

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

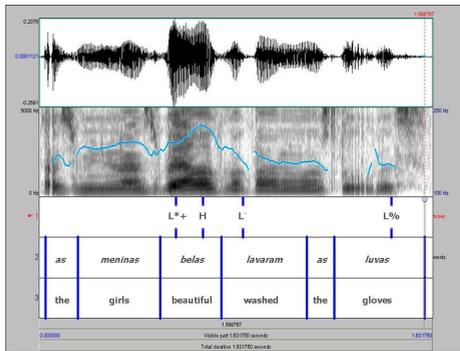
2.1. Material speech

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

neutral sentences. We note in global intonational characteristics of BP subject-narrow-focus sentences (cf. also [3] and [4]): (i) the absence of pitch accents associated with I-internal ω s (ω s between the heads of initial and final ϕ s); (ii) a pitch accent obligatory associated with the ω -head of the ϕ in which the focus subject is mapped; (iii) a phrasal accent optionally associated with the right boundary of the ϕ in which the focus subject is mapped. The representations in (4), (5), and (6), such as figures 2, 3 and 4, exemplify typical cases of the tonal structure associated with the contour of SV(O/Adv), it-cleft and reduced cleft sentences in our BP data respectively.

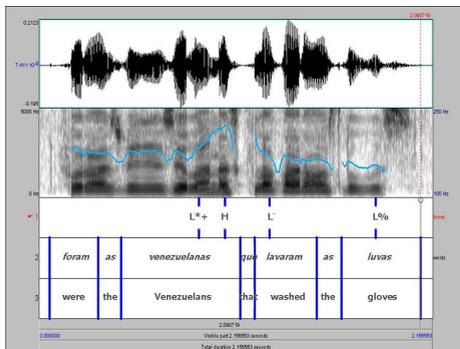
$$(4) \text{ [(as meNInas)\omega(BELas)\omega]\phi[(laVAram)\omega]\phi[(as LUvas)\omega]\phi \text{ I} \\ \text{L}^*+\text{H} \quad \text{L}^- \quad \text{L}\%$$

Figure 2: F_0 of the SV(O/Adv) sentence ‘As meninas belas lavaram as luvas’ [The beautiful girls washed the gloves] produced by a BP speaker.



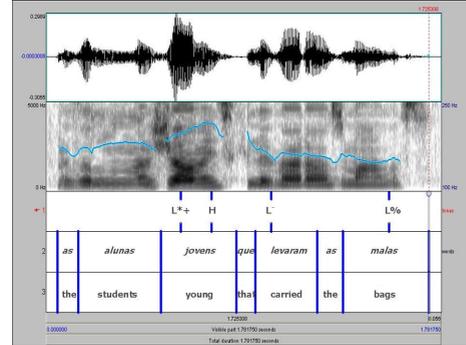
$$(5) \text{ [(FOram)\omega]\phi[(as venezuelAnas)\omega]\phi[(que laVAram)\omega]\phi[(as LUvas)\omega]\phi \text{ I} \\ \text{L}^*+\text{H} \quad \text{L}^- \quad \text{L}\%$$

Figure 3: F_0 of the it-cleft sentence ‘Foram as venezuelanas que lavaram as luvas’ [It was the Venezuelans that washed the gloves] produced by a BP speaker.



$$(6) \text{ [(as aLUnas)\omega(JOVens)\omega]\phi[(que leVAram)\omega]\phi[(as MALas)\omega]\phi \text{ I} \\ \text{L}^*+\text{H} \quad \text{L}^- \quad \text{L}\%$$

Figure 4: F_0 of the reduced cleft sentence ‘As alunas jovens que levaram as malas’ [The young students that carried the bags] produced by a BP speaker.



The tonal association pattern of the intonational contour of BP subject-narrow-focus constructions explains the fact that we found fewer pitch accents associated with the contour of this type of sentences in comparison with the number of pitch accents associated with the intonational contour of BP neutral sentences (see table 1). There are fewer pitch accents associated with the contour of BP subject-narrow-focus sentences because of the absence of pitch accents associated with I-internal ω s (ω s between the heads of the ϕ in which the focus subject is mapped and the ω -head of the ϕ -final of the I).

Regarding the association of phrasal accents with the contour of BP subject-narrow-focus sentences, it is necessary to add that there are phrasal accents only associated with a specific point of the intonational contour: the point that corresponds to the right boundary of the ϕ in which the focus subject is mapped, and with no other intonational contour point, as we can see in figures 2, 3 and 4. Taking into account this fact, we could ask why there are not phrasal accents associated with other ϕ -boundaries in the intonational contour (Vigário, p.c.).

Our hypothesis is that the phrasal accent associated with the right boundary of the ϕ in which the focus subject is mapped plays the specific role of prosodically codifying a special syntactical position occupied by the focus subject in BP: a syntactical position external to the minimal syntactical domain that contains the rest of the sentence (for details about this subject, cf. [8], [7], [9] and [3]). We believe that there is not a special intonational codification associated with ϕ s that contains elements following the focus subject because these elements do not occupy any extraordinary syntactical position in the sentence. It is possible that the phrasal accent associated with the right boundary of the ϕ that contains the subject of sentences in subject-narrow-focus contexts codifies a syntactical position different from that position occupied by the subject of sentences in neutral contexts. This hypothesis will be more deeply investigated in future research.

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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6. References

- [1] Beckman, M.; Pierrehumbert, J., 1986. Intonational Structure in Japanese and English. *Phonology Yearbook* 3, 255-310.
- [2] Boersma, P.; Weenink, D., 1992-2005. *Praat - doing phonetics by computer*, 4.3.02 version (<http://www.fon.hum.uva.nl/praat>).
- [3] Fernandes, F. R., 2007a. *Ordem, focalização e preenchimento em português: sintaxe e prosódia*. Unpublished Ph.D. dissertation. Campinas: Universidade Estadual de Campinas.
- [4] Fernandes, F. R., 2007b. Tonal association of neutral and subject-narrow-focus sentences in Brazilian Portuguese: a comparison with European Portuguese. *Journal of Portuguese Linguistics* 5/6(2/1), 91-115.
- [5] Frota, S., 2000. *Prosody and focus in European Portuguese. Phonological phrasing and intonation*. New York: Garland Publishing.
- [6] Frota, S.; Vigário, M., 2000. Aspectos da prosódia comparada: ritmo e entoação no PE e no PB. In *Actas do XV Encontro Nacional da Associação Portuguesa de Linguística*, Castro, R. V.; Barbosa, P. (eds.). Coimbra: APL, 533-555.
- [7] Kato, M. A.; Mito, C., 2005. A multi-evidence study of European and Brazilian Portuguese wh-questions. In *Linguistic evidence: empirical, theoretical and computational perspectives*, Kepser, S.; Reis, M. (orgs.). Berlin/New York: Mouton de Gruyter, 307-328.
- [8] Kato, M. A.; Raposo, E., 1996. European and Brazilian word order: questions, focus and topic constructions. In *Aspects of Romance Linguistics*, Parodi, C.; Quicoli, A. C.; Saltarelli, M.; Zubizarreta, M. L. (eds.). Washington: Georgetown, U. Press, 267-277.
- [9] Kato, M. A.; Ribeiro, I., 2005. Cleft sentences and wh-questions in Brazilian Portuguese: a diachronic analysis. Paper presented in the 35th LSRL. Austin: University of Texas.
- [10] Ladd, D. R., 1992. An introduction to intonational phonology. In: DOCHERTY, G.; LADD, D. R. (Eds.) *Papers in laboratory phonology 2*. Cambridge: Cambridge University Press, 321-334.
- [11] Ladd, D. R., 1996. *Intonational Phonology*. Cambridge: CUP.
- [12] Liberman, M., 1975. The intonational structure of English. Ph.D. dissertation. M.I.T.
- [13] Nespor, M.; Vogel, I., 1986. *Prosodic phonology*. Dordrecht: Foris Publications.
- [14] Pierrehumbert, J., 1980. The phonology and phonetics of English intonation. Ph.D. dissertation. M.I.T.
- [15] Pierrehumbert, J.; Beckman, M., 1988. *Japanese Tone Structure*. Cambridge, Mass.: M. I. T. Press.
- [16] Selkirk, E. O., 1984. *Phonology and Syntax: The Relation between Sound and Structure*. Cambridge: The M.I.T. Press.
- [17] Tenani, L. E., 2002. *Domínios prosódicos no Português*. Unpublished Ph.D. dissertation. Campinas: Universidade Estadual de Campinas.
- [18] Vigário, M., 1998. *Aspectos da Prosódia do Português Europeu: estruturas com advérbio de exclusão e negação frásica*. Braga: CEHUM.