

**Morphologically conditioned intervocalic rhotacism
in Algherese Catalan**
An account with lexically indexed constraints^{*}

MARIA CABRERA-CALLÍS
Universitat de Barcelona

Abstract

This paper provides an analysis of the morphological and lexical conditionings determining the triggering or the blocking of the rhotacism pattern observed in Algherese Catalan. In this dialect, laterals and dental stops rhotacise in intervocalic position; the process, however, exhibits some variation mainly conditioned by the area of the word in which the intervocalic segment occurs (the left edge of the root, the root or the suffix) and the type of word in which is contained (an inherited word or a loan). Our proposal is to account for these facts by means of lexically indexed constraints targeting exceptional behaviors in the lexicon. The article also analyses the functional interpretation of this pattern of rhotacism, and finally reflects on the changes in the lexicon as a reflect of the process of language substitution in Algherese Catalan.

0. Introduction

^{*} This work has been supported by the project «Descripción e interpretación de la variación dialectal: aspectos fonológicos y morfológicos del catalán» (ref. FFI2010-22181-C03-02, financed by MICINN and FEDER). I would like to thank Josefina Carrera-Sabaté, Carla González, Maria-Rosa Lloret, Aleksei Nazarov, Presley Pizzo, Clàudia Pons-Moll, Francesc Torres-Tamarit and the audiences of the McCarthy-Pater Grant Group 2011, the Seminari del Centre de Lingüística Teòrica (1/4/2011) and the LSRL 41 for their feedback. Special thanks are due to John J. McCarthy, Joan Mascaró, John Kingston and Joe Pater, who suggested me some crucial ideas.

The present work analyses the intervocalic rhotacism pattern observed in Algherese Catalan, paying special attention to the conditionings determining its lexical variation. Indeed it takes into consideration how *lexical* and *morphological* factors (namely the inherited or loan character of the item and the area of the word in which the intervocalic segment occurs) can crucially determine the triggering or the blocking of the process, and it gives formal account of these facts by assuming an Optimality Theoretic type grammar with constraints indexed to lexical classes (Itô & Mester 1999, Pater 2000), so that exceptional behaviors are encoded in the lexicon in order for the constraints to apply effectively or vacuously to the items exhibiting them.

The article is organized as follows: Section §1 presents the Algherese intervocalic rhotacism pattern and analyses the lexical and morphological conditionings determining its variable application; section §2 proposes a lexically-indexed constraints approach to the data; section §3, finally, concludes revising the main problems of the analysis, proposing new research lines, and reflecting on the changes in the locus of exceptionality as the formal reflection of the process of language substitution Algherese Catalan is involved in.

1. *Intervocalic rhotacism in Algherese Catalan. A case of lexical variation*

Liquids in Algherese Catalan show a puzzling distribution that in the literature has usually been referred to as *liquid interchange* (Bosch & Armangué 1995). Among the processes in which these sounds are involved there is that of intervocalic rhotacism, which turns intervocalic dental stops (1) and coronal laterals (2) into flaps. The process was introduced in the language between the XVIII and the XIX centuries (Bosch 2008) and has diachronically applied to a closed set of inherited words (a), but it still offers some synchronic evidence of its activity within inflection and derivation (b).

(1) Intervocalic rhotacism of /d/¹

a. Diachronic process

b. Productive process

¹ Unless otherwise noted, all data are from Cabrera-Callís (2009a, 2009b).

<i>Nadal</i> [naɾál] “Christmas”	<i>neboda</i> [nabóɾa] “niece” (cf. <i>nebot</i> [nabót] “nephew”)
<i>nedar</i> [naɾá] “to swim”	<i>delicadesa</i> [derikaɾéza] “delicacy” (cf. <i>delicat</i> [derikát] “delicate”)
<i>cada</i> [káɾa] “every”	<i>ciutadà</i> [siwtará] “citizen” (cf. <i>ciutat</i> [siwtát] “city”)

(2) Intervocalic rhotacism of /l/

a. Diachronic process

oli [óɾi] “oil”

bolet [burét] “mushroom”

quiló [kiró] “kilogram”

b. Productive process

mała [mára] “bad FEM.” (cf. *mal* [mál] “bad MASC.”)

sola [sóɾa] “alone FEM.” (cf. *sol* [sól] “alone MASC.”)

llençolet [ʎan'surét] “sheet DIM.” (cf. *llençol* [ʎan'sól] “sheet”)

In the previous literature, however, rhotacism has always been described as applying categorically, and poor attention has been given to its lack of activity in certain items (cf., among others, Bosch & Armangué 1995; Kuen 1934; Pais 1970; Palomba 2000, 2001; Veny 1982). In order to shed some light on this irregular behavior, Cabrera-Callís (2009a) proposed a quantitative analysis of the process.² The main goals were to determine with statistical support which are the decisive factors in the triggering/blocking of rhotacism and to establish which type of variation are we dealing with: whether it is a case of *free variation* or a case of *lexical variation*.³ The corpus contained 100 instances of intervocalic /d/, and the linguistic and social variables considered were 12: on the one hand, the linguistic affiliation of the word (Catalan, Italian, Sardinian, Spanish or English), the word class (inherited word, loan

² The statistical analysis covered only the intervocalic /d/ rhotacism process. In this work, however, I also extend the statements to the intervocalic /l/ rhotacism process, since the observation of the data in the corpus (Cabrera-Callís, 2009b) leads to similar conclusions. Nevertheless, the statistical support of the claims is only valid for the first type of rhotacism.

³ See Zuraw (2010) for a description of the exact sense of these terms agreed in the literature and used throughout this paper.

or learned word), the etymology of /d/ (derived from an intervocalic Latin -T-, from an intervocalic Latin -D-, or from some other non-romance language), the number of syllables of the word, the previous and the continuous vocalic context, the position of the segment in relation to the stress of the word and the morphological area of the word in which /d/ occurs (within the root, at its right or left edge or within the suffix); on the other hand, the gender of the informants, their age, their level of studies and their knowledge of foreign languages. The Goldvarb.exe statistical analysis led to some interesting results.

First of all, the irregularity in the intervocalic rhotacism process is not a case of free variation but a case of factor-driven alternation, as will be seen in (3), (4), (5), (6) and (7). Secondly, nor is it a case of interspeaker variation: Algherese speakers tend to produce the same outputs, with very residual room for variation or linguistic creativity. In fact, the analysis discarded all the social variables above mentioned as deciding factors of the process: thus, the variability of the phenomenon is not socially but linguistically conditioned. Among the linguistic factors considered, the most significant ones turned out to be the *morphological area* of the word in which /d, l/ occur and the *word class* in which are contained. Let's see in detail in which sense this influence is given.

Firstly, there is a general lack of rhotacism at the left edge of the root: as illustrated in (3), the addition of a vowel-ending prefix to a root started in /d/ or /l/ doesn't trigger rhotacism.

(3) Lack of rhotacism at the left edge of the root

adolorir /a#dolor + i + r/⁴ [adururí] “to hurt”

preludi /pre#ludi/ [prelúdi] “prelude”

In root-internal position, both in the middle of the root (4) or in its right edge (5), i.e., when a vowel-starting derivative or inflective suffix is added to a root ended in /d/ or

⁴ I slightly simplify the underlying representation for the sake of clarity. Notation: Engl. = English, It. = Italian, Sard. = Sardinian, Sp. = Spanish.

/l/, the activity of the process is unpredictable in purely phonological terms: inherited words tend to trigger rhotacism, whereas recent loans and learned words generally block it.

(4) Root-internal unpredictability

a. Rhotacism in inherited words

cadena /kadɛn + a/ [kaɾéna] “chain”

medecina /medɛsin + a/ [maɾasína]

“medecine”

matalaf /matalaf/ [mataɾáf]

“mattress”

b. Lack of rhotacism

in loanwords and learned words

odi /ɔdi/ [ódi] “hate”

escadença (It.) /skadɛns + a/

[askadén^tsa] “expiration”

dòlar (Engl.) /dɔlar/ [dólar]

“dollar”

(5) Unpredictability at the right edge of the root

a. Rhotacism in inherited words

buda (Sard.) /bud + a/ [búra]

“type of plant” (Sanna (1988))

foradar /forad + a + r/ [furaɾá]

“to make a hole”

mala /mal + a/ [mára] “bad FEM.”

b. Lack of rhotacism

in loanwords and learned words

Buda /bud + a/ [búda] “Buda”

güidar /gwid + a + r/ (It.) [gwidá]

“to drive”

paralela /parale + a/ [paraléla]

“parallel FEM.”

Within the suffix, finally, the process of rhotacism is general: /l/ and /d/ belonging to a suffix added to the root mainly entail the process, as illustrated in (6). In fact there are only three consistent exceptions to this general tendency: the suffixes *-cidi*, *-dura* and *-edu* (Sard.), which always block rhotacism (7).

(6) Rhotacism within a suffix

gato- /gat + o-
 / [gatuɾí] “kitten”

ratolí /rat + olí/ [ratu^lí] “mouse”

adolorida /a#dolor + i + d + a/ [adu^rurí^ra] “hurt FEM.”

(7) Exceptional lack of rhotacism within the suffixes *-cidi*, *-dura* and *-edu* (Sard.)

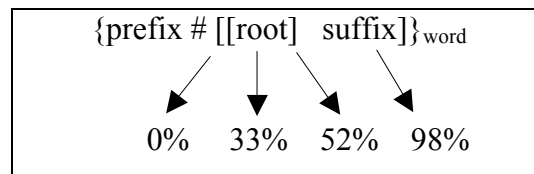
suicidi /sui + sidí/ [swisí^di] “suicide”

adobadura /adob + a + dur + a/ [adu^badu^rá] “repair”

escuredu (Sard.) /skur + edu/ [asku^ré^du] “poor DIM.”

The flowchart in (8) exhibits the percentage-wise distribution of rhotacism within the domain of the word. Rhotacism is always blocked at the left edge of the root, thus words with a vowel-ending prefix added to a /d, l/ starting root never entail rhotacism (0%). Within the root the percentage-wise of rhotacism is 33%, and it rises until 52% at the right edge of the root, thus when a vowel-starting suffix is added to a root ending in /d, l/ the process variably applies. Finally, the activity of rhotacism within the suffix is almost systematic (98%).

(8) Percentage-wise distribution of rhotacism within the domain of the word
(Adapted from Cabrera-Callís 2009a)



2. An account in terms of lexically indexed constraints

2.1 Theoretical background and descriptive generalizations

Some general assumptions must be done before moving to the interpretation of the data above presented. The first one is related to the *functional interpretation* given to the intervocalic lenition process observed. It can be easily accounted for in terms of sonority if, along the lines of Uffmann (2005) and Pons (2008b), we consider that

intervocalic onsets are peaks, and that there is a drive towards minimal sonority contrast between vowels. Hence, the prominence hierarchy for intervocalic onsets is that of peaks, not that of margins: the most sonorous, the better. The prominence hierarchy in (9) interestingly shows that intervocalic stops and intervocalic laterals are worst than intervocalic flaps. Thus, ranking faithfulness between *V_V/LATERAL and *V_V/FLAP (and assuming, as follows from (9), that *V_V/STOP dominates *V_V/LATERAL) we can straightforwardly account for the process.

(9) Prominence hierarchy for consonants in intervocalic position (Adapted from Uffmann 2005 and Pons 2008b)

*V_V/STOP >> *V_V/FRICATIVE >> *V_V/NASAL >> *V_V/TRILL >>
*V_V/LATERAL >> *V_V/FLAP >> *V_V/GLIDE

Secondly, it must be noticed that, regarding intervocalic rhotacism, Algherese is clearly sensitive to word-boundaries: it drastically blocks rhotacism at the left edge of the root, it allows lexically conditioned variation inside the root and at its right edge (depending on the word class in which /d, l/ occur) and it generally triggers the activity of the process within the suffix (apart from the exceptional case of the suffixes *-cidi*, *-edu* and *-dura* above mentioned). This behavior has been widely observed cross-linguistically, and it is consistent with the well-known assumption of the peripheral character of prefixation, on the one hand (McCarthy 1981), and with the salience assigned to the beginning portion of the word in studies of word recognition, on the other.⁵

The situation can be easily captured by assuming a hierarchy preferably protecting the identity of the segment standing at the left edge of the root, whereas in root internal position it is less protected, and finally, within the suffix it is minimally protected, as seen in (10).

⁵ See, in this sense, the statements of Hawkins (1988: 295): “Studies of word recognition strongly suggest that the psychologically most salient part of any word is its beginning portion. The evidence is of two general kinds: beginning portions are the most effective cues for successful recall or recognition of a word; and the effects of distorting the beginning of a word are much more severe than the effects of distorting later portions”.

(10) Positional faithfulness hierarchy

FAITHFULNESS_{Left-Root} >> FAITHFULNESS_{Root} >> FAITHFULNESS_{Suffix}

Let's focus now on the indexed constraints model, and how does it properly fit in the case at study here. This model arises in order to account for the situations in which a language displays a variability pattern that cannot be justified in purely phonological terms, since a process applies in some morphemes and fails to apply in some other ones, being the phonological context indistinguishable (Pater 2000, 2007, 2009). This is, as seen, the exact case of Algerese Catalan: a word like *matalaf* [mataráf] doesn't exhibit a phonological context distinguishable than the one in a word like *dòlar* [dólar], since the lateral occurs in intervocalic position in both cases, and the other contextual variables (such as the preceding and/or the following vowel or the position of the stress in the word, for instance) have been proved to be irrelevant for the activity of the process. Nevertheless, rhotacism is triggered in the first example and blocked in the second one.

Under this view, a single constraint can be multiply instantiated in a constraint hierarchy, and each instantiation may be indexed to apply to a particular set of lexical items. Despite the first versions of the model only allowed faithfulness constraints to be lexically indexed (Fukazawa 1998; Itô & Mester 1999, 2001), the latest formulations (Pater 2000, 2007, 2009) assume that it is perhaps inconsequential which type of constraint (i.e. a faithfulness or a markedness one) is chosen, since and indexed version of either one will allow inconsistency to be resolved. If, however, "it is taken as a goal to lexically index the smaller set of forms (i.e. the 'exceptional' ones), then a bias to a smaller set of indexed constraints can be built in" (Pater 2009: 19).

The proposal here assumes this last idea regarding exceptionality. Within the root, morphemes displaying rhotacism belong to a closed group of inherited words that diachronically entailed the process: they are, thus, the ones indexed in the lexicon. The opposite works for suffixes: morphemes displaying rhotacism belong to the majority group that entails the process. The three suffixes exceptionally prohibiting its regular activity are, thus, the ones encoded in the lexicon.

2.2 Constraints

As seen, two types of constraints are at work in this analysis: the markedness constraints triggering rhotacism, on the one hand, and the positional faithfulness constraints protecting different areas of the word, on the other. Both of them have a general and a lexically indexed version, being the last one the responsible for the exceptional behaviors of some lexical items. The markedness constraints are defined in (11).

(11) Markedness constraints

*VdV: Assign one violation mark for every intervocalic voiced dental stop.

(Adapted from Uffmann 2005 and Pons 2008b)

*VIV: Assign one violation mark for every intervocalic lateral. (Adapted from Uffmann 2005 and Pons 2008b)

*VrV: Assign one violation mark for every intervocalic flap. (Adapted from Uffmann 2005 and Pons 2008b)

*VdV_L: Assign one violation mark for every intervocalic voiced dental stop in a lexically indexed morpheme _L. (Adapted from Uffmann 2005 and Pater 2007)

*VIV_L: Assign one violation mark for every intervocalic lateral in a lexically indexed morpheme _L. (Adapted from Uffmann 2005 and Pater 2007)

The first three constraints are the triggers of the process, and the two last ones are their lexically indexed counterparts. On the other hand, the faithfulness constraint IDENTITY (Manner) has been split in three positional faithfulness constraints targeting the three boundaries of the word to which Algerese rhotacism is sensible: the left edge of the root, the root itself and the suffix. Finally, in order to capture the exceptional behavior of the suffixes *-cidi*, *-edu* and *-dura*, the faithfulness constraint IDENTITY (Manner)_{Suffix} has been split in a general and a lexically indexed version. These constraints are defined in (12).

(12) Faithfulness constraints

IDENTITY (Manner)_{Left-Root}: Assign one violation mark for every segment in the input standing at the left edge of the root that doesn't bear the same features for (Manner) in the output.

IDENTITY (Manner)_{Root}: Assign one violation mark for every segment in the input standing in the root that doesn't bear the same features for (Manner) in the output.

IDENTITY (Manner)_{Suffix}: Assign one violation mark for every segment in the input standing in the suffix that doesn't bear the same features for (Manner) in the output.

IDENTITY (Manner)_{Suffix-S}: Assign one violation mark for every segment in the input standing in a lexically indexed suffix *s* that doesn't bear the same features for (Manner) in the output.

2.3 Analysis

The interaction of these constraints gives a proper account for the Algerese facts. I will first analyze the pattern of lexical variation within the root, moving them to the analysis of the absence of rhotacism at the left edge of the root and concluding with the observation of the general and the exceptional tendencies within the suffix. A summary tableau exhibiting the interaction of these three patterns within the word will also be provided.

2.3.1 Root internal unpredictability

(13) *oli* ‘oil’, *dòlar* ‘dollar’, *cada* ‘every’, *odi* ‘hate’

/ɔli/ _L	*VdV _L	*VIV _L	IDENTITY(Manner) _{Root}	*VdV	*VIV	*VrV
<i>a.</i> [ɔri]			*			*
<i>b.</i> [ɔli]		*W	L		*W	L
/dòlar/						
<i>a.</i> [dólar]					*	
<i>b.</i> [dórar]			*W		L	*W
/kada/ _L						
<i>a.</i> [kára]			*			*
<i>b.</i> [káda]	*W		L	*W		L
/ɔdi/						
<i>a.</i> [ɔdi]				*		
<i>b.</i> [ɔri]			*W	L		*W

As seen in (13), the positional faithfulness constraint $\text{IDENTITY (Manner)}_{\text{Root}}$ is ranked between the lexically indexed markedness constraints $*\text{VdV}_L$, $*\text{VIV}_L$ and their corresponding general versions: this ranking ensures that rhotacism will only apply in case the root exceptionally bears a lexical index L ; if not, the grammar will select the faithful candidate.

2.3.2 Lack of rhotacism at the left edge of the root

The tableau in (14) accounts for the systematic lack of rhotacism at the left edge of the root by means of the indominance of $\text{IDENTITY (Manner)}_{\text{Left-Root}}$, which rules out the candidates displaying rhotacism at the left edge of the root.

(14) *adorir* ‘to hurt’, *preludi* ‘prelude’

/a#dolor _L +i+r/	$\text{IDENT(Manner)}_{\text{Left-Root}}$	$*\text{VdV}_L$	$*\text{VIV}_L$	$\text{IDENT(Manner)}_{\text{Root}}$	$*\text{VdV}$	$*\text{VIV}$	$*\text{VrV}$
<i>a.</i> [adururí]		*		*	*		**
<i>b.</i> [adulurí]		*	*W	L	*	*W	*L
<i>c.</i> [arururí]	*W	L		**W	L		***W
<i>d.</i> [arulurí]	*W	L	*W	*	L	*W	**
/pre#ludi/							
<i>a.</i> [prelúdi]					*	*	
<i>b.</i> [prerúri]	*W			**W	L	L	**W
<i>c.</i> [prelúri]				*W	L	*	*W
<i>d.</i> [prerúdi]	*W			*W	*	L	*W

Notice that rhotacism cannot apply at the left edge of the root even though the item is lexically indexed for the process to apply: the choice between the rhotacised candidate and the faithful one is relevant within the root, but not at its left edge. This is the reason why candidate *c* ([arururí]) is not selected as optimal, and this is also the reason why candidate *a* ([adururí]) beats the fully faithful candidate *b* ([adulurí]).

2.3.3 Rhotacism within the suffix

The tableau in (15) shows the functioning of the grammar regarding suffixes. The selection of the general rhotacised solution is ensured by ranking the lexically indexed version of $\text{IDENTITY (Manner)}_{\text{Suffix}}$ above markedness: thus, only the suffixes exceptionally bearing a lexical index S will skip the effects of $*\text{VdV}$, $*\text{VIV}$.

(15) *servidor* ‘servant’, *escuredu* ‘poor DIM.’

/serv+i+dor/	IDENT(Man) _{Suffix-S}	*VdV	IDENT(Man) _{Suffix}
a. \varnothing [salviró]			*
b. [salvidó]		*W	L
/skur+edu _s /			
a. \varnothing [askurédu]		*	
b. [askuréru]	*W	L	*W

2.3.4 Summary tableau

The tableau in (16), finally, summarizes all the analysis by studying two words in which all the constraints interact: the input *adolorida* /a#dolor_L+i+d+a/ contains a lexically indexed root /dolor_L/, a prefix and a non-indexed suffix. It surfaces as [adururíra], with rhotacism all across the word except at the left edge of the root. On the other hand, the input *adobadura* /adob+a+dur_S+a/ exhibits a non-indexed root /adob/ and a lexically indexed suffix /dur_S/, and, so, it surfaces as [adubadúra], with a general lack of rhotacism.

(16) *adolorida* “hurt FEM.”, *adobadura* “repair”

/a#dolor _L +i+d+a/	ID(M) Left-Root	ID(M) Suffix-S	*VdV _L	*VIV _L	ID(M) Root	*VdV	*VIV	ID(M) Suffix	*VrV
a. \varnothing [adururíra]			*		*	*		*	***
b. [adururída]			*		*	**W		L	**L
c. [aduluríra]			*	*W	L	*	*W	*	**L
d. [adulurída]			*	*W	L	**W	*W	L	*L
e. [arulurída]	*W			*W	*	*	*W	L	**L
f. [arururída]	*W				**W	*		L	***
g. [arururíra]	*W				**W	L		*	***W
h. [aruluríra]	*W			*W	*	L	*W	*	***
/adob+a+dur _S +a/									
a. \varnothing [adubadúra]						**			*
b. [arubadúra]					*W	*L			**W
c. [arubarúra]		*W			*W	L		*W	***W
d. [adubarúra]		*W				*L		*W	**W

3. The Comedy of Errors: conclusions and new research lines

The analysis developed so far entails, however, some theoretical problems. The main one arises when considering the legitimacy of deriving from a Generative Grammar what, in strictly synchronic terms, it is just a mere distributional idiosyncrasy of the

lexicon: the low occurrence of the structures /VdV/ and /VIV/, contrasting with the higher occurrence of /VrV/, can only be seen as a matter of distributional frequencies across the lexicon, since the rich base can equally predict the rhotacised and the non-rhotacised form.

Coetzee & Pater (2006, 2008) deal with the problem of lexical variation from different viewpoints (in terms of indexed constraints, first, and using weighted constraints in Harmonic Grammar, later). They propose quantitative and statistical analysis of the observed/expected ratio of apparition of some exceptional structures: the main idea is that constraints penalizing rare sequences are ranked according to the frequency with which they are violated in the lexicon. The less frequent solutions are lexically marked as *exceptions*, and that gives them an intermediate status between forms that are ruled out completely and forms that are perfectly acceptable. Something similar must be proved in Algerese: being the expected/observed ratio of the sequences /VdV/ and /VIV/ notably low, they might be encoded as exceptions in the lexicon.

Another way to deal with lexical variation is the one proposed in Zuraw (2010). The author argues for a model in which the pronunciation of the existing words is determined by their lexical entries, while the pronunciation of new loans is regulated by low-ranked markedness constraints, variably situated within the hierarchy according to their stochastic probabilities of overlapping in the scale. This model might also be proved in Algerese, being the ‘subterranean’ constraints responsible for the behavior of loans and learned words, when no access to the lexical entry is yet possible.

The extra burden of the lexicon is also a problem in the analysis: the instantiation of both faithfulness and markedness constraints in lexically indexed and general versions leads to a situation in which the lexicon must carry a lot of information. This is uneconomic, and can have devastating effects in language typology (McCarthy 2007, 2010a, 2010b), so it clearly needs to be restricted. When diachronically considering the process of language change in Algerese Catalan, however, the situation finds a plausible explanation. It can be indeed assumed that in a previous stage of the

language the rhotacised realizations of /VdV/, /VIV/ were general, and so only faithfulness was indexed to exceptionally block the process in recent loans and learned words. In the actual phase of the language, however, the introduction of new words from Italian and English is massive, and has led to a situation of *linguistic atrophy* (Campbell & Muntzel 1989) by which the phonology of the language is not productive anymore: all new words introduced in Algherese are produced according to the phonology of the prevailing language, i.e., Italian. This process finds its reflection in the case at study here with a change in the locus of exceptionality: the indexed items targeting rare behaviors in the lexicon are no longer recent loans or learned words, but the set of Algherese inherited words. Thus, indexation has shifted from faithfulness in the previous stage to markedness in the actual one: the rare resolution of /VdV/, /VIV/ is now the rhotacised one, so markedness must be provided with a lexically indexed version exceptionally triggering the process in this set of items. No doubt these claims are in keeping with Itô & Mester's proposals (2002, 2009) about the phonological lexicon, and more research on this line should be done.

4. References

- Baertsch, Karen. 2002. *An Optimality Theoretic Approach to Syllable Structure: the Split Margin Hierarchy*. Ph.D. dissertation, Indiana University.
- Baertsch, Karen & Davis, Stuart .2003. "The Split Approach to Syllable". *Zas Papers in Linguistics* 32. 1-14.
- Bonet, Eulàlia & Mascaró, Joan .1997. "On the representation of contrasting rhotics". *Issues in the Phonology and Morphology of the Major Iberian Languages* ed. by Fernando Martínez-Gil & Alfonso Morales-Font, 103-126. Washington: Georgetown University Press.
- Bosch, Andreu & Armangué, Joan. 1995. "Una traducció en català de la "Grammatica algherese. Fonologia" de Joan De Giorgio Vitelli". *Boletín de la Sociedad Castellonense de Cultura* 71. 501-531.
- Bosch, Andreu. 2008. *La interferència dels parlars sards en el català de l'Alguer entre els segles XVII i XVIII. Estudi lèxic a través dels "Registres de danys" i de la "Barracelleria" (1683-1829)*. Ph.D. dissertation, Universitat de Barcelona.

- Cabrera-Callís, M. 2009a. *El rotacisme de /d/ intervocàlica. Anàlisi quantitativa de la variació*. Ms., Universitat de Barcelona.
- Cabrera-Callís, M. 2009b. *Distribució dels sons líquids en alguerès. Revisió i proposta de descripció sincrònica*. Ms., Universitat de Barcelona.
- Campbell, Lyle & Muntzel, M. 1989. "The structural consequences of language death". *Investigating obsolescence: Studies in language contraction and death* ed. by Dorian, Nancy, 159-234. Cambridge: Cambridge University Press.
- Coetzee, Andries & Pater, Joe. 2006. *Lexically ranked OCP constraints in Muna*. Ms., University of Michigan & University of Massachusetts Amherst.
- Coetzee, Andries & Pater, Joe. 2008. "Weighted constraints and gradient restrictions on place co-occurrence in Muna and Arabic". *Natural Language and Linguistic Theory* 26. 289-337.
- Fukazawa, Haruka. 1998. *Multiple input-output faithfulness relations in Japanese*. Ms., University of Maryland.
- Hawkins, John A. 1988. *Explaining Language Universals*. Oxford: Basil Blackwell.
- Itô J. & Mester, A. 1999. "The structure of the phonological lexicon". *The Handbook of Japanese Linguistics* ed. by Natsuko Tsujimura, 62-100. Malden, Mass. & Oxford, United Kingdom: Blackwell.
- Itô, J. & Mester, A. 2002. "One phonology or many? Issues in stratal faithfulness theory". *Phonological Studies* 5. 121-126.
- Itô, J. & Mester, A. 2009. "Lexical classes in phonology". *The Handbook of Japanese Linguistics* ed. by Shigeru Miyagawa & Mamoru Saito, 84-106. Oxford: Oxford University Press.
- Kuen, Heinrich. 1934. "El dialecto del Alguer y su posición en la historia de la lengua catalana". *Anuari de l'Oficina Romànica de Llengua i Literatura* VII. 41-112.
- Mascaró, Joan. 1985. *Morfologia*. Barcelona: Ariel.
- Mascaró, Joan. 1991. "La importància lingüística de la polèmica sobre la vocal neutra del català central i el seu caràcter fonemàtic". *Els Marges* 44. 33-42.
- McCarthy, John J. 1981. "The role of evaluation metric in the acquisition of phonology". *The Logical Problem of Language Acquisition* ed. by C. L. Baker & J. J. McCarthy, 218-248. Cambridge, Mass.: MIT Press.
- McCarthy, John J. 2007. "Restraint of Analysis" *Freedom of Analysis* ed. by Sylvia Blaho, Patrik Bye and Martin Krämer, 195-220. Berlin & New York: Mouton de Gruyter.

- McCarthy, John J. 2008. *Doing Optimality Theory*. Cambridge: Cambridge University Press.
- McCarthy, John J. 2010a. "Studying GEN". *Journal of the phonetic society of Japan* 13. 3-12.
- McCarthy, John J. 2010b. "Harmonic Serialism Supplement to Doing Optimality Theory". Ms., University of Massachusetts Amherst.
- Padgett, Jaye. 2003. "Systemic contrast and Catalan Rhotics". Ms., University of California, Santa Cruz.
- Pais, Joan. 1970. *Gramàtica algueresa*. Barcelona: Barcino.
- Palomba, Giovanni. 2000. *Nuova grammatica del dialetto algherese odierno*. L'Alguer: La Celere Editrice.
- Palomba, Giovanni. 2001. *Grammatica del dialetto algherese odierno*. L'Alguer: Obra Cultural de l'Alguer.
- Pater, Joe. 2000. "Nonuniformity in English stress: the role of ranked and lexically specific constraints". *Phonology* 17: 2. 237-274.
- Pater, Joe. 2007. "The Locus of Exceptionality: Morpheme-Specific Phonology as Constraint Indexation". *University of Massachusetts Occasional Papers 32: Papers in Optimality Theory III* ed. by Leah Bateman, Michael O'Keefe, Ehren Reilly and Adam Werle, 259-296. Amherst: University of Massachusetts Press.
- Pater, Joe. 2009. "Morpheme-Specific Phonology: Constraint Indexation and Inconsistency Resolution". *Phonological Argumentation: Essays on Evidence and Motivation* ed. by Parker, Steve, 123-154. London: Equinox.
- Pons, Clàudia. 2004. *Els contactes consonàntics en balear. Descripció i anàlisi*. Ph.D. dissertation, Universitat de Barcelona.
- Pons, Clàudia. 2005. "It is all downhill from here: the role of Syllable Contact in Romance languages". Paper presented at the 13th Manchester Phonology Meeting. Manchester, United Kingdom, May 2005.
- Pons, Clàudia. 2007. *La teoria de l'optimitat. Una introducció aplicada al català de les Illes Balears*. Barcelona: Publicacions de l'Abadia de Montserrat.
- Pons, Clàudia. 2008a. "The sonority scale: categorical or gradient?" Poster presented at the CUNY Conference on the Syllable, New York, January 2008.

- Pons, Clàudia. 2008b. "Regarding the sonority of liquids. Some evidence from Romance". Paper presented at the 38th Linguistic Symposium on Romance Languages, University of Illinois at Urbana Champaign, Illinois, April 2008.
- Pons, Clàudia. In press. "It is all downhill from here: a typological study of the role of Syllable Contact in Romance languages". *Probus. International Journal of Latin and Romance Linguistics*, 23.1.
- Sanna, Josep. 1988. *Diccionari català de l'Alguer*. L'Alguer & Barcelona: Fundació del Segon Congrés de la Llengua Catalana.
- Scala, Luca. 2003. *Català de l'Alguer: criteris de llengua escrita*. Barcelona: Publicacions de l'Abadia de Montserrat.
- Uffmann, Christian. 2005. "Optimal Epenthetic Consonants". Paper presented at the Old World Conference in Phonology 2, University of Tromsø, Norway, January 2005.
- Veny, Joan. 1982. *Els parlars catalans: síntesi de dialectologia*. Palma: Editorial Moll.
- Zuraw, Kie. 2010. "A model of lexical variation and the grammar with application to Tagalog nasal substitution". *Natural Language and Linguistic Theory* 28. 417-472.