

Prosodic phrasing and intonation in neutral and subject-narrow-focus sentences of Brazilian Portuguese

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Abstract

This work aims at discussing the relationship between prosodic phrasing and intonation structure associated with neutral and subject-narrow-focus sentences in Brazilian Portuguese (BP). The sentences were analyzed in terms of phonological phrases (ϕ s) and tonal events. It is found when subject-narrow-focus occurs, the tonal events of neutral sentences can be affected. We argue that evidences of the syntactic structure can be determined by the relationship between the prosodic phrasing and intonation. Finally, we point out that our results provide for a better understanding of the syntax-phonology interface in BP.

1. Introduction

This work aims at discussing the relationship between prosodic phrasing and intonation structure in Brazilian Portuguese (BP). Specifically, it deals with tonal events associated with ϕ -domain in neutral and subject-narrow-focus sentences.

The main hypothesis is formulated as forward: in BP, the tonal events association with ϕ -domain of neutral sentences can be affected if a subject-narrow focus occurs. This hypothesis is developed based on (a version of) Prosodic Phonology and (a version of) Intonational Phonology frameworks.

We assumed the theory of Prosodic Phonology as proposed by Nespor & Vogel (1986: 6), which is “a theory that organizes a given string of language into a series of hierarchically arranged phonological constituents that in turn form the contexts within phonological rules apply”. In this theory, seven domains constitute the prosodic hierarchy and ϕ is the only domain considered here. The adequacy of ϕ -algorithm formation is a relevant question, but we will not deal with this question. For this paper, we assume that BP ϕ -algorithm formation is adequate, as developed by [5] to EP.

The Intonational Phonology framework assumed here is based on tonal levels, initially proposed by [14], revised by [1], [15], and followed by [11], [5] and others. The ‘integrated vision’ of intonation we adopted is formulated by [5] and its characteristic is to consider the intonational properties as one of the cues of prosodic structure. This approach differs from those that see intonation as independent of the prosodic structure, as [16] does, and from those who consider prosodic domains to be defined by intonation, as [1] and [15] do.

The intonational framework assumed here is based on an autosegmental and metrical theory of Intonational Phonology (cf. [11]), which says intonation has its own phonological organization. One of its main assertions is that fundamental

frequency (F_0) must be interpreted as a sequence of discreet phonological events and not as one continuous variable contour that can be characterized by its form and direction (cf. [10]). In this theory, tune-text-association obeys universal well formation conditions, which are formulated by [18] as follows: (a) all tonal events must be associated with one Tone Bearing Unit (TBU) at least; (b) all TBU must be associated with one tonal event; (c) the association lines must not cross.

Related to the prosodic framework, we face the open question about the nature of the syntax-phonology interface. Empirical evidences show how phonology accesses syntactic information. In this paper, we point out that our results show the necessity of “taking into account that the mapping is, most probably, a complex encounter in which syntax impinges on phonology and phonology verifies the well formedness of the prosodic phrases so arisen” (cf. Frota, 2000:12).

The structures to be analyzed are: (i) the ϕ -phrasing and the intonation of BP neutral sentences, (ii) the ϕ -phrasing and the intonation of BP subject-narrow-focus sentences. BP focus constructions considered are:

- (i) SV(O/Adv) sentences (sentences in the linear order subject-verb-object or subject-verb (-adverb) and in which the subject carries the main prominence: *O João pegou a bola* [**John** got the bowl])
- (ii) it-cleft sentences: *Foi o João que pegou a bola* [It was **John** that got the bowl]
- (iii) reduced cleft sentences *O João que pegou a bola* [**John** that got the bowl]
- (iv) inverse it-cleft sentences: *O João é que pegou a bola* [***John** is that got the bowl]

2. Methods

2.1. Material speech

The total number of BP neutral and subject-narrow-focus sentences is 774: (56 neutral sentences X 3 speakers X 2 repetitions) + (56 subject-narrow-focus sentences X 3 speakers X 3 repetitions) – (56 sentences produced without any focus strategy realized by investigators + 10 subject-narrow-focus sentences with recording problems). The sentences systematically vary in number of ϕ s in which the subjects and predicates are mapped. Controlling this factor aims at investigating whether it may affect the tonal association of BP subject-narrow-focus and neutral sentences. We examine: (i) if the number of ϕ s, in which the subjects and predicates are mapped, may affect the number of tonal events associated with the contour of BP neutral and subject-narrow-focus sentences; and (ii) if, in these sentences, tonal events types (pitch accents and phrasal accents) associated with ϕ s

may vary according to the discursive function associated with them (ϕ s in which focus elements are mapped and ϕ s in which neutral elements are mapped).

2.2. Procedure

The procedure followed here consisted in the recording of interviews with three female native speakers of BP. The recordings were made at 16 kHz with a Panasonic US 360 digital recorder. The three BP speakers are from Campinas (São Paulo State), belong to the same age-group (19 to 22 years old) and are all high school graduates. During the interviews, speakers were given sentences to read aloud, preceded by a context inducing the production of the neutral reading (see 1). They were also given questions to answer orally, preceded by a context inducing the production of subject-narrow-focus sentences (see 2). These two types of contexts were alternated with entertaining contexts or with the reading of entertaining sentences.

- (1) [Contexto: *Li a seguinte notícia:*]
[Context: I read the following news:]

As governadoras chegaram.
The governors arrived.

- (2) [Contexto: *Estamos à espera das governadoras no gabinete. Percebo que você vê chegar alguém, então, pergunto a você:*]
[Context: We are waiting for the governors in the cabinet. I realized that you see somebody arrives, then I ask you:]

Quem chegou?
Who arrived?
Produced answers: *As governadoras chegaram.*

The governors arrived.
Foram as governadoras que chegaram.
It was the governors that arrived.
As governadoras é que chegaram.
*The governors is that arrived.
As governadoras que chegaram.
The governors that arrived.

The sentences produced by speakers were submitted to: (i) the prosodic domain mapping, namely prosodic word (ω), ϕ and intonational phrase (I), (cf. [13]; [5]); and (ii) the intonational analysis. For the task (ii), we used the speech analysis software Praat [2]. The intonational analysis consists of the tonal events transcription of the intonational contour associated with the two types of sentences. The tonal transcription was based on [14], [1], [15] and [11] and also on previously studies of the Portuguese intonation developed within the autosegmental metrical theory of Intonational Phonology (cf. [6], [17], [3] and [4]).

3. Results and discussion

3.1. Results

Table 1 provides results regarding the number of ϕ s by sentence and the number of pitch accents and phrasal accents found associated with these ϕ s.

Table 1: Number of ϕ s versus number of tonal events.

Type of sentences	Number of sentences	ϕ s	T*	T-
Neutral	336	732	889	0

SV(O/Adv)	270	592	421	235
It-cleft	74	236	165	58
Inverse it-cleft	51	162	88	33
Reduced cleft	43	93	66	40

In the table 1, it is possible to observe that there are more pitch accents associated with the ϕ s of neutral sentences than with the ϕ s of subject-narrow-focus sentences. It means that the discursive context seems to affect the pitch accents in association with the contour of BP sentences. Whereas there can be more than one pitch accent associated with each ϕ of BP neutral sentences, there are less pitch accents associated with ϕ s in the contour of BP subject-narrow-focus sentences and there are ϕ s without pitch accents association.

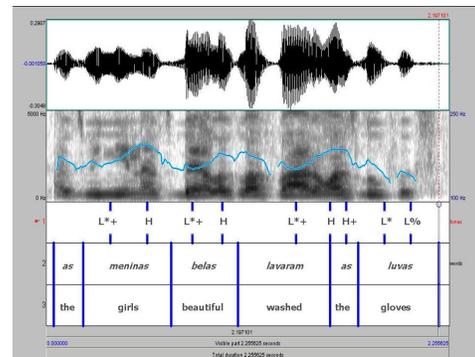
We also observe that there are phrasal accents associated with the contour of subject-narrow-focus sentences, but not with the contour of neutral sentences.

3.2. Discussion

When we analyze the intonational contour of 336 BP neutral sentences, we identify the following intonational characteristics: (i) pitch accents obligatory associated with each ω -head of ϕ s, as noted early by [6] and [17] about the intonational structure of this sort of BP sentences; (ii) pitch accents optionally associated with each ω that composes ϕ s of the I (cf. also [3] and [4]); and (iii) absence of phrasal accents associated with the intonational structure (cf. also [6], [17], [3] and [4]). The representation in (3) and the respective figure 1 illustrate a typical case of tonal association found in our data of BP neutral sentences.

- (3) [(as meNInas) ω (BElas) ω] ϕ [(laVArAm) ω] ϕ [(as LUvas) ω] ϕ I
 L^*+H L^*+H L^*+H $H+L^*$ $L\%$

Figure 1: F_0 of the neutral sentence 'As meninas belas lavaram as luvas' [The beautiful girls washed the gloves] produced by a BP speaker.



In figure 1, we note the tonal association of a pitch accent with each ω of the I. This behavior explains the fact that more than one pitch accent may be associated with each ϕ of BP neutral sentences, as results presented in table 1 indicate.

When we analyze the intonational structure of subject-narrow-focus constructions (SV(O/Adv) sentences, it-cleft sentences, inverse it-cleft sentences and reduced cleft sentences, we observe intonational characteristics usually found in all of them, but absent in intonational structure of

4. Conclusions

The results presented in this paper confirm our initial hypothesis: in BP, the tonal events association with ϕ -domain of neutral sentences is affected when a subject-narrow-focus occurs. In summary, it was found that:

- (i) There is a relationship between the number of ϕ s and the number of pitch accents associated with neutral sentences: the more ϕ s, the more pitch accents in each sentence;
- (ii) This relationship does not appear in subject-narrow-focus sentences. This happens because it is not obligatory to have pitch accents associated with ϕ s that are heads of middle- ϕ s (those ϕ s between the ϕ of subject-narrow-focus and the last ϕ within I);
- (iii) There is no phrasal accent association in neutral sentences;
- (iv) The occurrence of a phrasal accent associated with the ϕ -right boundary in which subject-narrow-focus is mapped is possible.

We conclude this paper by pointing out that the facts listed above can be indicative cues that the syntactical position of the subject in neutral sentences is different from those in subject-narrow-focus sentences. In [3], a detail discussion of these results and an interpretation of their relevance for understanding the syntax-phonology interface are found.

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