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How different are we?
Labelling intonational variation across two Romance languages
Introduction

The understanding of the intonation system in any intonation language requires:

- **Prosodic structure** (phrases > edges and heads)
- **Intonational lexicon**
  - Inventory of pitch accents and edges tones, and the meanings they convey in context / usage
- **Relevant domain** for pitch accent distribution
- **Distributional contraints** (‘tonotactics’)
  - Tonal events that only appear in/are banned from certain positions; that may not co-occur with others
- **Implementation rules**
  - Early/late alignment; spreading / interpolation; contextual upstep (^) / downstep (!); compression / truncation
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- Prosodic structure (Gussenhoven 2004, Elordieta et al. 2005)

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- Relevant domain for PAD (Frota & Vigário 2003, Hellmuth 2007, Frota in press)

- Distributional contraints (Ladd 1996/2008)
  - Tonal events that only appear in/are banned from certain positions; that may not co-occur with others

- Implementation rules (Ladd 1996/2008)
Introduction

- Main goal: to compare the intonation systems of Catalan (Central Catalan, standard variety) and (standard) European Portuguese (EP), which in many respects have been described on the basis of similar methodologies.

- Related goal: to discuss aspects of the AM framework, which are challenged by the data and/or the comparative analysis
  - Phrasing (BI): break indexes and edge tones
  - Labelling tonal events as phonological categories (To)
  - Different categories produce the same phonetics (dimension of cross-linguistic diffs not included in Ladd 1996)
Outline

- Intonationally relevant prosodic structure
  - Prosodic constituents and levels of phrasing

- Intonational lexicon
  - Systemic analysis (phonologically distinct tune types)
  - Semantic differences (different use of identical tunes)

- Domain for PAD
  - Distribution of pitch accents

- Other issues
  - Phonotactic (tune structure: post-nuclear accents)
  - Realisational / Implementation: compression / truncation, realisation of bitonal accents

Cat: Prieto, Aguilar, Mascaró, Torres-Tamarit, Vanrell; Prieto in press
EP: Frota, Vigário, Viana, Cruz, Fernandes, Moniz; Frota in press
Prosodic structure (relevant to intonation)

Two levels of constituency (and of phrasing): intermediate phrase and intonational phrase

One level of constituency (but possibly two of phrasing): intonational phrase (compound phrases)
Prosodic structure (relevant to intonation)

- Intonational phrasing in Cat: IP
  - Initial phrases: continuation rises
  - Sentence-initial topics
  - Arguments: Tonally marked like the IP, but not as strongly (degree)
  - Inventory of BT only partially overlapping with IP
  - Perceptually two levels of degree of disjuncture

- Intonational phrasing in EP: IP
  - Initial phrases (length): continuation rises
  - Initial topics, parentheticals
  - Arguments: Tonally marked by BT, pre-boundary lengthening
  - Compound IPs (inner edge weaker): degree of lengthening, pitch range
  - Diffs BT type: position
Prosodic structure (relevant to intonation)

Compound phrasing (Ladd 1996, Frota 2000, Moniz 2010, a.o)

Difference in degree (compound phrasing). Dissociation between boundary type (constituent) and BI (level of phrasing). More transparent definition of what counts as a prosodic constituent (Frota, in press).
Prosodic structure (relevant to intonation)

- **Intonational phrasing in Cat**
  - Deviates from MAE-ToBI
  - No phrase accent (ip)
  - ip, IP: one type of BT for both (simple or complex)
  - ip, IP: difference in the inventory of BTs > position (initial, final)
  - Final ip in the IP does not get a BT

- **Intonational phrasing in EP**
  - Deviates from MAE-ToBI
  - No phrase accent & no ip
  - IP: one type of BT (simple or complex)
  - Compound IPs (inner/outer edge): differences in BT > position
  - Each IP gets a BT
  - BI are independent from BT

Distinct prosodic accounts of what seems to be a similar gradient difference in the strength of the same types of properties >>>>> further analysis
Intonational lexicon

- Transparent analysis

Pitch accent inventory: common set of 4 pitch accents
\( H^*, L^*, H+L^*, L^*+H \)

One main difference: **Cat** \( L+H^* \) (and \( L+>H^* \)); **EP** \( H^*+L \)

Important systemic difference: most common nuclear accent in **Cat** (8 tunes), predominant choice in prenuclear position; EP
\( H+L^* \) is the most common nuclear accent >> **Rising, Falling**

Frota et al. 2007: ≠ nuclear pitch accent choices (Cat, Sp vs. EP, It)
Intonational lexicon

Narrow focus statements

L+H*: narrow focus statements, questions, calls, requests, imperatives
H*+L: narrow focus statements, imperatives

Perception?
Six EP participants (4 trained) listened to a set of 5 Cat items and 3 EP items: rising or falling? (3x each, total of 18 responses per item). Nº of rising responses.
Intonational lexicon

EP participants sensitivity to peak alignment within the stressed syllable

Systemic difference in nuclear accents
Intonational lexicon

Imperatives: (strong) commands (same syntax)

L+H*: narrow focus statements, questions, calls, requests, imperatives
H*+L: narrow focus statements, imperatives

Fundamental frequency (Hz)

Systemic difference
Boundary tone inventory

Both languages, one type of BT (simple or complex).

Cat shows a richer inventory of boundary tones (8).

Common set of 4 boundary tones (same phonetic definition): L%, H%, LH%, HL%

Different exploration of the height dimension:

Cat 4 levels: L%, M%, H%, HH%

EP 3 levels: L%, !H%, H%

M% and !H% (systemic difference)?
- Boundary tone height in Cat
  Growing evidence for a phonological contrast
  \( L + H^* \) LM\% / L + H* LH\%
  (Prieto et al. 2008)
  Productive use (vocative, hesitation, disapproval)
  Height is independent of syntagmatic reference
  (previous accents, context)

- Boundary tone height in EP
  No evidence for a contrast (so far)
  H\% (continuation rise): lower after \( H + L^* \), higher after \( L^* + H \)
  (Vigário 1998, Frota 2000)
  !H in the accent dimension:
  \( H + !H^* \) H + !H* // H* + L !H + L*
  !H\% (vocative): H* !H\%
  Height depends on syntagmatic reference

Different systems
Intonational lexicon

Vocative chant

Very similar phonetics: pitch height, spreading, lengthening

Different phonological account!

Systemic difference?
Intonational lexicon

Hesitation contour / Vocative chant

Very similar phonetics: pitch height, spreading, lengthening, vowel split

Different phonological account!

Systemic difference?
Intonational lexicon

- Phonetics and phonology

Vocatives show strong similarities across European languages, but also systematic differences that may reflect language-specific structural properties (Gussenhoven 1993, Ladd 1996/2008)

In some Ls, after T* two or more downward steps: e.g. Dutch

\[ H^* \ \downarrow H \ \downarrow H \]  
\[ \text{uit} \ - \ ko \ - \ men \ (come \ out) \]  

**Cat** system: mid level as M% (system of contrasts)

**EP** system: mid level as !H% (sintagmatic relations)

Different categories produce the same phonetics > labelling has to take into account the whole system (phonetic transparency is not always possible)
Semantic differences/similarities

In most cases, phonologically different tune types:
either PA (L+H* / H*+L), or BT (height), or both.

3 cases of different use of identical tunes:
- L* L%: Neutral statement, wh-question / Request
- H+L* L%: Yes-no question (falling) / Neutral statement, wh-question
- H* L%: Focused wh-question / Insistent call

No clear case of similar use of the same tune!

Systemic differences dominate > few cases of identical tunes with a different semantics
vlen  melmelada
1  4
L->H*  L*  L%

vlen  melmelada
1  4
L->H*  L*  L%

que  vindria  la  Marina?
1  1  0  4
H  H*  H+L*  L%

que  vindria  la  Marina?
1  1  0  4
H  H*  H+L*  L%
Close relation between number of stressed syllables and number of accents

Sparseness of pitch accents (typically, nuclear syllable and 1st syllable)

the blond girl recorded a wonderful song from the olive-pressman
Domain for pitch accent distribution

- **PAD in Cat**
  - Generally, stressed syllables are accented.
  - Strong connection between prominence and accentuation.
    - Stress clash resolution by deaccenting (Prieto et al. 2001)
    - Emphatic stress > pitch accent (Prieto in press)

- **PAD in EP**
  - 17% of IP-internal stressed syllables are accented (3-8 PWs, Vigário & Frota 2003)
  - Weak relation between prominence and PAs.
    - Stress clash resolution by lengthening of S1 (Frota 2000)
    - Emphatic stress > prominence with no PA (Vigário 2003)

Symmetrical distribution of stressed & accented, stressed not accented
Domain for pitch accent distribution

- **PAD in Cat**
  
  Generally, stressed syllables are accented.
  
  Prosodic domain relevant to PAD (Hellmuth 2007)
  
  **Prosodic word**
  
  Relevant dimension for the characterization of sentence types: some types of questions (Prieto 2002)

- **PAD in EP**
  
  17% of IP-internal stressed syllables are accented (3-8 PWs, Vigário & Frota 2003)
  
  Prosodic domain relevant to PAD: **IP** (Frota, in press)
  
  Same domain for the different sentence types (declaratives, questions, imperatives...)

**Important difference in pitch accent distribution!**
Other issues

- **Cat**
  
  Tune structure: post-nuclear accent (Prieto, in press)
  
  L* (neutral statement)

  Realisation of bitonal accents (Prieto, in press):
  
  Leading tone aligns to a segmental landmark (H+L*)
  
  But not trailing tones

  Compression (lengthening)

- **EP**
  
  Tune structure: post-nuclear accent (Frota 2000)
  
  H+L* (neutral statement)

  Realisation of bitonal accents (Frota 2002)
  
  Leading tone aligns independently of T* (H+L*; trailing tone aligns relative to T*)

  Compression (epenthesis)
Summary

- Intonationally relevant prosodic structure
  - One boundary type, two levels: elaborate on the analysis (ip?)

- Intonational lexicon
  - Important *systemic* differences in PA and BT inventories:
    - L+H* / H*+L: Exploration of height (M% / !H%)
  - Few cases of identical tunes show *semantic* differences

- Domain for PAD
  - Relevant dimension: EP a larger domain/ Cat a smaller domain

- Other issues
  - *Phonotactic* (post-nuclear accents, default accent)
  - *Realisational* /Implementation: *compression* (strategies for extending the segmentals – Iberian-Romance?), realisation of bitonal accents (*leading ≠ trailing* – Romance?)
Conclusion

- How different are we?
  - Similar in the intonationally relevant p-structure, in main tune structure architecture, in implementation (≠ English)
  - Different in the intonational lexicon and PAD

- Careful comparision highlights the dimensions where we differ, and raises questions about aspects of the AM framework and of the ToBI labelling system
  - Prosodic structure: BI >> dissociate BI from edge tone type
  - Definition of tonal categories: To >> phonological labels
    - Phonetic transparency + (cross-language) perception + system as a whole (way categories relate to each other)
  - Different categories may produce the same phonetics (also in intonation)
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