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1st Workshop of the Project
Interactive Atlas of the Prosody of Portuguese
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The InAPoP web platform: mapping prosodic variation
Overview

- The InAPoP web platform: guided tour

- Prosodic variation: main results reported
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  - Tonal density
  - Prosodic Phrasing
  - Rhythm

- Searching with the interactive viewer
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  - Searchable prosodic aspects already available

- Mapping prosodic variation: looking for the best geographical model
  - Previous similar work
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Research on prosodic, intonational and rhythmic variation in Portuguese is presently very limited. This project aims at developing research and applications in this domain, within a program of international scope that proposes a system for prosodic analysis of speech corpora, together with a set of methodological procedures that enable cross-linguistic work on prosodic variation in language. It arises as a natural consequence of much ongoing work in the last decade within the Phonetics Laboratory of the University of Lisbon and other collaborating groups.

One of the project’s main outputs consists of an Interactive Atlas of the Prosody of Portuguese, freely accessed online. The Atlas will include, among other things, maps showing the distribution of varieties as to the observed phrasing preferences, tonal density, intonational typology, and rhythmic properties; annotated sentences for intonation and phrasing; prototypical examples of the different sentence types from the different regions, with corresponding F0 traces and spectrograms; training materials; a list of resources for research on Portuguese intonation; and methodological information. The Atlas aims to fully cover European Portuguese, varieties of Brazilian Portuguese along the Atlantic Coast as well as varieties of the Portuguese spoken in Angola.

InAPoP - Interactive Atlas of the Prosody of Portuguese
(PTDC/CLE-LIN/110787/2010)
Funded by FCT

Prosodic variation: main results already reported

Main results already obtained for each prosodic aspect are reported in the menu 'Results':

Interactive Atlas of the Prosody of Portuguese

Nuclear contours
- **Reading task** only for **EP** (previous data reported by Frota et al. in press). The corpus is being adapted to **BP** (only a test was run in Rio de Janeiro)
- **DCT** for both **EP** and **BP** (Frota et al. in press)

Tonal density
- **DCT** for both **EP** and **BP** (Frota et al. in press): tonal density was **also observed per sentence type** (statements, yes-no questions, wh- questions) – also available at the website.
Prosodic variation: main results already reported

Prosodic Phrasing (only reading task is controlled)
- 4 EP varieties are now analyzed, in terms of the dominant phrasing pattern and of the effect of both branchingness and length (in no. of syllables) in the (S)(VO) phrasing pattern: SEP, NEP (Vigário & Frota 2003, Frota & Vigário 2007), Ale and Alg (Cruz 2012; Cruz & Frota, to appear).

Rhythm (only reading task is controlled)
- 3 EP varieties + 1 BP variety are now analyzed and compared with Ramus et al. (1999) results (we included a set of adapted sentences from their corpus): SEP (EP) and SP (BP) by Frota & Vigário (2001); preliminary data from Ale and Alg (EP) by Cruz & Frota (2013, PaPI) and Cruz (in progress).
Searching with the interactive viewer

Why “interactive”: main features
- you can search for a prosodic aspect and automatically see its geographical coverage
- you can see and listen to some examples
- you can print your search

Searchable prosodic aspects already available (but still being improved)
- main nuclear contours (DCT – EP, BP)
- tonal density (DCT – EP, BP)
- prosodic phrasing (dominant pattern)
- rhythm: how to map it? (= 2 different variables should be represented at the same time for each variety - %V, ΔC)
Mapping prosodic variation: looking for the best geo model

Previous similar work

Goebel (2006, 2007), Maguire & McMahon (2011), inter alia explored several difficulties in mapping variation in English:

- how to quantify relations between dialects?
- how many features do we need to define a dialect area?
- how to delimit isoglosses when 2 non-contiguous varieties share similar features?

We aim to capture the relationships between varieties in a realistic/objective way >>> quantificational model, allowing multiple comparisons in the future:

- within prosodic aspects in Portuguese (main goal)
- within linguistics (as a complement of segmental, lexical and morfosyntactic variation)
Mapping prosodic variation: looking for the best geo model

Geographical models in test

- We have used the probabilistic Huff model to map intonational contours: it generates spheres of influence of a given variable.

Figure 1: Information-seeking yes-no questions in EP (DCT).
Red dotted geo points: analyzed until now
Dark yellow sphere: H+L* LH% (dominant nuclear contour)
Yellow sphere: L*+H H% (dominant nuclear contour)
Mapping prosodic variation: looking for the best geo model

- Geographical models in test
  - For the representation of **tonal density**, we have preferred the **Inverse Distance Weighting (IDW) method**: using a known scattered set of points, the unknown points are calculated with a weighted average of the values available at the known points.

Figure 2: Tonal density in European Portuguese. Only 4 known points (Porto – North; SEP; Ale and Alg (South).
Mapping prosodic variation: looking for the best geo model

Future work
- To decide which is the best cartographic representation for our purposes.
- To look for a geo model that allows to map 2 variables at the same time: rhythm
- To validate the results of the chosen quantificational approach, which is also considered as imperative by Maguire & McMahon (2011)
  1. Perception experiments: between and within varieties
  2. Comparison between procedures: (i) other quantificational approaches (IDW vs. Huff), or (ii) traditional dialectological analyses.
Muito obrigado!
Thank you!
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