

The Prosody of Negation in Brazilian Portuguese

Meghan Armstrong*, Anouschka Bergmann[†] & Terrin Tamati^{†*}

*Department of Spanish and Portuguese

[†]Linguistics Department

The Ohio State University, Columbus, OH

{meghan; anouschka; terrin}@ling.ohio-state.edu

Abstract

Sentential negation in spoken Brazilian Portuguese (BP) has three possible structures: containing a negative particle only preverbally (NEG1), pre and post verbally (NEG2) or only post-verbally (NEG3). The choice of structure depends on sociolinguistic and pragmatic factors. This study investigates whether these structures also differ in prosodic patterns. NEG3 is of particular interest: since the negative particle occurs after the verb, a NEG3 sentence is initially segmentally indistinguishable from a similar sentence not containing a negative particle (NoNEG). However, prosodic cues may tell the listener whether a given utterance has a NEG3 or NoNEG structure before the post-verbal region is encountered. A production study elicited NEG1, NEG2, NEG3 and NoNEG utterances and found prosodic differences among the utterance types which may enable listeners to anticipate the presence or absence of a post-verbal negative particle.

1. Introduction

Brazilian Portuguese (BP) allows for three grammatically acceptable structures for negation, as exemplified in (1a) through (1c). Example (1d) illustrates the same sentence without negation.

- (1a) O João **não** come carne. (NEG1)
the João **no** eat-3sg meat
"João does not eat meat"
- (1b) O João **não** come carne **não**. (NEG2)
the João **no** eat-3sg meat **no**
"João does not eat meat"
- (1c) O João come carne **não**. (NEG3)
the João eat-3sg meat **no**
"João does not eat meat"
- (1d) O João come carne. (NoNEG)
the João eat-3sg meat
"João eats meat"

Schwenter [6] has argued that these forms are pragmatically restricted and rely heavily on information structure both within the discourse and extralinguistically: NEG1 has a wider and more far-reaching discourse distribution than NEG2 and NEG3, which are more pragmatically restricted. That is, NEG1 is unmarked or canonical, whereas NEG2 and NEG3 are more restricted and marked. Schwenter suggests that marked forms negate discourse old information that is explicitly activated in the discourse (NEG2/NEG3) or is inferable (NEG2).

While all forms are grammatical in BP, the extent to which they are used and who uses them shows variation. Roncarati's [5] informants from Fortaleza in Northeastern Brazil associated NEG1 with south of Brazil, whereas NEG3 and

NEG2 were thought to be used in the interior areas of the Northeast, in particular by speakers of *Cearense* BP (CBP). This study elicited controlled NEG1, NEG2, NEG3 and NoNEG sentence productions from CBP speakers, assuming that all structures would indeed be part of the speakers' grammars. However, a language survey revealed that even speakers of CBP felt that NEG3 is stigmatized, and that the canonical NEG1 is "more correct". Some speakers claimed that they would never use the form. However, recordings of spontaneous speech from the same participants did reveal NEG3 forms for some, but not all, participants.

Anecdotal evidence from southern speakers suggests that it may be difficult for listeners to perceive at the inception of a NEG3 utterance that it is negated, since the negative particle is not realized until the end of the utterance. If there is no initial syntactic cue that an utterance is negated, are there prosodic cues that some listeners may use to distinguish a NEG3 from a NoNEG utterance before the negative particle is encountered? To investigate this, prosodic patterns of the elicited sentences were analyzed.

2. Production Study

2.1. Participants

Eleven CBP speakers from the cities of Aracati and Fortaleza participated in the study. Data from six participants, ranging in age from 23 to 60, has been analyzed for this paper. Participants' socio-economic status ranged from lower-middle class to upper class. No participant reported any speech or hearing problems.

2.2. Method

Participants were either recorded in their own homes in Fortaleza or at the Centro Educacional José Hamilton Saraiva Barbosa in Aracati, Brazil and read a list of 68 sentences arranged in blocks containing the same sentences in NoNEG, NEG1, NEG2 and NEG3 forms. Sentences were declarative, interrogative or imperative. We focus on declarative and interrogative utterances for our analysis. To elicit spontaneous speech, participants were also recorded during a brief interview with the first author, and while performing a map task. The data from these tasks will not be reported here. After the recording session, participants filled out a language background questionnaire.

The authors, all phonetically trained, annotated the utterances using the ToBIPI system which included L*, H*, L+H*, L*+H, H*+L, H+!H*, with L%, H% boundary tones [1]. The ToBIPI system is adapted from the ToBI system, which assumes two types of tonal targets: localized pitch accents, and edge tones that delimit prosodic phrasal constituents. Two linguistically trained native BP speakers

(from the states of São Paulo and Bahia) listened to three of the six speakers and judged the naturalness of the utterances. They also indicated which mood (declarative, interrogative, imperative) they thought the speaker had intended and whether the speaker used list intonation.

2.3. Results: Declarative Utterances

A number of intonational patterns emerge for the declarative utterances. NoNEG sentences are characterized by a steep rise in pitch on the first content word, a medial plateau if there is enough sentence material, and a steep fall on the last content word (see Figure 1). The pitch accent on the first content word was labeled as L+H*. When the first syllable received stress, the peak of the L+H* was delayed, as in Figure 1, or the L was truncated. In all Figures, the accent is aligned with the local peak. If the peak is delayed, the local high is indicated by > and the L+H* is on the word receiving the accent, but not aligned with the peak. The pitch accents on the plateau were labeled as H* and aligned to the middle of the vowel of the accented syllable. The accent on the final content word was labeled as H+L* since pitch falls onto the accented syllable¹. Again, the accent was aligned with the middle of the vowel of the accented syllable. Utterance-final boundary tones were low. Utterance-final rises occurred in the data but were judged to be continuation rises by our native speaker judges.

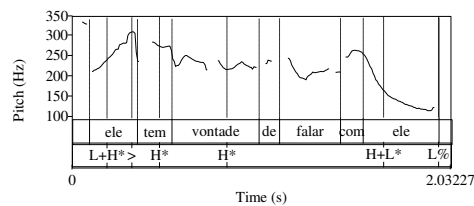


Figure 1: Pitch track of *Ele tem vontade de falar com ele* (He hopes to talk with him).

As already mentioned, the plateau occurred only in longer utterances. Short utterances merely showed a LHHL or LHL pattern, as illustrated in Figure 2². For one-syllable utterances, such as *sei* (I know) or *tem* (there is), this pattern was reduced to H* L%.

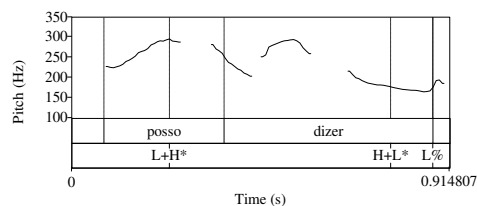


Figure 2: Pitch track of *Posso dizer* (I can say it).

The NEG1 utterances reveal a similar pattern. The last word receives a H+L* pitch accent preceded by a plateau in long

¹ Lucente et al [1] proposed that BP has both a H+L* and a H+!H* pitch accent. These are assumed to differ in steepness of slope. We have labeled all accents with a H leading tone followed by a lower target as H+L*, regardless of slope. A more detailed phonetic investigation of these accents is needed to determine whether some of our accents should instead be labeled as H+!H*.

² The fall in pitch between *posso* and *dizer* is a segmental effect.

utterances. However, the steep rise occurs on the negative particle, which is not necessarily the first word of the utterance (see Figure 3). Shorter utterances with a LHHL and LHL pattern, respectively, are shown in Figures 4 and 5.

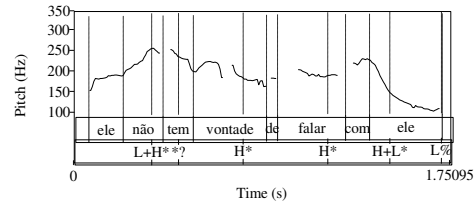


Figure 3: Pitch track of *Ele não tem vontade de falar com ele* (He does not hope to talk with him).

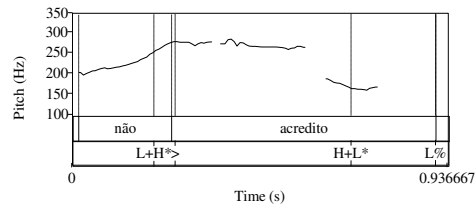


Figure 4: Pitch track of *Não acredito* (I don't believe it).

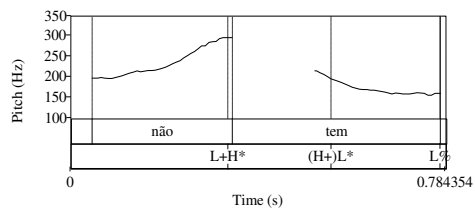


Figure 5: Pitch track of *Não tem* (There is not).

The NEG2 utterances reveal a slightly different pattern: only long NEG2 utterances consistently display the characteristic L+H* rise on the negative particle. Short utterances may lack the initial rise. This is illustrated in Figures 6 and 7.

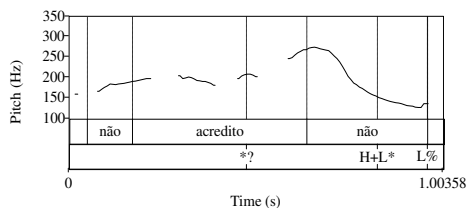


Figure 6: Pitch track of *Não acredito não* (I don't believe it)

The same phenomenon is found for NEG3 utterances: long utterances consistently display a rise on the first content word, but shorter utterances have an optional initial rise. Figures 8 through 10 illustrate this. Notice that the patterns in Figures 7 and 8 look identical and, in fact, sound identical if the initial *não* in Figure 7 is cut off. The only short NEG3 utterances which consistently show an initial rise are *sei não*. However, this is a lexicalized phrase across dialects.

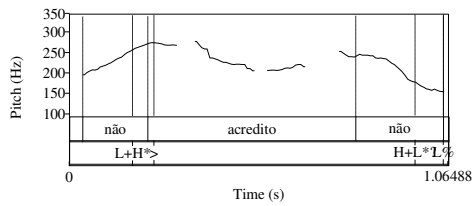


Figure 7: Pitch track of *Não acredito não* (I don't believe it)

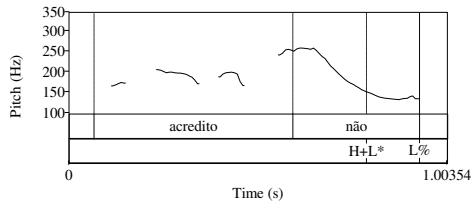


Figure 8: Pitch track of *Acredito não* (I don't believe it)

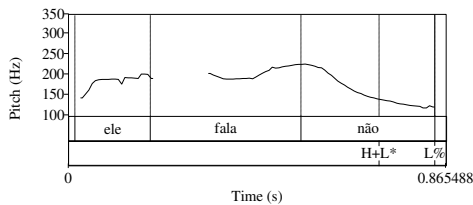


Figure 9: Pitch track of *Ele fala não* (He doesn't talk)

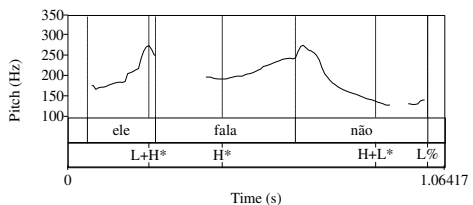


Figure 10: Pitch track of *Ele fala não* (He doesn't talk)

2.4. Results: Interrogative Utterances

Intonational patterns for interrogatives, also show similar prosodic patterns across the four syntactic forms. There is often a steep rise in pitch (L+H*) on the first content word (NoNEG/NEG3) or the negative particle (NEG1/NEG2). The “plateau” of longer utterances may contain L+H* or H* accents on content words. The initial L+H* rise is again found consistently in NoNEG utterances. Short NoNEG utterances typically carry a L+H* L% pattern, as shown in Figure 11.

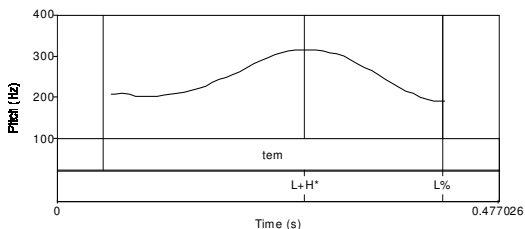


Figure 11: Pitch track of *Tem?* (Is there?)

In short NEG1, NEG2, and NEG3 interrogative utterances, the first L+H* rise is optional, while long utterances consistently show the L+H* on the first content word (noNEG and NEG3) or on the first negative particle (NEG1 and NEG2). Figures 12 and 13 show NEG1 utterances with and without initial rise, respectively.

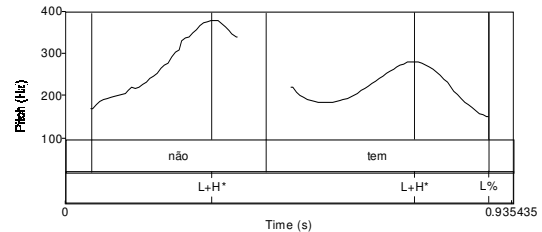


Figure 12: Pitch track of *Não tem?* (There isn't?)

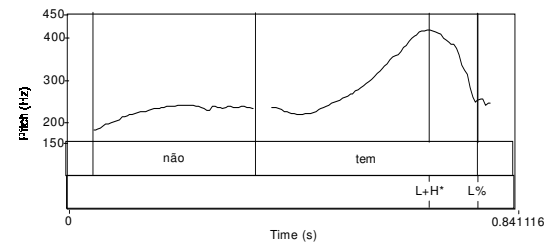


Figure 13: Pitch track of *Não tem?* (There isn't?)

As mentioned above, NEG2 utterances reveal a similar pattern. Though, shorter NEG2 utterances show a stronger tendency than NEG1 to be produced without an initial L+H* rise. When the first accent is omitted, the final negative particle carries either a L+H*. Figures 14 and 15 show intonational realizations of NEG2 utterances with and without initial rise, respectively.

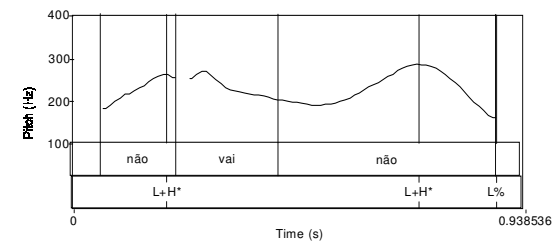


Figure 14: Pitch track of *Não vai não?* (He's not going?) with initial rise.

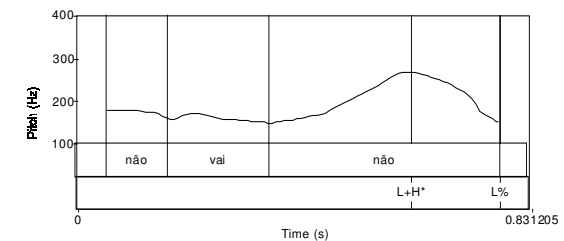


Figure 15: Pitch track of *Não vai não?* (He's not going?)

Lack of an initial L+H* rise is most common in NEG3 utterances, provided they are relatively short. NEG3 utterance-

final patterns also show the most variation when a initial rise is not present, with instances of a final L*+H L%, besides L+H* L% and L*+H H%. Figure 16 shows a NEG3 utterance without initial rise. Here, only the negative particle carries a L+H* pitch accent. Note the similarity between the intonational pattern of this utterance and the NEG2 interrogative utterance in Figure 15, as well as the NEG1 utterance in Figure 13.

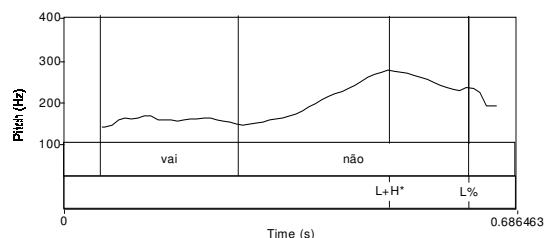


Figure 16: Neg3 interrogative utterance *vai não?* (He's not going) without initial rise.

The production data of the declarative and interrogative utterances suggests that the lack of initial rise may be a cue for a NEG2 and especially a NEG3 structure. Coupled with cues from the discourse context, this may allow listeners to anticipate an upcoming *não*.

3. Discussion

Our data reveal two possible utterance-initial prosodic patterns: an initial L+H* rise and an initial unaccented region (no initial rise). The distribution of these patterns varies depending on the syntactic structure. Most initial rises are found for NoNEG utterances, followed by NEG1, NEG2 and finally NEG3, which shows the fewest instances of utterance-initial rises. The initial rise, when it occurs, is either on the first content word (NoNEG/NEG3) or the negative particle (NEG1/NEG2).

While the beginning of an utterance can be unaccented, there is always a distinctive intonational pattern at the end of each utterance. This pattern is more stable for declarative utterances (H+L* L*) than interrogative utterances (most commonly L+H* L%). The last pitch accent always falls on the last word of the utterance, which is the negative particle for NEG2 and NEG3 utterances. NEG2 utterances may or may not have pitch accent on the “canonical” preverbal negative particle³, but always have a pitch accent on the “marked” postverbal negative particle. Thus, a negative particle in non-canonical position receives more intonational prominence overall and is never unaccented. Further research is needed to determine why this is the case.

The data also suggest that the lack of an initial rise may be a cue for the listener that “negation is coming”. The initial rise occurred in all NoNEG utterances, but in few NEG3 utterances. In the absence of a preverbal negative particle, the lack of rise may thus be a cue that the negative particle will come postverbally. Similarly, an unaccented preverbal negative particle may be a cue to the listener that another negative particle is upcoming.

³ The lack of pitch accent of the preverbal negative particle is not surprising, as the phonological reduction of this particle is a known phenomenon [3].

This study elicited the utterances in isolation. However, to fully understand how prosody interacts with pragmatics, it is necessary to elicit similar utterances within appropriate discourse contexts.

4. Conclusions

This preliminary study aimed to describe prosodic patterns of NoNEG and NEG utterances in BP and to identify possible early prosodic cues that hearers may use to determine whether an utterance is a NoNEG or NEG3 utterance. In particular, lack of initial rise in pitch may be a prosodic cue for hearers to process the negative meaning of NEG3 before they encounter the negative particle word finally.

An alternative explanation for the variation in initial rise across NEG utterances is pragmatic. Discourse old or given information is often unaccented in languages such as English and Dutch [7]. If lack of accent signals discourse old information in BP, we can explain the more common occurrence of utterance-initial unaccented words in NEG2 and NEG3 utterances. NEG2 and NEG3 are restricted to negating discourse-old information. NEG2 can also be used for inferrables. Thus, in these utterances, the only new information is the negative particle. As already mentioned, why the postverbal rather than preverbal negative particle in NEG2 utterances receives generally greater prosodic prominence needs further investigation.

Finally, a perception study is needed to determine whether the lack of an initial rise in both NEG2 and NEG3 utterances is a cue for the listener that a negative particle will occur postverbally.

5. References

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