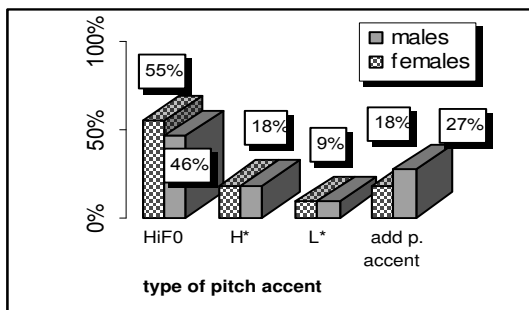
Figure 2. Declarative Sentence: Pitch accent preferences in atypical speech according to gender.

The vast majority (94%-97%) of NS and 60% of PS have a low pitch accent on the predicate - verb (*hierve*). However, we also found the following variations at this position: (a) 3% of NS males, and 20% of PS (principally ND and DLD) place the highest pitch accent, (b) 3% of NS and 10% of PS place a high tone and (c) 10% of PS add two contiguous pitch accents on the diphthong *hierve* ('j'erBe) (mostly found in St).

Regarding the terminal contour, almost all of NS speakers (97%-100%) and the majority of PS speakers (76-100%) end the sentence with a falling tonal contour similar to the classical patterns (e.g. [1, 3, 4, 5, 6, 7, 12, 13, 18, 20, 22, 23, 30]). The minority of speakers in both groups- 3% of NS males and 17% of PS (in particular St) produce a rising-falling terminal contour (H-L%). 17% of PS (principally H) end the sentence with a higher terminal contour (H-H%).

3.2 Wh- Question

Navarro- Tomás [19, 20], Quilis [23] and Sosa [25] have described at least three different prosodic patterns for Spanish wh-questions: (1) the falling unmarked contour, (2) the marked rising polite contour, (3) the marked rising-falling emphatic contour. Based on the sentence: *¿Dónde vive el nene?* ('Where does the boy live?') we found that the greatest variation between the NS and PS groups is motivated by pathological factors while gender variation appears to be neutralized. However, the results in wh-questions show more similarities than differences between the NS-PS speakers: (a) 78%- 83% of NS and 25%-75% PS divide the sentence into two melodic groups according to syntactic and semantic criteria while (b) 17%-22% of NS and 17%-58% of PS produce only one melodic group and (c) 8%-17% of PS (principally St and ND) produce three melodic groups per sentence.

Regarding the **first pitch accent** in the wh-word, for both genders an average of 70% of NS and 78% of PS resemble the classical model with the highest pitch accent in the wh- word while and average of 30% of NS and 22% of PS prefer a high tone in this position. None of the NS-PS speakers show a low tone in the wh- word. The **second pitch accent** - the verb (*vive* 'lives') – traditionally has been assigned a low tone in the Spanish literature. For BAS we found that 47%-60% of NS and 67%-80% of PS (for all disorders) prefer a high tone on the verb while 22%-31% of NS and 10%-22% of PS produce the highest pitch accent in this position. Only 17%-20% of NS and 11% of PS produce the classic low pitch accent. In

addition, 11% of PS (especially St) repeated the first syllable of the verb retaining the high pitch accent ('vi 'vive). The **third pitch accent**- on the tonic syllable of the subject noun ('**ne**ne'-'*boy*') – has been attributed with a low tone in the classical Spanish contour. Our data significantly differ from the classic description because the majority of NS (81%) and PS (58%-89%) produce a high tone on the subject noun. Only 17%-19%of NS and 8%-11% of PS prefer the classic low tone. 3% of NS and 8% of PS produce the highest pitch accent of the sentence in this position and 25% of PS (principally found in St and ND) add pitch accents to the function words of the subject.

We also found similarities with the three classic terminal contour descriptions (e.g. [19, 20, 23, 25]). The data show that the majority of BAS NS (50% of males and 75% of females), 22% of PS males and 56% of PS females have a 'polite' classic contour (H-H%). The minority of NS (17% of females and 39% of males), 33% of PS females and 55% of PS males show the classic 'emphatic' terminal contour (H-L%). Only an average of 10% of NS and 11%-23% of PS end the sentence with the classic 'unmarked' prosodic contour (L-L%).

In summary, our data of BAS wh-questions show that both NS and PS speakers present similar prosodic preferences. The reason may be that the more difficult and marked the sentence; the more all speakers will focus on the same marked features: the wh-word, inverted verb and subject, and final interrogative tonal contour.

3.3 Exclamatory sentence

The perceptual findings of Navarro Tomás [19, 20] supported by other experimental studies of Spanish (e.g. [4], [23]) show at least two different contour patterns of exclamatory sentences: (1) the unmarked 'high-falling' contour (H*L-L%) and (2) the marked 'high - rising' (H*H-H%) pattern. Our analysis of the sentence *¡Gol!* ('goal!') reveal that all speakers of both groups produce the sentence with only one melodic group. However, we also found variations between NS-PS groups. All speakers of NS, 67% of PS males and 77% of PS females have a high pitch accent. Only for the PS group (22% of females and 33% of males), we found lower pitch accent preferences. Regarding the terminal contour, 98% of NS, 67% of PS females and 78% of PS males have the classic unmarked pattern. Moreover, 2% of NS, 33% of PS females and 22% of PS males (generally DLD)

produce a higher boundary tone after the falling terminal contour (L-H%), which is a pattern not previously described in the literature.

4. CONCLUSIONS

This study compared and contrasted the prosodic patterns of typical and atypical speech in BAS. Our results also show that for both groups we found variation in gender. In declarative and wh-questions, we found that the majority of NS speakers produce the sentence in two melodic groups according to syntactic and semantic norms, without differences in gender. However, we found PS subjects who produced sentences with more than two melodic groups not always according to syntactic and semantic norms. Another basic finding of our study is that for all sentences, all NS speakers insert pitch accents on the stressed syllables of content words (nouns and verbs) only and not on function words. However, the data of the atypical population show that there are speakers who insert pitch accents on unstressed syllables and on function words (in particular in St and ND). All speakers of NS and the majority of PS speakers end the sentence with a lower terminal contour for declarative sentences. For the more marked exclamatory sentences, there are PS speakers who produce a terminal contour pattern not described for typical speech. However, for the most marked and complex wh- questions, both NS and PS speakers show similar preferences.

The results show an inverse proportion between the difficulty of the sentence and the range of prosodic variation between BAS NS and PS speakers: (a) in the unmarked declarative sentences, the differences between NS and PS speakers were the greatest, (b) this was followed by the more difficult marked exclamatory sentences, while (c) in the most difficult, complex and highly marked wh-questions requiring the most direct, defined and fixed effort, the difference between NS and PS speakers appears to be neutralized.

All of the sentence types for BAS speakers exemplify the fundamental axiom of PHB: that language represents a striving for maximum communication with minimal effort. Our data have indicated that the unmarked declarative sentences are the easiest to produce and require the least effort in order to achieve the most basic communication contrasts. The marked wh-questions begin with a stressed wh-word, have both inverted word order, and an interrogative

terminal contour that are overt markers of communication contrast requiring effort. This need to focus greater effort neutralized the degree of variation both within and between the groups. Therefore in the unmarked declarative sentences the distinction between NS and PS speakers is a significant variable and the PS speakers vary more than the NS speakers from the classical pattern because of their inherent limitations. With the marked but less difficult to produce exclamatory sentences the NS speakers followed the norm while the PS speakers showed variation. In both cases of marked sentences, NS speakers produce pitch accents with a higher fundamental frequency than in the unmarked declarative sentence which requires greater effort. Therefore it is most interesting to note that the easier the sentence the greater the variation between NS and PS speakers and the more difficult the sentence the less variation is found between these two groups thus confirming the mini-max principle of PHB.

5. REFERENCES

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