

# Darkness in /l/ as a gradual phonetic property. Evidence from three Catalan dialects

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## Introduction

➤ F2 and dorsopalatal contact data in /VlV, #lV, Vl#/ sequences (Recasens & Espinosa, 2005) reveal that **Catalan dialects differ regarding the degree of darkness in /l/ in the progression**

**Majorcan > Eastern > Valencian.**

➤ Other phonetic properties distinguish strongly dark /l/ in Majorcan from moderately dark /l/ in Eastern and clear /l/ in Valencian:

- a more anterior vs. more retracted alveolar constriction,
- one vs. two allophones associated with syllable position,
- presence vs. absence of utterance-final devoicing.

## Research goal

➤ **To investigate whether preconsonantal /l/ is also specified for three degrees of darkness in the three Catalan dialects of interest.**

➤ Several parameters **known to vary inversely with /l/ darkness degree** will be subject to analysis:

- F2 and dorsopalatal contact size,
- degree of undershoot and of /l/-to-C2 adaptation at the alveolar constriction.

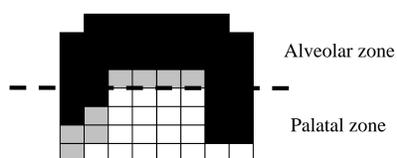
## Methodology

➤ EPG and F2 data were recorded for /lC/ clusters with C2=/p, b, t, d, n, s, r, ʒ, ʎ, ɲ, j, k/ embedded in meaningful sentences. The speech material was read by 5 Majorcan and 5 Valencian speakers (7 tokens) and by 3 Eastern speakers (3 to 5 tokens).

➤ The following measures were taken for all clusters:

- F2 frequency, contact percentage at the palatal zone (Qp), degree of contact anteriority at the alveolar zone (CAa), and number of alveolar columns of electrodes free of contact, at /l/ midpoint (see Figure 1).
- Constriction location at /l/ onset, midpoint and offset.

Figure 1. Average EPG contact pattern across tokens of /l/ before /j/ according to one Valencian speaker. Electrodes are distributed into rows horizontally and into columns vertically.

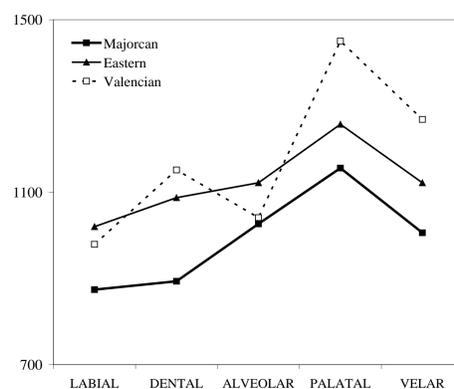


## Results

### 1. F2 and dorsopalatal contact

➤ Significant differences were found to hold for **Valencian, Eastern > Majorcan (F2)** and for **Valencian > Eastern, Majorcan (Qp)**. There was a 'dialect' x 'cluster' interaction associated mostly with the palatal context, where F2 and Qp decrease in the progression Valencian > Eastern > Majorcan (Fig. 2).

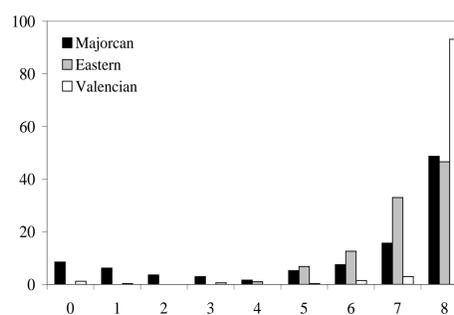
Figure 2. F2 for preconsonantal /l/ as a function of C2 and dialect (in Hz).



### 2. Undershoot

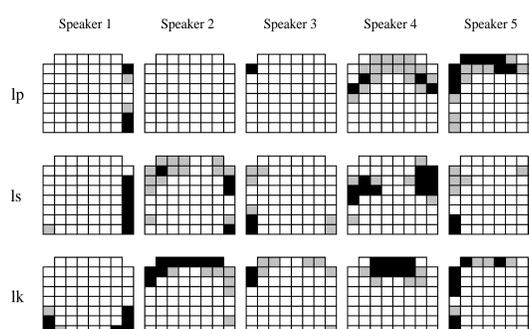
➤ **(Quasi-)complete absence of alveolar contact occurs only in Majorcan** (see bars at points 0 to 4 in Figure 3), **incomplete closure is found in Eastern and Majorcan** (bars at points 5 to 7), and **complete closure is the rule in Valencian** and takes place about 50% of the time in the other two dialects (bars at point 8).

Figure 3. Dialect-dependent differences in number of alveolar columns free of contact (in % of occurrence across clusters).



➤ Alveolar contact loss is induced by labials and, less so, by /s/ and velars (Fig. 4), and is generally absent before dentals and palatals. (See also Wrench & Scobbie, 2003, for English).

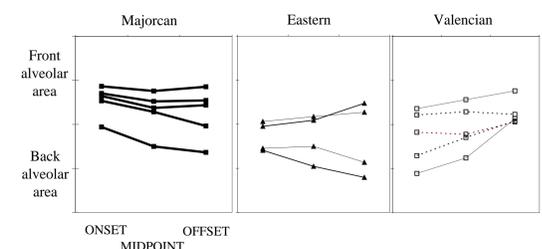
Figure 4. Average EPG patterns for /l/ in several /lC/ clusters showing little or no alveolar contact (Majorcan speakers only).



### 3. Constriction location and extent

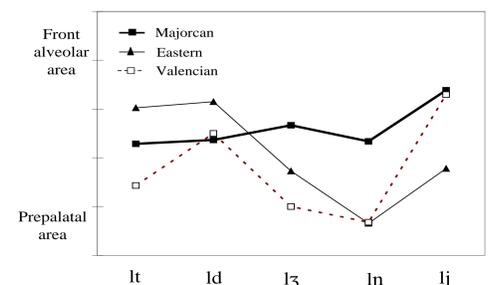
➤ In labial, alveolar and velar clusters (where /l/ does not blend with C2), **constriction location is more anterior and less variable in Majorcan** than in Eastern and Valencian. Moreover, there is **continuous constriction fronting during /l/ in Valencian** (Fig. 5).

Figure 5. Constriction location at onset, midpoint and offset of /l/ in /lC/ clusters with labials, alveolars and velars.



➤ Regarding clusters where /l/ blends with C2, **closure expansion towards the postalveolar area is most evident in Valencian** before palatals but not before dentals (Fig. 6).

Figure 6. Lower closure border at /l/ offset in /lC/ clusters with dentals and palatals.



## Discussion

➤ Data on degree of palatality, undershoot and coarticulatory sensitivity for /lC/ sequences are in support of a **three-way darkness contrast** for /l/ in Catalan. 'Darkness' appears to be a **multivalued phonetic property**, which questions the bigestural status of dark /l/. We would like to suggest in this respect that postdorsum retraction for dark /l/ is not actively controlled, but triggered by predorsal lowering in purely apical articulations.

➤ Additional research needs to be carried out on the phonetic characteristics of a possible **fourth darkness category**, namely, strongly clear /l/ in Italian, French and/or Spanish.

## References and acknowledgements

- Recasens, D. & Espinosa, A. (2005). Articulatory, positional and coarticulatory characteristics for clear /l/ and dark /l/: evidence from two Catalan dialects, *JIPA*, 35, 1-26.
- Wrench, A. & Scobbie, J.M. (2003). Categorising vocalization of English /l/ using EPG, *Proceedings of the 6th ISSP*, 314-319, CD-ROM.

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