Prosodic Domains in Central Catalan

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1. Introduction

1. Introduction

Western Catalan

Eastern Catalan

Northwestern Catalan

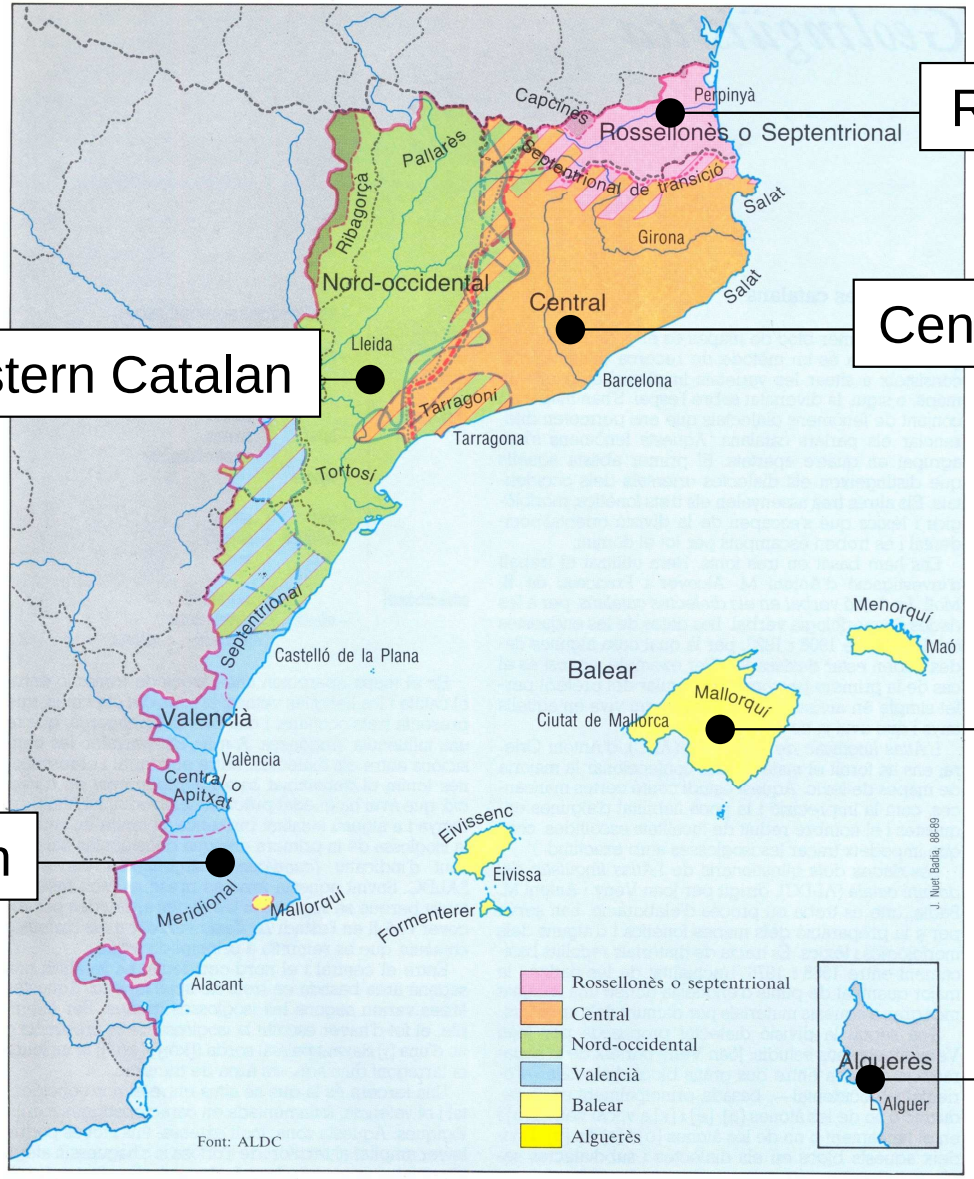
Rossellonès

Central Catalan

Balearic

Valencian

Alguero Catalan



1. Introduction

1. Introduction

- Extralinguistic factors conditioning the arising of Eastern and Western Catalan:
  - Preromanic substrate (Sanchis 1956)
  - Romanization (Badia 1981)
  - Christian Reconquest (Ferrando 1989)
  - External influences (immigration, ethnic mixture) (Veny 1991)

1. Introduction

	Western Catalan	Eastern Catalan
1	Maintenance of unstressed /a/, /e/: *palla* 'straw' [ˈpaʎa] - *pall-et-a* 'straw-DIM-FEM' [paˈʎeta] *pell* 'skin' [ˈpeʎ] - *pell-et-a* 'skin-DIM-FEM' [peˈʎeta]	Centralization of unstressed /a/, /e/ > [ə]: *palla* 'straw' [ˈpaʎə] - *pall-et-a* 'straw-DIM-FEM' [pəˈʎɛtə] *pell* 'skin' [ˈpeʎ] - *pell-et-a* 'skin-DIM-FEM' [pəˈʎɛtə]
2	Maintenance of unstressed /o/, /u/: *coca* 'cake' [ˈkoka] - *coqu-et-a* 'cake-DIM-FEM' [koˈketa] *cuca* 'bug' [ˈkuka] - *cuqu-et-a* 'bug-DIM-FEM' [kuˈketa]	Merger of unstressed /o/, /u/ as [u]: *coca* 'cake' [ˈkokə] - *coqu-et-a* 'cake-DIM-FEM' [kuˈkɛtə] *cuca* 'bug' [ˈkukə] - *cuqu-et-a* 'bug-DIM-FEM' [kuˈkɛtə]
6	Maintenance of unstressed diphthongs -GUA, -QUA: AQUA > *aigua* 'water' [ˈajɣwa] LĬNGUA > *llengua* 'tongue' [ˈʎeŋgwa]	Tendence -GUA, -QUA > -[ɣə], -[gə], -[kə]: AQUA > *aigua* 'water' [ˈajɣwə], [ˈajɣə] LĬNGUA > *llengua* 'tongue' [ˈʎeŋgwə], [ˈʎeŋgə]
10	No strengthening of word-final *-r*: *cor* 'heart' [ˈkɔɾ]	Strengthening of word-final *-r* through epenthesis: *cor* 'heart' [ˈkɔɾt]

1. Introduction

Data sources

- *Atles Lingüístic del Domini Català* (ALDC)
  - data elicited mainly between 1964-1978.
  - 473 informants.
  - NORMs: male 413 (87%), 60 years of age or older 382 (80%), with primary school 385 (81%).
  - network of 190 localities: 116 belonging to Western Catalan and 84 to Eastern Catalan.
  - spontanous material (about daily life and work, for example about harvesting, fishing, customs and festivities, songs etc.).
- *Diccionari Català-Valencià-Balear* (DCVB)
- *Diccionari etimològic i complementari de la llengua catalana* (DECat)
- Historical grammars: Badia 1994, Moll 2006
- Monographs

2. Determining the phonological domains

How to determine the existence of the phonological word

	Syllable structure (2.1)	Phoneme inventory (2.2)	Phonological processes (2.3)
stress related (stressed / unstressed)			

2. Determining the phonological domains

How to determine the existence of the phonological word

	Syllable structure (2.1)	Phoneme inventory (2.2)	Phonological processes (2.3)
stress related (stressed / unstressed)			
position related (word-initial, word-medial, word-final)			

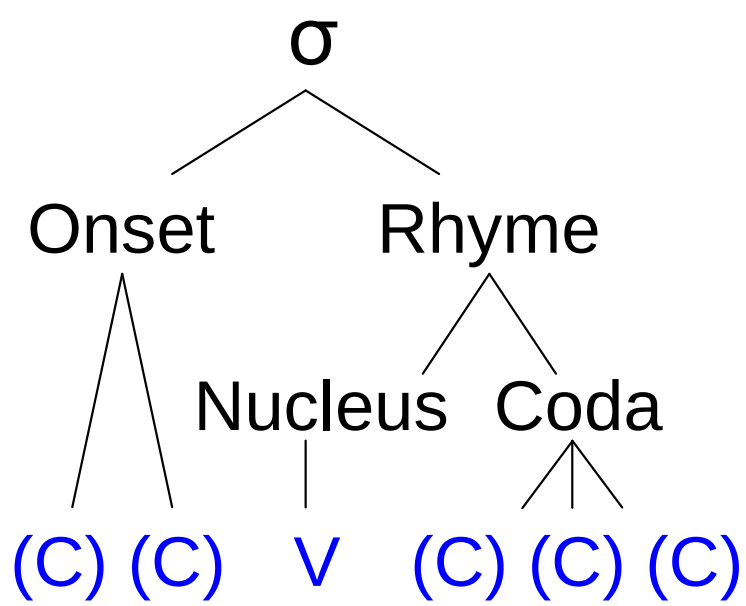
2.1 Syllable structure

Syllable templates according to syllabic complexity (Maddieson 2008)

- simple: (C)V
- moderately complex: (C)(C)V(C)
- complex: (C)(C)(C)V(C)(C)(C)(C)

2.1 Syllable structure

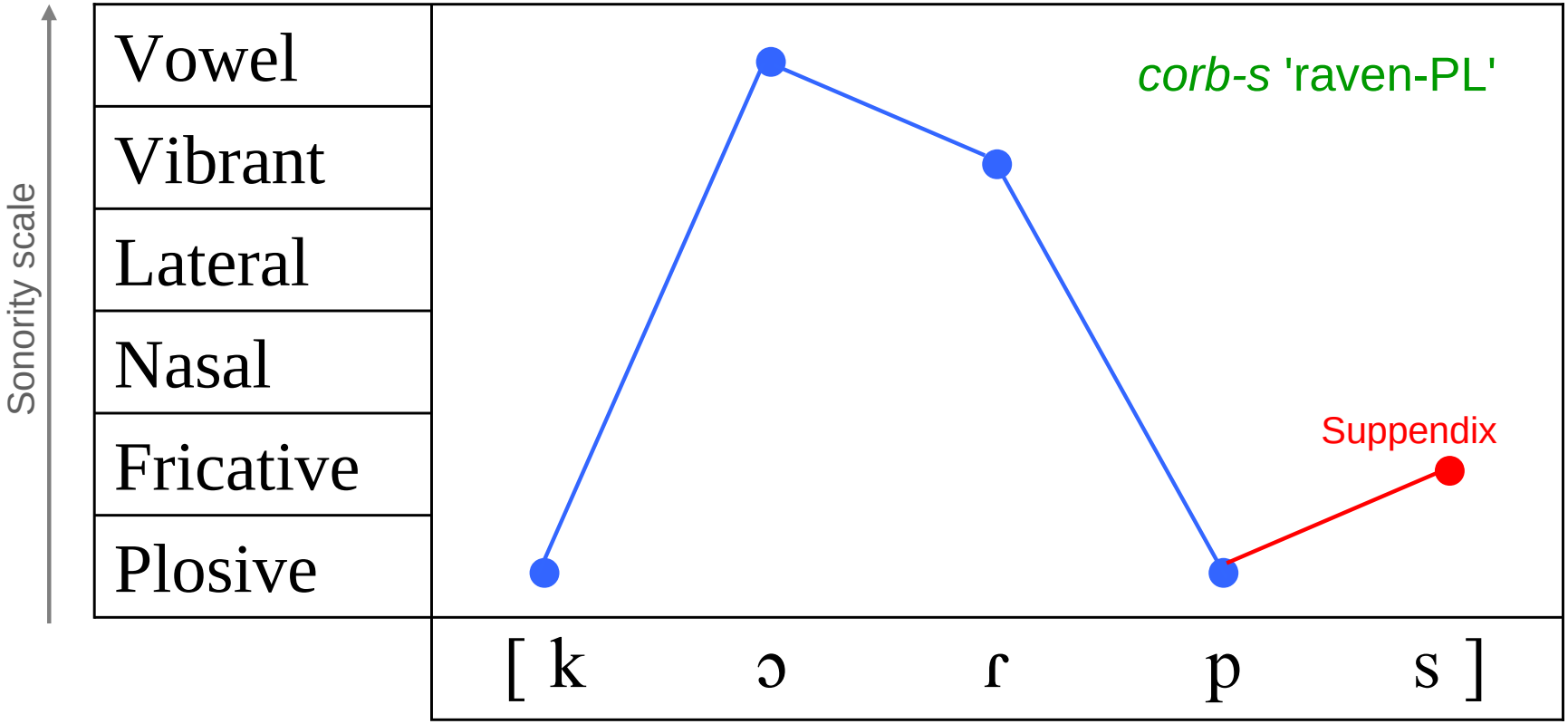
Catalan surface syllable structure



(De Yzaguirre 1995, Lloret 2002)

2.1 Syllable structure

Appendices in Central Catalan



2.1 Syllable structure

Syllable types in Catalan

Syllable type	Example
V	*i* ['i] 'and'
VC	*un* ['un] 'INDEF.ART[MASC.SG]'
VCC	*arc* ['aɾk] 'bow'
VCCC	*arc-s* ['aɾks] 'bow-PL'
CV	*mà* ['ma] 'hand'
CVC	*sol* ['sɔɬ] 'sun'
CVCC	*parc* ['paɾk] 'park[SG]', *dorm* ['dɔɾm] 'sleep[3.SG.PRES.IND]'
CVCCC	*parc-s* ['paɾks] 'park-PL', *dorm-s* ['dɔɾms] 'sleep[2.SG.PRES.IND]'
CCV	*pla* ['pla] 'plain[MASC]'
CCVC	*fred* ['fɾɛt] 'cold[MASC]'
CCVCC	*brusc* ['bɾusk] 'rough[MASC]'
CCVCCC	*brusc-s* ['bɾusks] 'rough[MASC]-PL'

(Lloret 2002)

2.1 Syllable structure

Frequency of syllable types (De Yzaguirre 1995: 67-69)

- based on the *Diccionari de la LLengua Catalana*
- 68,551 words transcribed phonologically (underlying form)
- 2,414,824 syllables elicited
- inflection of nouns, adjectives and verbs (approximately 595,000 inflected forms)
- frequency of syllable types classified according to stress (stressed/unstressed) and position (word-finally/non-word-finally)
- frequency of stressed and unstressed vowels

2.1 Syllable structure

Frequency of syllable types (De Yzaguirre 1995: 67-69)

Syllable type	Absolute frequency	stress		position	
		stressed	unstressed	not-word final	word-final
CV	1,159,160	327,316	831,844	1,018,519	140,641
CVC	654,027	174,379	479,648	309,630	344,397
VC	223,101	11,332	211,769	169,011	54,090
V	157,730	21,255	136,475	126,218	31,512
CCV	116,748	19,936	96,812	103,690	13,058
CVCC	48,013	41,200	6,813	920	47,093
CCVC	35,032	8,898	26,134	24,361	10,671
VCC	10,861	6,228	4,633	4,685	6,176
CVCCC	4,974	4,941	33	22	4,952
CCVCC	4,664	2,242	2,422	186	4,478
VCCC	325	325	0	2	323
CCVCCC	189	189	0	0	189

2.1 Syllable structure

Frequency of syllable types (De Yzaguirre 1995: 67-69)

- most common syllable type:
  CV 1,159,160 (48%)
- open syllables: 1,433,638 (59%),
  closed syllables: 981,186 (41%)
- complex syllables in stressed position: 55,125 (9%)
  complex syllables in unstressed position: 13,901 (0%)
- complex syllables in word-final position: 63,211 (10%)
  complex syllables in non-word-final position: 5,815 (0%)

2.2 Distribution of the phoneme inventory

(stress related)

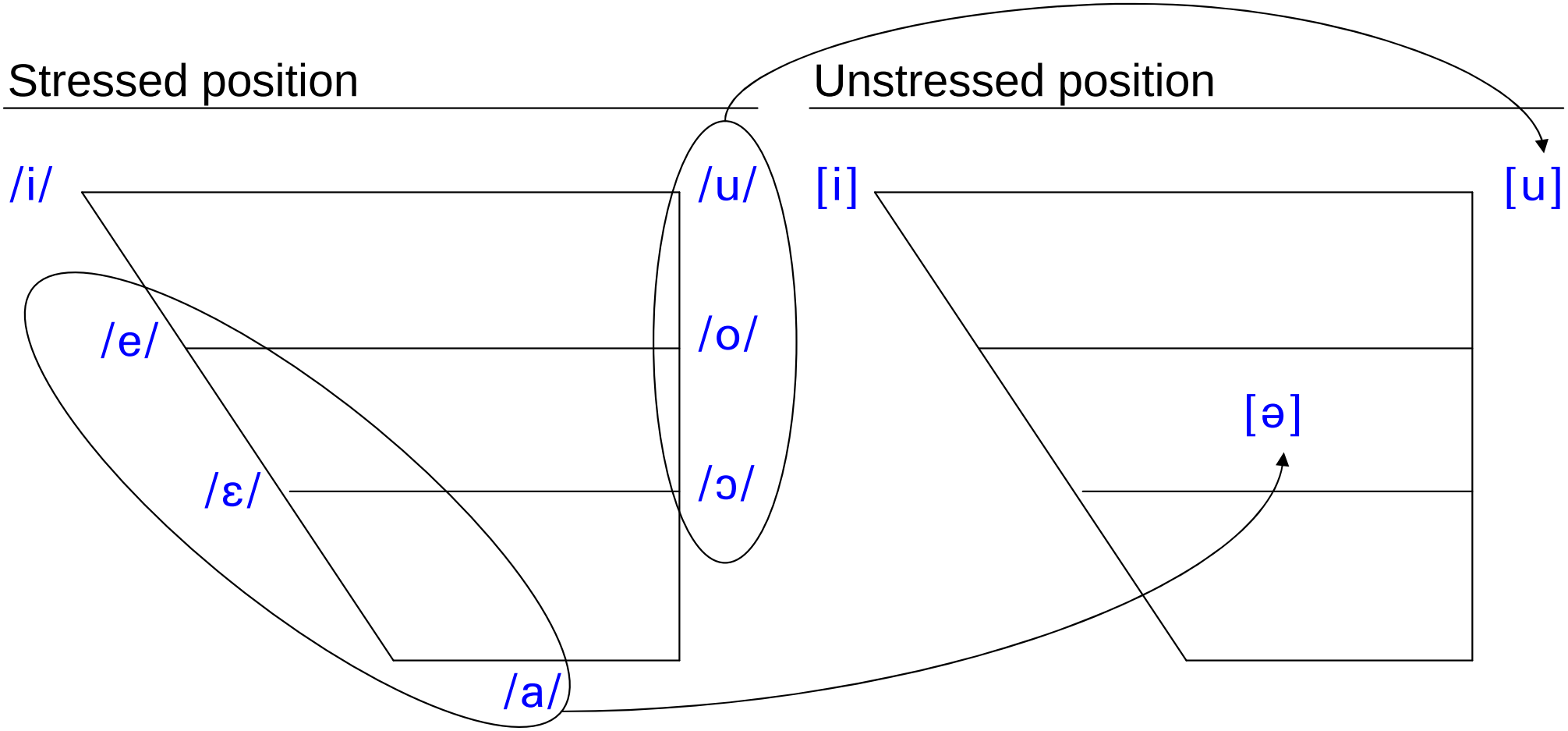
Reduced vowel system in unstressed position

- For the present investigation, "reduced vowels" are defined as centralized and/or devoiced (Auer 1993: 66).
- We [...] counted as reduction any process that neutralizes contrasts in unstressed syllables, or any processes that centralizes, unrounds or shortens vowels. It is known also that reduction can involve raising (Bybee 1998: 280).
- A typological investigation of vowel reduction systems yields the following clear and striking results: The vast majority of licensing asymmetries between stressed and unstressed syllables in the languages of the world involve the neutralization of contrasts of vowel height, nasalization, or quantity (Barnes 2006: 20).

2.2 Distribution of the phoneme inventory

(stress related)

Reduced vowel system in unstressed position (synchronic view)



2.2 Distribution of the phoneme inventory

(stress related)

Paradigm of the verbs *parl-ar* 'speak-inf', *pens-ar* 'think-inf' and *menj-ar* 'eat-inf' in pres. ind.

infinitive	*parlar*	[pəɾˈla]	*pensar*	[pənˈsa]	*menjar*	[məɲˈʒa]
pres. ind.	*parlo*	[ˈpaɾlu]	*penso*	[ˈpɛnsu]	*menjo*	[ˈmeɲʒu]
	parles	[ˈpaɾləs]	*penses*	[ˈpɛnsəs]	*menges*	[ˈmeɲʒəs]
	parla	[ˈpaɾlə]	*pensa*	[ˈpɛnsə]	*menja*	[ˈmeɲʒə]
	parlem	[pəɾˈlɛm]	*pensem*	[pənˈsɛm]	*mengem*	[məɲˈʒɛm]
	parleu	[pəɾˈlɛw]	*penseu*	[pənˈsɛw]	*mengeu*	[məɲˈʒɛw]
	parlen	[ˈpaɾlen]	*pensen*	[ˈpɛnsən]	*mengen*	[ˈmeɲʒən]

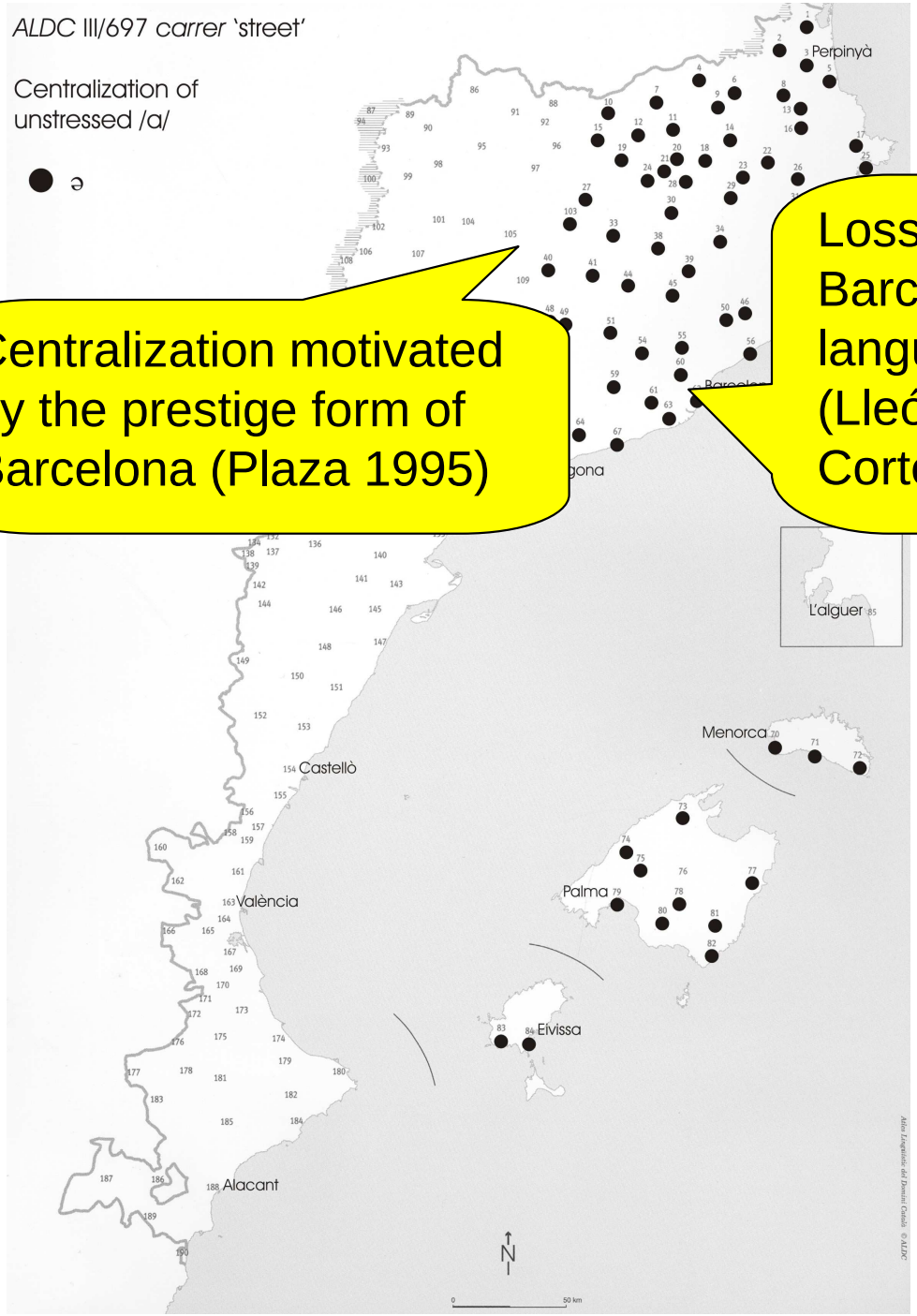
2.2 Distribution of the phoneme inventory

(stress related)

Frequency of stressed and unstressed vowels in Central Catalan (De Yzaguirre 1995: 91)

	Stressed syllable	Unstressed syllable
[i]	137,623 (22%)	364,882 (20%)
[e]	76,397 (12%)	—
[ɛ]	109,073 (18%)	—
[a]	216,544 (35%)	—
[ɔ]	31,030 (5%)	—
[o]	32,401 (5%)	—
[u]	15,173 (2%)	316,097 (18%)
[ə]	—	1,115,604 (62%)
Total:	618.241 (100%)	1.796.583 (100%)

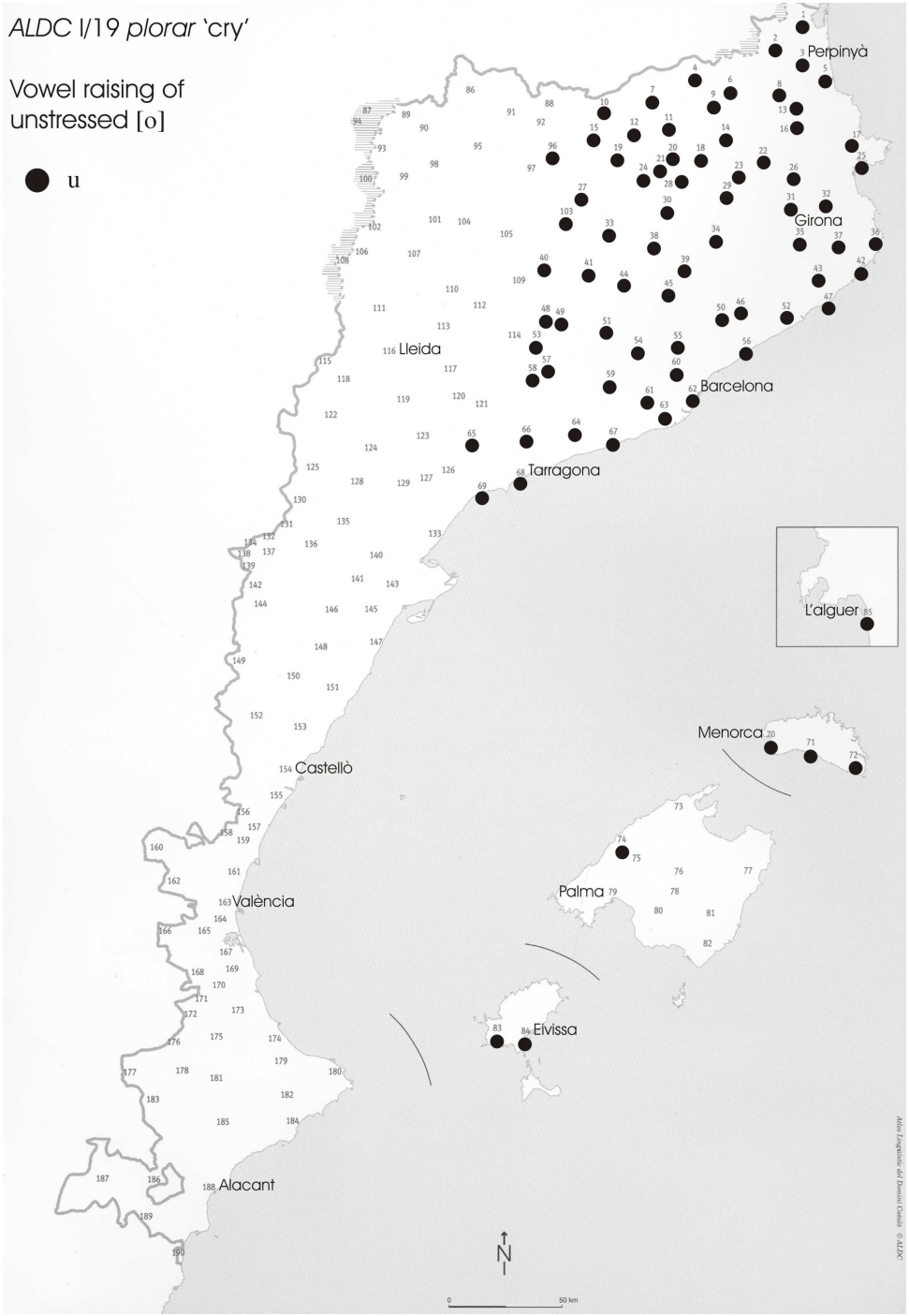
Vowel centralization



Centralization motivated by the prestige form of Barcelona (Plaza 1995)

Loss of centralization in Barcelona motivated by language contact situations (Lleó et al. 2007, 2008, Cortés et al. 2009)

Vowel merge


ALDC I/19 plorar 'cry'
Vowel raising of unstressed [o]
u
Perpinyà
Girona
Lleida
Barcelona
Tarragona
L'alguer
Menorca
Castellò
València
Palma
Eivissa
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50 km

2.2 Distribution of the phoneme inventory (stress related)

Geminates, long vowels, diphthongs

- Geminates:
  - through assimilation:
    espatlla [əsˈpaʎʎə] 'back', *motlle* [ˈmɔʎʎə] 'Form',
    vetll-ar [bəʎˈʎa] 'wach-INF', *setmana* [səmˈmanə] 'week'
  - through gemination of the consonant clusters -*bl*-, -*gl*-:
    poble [ˈpɔbblə] 'village', *pobl-et* [pubˈblɛt] 'village-DIM',
    segle [ˈseggle] 'century', *amable* [əˈmabblə] 'nice'
- no phonemic long vowels (but phonetic when stressed)
- diphthongs both in stressed and unstressed position

2.2 Distribution of the phoneme inventory (position related)

[...] we must then apply ourselves to investigating the means of boundary marking or the phonological boundary signals utilized by that language. First, we must distinguish between *phonematic* and *aphonematic* boundary markers. [...] Further, we must distinguish between *combination* or *group signals* and *individual signals*. [...] *Word boundary markers*, and *morpheme boundary markers* can be differentiated by reference to what is being delimited. [...] Finally, we must take a distinction between *positive* and *negative* boundary signals (Trubetzkoy 1968: 43-45).

2.2 Distribution of the phoneme inventory

(position related)

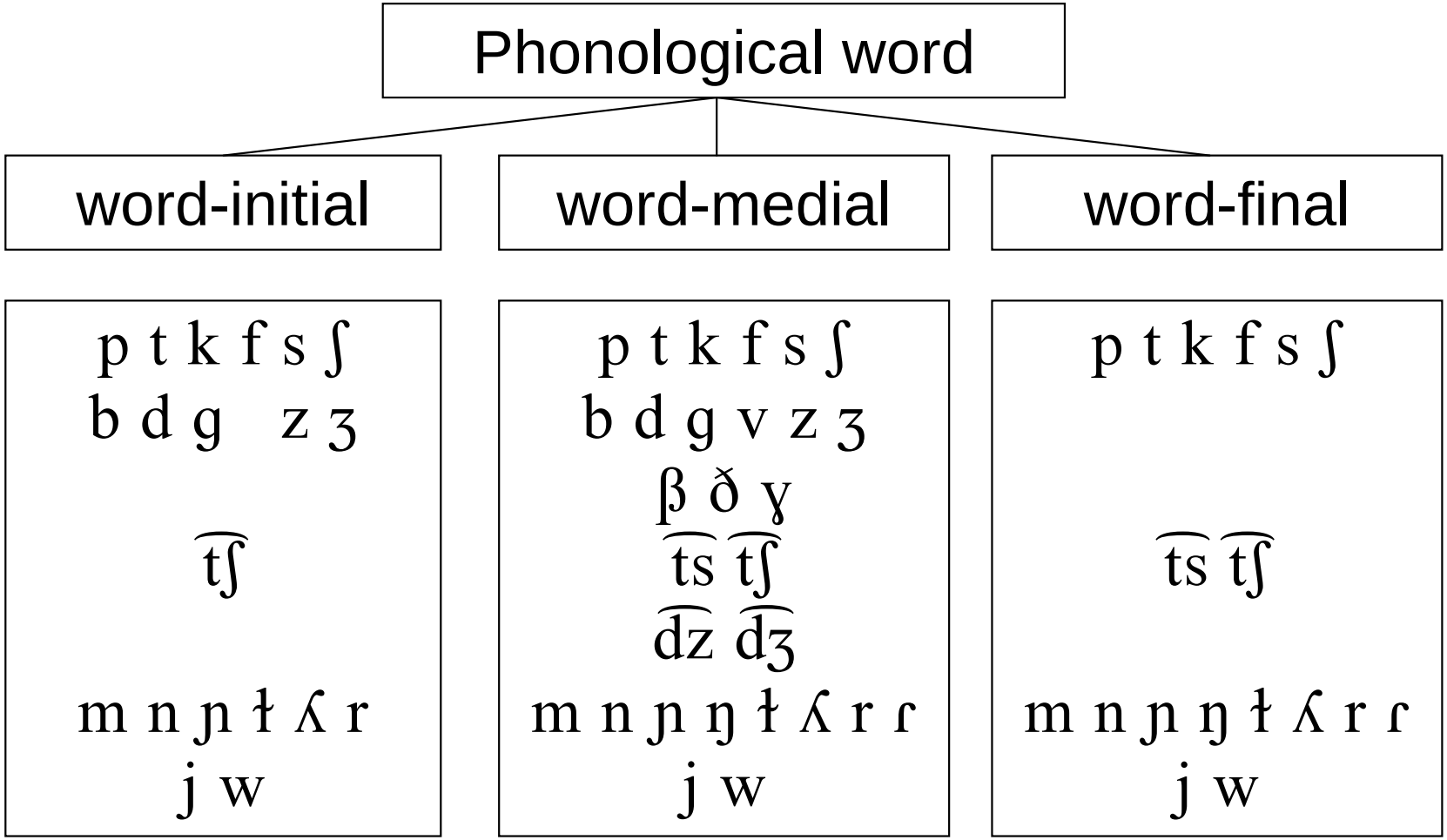
	word-initial	word-medial		word-final
	#C	C.C, V.C	C.C	C#
[p]	+	+	+	+
[b]	+	+	+	–
[t]	+	+	+	+
[d]	+	+	+	–
[k]	+	+	+	+
[g]	+	+	+	–
[f]	+	+	+	+
[v]	–	–	+	–

Positive boundary signal

Negative boundary signal

2.2 Distribution of the phoneme inventory

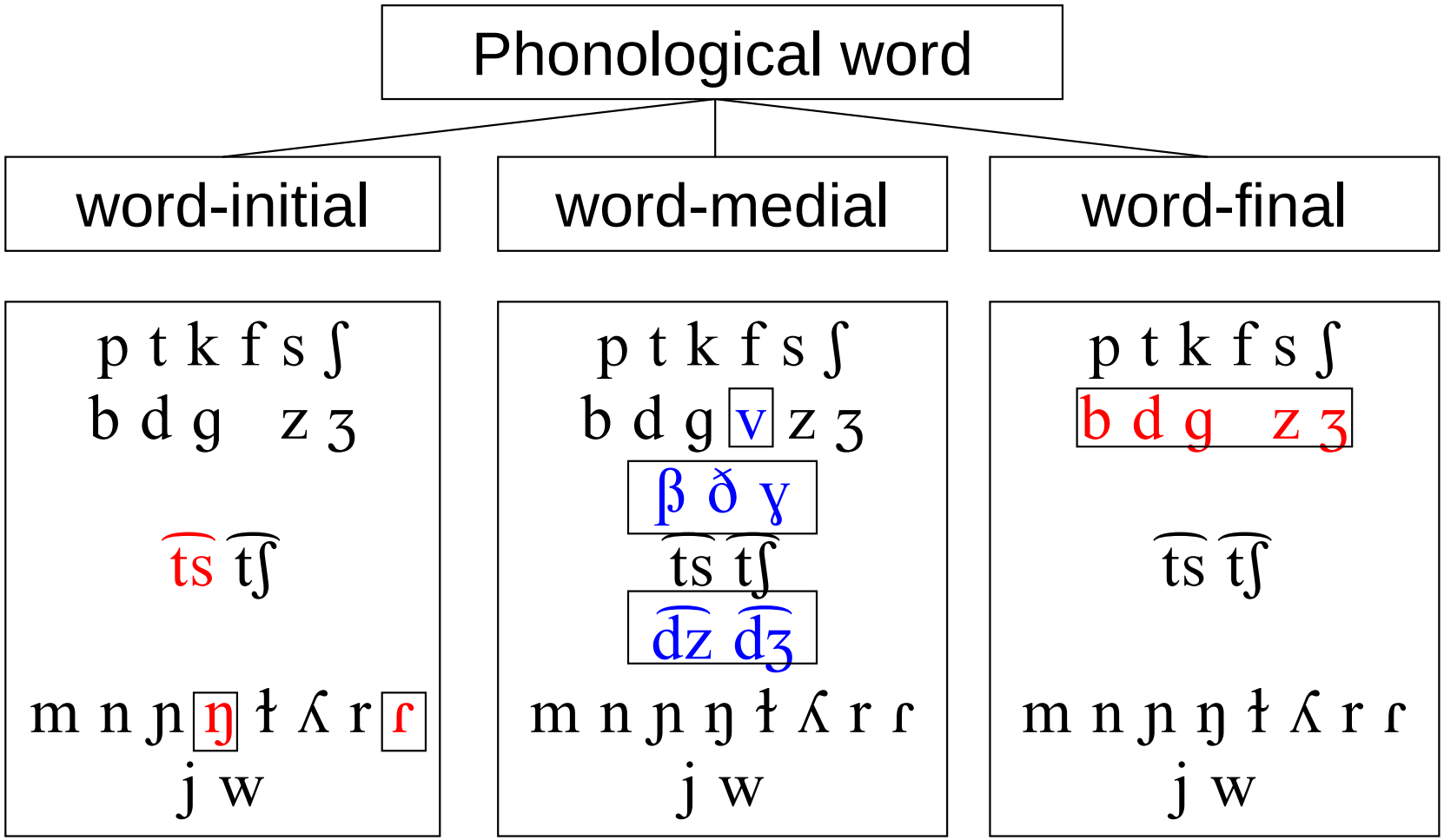
(position related)



2.2 Distribution of the phoneme inventory

(position related)

Positive boundary signal
Negative boundary signal



2.3.1 Word-related processes

(stress related)

Deletion of centralized vowels

barana 'banister' [bəˈɾanə] > [ˈbɾanə]
berenar 'afternoon snack' [bəɾəˈna] > [bɾəˈna]
taronja 'orange' [təˈɾɔɲʒə] > [ˈtɾɔɲʒə]
veritat 'truth' [bəɾiˈtat] > [bɾiˈtat]
parell 'similar[MASC]' [pəˈɾɛj] > [ˈpɾɛj]

(Dorca 2007, 2008)

2.3.1 Word-related processes

(position related)

Final obstruent devoicing

sab-er [sə'βɛ] 'know-INF'
perd-em [pər'ðɛm] 'lose-1PL.PRES.IND'
grog-a ['gɾɔɣə] 'yellow-FEM'
pagès-a [pə'ʒɛzə] 'farmer-FEM'
roj-a ['rɔʒə] 'red-FEM'
mitj-a ['mid͡ʒə] 'half-FEM'

sap ['sap] 'know[3SG.PRES.IND]'
perd ['pɛɾt] 'lose-3SG.PRES.IND'
groc ['gɾɔk] 'yellow[MASC]'
pagès [pə'ʒɛs] 'farmer'
roig ['rɔt͡ʃ] 'red[MASC]'
mig ['mit͡ʃ] 'half[MASC]'

Clitics:
perd-ho ['pɛɾðu] 'lose[2SG.IMP]-it'
rep-ho ['rɛβu] 'get[2SG.IMP]-it' (cf. inf. *rebre* ['rɛβɾə])

2.3.1 Word-related processes

(position related)

Affrication of /ʒ/ > [t͡ʃ] word-finally

passeig [pəˈsɛt͡ʃ] 'walk'

roig [ˈrɔt͡ʃ] 'red[MASC]'

passej-ar [pəsəˈʒa] 'walk-INF',
passejada [pəsəˈʒaðə] 'long walk'

roj-a [ˈrɔʒə] 'red-FEM',
rog-et [ruˈʒɛt] 'red-DIM[MASC]'

2.3.1 Word-related processes

(position related)

Deletion of word-final *-n*

vi∅ [ˈbi] 'wine'

vin-s [ˈbins] 'wine-PL',
vin-et [biˈnɛt] 'wine-DIM[MASC]'

2.3.1 Word-related processes

(position related)

Deletion of word-final *-r*

portar la roba [puɾˈtaØləˈrɔβə]
'bring-INF ART.FEM clothes'

portar-la [puɾˈtaɾlə]
'bring-INF-PRON.FEM[SG]'

fer negocis [ˈfeØnəˈɣɔsis]
'do-INF business-PL'

fer-ne [ˈfeɾnə]
'do-INF-PART'

2.3.1 Word-related processes

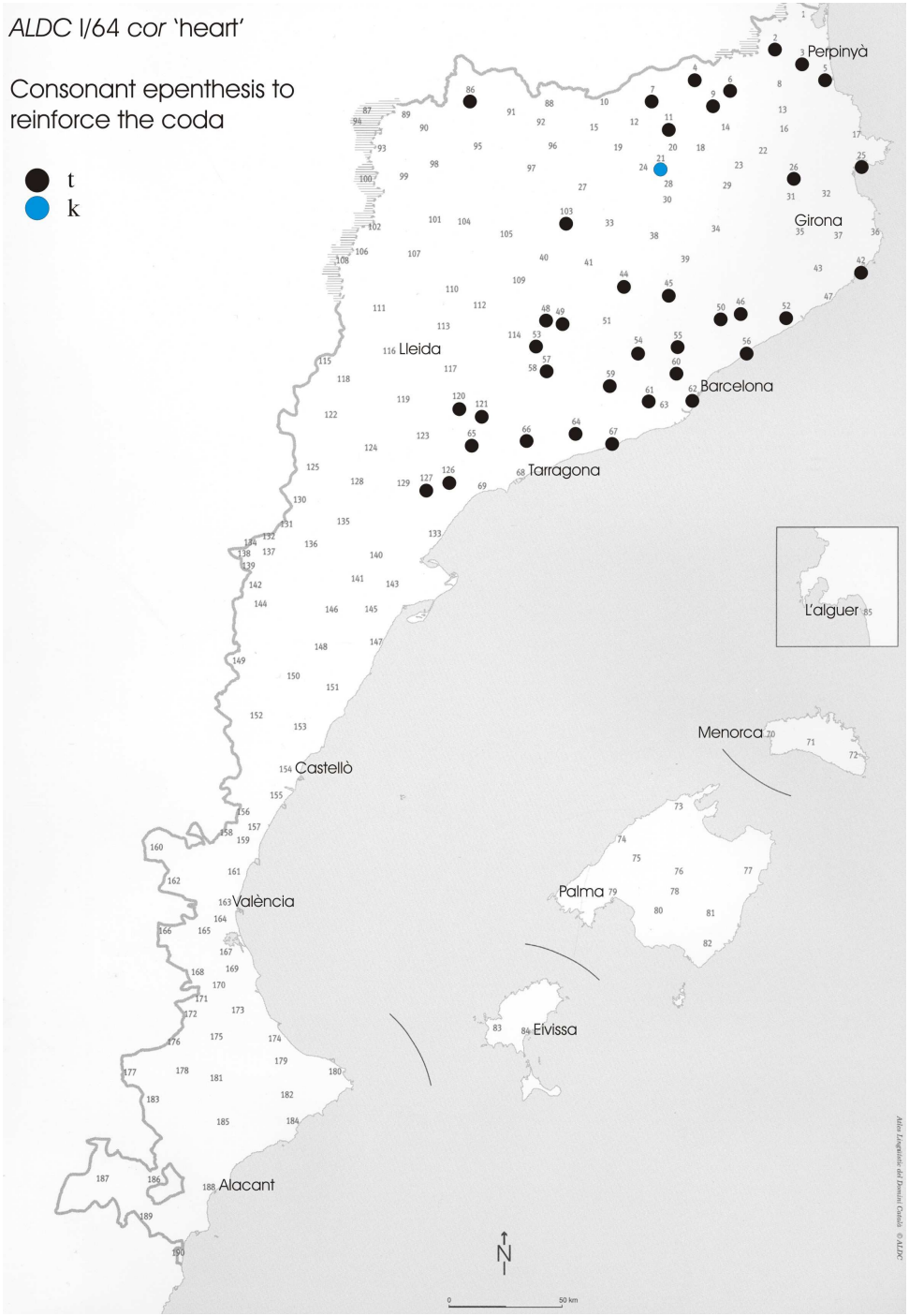
(position related)

Strengthening of word-final *-r*

cor 'heart' ['kɔɾ] > ['kɔɾt]
mar 'sea' ['maɾ] > ['maɾt]
pur 'pure-MASC' ['puɾ] > ['puɾt]
motor 'engine' [mu'toɾ] > [mu'toɾt]

(Moll 2006: 153)

Consonant epenthesis



2.3.1 Word-related processes

(position related)

Simplification of homorganic word-final consonants

font [ˈfɔn] 'fountain'

font-et-a [funˈtɛtə] 'fountain-DIM-FEM'

font es [ˈfɔˈnɛs] 'fountain be-3SG.PRES.IND'

2.3.2 Syllable-related processes

- Resyllabification
- Lenition of intervocalic voiced plosives
- Coda voice agreement
- Vowel epenthesis
- Consonant assimilations (external sandhi)
- Hiatus resolution

2.3.2 Syllable-related processes

Resyllabification

cap home 'no man' [ˈkaˈpɔmə]

aquest home 'this man' [əˈkɛˈtɔmə]

2.3.2 Syllable-related processes

Obstruent voicing across words

gos 'dog' [ˈgos]

goss-os 'dog-PL' [ˈgosus]

goss-et 'dog-DIM[MASC]' [guˈsɛt]

intervocalic position (word-medial)

gos estrany 'dog weird[MASC]' [ˈgozəsˈtraɲ] → intervocalic position (word-initial through resyllabification)

3. Conclusions and discussion

Evidence of the existence of the phonological word

	Syllable structure	Phoneme inventory	Phonological processes
stress related (stressed / unstressed)			
position related (word-initial, word-medial, word-final)			

1) complex syllable structures in stressed position

3. Conclusions and discussion

Evidence of the existence of the phonological word

	Syllable structure	Phoneme inventory	Phonological processes
stress related (stressed / unstressed)			
position related (word-initial, word-medial, word-final)			

1) complex syllable structures in word-final position
2) appendices mainly wordfinally (when prefixes in cultisms are simplified)

3. Conclusions and discussion

Evidence of the existence of the phonological word

	Syllable structure	Phoneme inventory	Phonological processes
stress related (stressed / unstressed)			
position related (word-initial, word-medial, word-final)			

1) diphthongs in stressed and unstressed position (tendence to reduction of unstressed diphthongs)
2) geminates mainly in stressed position
3) reduced vowel inventory in unstressed position (seven-to-three reduction)

3. Conclusions and discussion

Evidence of the existence of the phonological word

	Syllable structure	Phoneme inventory	Phonological processes
stress related (stressed / unstressed)			
position related (word-initial, word-medial, word-final)			

1) single consonants seldom function as word boundary signals (only [t͡s] as negative signal)

2) consonant groups may function as word-final boundary signals

3. Conclusions and discussion

Evidence of the existence of the phonological word

	Syllable structure	Phoneme inventory	Phonological processes
stress related (stressed / unstressed)			
position related (word-initial, word-medial, word-final)			

1) vowel centralization of unstressed /a/ and /e/ (< stressed [e], [ɛ]) to [ə]
2) vowel merge of unstressed /o/ (< stressed [o], [ɔ]) and /u/ as [u]
3) deletion of centralized vowels
4) gemination of the stressed consonant clusters *bl*, *gl* to [b.bl], [g.gl] respectively

3. Conclusions and discussion

Evidence of the existence of the phonological word

			ological sses
stress relate (stressed / unstressed)			
position rela (word-initial, word-medial, word-final)			

1) word final obstruent devoicing
2) deletion of word-final *-n* and *-r*
3) simplification of word-final homorganic consonants *-nt*, *-mp*, *-nc*, *-lt*
4) affrication of /ʒ/ > [d͡ʒ] > [t͡ʃ] in wordfinal position
5) obstruent voicing across word boundaries through resyllabification
6) strengthening of word-final *-r* through consonant epenthesis

3. Conclusions and discussion

Strategies enhancing the phonological word

- Catalan has a strong tendency to mark the right marge of the phonological word.
  - 10% of word-final syllables are complex (without applying the rule of simplification of word-final homorganic consonants for Central Catalan)
  - word-related phonological processes concentrate in word-final position.
- Central Catalan has developed further by reducing the vocalism in unstressed position.
  - Is there a correlation between vowel centralization and simplification of word-final homorganic consonants?

3. Conclusions and Discussion

Phonological processes	Central Catalan	Northwestern Catalan	Central Valencian
word-final obstruent devoicing	+	+	+
deletion of word-final *-n*	+	+	+
deletion of word-final *-r*	+	+	–
simplification of word-final consonant clusters	+	+	–
affrication of word-final -/ʒ/	+	+	–
vowel centralization	+	–	–
vowel merge	+	–	–
strengthening of word-final *-r*	+	–	–

3. Conclusions and Discussion

syllable language — word language

Central Catalan

Northwestern Catalan

Valencian

(Spanish)

3. Conclusions and Discussion

Vowel system reduction in Romance languages

Variety	Stressed syllable	Unstressed syllable	References
Central Catalan	i, e, ɛ, a, ɔ, o, u	i, ə (< e, ɛ, a), u (< ɔ, o, u)	Mascarò (2002)
Romansh	i, e, ɛ, a, ɔ, o, u	i, ə (< e, ɛ, a), u (< ɔ, o, u)	Montreuil (1999: 527)
European Portuguese	i, e, ɛ, a, ɔ, o, u	i, ɨ (< e, ɛ), ɐ (< a), u (< ɔ, o, u)	Mira (2006)
Neapoletan	i, e, ɛ, a, ɔ, o, u	pretonic: i, a, ə (< e, ɛ), u (< ɔ, o, u) posttonic: ə (< i, e, ɛ, a, ɔ, o, u)	Ledgeway (2009: 71-83)