Cues to the perception of prosodic breaks in Brazilian Portuguese

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Introduction & Background

It has long been known that the location of intonational boundaries is somehow related to the location of syntactic boundaries. The phonetic hierarchy theory captures this relation via syntax-phonology mapping principles which, combined with phonology proper constraints like phrase weight and/or size, predict the preference patterns of intonational phrasing in production and comprehension (Sañó, 2003; Webster & Ewbank, 2003; for Romance languages, Ecolli et al., 2005; Frota et al., 2007). Previous descriptions of intonational breaks within Romance (based on read speech isolated sentence corpora) show that the main boundary cues are a H boundary tone and a F0 rise located either on the stressed or on the boundary syllable (Frota et al., 2007).

The PnP and the IP in Portuguese

Phonological Phrase (PnP) construction: Lexical head + all elements to the left within the Maximal projection X. A following XP complement containing just one PW (Frota 2009, Tenani, 2002). In BP, unlike EP, the PnP is characterized by the regular occurrence of a pitch accent in the most prominent element (Frota & Vidigal, 2000, Tenani, 2002).

Internal phrase (inside-phrase): strings not structurally attached to the sentence tree, as well as any remaining sequence of adjacent PnPs in a root sentence are mapped onto IPs (Frota 2000). Akin to Solov’s (2000) Comma Phrases. IPs in BP are characterized by the presence of a nuclear contour and a pause (Tenani, 2002). In EP, IPs are characterized by (i) a nuclear accent, (ii) a final boundary tone, (iii) pre-boundary lengthening, and (iv) intonation tone associated to the right-edge of the first prosodic constituent within de-lexicalize and the loc of potential pause insertion (Frota 2006, 2003).

Results and Discussion

• Perceived prosodic breaks occur at IP boundaries in both styles (Fig. 1).

• More predicted IPs are perceived as breaks in RS than in SS (Table 1).

Table 1: Distribution of IP-edges perceived

<table>
<thead>
<tr>
<th>IP edges</th>
<th>IP edges not perceived</th>
<th>All IP edges predicted</th>
</tr>
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<tbody>
<tr>
<td>RS 90 (44.5%)</td>
<td>57 (45.6%)</td>
<td>147</td>
</tr>
<tr>
<td>SS 77 (45.3%)</td>
<td>63 (38.4%)</td>
<td>140</td>
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</table>

• Lengthening patterns and F0 properties at the IP-edge – Speaker-dependent strategies (Figures 3-6).

• Nuclear contours: H+L+ L+ is the most common contour in both styles, but with different frequencies (Fig. 7, RS > SS).

• Falling/falling nuclei are dominant in RS, as well as the L boundary tone (against previous results for RS). (Frota et al., 2007). (Fig. 8). In the distribution of falling/low and rising/nuclear nuclei, as well as low boundary tones (Fig. 8).

• Realization of predicted IPs: Only 14% (38/274) of all predicted IPs were not realized as such (no boundary tone), 28% were.

• Realization of perceived prosodic breaks in RS: Only 8.6% (40/469) of all perceived breaks were not realized as such in RS. These were produced as IPs.

• The book of lengthening goes on the stressed syllable (as previously reported for EP in Frota 2000). It may be a cue to perception, dependent on the speaker (e.g. Sp1, SS). Overall, larger lengthening contours in RS.

• SS shows more variability in the relation between predicted, perceived, and non-phonetic phrasing (as expected). The variability emerges from a more even distribution of the same types of words that seem to play similar roles in both styles. This even distribution may be an important factor behind the lower perception of predicted breaks in SS.

• Unlike in previous reports (e.g. Konst & Hadd-Ari, 1991; Blaausske 1994), SSS does not show marked differences in type between styles (such as pauses in RS at SS at different locations, or a tendency to produce more much phrases in one of the styles relative to the other).

Future work: combined cues & perception

Conclusion