

Prosodic effects on attachment in Brazilian Portuguese

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This research explores how prosody can influence the attachment of final adverbial phrases in ambiguous Brazilian Portuguese (BP) sentences like (1).

(1) Marcela ouviu que João tinha ligado # na segunda-feira
Mary heard that John had called on Monday.

In similar English sentences, Clifton et al. (2002) found that a prosodic boundary before the adverbial increased high attachments to the first verb (e.g., *heard*), while Carlson & Tyler (2018) showed that contrastive L+H* accents on the first or second verb (*called*) drew attachment to the accented verb. Here, we investigated the effects of both prosodic cues on corresponding sentences in BP, and found evidence of the prosodic boundary effect on interpretation but not the accent effect.

In a written norming questionnaire (N=33), native speakers of Brazilian Portuguese rated sentence acceptability on a 1-5 scale, and also chose between two paraphrases to answer questions like "O que aconteceu na segunda-feira?" (What happened on Monday?), for 20 sentences like (1) without any boundary mark. We found high acceptability of the sentences (average 4.36/5), and a strong low attachment bias, with just 10.6% of answers choosing high attachment of the adverbial phrases.

Experiment 2 (N=28) was an auditory questionnaire with the same 20 sentences in 4 conditions: we crossed pitch accent on the first verb (OUVIU) vs. on the second verb (LIGADO), with an IPh boundary before the adverbial vs. none. See Figures 1-2 for pitch tracks of the two conditions with IPh boundaries and accents. While similar English studies used L+H* accents on verbs, BP has H+L* pitch accents instead (the low F0 target aligns with the stressed syllable). BP also has mandatory phrase-final H+L* accents and a L% boundary tone, though the V2-accented conditions had significantly higher and longer verbs than conditions without. The presence of a prosodic boundary led to more high attachments (significant effect of boundary on attachment choices in a mixed-effects binomial logistic regression $\exp(B)=1.919$, 95% CI [1.308, 2.815], $p=0.001$), replicating English results, but accent position did not affect attachment (Figure 3).

The prosodic boundary effect suggests that Brazilian Portuguese uses boundaries in the same way as English does: the boundary before the final adverbial discourages attachment to the nearest verb and encourages high attachment instead. This is consistent with Fonseca (2012)'s finding that temporarily ambiguous early/late closure sentences in BP show slower RTs when the prosodic boundary position conflicted with the clause end, compared to when it matched. The lack of an effect of pitch accent is less easy to explain. If the mandatory accenting of the second verb in conditions where it was final in an IPh had affected results, we would have expected an accent position effect only in the two conditions without a boundary; here, conditions with and without a boundary showed no effect of accent. Another possibility is that the accents in BP are not clearly contrastive (suggested by Truckenbrodt et al. 2009, Fota & Moraes 2016), unlike those for European Portuguese, and that this weakens their effect; accents used in English accent attachment studies have usually been contrastive (Carlson & Tyler 2018). Further research will explore the perceptibility and interpretation of the pitch accents used as well as effects of focus particles to see if accents (and focus) truly do not draw attachment in Brazilian Portuguese.

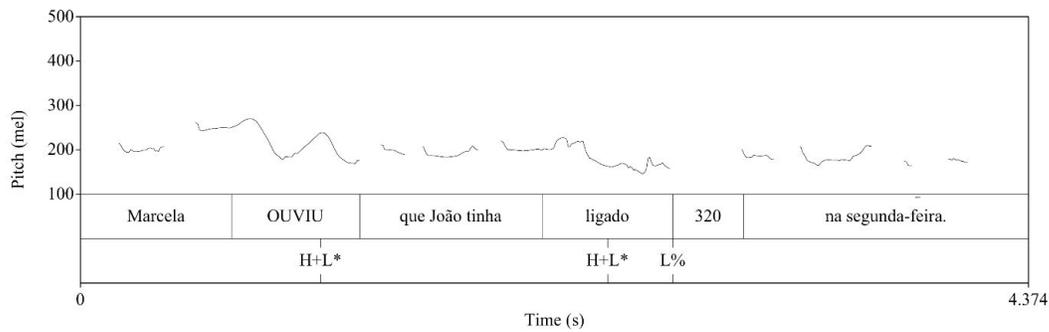


Figure 1: Sentence example of condition V1IPh

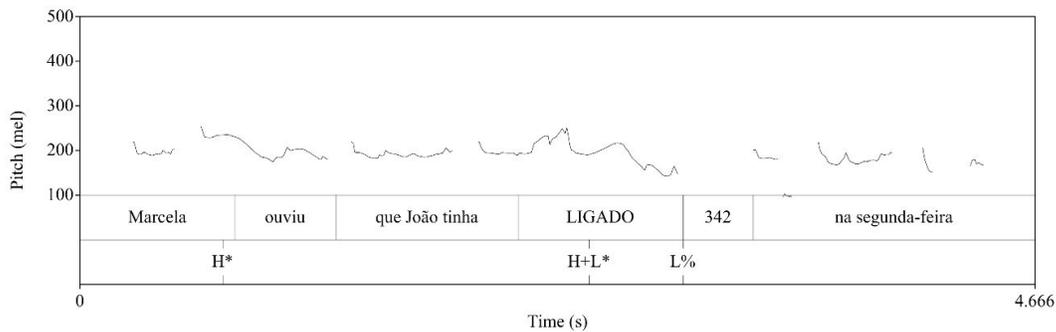


Figure 2: Sentence example of condition V2IPh

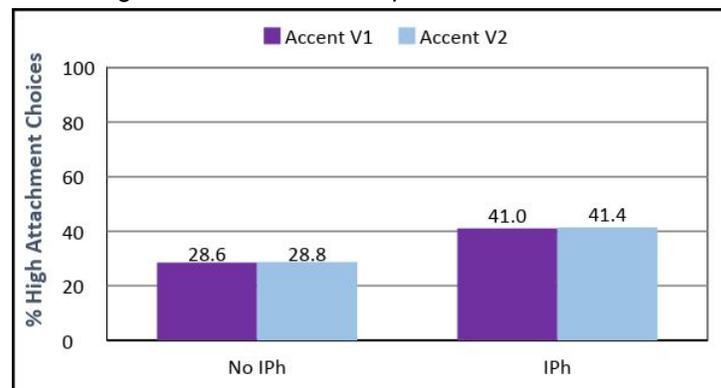


Figure 3: Results of Experiment 2

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