

Preconsonantal palatal segments. A cross-dialectal analysis*

Clàudia Pons

*La benuyransa és promesa a aquells qui
són simples e suaus*

[*Beatitude is promised to those who are
simple and soft*]

Ramon Llull, *Doctrina Pueril*, 38

*I adore simple pleasures. They are the last
refuge of the complex*

Oscar Wilde, *The picture of Dorian Gray*

Abstract

The main purpose of this paper is to provide an Optimality-theoretical account of the phonological behavior of word-final palatal segments followed by a word beginning with a consonant in the different dialects of insular Catalan. In these varieties, internal palatal segments undergo a series of processes (depalatalization, gliding and splitting) that result in a simplification of the original consonant. Interdialectal variation is explained by means of different rankings of a set of faithfulness constraints and contextual markedness constraints on coda complexity and syllable structure. The analysis, framed in Correspondence Theory (McCarthy & Prince 1995), shows the suitability of some formal OT refinements, such as the Transderivational Correspondence Theory (Benua 1995, 1997), the Optimal Paradigms Model (McCarthy [2001] 2005) and Comparative Markedness (McCarthy [2002] 2003), to account for some puzzling opacity phenomena related to these data. The paper further investigates previous analyses framed in autosegmental phonology devoted to palatal segments in insular Catalan; and discusses some aspects related to the status of features in Optimality Theory.

1. Data

In most insular Catalan dialects, word-final palatal segments display a special behavior when they precede a consonant. The type of process which applies depends on the dialectal variety and the nature of the consonants implicated.¹

In Majorcan Catalan (MaC) a process of splitting applies when an underlying word-final palatal nasal segment precedes the morph [s] —corresponding to the plural morpheme or to the second person singular present indicative morpheme— or a word with an initial consonant. This process results in a sequence of a palatal glide followed by a nasal with the same place of articulation as the consonant following it (1a). Splitting also affects non-underlying palatal nasals that are the result of a process of place assimilation of a nasal to a following palatal consonant. This palatal consonant is absent from the surface form, due to the consonantal length constraints active in the dialect (1b). Palatal nasals which are the result of a process of place assimilation never

undergo splitting if the consonant responsible for the process of assimilation is preserved in the surface form (1c). When a word-final prepalatal fricative (or affricate) is followed by a word starting with a consonant, a process of gliding is triggered. The result of this process is a palatal glide (2). Finally, when a word-final palatal lateral is preceded by a front mid vowel and followed by a consonant a process of depalatalization applies. The result of this process is a (dento)alveolar lateral (3).

- (1) a. *anys* /aɲ+z/ [ˈajns] ‘years’
empenys /ənpəɲ+z/ [əm.ˈpəjns] ‘(you) push’
any passat /aɲ##pas+a+d/ [ˌajm.pə.ˈsat] ‘last year’
any sencer /aɲ##sənsər/ [ˌajn.sən.ˈsə] ‘(the) whole year’
any curt /aɲ##kurt/ [ajɲ.ˈkurt] ‘short year’
 (cf. *any* [ˈaɲ] ‘year’, *any esperat* [ˌa.jəs.pə.ˈrat] ‘expected year’; *empeny* [əm.ˈpəɲ] ‘(he) pushes’)
- b. *troncs* /tronc+z/² [ˈtrojns] ‘logs’
tronc petit /tronc##pətit/ [ˌtrojm.pə.ˈtit] ‘small log’
menj pa /mənɟ##pan/ [məjm.ˈpa] ‘(I) eat bread’
 (cf. *tronc* [ˈtronɟ] ‘log’; *menj* [ˈmənɟ] ‘(I) eat’)
- c. *menjar* /mənɟ+a+r/ [mən.ˈʒa] ‘to eat’
encara /əncarə/ [əɲ.ˈca.rə] ‘still’
són nyores /so+n##ɲor+ə+z/ [soɲ.ˈɲo.rəs] ‘(these) are red peppers’
són llavis /so+n##lavi+z/ [soɲ.ˈla.vis] ‘(these) are lips’
 (cf. *són* [ˈson] ‘(they) are’)
- (2) *mateix plat* /məteɟ##plat/ [mə.tej.ˈplat] ‘(the) same dish’
mateix cos /məteɟ##kɔs/ [mə.tej.ˈkɔs] ‘(the) same body’
 (cf. *mateix* [mə.ˈteɟ] ‘the same’; *mateix any* [mə.te.ˈʒaɲ] ‘(the) same year’)
- (3) *aquells* /əkeʎ+z/ [ə.ˈkels] ‘those’
ells /eʎ+z/ [ˈels] ‘they’
aquell dia /əkeʎ##di+ə/ [ə.ke.ˈdiə] ‘that day’
aquell cas /əkeʎ##kaz/ [ə.kel.ˈkas] ‘that case’
 (cf. *aquell* /əkeʎ/ [ə.ˈkeʎ] ‘that’, *ell* /eʎ/ [ˈeʎ] ‘he’)

Similarly to MaC, in Minorcan Catalan (MiC) a process of splitting applies when a word-final palatal nasal is followed by a word starting with a consonant (4). In this dialect, prepalatal sibilants undergo a splitting process when followed by a word with an initial coronal segment (5), and a process of gliding when followed by a word with an

initial sibilant, liquid or glide (6). In other contexts, the sibilant segment is preserved (7).

- (4) *anys* /aŋ+z/ ['ajns] 'years'
any passat /aŋ##pas+a+d/ [ˌajm.pə.'sat] 'last year'
any sencer /aŋ##sənsər/ [ˌajn.sən.'sə] '(the) whole year'
any curt /aŋ##kurt/ [ajŋ.'kurt] 'short year'
 (cf. *any* ['aŋ] 'year', *any esperat* [ˌa.ŋəs.pə.'rat] 'expected year')
- (5) *mateix dit* /məteʃ##dit/ [mə.tejz.'ðit] '(the) same finger'
mateix tros /məteʃ##trɔs/ [mə.tejs.'trɔs] '(the) same piece'
 (cf. *mateix* [mə.'teʃ] '(the) same'; *mateix any* [mə.te.'ʒaŋ] '(the) same year')
- (6) *mateix suc* /məteʃ##suk/ [mə.tej.'suk]³ '(the) same juice'
mateix iogurt /məteʃ##joɣurt/ [mə.tej.jo.'ɣurt] 'the same yogurt'
mateix llum /məteʃ##lum/ [mə.tej.'lum] '(the) same lamp'
mateix ram /məteʃ##ram/ [mə.tej.'ram] '(the) same bouquet'
 (cf. *mateix* [mə.'teʃ] '(the) same'; *mateix any* [mə.te.'ʒaŋ] '(the) same year')
- (7) *mateix pa* /məteʃ##pan/ [mə.teʃ.'pa] '(the) same bread'
mateix cos /məteʃ##kɔs/ [mə.teʃ.'kɔs] '(the) same body'
 (cf. *mateix* [mə.'teʃ] '(the) same'; *mateix any* [mə.te.'ʒaŋ] '(the) same year')

In Alguer Catalan (AC), a word-final palatal nasal or lateral undergoes a process of depalatalization in final position. The same phenomenon applies when these consonants precede the morph [s], corresponding to the plural morpheme, or a word starting with a consonant (8). This process of depalatalization also applies when a prepalatal sibilant precedes a word with an initial consonant (9). Here, however, the process of depalatalization does not apply in final position nor when followed by the morph [s]; in this last case, a vowel is inserted to avoid the adjacency of two sibilant segments.

- (8) *any* /aŋ/ ['an] 'year'
anys /aŋ+z/ ['ans] 'years'
any passat /aŋ##pas+a+d/ [ˌam.pa.'sat] 'last year'
 (cf. *anyet* [a.'net] 'small year')
- aquell* /akeʎ/ [a.'kel] 'that'
aquells /akeʎ+z/ [a.'kels] 'those'
aquell palau /akeʎ##paraw/ [a.ˌkel.pa.'raw] 'that palace'
 (cf. *aquella* [a.'ke.ʎa] 'that')
- (9) *aqueix* /akeʃ/ [a.'keʃ] 'this'
aqueixos /akeʃ+z/ [a.'ke.ʃus] 'these'

aqueix palau /akeʃ##paraw/ [a.,kes.pa.'raw] ‘this palace’

2. Specific aspects of the data

Before focusing on the analysis, we should draw attention to some aspects of these data. On the one hand, it is important to point out the resistance of palatal segments to completely assimilate to the place of articulation of the following consonant. However, these consonants undergo a series of processes that, in some way, simplify the original consonant. In some cases, these processes lead to the loss of the manner features associated with the original consonant, i.e. the loss of the sibilant feature in the cases of (2) and (6). In other cases, these processes just result in an alteration of the segmental quantity of the initial consonant, i.e. the examples of (1) and (4), where the palatal and the nasal character of the original consonant is preserved in a cluster consisting of a palatal glide followed by a nasal segment. Finally, in some other cases, only the place of articulation of the original consonant is lost, i.e. the examples of (3) and (8), where a process of depalatalization has applied.

Recasens (1991 [1996]) points out that all these phenomena —which the author calls «depalatalizations»— could be motivated by the low degree of palatality of (pre)palatal consonants in these varieties. The author also remarks that the processes of depalatalization tend to apply specifically when palatal segments are followed by a coronal segment. And this is exactly the behavior we find in MiC in the case of sibilant segments, which undergo a process of splitting when followed by a coronal segment. The alterations that sibilant segments undergo in MiC can also be attributed to the manner of articulation of the consonant placed in onset position: gliding occurs systematically before sibilants, liquids and glides. Interestingly enough, the latter are the contexts in which the alveolar fricative undergoes regressive manner assimilation. In MaC and AC, in contrast, the processes that affect palatal segments do not appear to be conditioned by the phonetic environment.

The analysis proposed to account for these data should explain these factors and give an answer to the following questions: *a)* why, in MaC, do palatal nasals, fricatives and laterals behave differently; *b)* why, in MiC, are the processes of split and gliding more frequent when palatal segments precede a coronal segment; *c)* why, in MiC, is gliding preferred to splitting when the palatal segment is followed by a sibilant, a liquid and a glide segment; *d)* why in MaC, does the process of splitting of the palatal nasal resulting from a process of place assimilation only apply when this process is triggered by a palatal consonant which is absent in the surface representation.

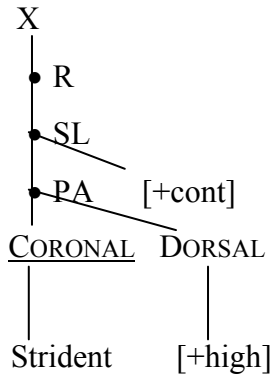
3. An autosegmental analysis of the data

Previous studies framed in autosegmental phonology have tried to give an answer to some of these questions. In Mascaró (1986), the process of splitting that affects internal palatal nasals in MaC (1a) is analyzed. According to the author, the resulting palatal glide appears at the level where the underlying /j/ loses its place properties due to a process of place assimilation to a following consonant. The author interprets the process of assimilation of palatal nasals as a process of deassociation which leads to a floating autosegment in the derivation. When this autosegment is palatal, it is reassociated to the preceding vowel to form a short diphthong. Gliding is understood, in this analysis, as a process triggered to compensate for the loss of a featural property, i.e. the palatal place of articulation. The same explanation can be given for cases like *troncs* (1b); in this case, however, the [j] appears to compensate for the loss of a segment and not for the loss of a property. We should point out that relating the gliding process with the place assimilation process of nasals may not be the best explanation for MaC, because, in this dialect, all palatal segments undergo one process or another, and it is not always the case that they assimilate to the following consonant (cf. *aquell cas* /əkeʎ##kaz/ [ə.kel.'kas]; *[ə.keʎL.'kas]). However, it does seem to be the best explanation for the behavior of MiC, where the process of splitting of palatal nasals seems to be strictly related to the requirement that adjacent consonants share the same place of articulation (see § 4.1). Another salient aspect of this proposal is that the resulting [j] of the process of splitting is taken to be a means to preserve the palatal character of the original consonant (see § 4.1).

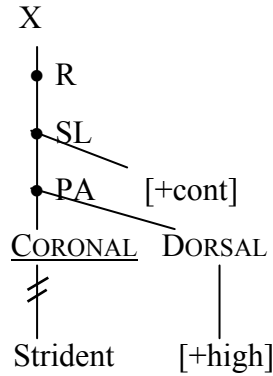
In Palmada & Serra (1991) and Palmada (1994a, 1994b, 1996), the gliding process that affects sibilant segments is incorporated in the analysis. In these studies, it is argued, following basically Keating (1988), that the behavior of palatal consonants in MaC requires a complex representation of these segments, that is, a representation with two major place articulators: CORONAL, which corresponds to the Primary Articulator, and DORSAL, which corresponds to the Secondary Articulator. In the case of prepalatal sibilants, the manner feature Strident is dependent on the CORONAL articulator (10a). Palmada (1996) understands the process of sibilant gliding as an instruction which demands the deassociation of the Strident autosegment from the original representation. In her analysis, where Radical Underspecification is used, the presence of the CORONAL articulator is only justified because it depends on the Strident feature. With the deassociation of Strident, the presence of CORONAL is no longer licit, and, therefore, it is deassociated (10b) and deleted (10c). DORSAL becomes, then, the Primary Articulator (10d). The Strident autosegment cannot create its own position because of the consonantal length constraints of MaC: these only allow one consonant in internal coda

position (11). The final representation of the process is the one illustrated in (10d), with a palatal glide in coda position.

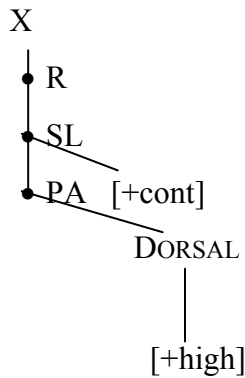
(10a) /ʃ/



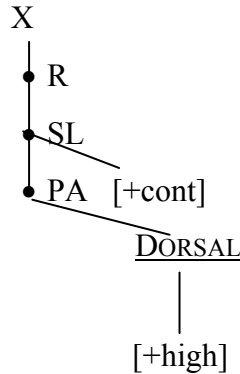
(10b)



(10c)



(10d) [j]



(11) Cluster reduction in Majorcan Catalan

<i>camp segat</i>	/kanp##seg+a+d/	[₁ kan.sə.'ɣat]	'reaped field'
<i>tens por</i>	/ten+z##pɔr/	[tem.'pɔ]	'(you) have fear'
<i>alls petits</i>	/aj+z##pətɪt+z/	[₁ aj.pə.'tɪts]	'small garlics'
<i>ous petits</i>	/ɔw+z##pətɪt+z/	[₁ ɔw.pə.'tɪts]	'small eggs'

To account for the splitting process of palatal nasals, Palmada (1996) also argues for a process of deassociation of the nasal feature. In this case, however, the reassociation of the nasal feature is possible thanks to the assimilatory possibilities of these consonants. According to the author, this property not only explains the preservation of the nasal character in these cases but also the preservation of the nasal segment in underlying sequences of a palatal glide followed by a nasal segment:

(12) Cluster preservation in Majorcan Catalan

<i>feim cas</i>	/fəj+m##kaz/	[fəjŋ.'kas]	'(we) pay attention'
<i>cuin faves</i>	/kujn##fav+ə+z/	[kujŋ.'fa.vəs]	'(I) cook beans'

(cf. *feis cas* /fəj+z##kaz/ [fəj.'kas] '(you) pay attention'; *cuis pomes* /kuj+z##pom+ə+z/ [kuj.'po.məs] '(you) pick apples')

Palmada's analysis has the advantage, compared to Mascaró's, that it offers a global explanation for the processes of gliding and splitting: these processes give evidence, according to the author, that palatal segments have two major place articulators (CORONAL & DORSAL). However, the fact that other segments that, from a phonetic point of view, could also be interpreted as complex segments (i.e. [j], [ʃ]) do not undergo these processes leads the author to posit simple representations for these segments. The proposal then becomes rather stipulative. This is why in the present study, although we assume a complex representation for these segments, we do not invoke a constraint against complex segments.

Dols (1993), in line with work by Mascaró (1986), argues that the palatal glide resulting from the process of splitting is part of a complex nucleus, rather than part of the coda. This would explain the fact that the sequences resulting from the splitting process apparently do not violate the maximum length constraints of the dialect. Cases shown in (11), however, should be considered exceptional under his analysis. In this work, the process of gliding of prepalatal sibilants is explained by stipulating that an internal coda cannot license more than two place of articulation features. This fact motivates the deletion of the Strident feature. One problem of this analysis is that no mechanism prevents the palatal glide from forming a complex nucleus with the preceding vowel while the Strident feature creates its own position in the representation, like in the case of palatal nasals.

Trying to solve these problems, Lloret (2002) relates this asymmetric behavior of palatal nasals and sibilants to the complexity of codas. The author, following the proposal of Clements (1990), argues that codas consisting of a palatal glide plus a nasal are more harmonic than codas consisting of a palatal glide plus an alveolar sibilant, because the intrasyllabic sonority distance between both segments is lower in the first case. As a reviewer points out to me, however, it is possible to find the exact opposite argument in the literature. In fact, in Catalan, codas integrated by an underlying glide followed by a sonorant are generally repaired via epenthesis (*aire* /ajr/ ['ajrə], *Jaume* /zawm/ ['zawmə]), whereas codas integrated by a glide followed by an obstruent are generally maintained (*naip* ['najp], *dijous* [di.'zɔws]); therefore, it seems that, in Catalan, a sequence of a glide followed by an obstruent appears to be more harmonic than a sequence of a glide followed by a sonorant.

4. An OT analysis of the data

4.1. Majorcan Catalan: splitting, gliding and depalatalization

The analysis we propose for the facts of MaC is that the processes of splitting, gliding and depalatalization that palatal segments undergo are different strategies triggered to satisfy the —articulatory based— constraints *ʃC, *ɲC, *ʎC by means of the minimal alteration of the cluster, in line with work by Mascaró (1986) and Palmada (1994a, 1996). This minimal change is expressed through the faithfulness constraints which advocate the preservation of the features present in the input. These constraints, which explain the disparity of strategies triggered in MaC, interact with markedness constraints that regulate coda complexity.

Before concentrating on the analysis, however, we should consider some facts related to the assimilatory behavior of this dialect. In MaC, a non-palatal nasal or lateral followed by a palatal segment undergoes a process of regressive place assimilation which results in a palatal nasal or a palatal lateral in coda position (*són nyores* /so+n##ɲor+ə+z/ [soɲ.ˈɲo.rəs] ‘(these) are red peppers’; *vol nyores* /vɔl##ɲor+ə+z/ [vɔʎ.ˈɲo.rəs] ‘(he/she) wants red peppers’). The resulting segments violate the constraints against palatal segments followed by a consonant mentioned before. In fact, this is a case of opacity: the kind of opacity in which a certain linguistic generalization —such as the avoidance of internal palatal segments— is not surface true. In these cases, indeed, we find *underapplication* of the splitting process. As illustrated in (13) and (14), these facts seem to demand a constraint ranking where AGREE(place) dominates *ɲC and *ʎC.

(13) AGREE(place) >> *ɲC

/so+n##ɲor+ə+z/	AGREE(place)	*ɲC
a. [∅] [soɲ.ˈɲo.rəs]		*
b. [son.ˈɲo.rəs]	*!	

(14) *ɲC >> AGREE(place)

/so+n##ɲor+ə+z/	*ɲC	AGREE(place)
a. [soɲ.ˈɲo.rəs]	*!	
b. [∅] [son.ˈɲo.rəs]		*

/vɔl##ɲor+ə+z/	AGREE(place)	*ʎC
a. [∅] [vɔʎ.ˈɲo.rəs]		*
b. [vɔl.ˈɲo.rəs]	*!	

In order to obtain a consistent analysis of the behavior related to internal palatal segments, a more appropriate ranking would be one where the markedness constraints against internal palatal segments dominate AGREE(place) in order for these constraints to be responsible for the triggering of the different processes. Otherwise, the process would in some cases be explained by the activity of the AGREE(place) markedness constraint

(cf. *any passat* [ajm.pə.'sat] ‘last year’; *aquells* [ə.'kels] ‘those’) and in other cases by the activity of the * η C/* λ C constraints (cf. *aquell cas* [ə.kəl.'kas] ‘that case’). This is why we propose, following Comparative Markedness (CM) (McCarthy [2002] 2003), that, actually, * η C/* λ C can be split into two freely rankable markedness constraints respectively: the old * η C and * λ C contextual markedness constraints ($_o$ * η C & $_o$ * λ C) and the new * η C and * λ C contextual markedness constraints ($_N$ * η C & $_N$ * λ C). The candidates under evaluation violate the old markedness constraint if the fully faithful candidate (FFC), which, generally speaking, is the most faithful candidate, also violates it. Otherwise, the candidates under evaluation violate the new markedness constraint. A candidate with a palatal segment in internal position which is the result of regressive place assimilation violates $_N$ * η C and $_N$ * λ C, but not $_o$ * η C and $_o$ * λ C.

As illustrated in (15), the ranking $_o$ * η C >> AGREE(place) >> $_N$ * η C allows a candidate such as [soj.n.'no.rəs] —where the [ɲ] is the resulting consonant of a process of assimilation— to be the optimal candidate although it has a preconsonantal palatal segment in preconsonantal position, and rules out a candidate such as [ajm.pə.'sat], where the [ɲ] has a lexical character.

(15) $_o$ * η C >> AGREE(place) >> $_N$ * η C

	/so+n##noɾ+ə+z/	$_o$ * η C	AGREE(place)	$_N$ * η C
a. ☞	[soj.n.'no.rəs]			*
b. FFC	[son.'no.rəs]		*!	
	/ajm##pas+a+d/			
a. FFC	[ajm.pə.'sat]	*!	*	
b. ☞	[ajm.pə.'sat]			

The splitting, gliding and depalatalization processes that apply in MaC can be understood, then, as different strategies to satisfy the constraints $_o$ * η C, $_o$ * λ C and $_o$ * λ C by means of a minimal alteration of the segments involved. This is expressed, as mentioned before, through the activity of faithfulness constraints that advocate the preservation of features present in the input. In the case of palatal nasals followed by a consonant, the relevant faithfulness constraints are IDENT(palatal), according to which correspondent segments must have the same specification for palatal (see 16), and IDENT(nasal), according to which correspondent segments must have the same specification for nasal (see 16)). The high ranking of IDENT(palatal) accounts for the resistance of palatal segments to losing their palatal character even when they are placed in a weak position.

A ranking where IDENT(palatal) and IDENT(nasal) dominate the markedness constraints against internal complex codas (see 16) and the constraint against complex codas consisting of three segments (see 16) guarantees the selection of the “split” candidate as the optimal one. On the other hand, the low ranking of the constraint against splitting (INTEGRITY-IO) allows for the application of this process.

(16) *Required faithfulness and markedness constraints*

- IDENT(pal): A palatal segment in the input must also be palatal in the output (McCarthy & Prince 1995)
- IDENT(nas): Correspondent segments must have the same specification for nasal (McCarthy & Prince 1995)
- *INTERNALCOMPLEXCODA (*ICC): Internal complex codas are prohibited (Jiménez 1997, 1999)
- *COMPLEXCODA3 (*CC3): Complex codas consisting of three elements are prohibited.
- INTEGRITY-IO (INTEGR): No element of S1 has two correspondents in S2 (McCarthy & Prince 1995)


The effects of this ranking, shown in (17), can be observed in the tableau in (18), where the candidate which displays regressive place assimilation only, (18c), is discarded because it violates IDENT(palatal). A candidate with gliding, (18d), is also discarded because it implies the loss of the nasal specification of the segment in the input.

(17) *Constraint ranking for Majorcan Catalan (simplified)*

IDENT(pal), IDENT(nas), _o*jC >> *ICC >> AGREE(place), INTEGR⁴

(18) Majorcan Catalan

any passat /aɲ##pas+a+d/ [ajm.pə.'sat]

	/aɲ##pas+a+d/ d/	IDENT (pal)	IDENT (nas)	_o *jC	*ICC	AGREE (place)	INTEGR
a.	[aj̥.pə.'sat]			*!		*	
b.	[ã.pə.'sat]			*!		*	
c.	[am.pə.'sat]	*!					
d.	[aj.pə.'sat]		*!				
e.	[ajn.pə.'sat]				*	*	*!
f. 	[ajm.pə.'sat] ⁵				*		*

We should explain now why there is splitting in cases such as the one in (1b). In a non-derivational framework such as Optimality Theory, such cases are more intricate than

the one just analyzed (*són nyores*), because the consonant responsible for the splitting process is deleted. These cases exhibit the kind of opacity where a surface form reflects a certain linguistic generalization, although the conditions that motivate it are not visible. If we depart from the underlying representations /trɔnc+z/, /trɔnc##pətɪt/ or /mənʒ##pan/ it is difficult to explain surface forms like [ˈtrojns], [ˌtrojm.pəˈtɪt] and [məjm.ˈpa]: unlike cases such as *són nyores* [soj.ˈno.rəs], in which we had underapplication of the splitting process, in cases like these we have *overapplication* of the splitting process. Optimality Theory has developed different mechanisms to solve this kind of opacity: one of them is Transderivational Correspondence Theory (Benua 1995, 1997), which is an attempt to formalize the pressure that a base can exert on all its occurrences (in derivation and in phrase phonology) by means of a set of output-output constraints. In this case, the pressure would be exerted by the bases *trɔnc* [ˈtrɔɲc] and *menj* [ˈmənʃ], where regressive place assimilation is justified by the ranking in Balearic Catalan: in this dialect, where regressive place assimilation is highly frequent, AGREE(place) dominates IDENT(place). Before introducing the Output-Output constraint which makes the palatal segment that justifies split visible, we present the complete constraint ranking responsible for cluster reduction in this dialect. This ranking is the one in (19), and justifies cluster reduction in cases such as *camp petit*, with deletion of C2 (cf. [ˌkam.pə.ˈtɪt]), or *camps*, also with deletion of C2 (cf. [ˈkams]).⁶

(19) *Cluster reduction ranking for Majorcan Catalan*

IDENT(pal), IDENT(nas), _o*ɲC, [MAX(nas)] >> *CC3, *ICC >> MAX-IO >> AGREE(place), INTEGR

As shown in (20), with these new constraints in the ranking, we do not obtain the desired results for forms like *troncs* or *trɔnc petit*: the most faithful candidate, (20a), is discarded because of the constraint that bans internal complex codas. This candidate, however, is the FFC, and, as such, it acts as the comparison term for the _o*ɲC markedness constraint. It is important to bear in mind that this constraint is not violated by the candidates with a palatal nasal in coda position, (20b) and (20c), since the FFC does not violate this constraint. These candidates, however, fatally violate *ICC and AGREE(place), respectively. The candidate with regressive place assimilation, (20d), appears to be more harmonic than the actual optimal candidate, (20f), because the latter has an unnecessary violation of the markedness constraint *ICC.

(20) Majorcan Catalan

tronc petit /tronc##pətit/ [ˌtrɔjm.pə.'tit]

/tronc##pətit/	ID (pal)	ID (nas)	_o * _N C	*ICC	MAX	AGREE (place)
a. FFC [ˌtrɔnc.pə.'tit]				*!		*
b. [ˌtrɔɲc.pə.'tit]				*!		*
c. [ˌtrɔɲ.pə.'tit]					*	*!
d. [✱] [ˌtrɔm.pə.'tit]					*	
e. [ˌtrɔj.pə.'tit]		*!			*	
f. [ˌtrɔjm.pə.'tit]				*!	*	

As mentioned before, the Output-Output constraints of TCT could explain overapplication of the splitting process. If we incorporate an Output-Output constraint that demands that the palatal character of a nasal must be preserved in all its occurrences (IDENT(NasPal)O-O) into the ranking, we achieve the desired results (see 22). Before exploring the effects of this new constraint, it is important to call attention to the interaction between TCT and CM, to which we have resort to explain cases with underapplication of splitting (*són nyores*). With respect to this subject, McCarthy claims:

(21) McCarthy (2002 [2003])

«Correspondence theory asserts that faithfulness is not just a relation between inputs and outputs; it also extends to base/reduplicant pairs (McCarthy & Prince 1995, 1999) and to morphologically-related output forms (Benua 1997 and others). Since comparative markedness theory is based on correspondence, comparative markedness can also be applied to these other faithfulness relations. A markedness violation is new relative to the output-output faithfulness relation if the locus of violation in the derived form is not matched in the simple form (which Benua calls the “base”). For example, Korean **mati* from /mat-i/ contains an unpalatalized *ti* sequence that is new relative to the base *mat*, but the *ti* sequence *mati* from /mati/ ‘knot’ is old, since there is no simpler base form from which /mati/ is derived by adding *i*.»

In other words, without introducing TCT, a candidate such as [ˌtrɔɲ.pə.'tit], corresponding to the input /tronc##pətit/, violates the markedness constraint _N*_NC, but not the _o*_NC markedness constraint, because the FFC (*[ˌtrɔnc.pə.'tit]) does not violate this constraint. However, within TCT, the FFC is no longer [ˌtrɔnc.pə.'tit] but [trɔɲc.pə.'tit], because now the candidates must be faithful to the base [ˌtrɔɲc]. The candidate [ˌtrɔɲ.pə.'tit] does violate the constraint _o*_NC, because the FFC ([ˌtrɔɲc.pə.'tit]) also violates it. That is, the FFC corresponds to the candidate that is most faithful to the

base, but not to one that is most faithful to the underlying representation. The following tableau illustrates the splitting process in these cases.⁷

(22) Majorcan Catalan

tronc petit /tronc##pətɪt/ [ˌtrojm.pə.'tit]

/tronc##pətɪt/ (cf. <i>tronc</i> [ˈtroŋc])	ID (pal)	ID (nas)	o*ɲC	IDENT (NasPal)-OO	*ICC	AGREE (place)
a. [nc.pə.'tit]				*!	*	*
b. FFC [ɲc.pə.'tit]			*!		*	*
c. [ɲ.pə.'tit]			*!			*
d. [m.pə.'tit]				*!		
e. [j.pə.'tit]		*!				
f. ↻ [jm.pə.'tit]					*	

According to the *Richness of the Base* hypothesis (see footnote 2+), we should also consider underlying representations with a palatal nasal. As illustrated in the next tableau, the ranking adduced so far gives the desired results even departing from these underlying representations:

(23) Majorcan Catalan

/troŋc+z/	ID (pal)	ID (nas)	o*ɲC	*CC3	AGREE (place)
a. [ˈtroŋcs]			*!	*	*
b. [ˈtroŋs]			*!		*
c. ↻ [ˈtrojns]				*	
d. [ˈtrojs]		*!			
e. [ˈtrojncs]				*	**!
f. [ˈtrons]	*!				
/troŋc+pətɪt/	ID (pal)	ID (nas)	o*ɲC	*ICC	AGREE (place)
a. [ˌtroŋc.pə.'tit]			*!		*
b. [ˌtroj.pə.'tit]			*!		*
c. ↻ [ˌtrojm.pə.'tit]				*	
d. [ˌtroj.pə.'tit]		*!			
e. [ˌtrojnc.pə.'tit]				*	**!
f. [ˌtrom.pə.'tit]	*!				

As mentioned before, the process of gliding that applies in MaC in sequences of a word-final prepalatal sibilant followed by a consonant can also be regarded as a strategy to satisfy the markedness constraint o*ɲC by means of the minimal featural alteration of the

underlying segment. The preservation of the sibilant specification, however, is not possible because, in this dialect, a complex coda consisting of a glide and a sibilant is prohibited (see the examples in 11). This is expressed by a ranking where *ICC dominates IDENT(sib).

We will explain now the depalatalization process that affects word-final palatal laterals when preceded by a front mid vowel and followed by a consonant (3). In these cases, neither splitting nor gliding apply. The splitting process is not possible because of the constraint INTRASYLLABIC SONORITY (INTRSON), according to which the sonority between the elements that form a syllable must be decreasing with respect to the nucleus (25b). As argued in Pons (2004a), the analysis of regressive manner assimilation in MaC requires a sonority scale in which liquids and glides occupy the same position. This scale is also required by the fact that underlying sequences of a glide followed by a liquid (*aire* /ajr/) are resolved with epenthesis ([*'ajrə*]) in Catalan, precisely to satisfy INTRSON. A sequence of a glide followed by a liquid resulting from the process of splitting the palatal lateral would, then, violate this constraint because both segments have the same degree of sonority. The fact that the process of depalatalization only applies when the palatal lateral is preceded by a front mid vowel could be due to the palatal character of the preceding vowel: it could be hypothesized that the consonant resulting from the depalatalization process is still palatal on the surface, because it shares this property with the preceding vowel:

$$(24) \quad /ə \quad k \quad e \quad \lambda + z/ \quad \longrightarrow \quad [ə \quad 'k \quad e \quad l \quad s]$$

| |

[pal] [pal]

\ /

 [pal]

The process illustrated in (24) thus corresponds to the fusion of features. This interpretation requires a framework where features are independent of segments, that is, entities, and it does not work in a framework where featural changes are mediated by segments. Therefore, some specific featural faithfulness constraints are required:

(25) a. *Required featural faithfulness constraints*

- UNIFORMITY(Features)-IO (UNIF(F)): Two features of the input cannot have one correspondent in the output.
- MAX(pal): Every palatal feature of the input must have a correspondent in the output (see Lombardi [1995] 2001)

b. *Required segmental faithfulness constraints and markedness constraints*

- UNIFORMITY(Segments)-IO: Two segments of S1 cannot have one correspondent in S2 (McCarthy & Prince 1995)
- IDENT(lateral): Correspondent segments must have the same specification for lateral (McCarthy & Prince 1995)
- INTRASYLLABICSONORITY (INTRSON): The sonority between the segments of a syllable must be decreasing with respect to the nucleus. (See Clements 1990)

The surface form of (24) violates the constraint against featural fusion, but does not violate the constraint against segmental fusion. This form, on the other hand, satisfies MAX(pal), because both palatal autosegments are fused into one, and IDENT(pal), because the fused segment preserves this specification in the output. As can be seen in the tableau of (27), the constraint ranking of (26) accounts for the process of depalatalization of lateral palatals in MaC.

(26) *Constraint ranking for Majorcan Catalan (simplified)*

INTRASON >> IDENT(pal), MAX(pal), IDENT(lat), $\circ^* \lambda C$ >> UNIF(F) >> *CC3, *ICC >> MAX >> AGREE(place), INTEGR

(27) Majorcan Catalan

aquells /əke λ +z/ [ə.'kels] ‘those’

/əke λ +z/	INTRASON	IDENT (pal)	MAX (pal)	IDENT (lat)	$\circ^* \lambda C$	UNIF(F)	INTEGR
a. [ə 'k e λ s] [<i>pal</i>][<i>pal</i>]					*!		
b. \emptyset [ə 'k e l s] [<i>pal</i>]						*	
c. [ə 'k e l s] [<i>pal</i>][<i>cor</i>]		*	*!				
d. [ə 'k e j l s]	*!						*
e. [ə 'k e j s]				*!			

In order to prevent the application of the depalatalization process when a prepalatal fricative or a palatal nasal are preceded by a front mid vowel and followed by a consonant, it is necessary to place UNIFORMITY(F) above the constraints that regulate coda complexity. This constraint ranking ensures the non-application of feature fusion in these cases.

3.2. Minorcan Catalan: splitting and gliding

As pointed out before, in MiC the processes of splitting and gliding cannot be attributed to the activity of the markedness constraints against internal palatal segments, since, in this variety, other palatal segments are allowed in this context (see the examples of 7). These processes are, then, triggered by other active constraints in this variety. According to our proposal, the splitting process that affects preconsonantal palatal nasals is motivated by the constraint AGREE(place), in line with the proposal of Mascaró (1986). As in MaC, the quality of the resultant sequence is determined by the constraints


IDENT(palatal) and IDENT(nasal), which ensure the application of splitting, even though this results in an internal complex coda:

(28) *Constraint ranking for Majorcan Catalan*

IDENT(pal), IDENT(nas) >> AGREE(place) >> *ICC >> INTEGR

(29) *Minorcan Catalan*

any passat /aɲ##pas+a+d/ [ajm.pə.'sat]

	/aɲ##pas+a+d/	IDENT (pal)	IDENT (nas)	AGREE (place)	*ICC	INTEGR
a.	[ajm.pə.'sat]			*!		
b.	[am.pə.'sat]	*!				
c. 	[ajm.pə.'sat]				*	*
d.	[aj.pə.'sat]		*!			


The splitting process that occurs when the fricative palatal is followed by a coronal segment (see the examples of 5) can also be considered a means to satisfy the AGREE(place) constraint through a minimal alteration of the implied segments. The ranking IDENT(sibilant) >> *ICC, on the other hand, accounts for the application of splitting and the avoidance of gliding in these cases.

(30) *Constraint ranking for Minorcan Catalan*

IDENT(pal), IDENT(nas), IDENT(sib) >> AGREE(place) >> *ICC >> INTEGR

(31) *Minorcan Catalan*

mateix tros /mətɛʃ##trɔs/ [mə.tejs.'trɔs]

	/mətɛʃ##trɔs/	IDENT(pal)	IDENT(sib)	AGREE(place)	*ICC	INTEGR
a.	[mə.teʃ.'trɔs]			*!		
b.	[mə.tes.'trɔs]	*!				
c. 	[mə.tejs.'trɔs]				*	*
d.	[mə.tej.'trɔs]		*!			

It should be mentioned that, in this dialect, underlying sequences of a glide followed by a sibilant are preserved (cf. *feis cas* /fɛj+z##kaz/ [fɛjs.'kas]). The gliding process that affects prepalatal fricatives followed by a liquid or a glide can be interpreted as a means to satisfy the markedness constraints that regulate the permitted sonority distance between successive heterosyllabic segments. As justified in Pons (2003, 2004b, 2005a, 2005b), regressive manner assimilation in MaC and MiC can be explained by appealing to two syllabic constraints. First, the general constraint SYLLABLE CONTACT—according to which heterosyllabic successive adjacent consonants must have the same or a decreasing degree of sonority—and, second, the specific constraint *DIST ≤ -2,⁸

according to which the sonority distance between two successive heterosyllabic adjacent consonants cannot be equal to or lower than -2. As argued in this study, the position of IDENT(sibilant) below $*DIST \leq -2$ and above SYLLABLE CONTACT accounts for the application of regressive manner assimilation when sibilants are followed by a glide or a liquid and for preservation when sibilants are followed by nasals. The same constraint ranking, along with the activity of the faithfulness constraint IDENT(pal), accounts for the application of splitting in cases such as *mateix ram*, *mateix llum* or *mateix iogurt*. In these cases, obviously, splitting into a sequence of a glide followed by a sibilant alveolar is not possible precisely because of the activity of $*DIST \leq -2$. The tableau of (33) illustrates the effects of this constraint ranking for a sequence of a prepalatal sibilant followed by a rhotic. The same effects are obtained for sequences of prepalatal sibilants followed by laterals and glides.

(32) *Required contextual markedness constraints*

- SYLLABLE CONTACT: The sonority distance between successive adjacent heterosyllabic segments must be the same or decreasing (Murray & Vennemann 1983; Vennemann 1988; Clements 1990)
- $*DIST \leq -2$: The sonority distance between successive adjacent heterosyllabic segments cannot be equal to or lower than -2 (2003, 2004b, 2005a, 2005b).⁹

(33) Minorcan Catalan

mateix ram /məteʃ##ram/ [mə.tej.'ram]

	/məteʃ##ram/	$*DIST \leq -2$	ID (pal)	ID (sib)	SYLCONT	AGREE (place)	*ICC	INTEGR
a.	[mə.teʒ.'ram]	*!			*	*		
b.	[mə.tejz.'ram]	*!			*			*
c. ↻	[mə.tej.'ram]			*				
d.	[mə.ter.'ram]		*	*!				
e.	[mə.tejr.'ram]			*			*!	

3.3. Alguer Catalan: depalatalization

The process of depalatalization of AC has been analyzed by Serra (1996) in the framework of Optimality Theory. This author interprets the process as a consequence of CODA-CONDITION, according to which a coda cannot license place features. This constraint, stated in (34), militates against codas having an independent place of articulation or having a marked place of articulation. As shown in (35), the ranking of this constraint above IDENT(place) ensures the selection of candidates with centralization. This ranking, however, wrongly predicts the application of centralization in the case of word-final prepalatal sibilants. This can be observed in the tableau of (36).

(34) CODA-CONDITION: *Place]_σ (Itô 1989)

(35) Adapted from Serra (1996)

a. *aquell* /akeʎ/ [a.'kel]

/akeʎ/	CODA-COND	IDENT (place)
a. \varnothing [a.'kel]		*
b. [a.'keʎ]	*!	

b. *any* /aɲ/ ['an]

/aɲ/	CODA-COND	IDENT (place)
a. \varnothing ['an]		*
b. ['aɲ]	*!	

(36) *aqueix* /akeʃ/ [a.'keʃ]

/akeʃ/	CODA-COND	IDENT(place)
a. \bullet^* [a.'kes]		*
b. [a.'keʃ]	*!	

According to our proposal, the process of depalatalization of palatal laterals and nasals that applies in AC when these consonants precede a heteromorphic consonant is motivated by the activity of the markedness constraints against internal palatal segments that was proposed for MaC. As illustrated in (37), these constraints ensure the discarding of candidates with an internal palatal segment. In this dialect, splitting is not a possible strategy because of the activity of the faithfulness constraint against splitting, that is, INTEGRITY, which is ordered above IDENT(place). The AGREE(place) constraint, ordered above IDENT(place), ensures the avoidance of candidates with heterorganic clusters:

(37) *any passat* /aɲ##pas+a+d/ [am.pa.'sat] 'last year'

/aɲ##pas+a+d/	*ɲC	AGREE(place)	INTEGR	IDENT(place)
a. \varnothing [am.pa.'sat]				*
b. [aɲ.pa.'sat]	*!	*		
c. [an.pa.'sat]		*!		*
d. [ajm.pa.'sat]			*!	

As shown in the tableaux (38) and (39), the effects of AGREE(place) in sequences of prepalatal sibilants and palatal laterals must be refined:

(38) *aqueix palau* /akeʃ##paraw/ [ə.ˌkes.pa.'raw]

/akeʃ##paraw/	*ʃC	AGREE(place)	IDENT(place)
a. [a.ˌkeʃ.pa.'raw]	*!	*	
b. [a.ˌkes.pa.'raw]		*!	*
c. \bullet^* [a.ˌkef.pa.'raw]			*

(39) *aquell camí* /akeʎ##kamin/ [a.ˌkel.ka.'mi]

/akeʎ##kamin/	*ʎC	AGREE(place)	IDENT(place)
a. [a.ˌkeʎ.ka.'mi]	*!	*	
b. [a.ˌkel.ka.'mi]		*!	*
c. \bullet^* [a.ˌkeL.ka.'mi]			*

Prepalatal sibilants do not lose their sibilant specification in order to satisfy AGREE(place), and this can be formalized by means of a ranking where IDENT(sibilant) dominates AGREE(place):

(40) *aqueix palau* /akeʃ##paraw/ [a.ˌkes.pa.'raw]

/akeʃ##paraw/	IDENT(sib)	*ʃC	AGREE(place)	IDENT(place)
a. [a.ˌkeʃ.pa.'raw]		*!	*	
b. \curvearrowright [a.ˌkes.pa.'raw]			*	*
c. [a.ˌkef.pa.'raw]	*!			*

As for the facts of the lateral palatal followed by a consonant, we propose that regressive place assimilation is not possible because of the activity of the markedness constraints that account for the segmental inventory of Catalan dialects. Regressive place assimilation in sequences of a palatal lateral followed by a non-coronal segment would result in an inexistent consonant in the segmental inventory of Catalan. This can be captured by a constraint such as LATERAL-CORONAL, according to which lateral segments must be coronal, and which shows the cross-linguistic preference for coronal laterals over velar laterals (documented in just a few languages).

(41) *aquell camí* /akeʎ##kamin/ [a.ˌkel.ka.'mi]

/akeʎ##kamin/	LATERAL-CORONAL	*ʎC	AGREE(place)	IDENT(place)
a. [a.ˌkeʎ.ka.'mi]		*!	*	
b. \curvearrowright [a.ˌkel.ka.'mi]			*	*
c. [a.ˌkeL.ka.'mi]	*!			*

Now, we should focus our attention on the behavior of palatal segments in final position, which also undergo a process of depalatalization. With the ranking given so far, however, we do not obtain the desired results because palatal segments in final

position are not targeted by the markedness constraints *ʎC and *ɲC. Therefore, the faithfulness constraint IDENT(place) motivates the selection of candidates without depalatalization.

(42) *any* /aj/ [ʼan] ‘year’

/aj/	*ɲC	AGREE (place)	IDENT (place)
a. [ʼan]			*!
b. ●* [ʼaj]			

(43) *cavall* /kavaʎ/ [kaʼval] ‘horse’

/kavaʎ/	*ʎC	AGREE (place)	IDENT (place)
a. [kaʼval]			*!
b. ●* [kaʼvaʎ]			

The actual candidates, (42a) and (43a), are cases of overapplication of the depalatalization process. That is to say, in cases like these, application of the depalatalization process is unnecessary. Our proposal is that, in final position, there is depalatalization of /j/ and /ʎ/ due to the paradigmatic pressure of the plural forms, in which depalatalization occurs in order to satisfy the markedness constraints *ʎC and *ɲC.

(44) Paradigmatic pressure of plural forms (inspired in Serra 1996)

Plural forms	Singular forms
<i>anys</i> /aj+z/ [ʼans] ‘years’	<i>any</i> /aj/ [ʼan] ‘year’
<i>cavalls</i> /kavaʎ+z/ [kaʼvals] ‘horses’	<i>cavall</i> /kavaʎ/ [kaʼval] ‘horse’

Paradigmatic pressure on inflected forms has been formalized by McCarthy ([2001] 2005), who proposes the Optimal Paradigms Model. According to this model, candidates consist of entire inflectional paradigms, the members of which are subjected to I-O faithfulness constraints and markedness constraints. The segments of the forms in the inflectional paradigm stand in an output to output correspondence relation, similar to the one established between input and output segments. A set of output-output faithfulness constraints expresses this correspondence relation.

The relevant constraint to explain the overapplication of depalatalization in final position in AC is OP-IDENT(place), which demands that the segments of the shared part of an inflectional paradigm must have the same place of articulation. As can be seen in the tableau of (45), the paradigm candidate (45c) violates this constraint because the segments which stand in a correspondence relation do not have the same place of articulation. A similar paradigmatic effect can be observed in the tableau of (46). In the case of the palatal sibilant segment placed in final position, there is no depalatalization because, as we have seen in the examples of (9), the plural form does not undergo this process, and it therefore does not exert pressure.

(45) Alguer Catalan

/aj/	* _J C	AGREE(place)	OP-IDENT(place)	IDENT(place)
a. <'aj, 'ajs>	*!	*		
b. ⚡ <'an, 'ans>				**
c. <'aj, 'ans>			**!	*

(46) Alguer Catalan

/kavaʎ/	* _ʎ C	AGREE(place)	OP-IDENT(place)	IDENT(place)
a. <ka'vaʎ, ka'vaʎs>	*!	*		
b. ⚡ <ka'val, ka'vals>				**
c. <ka'vaʎ, ka'vals>			**!	*

5. Conclusions

In this paper, we have offered an Optimality-theoretical approach to the depalatalization, gliding and splitting processes that affect preconsonantal palatal segments in insular Catalan. In MaC and AC, where these processes apply independently from the phonetic environment, constraints against preconsonantal palatal segments have been invoked. These constraints have an articulatory justification: the elevated articulatory requirements of these consonants (Recasens 1989, [1991] 1996) explain their tendency to simplify, especially when followed by a consonant, contributing to a minimization of the articulatory effort.

In AC, as in other languages like Spanish, depalatalization not only applies when palatal segments precede a consonant but also in word-final position. This circumstance can be formalized by means of the pressure that the plural forms (where depalatalization applies because of markedness requirements) exert over the singular forms. We have proved that the Optimal Paradigms Model (McCarthy [2001] 2005) is a powerful mechanism to account for these kinds of paradigmatic pressures.

The disparity of processes (splitting, gliding and depalatalization) triggered in MaC depending on the type of consonant involved can be explained by appealing to the activity of faithfulness constraints that regulate featural changes, as well as to the activity of the markedness constraints on coda complexity and syllable structure. We have seen that the process of depalatalization of palatal laterals in this dialect requires a framework where features are treated as entities and where specific featural faithfulness constraints are invoked.

For MiC, where the processes that concern palatals are determined by the phonetic environment, we have argued that other active markedness constraints in the dialect (AGREE(place), SYLLABLE CONTACT, among others) are responsible for this behavior.

As in MaC, the interaction with faithfulness constraints that regulate featural changes and consonant deletion further determines the variety of the triggered processes.

Finally, we have provided evidence that Transderivational Correspondence Theory and Comparative Markedness can suitably account for the opacity phenomena present in the data.

5. References

- Benua, Laura 1995 Identity effects in morphological truncation. In *Papers in Optimality Theory. University of Massachusetts Occasional Papers in Linguistics*, Jill Beckman, Laura Walsh-Dickey, and Suzanne Urbanczyk, S. (eds.), 77-136. Massachusetts: University of Massachusetts.
- Benua, Laura 1997 Transderivational identity: phonological relations between words. Ph.D. diss., Department of Linguistics, University of Massachusetts, Amherst.
- Clements, G. Nick 1990 The role of the sonority cycle in core syllabification. In *Papers in Laboratory of Phonology I. Between the Grammar and Physics of Speech*, John Kingston, Mary Beckman (eds.), 288-333. Cambridge: Cambridge University Press.
- Dols, N. (1993): *The predictive formalization of consonantal contacts in Majorcan Catalan. Empirical and theoretical bases*. MPhil thesis, Department of Hispanic Studies, University of Sheffield, Sheffield.
- Jiménez, Jesús 1997 *L'estructura sil·làbica del dialecte valencià*. Ph.D. diss., Departament de Filologia Catalana, Universitat de València, València.
- Jiménez, Jesús 1999 *L'estructura sil·làbica del català*. València; Barcelona: Institut Interuniversitari de Filologia Valenciana; Publicacions de l'Abadia de Montserrat.
- Lombardi, Linda 2001 Why Place and Voice are different: constraint-specific alternations in Optimality Theory. In *Segmental phonology in Optimality Theory*, Linda Lombardi (ed.), 13-45. Cambridge, New York: Cambridge University Press.
- Lloret, Maria Rosa 2002 Estructura sil·làbica. In *Gramàtica del català contemporani*, Joan Solà, Maria Rosa Lloret, Joan Mascaró, Manuel Pérez Saldanya (dirs.), 195-249, Barcelona: Empúries.
- Keating, Pat 1988 Palatals are complex segments: x-ray evidence. *UCLA Working Papers in Phonetics*, 69. 77-91.
- Mascaró, Joan 1986 Compensatory diphthongization in Majorcan Catalan. In *Studies in compensatory lengthening*, L. Wetzels; E. Sezer (eds.). Dordrecht: Foris.
- McCarthy, John J. [2001] 2005 Optimal paradigms. University of Massachusetts, Amherst. [Ms.] [Available on Rutgers Optimality Archive - 485].
- McCarthy, John J. [2002] 2003 Comparative markedness. University of Massachusetts, Amherst. [Ms.] [Available on Rutgers Optimality Archive - 489].

- McCarthy, John, J. and Alan Prince 1995 Faithfulness and reduplicative identity. In *Papers in Optimality Theory. University of Massachusetts Occasional Papers in Linguistics*, Jill Beckman, Laura Walsh-Dickey, Suzanne Urbanczyk, S. (eds.), 249-384. Massachusetts: University of Massachusetts.
- Murray, Robert and Theo Vennemann 1983 Sound change and syllable structure in Germanic Phonology, *Language* 59.
- Palmada, Blanca 1994a *La fonologia del català. Els principis generals i la variació*. Bellaterra-Barcelona: Servei de Publicacions de la Universitat Autònoma de Barcelona.
- Palmada, Blanca 1994b Sobre la semblança excessiva en fonologia. *Els Marges* 49. Barcelona: Publicacions de l'Abadia de Montserrat.
- Palmada, Blanca 1996 La representació de les palatals. *Caplletra* 19: 27-41.
- Pons, Clàudia 2002 Segmental and featural strategies to satisfy OCP in Balearic Catalan. An Optimality-theoretical approach. Paper presented at *Going Romance 2002* (Groningen: Groningen University).
- Pons, Clàudia 2003a Segmental and featural strategies to satisfy OCP in Balearic Catalan. Some evidence for the adequacy of a segmental correspondence. Paper presented at *GLOW 2003* (Lund: University of Lund).
- Pons, Clàudia 2003b L'assimilació i la dissimilació regressiva de mode d'articulació en el català de Mallorca i de Menorca. Paper presented at XIII Col·loqui Internacional de l'AILLC (Girona: Universitat de Girona).
- Pons, Clàudia 2004a Els contactes consonàntics en balear. Descripció i anàlisi. Ph.D.diss., Departament de Filologia Catalana, Universitat de Barcelona.
- Pons, Clàudia 2004b Segmental and featural strategies to avoid adjacent sibilant segments in Balearic Catalan. An Optimality-theoretical account. In: BOK-BENNEMA, R.; HOLLEBRANDSE, B.; KAMPERS-MANHE, B.; SLEEMAN, P. (ed.) *Romance Languages and Linguistic Theory. Selected papers from 'Going Romance'*. Groningen, 28-30 November 2002. Amsterdam; Philadelphia: John Benjamins Publishing Company.
- PONS, C. (2005a): It is all downhill from here: the role of syllable contact in Romance languages. Paper presented at 13th Manchester Phonology Meeting (Manchester: Manchester University) and at the Conference on Manner Alternations in Phonology (Berlin: ZAS).
- PONS, C. (2005b): Què tenen en comú l'assimilació regressiva de mode d'articulació, el rotacisme i la semivocalització? *Randa*, 55.
- PONS, C. (2005c): Avall, que fa baixada. Els efectes de la llei del contacte sil·làbic en les llengües romàniques. *Revista de linguística occitana*, 3. [<http://www.revistadoc.org/>]

- Prince, Alan; Smolensky, Paul 1993 *Optimality Theory: constraint interaction in Generative Grammar*. [Ms] Rutgers University, New Brunswick and University of Colorado.
- Recasens, Daniel 1986 *Estudis de fonètica experimental del català oriental central*. Barcelona: Publicacions de l'Abadia de Montserrat.
- Recasens, Daniel 1991 [1996] *Fonètica descriptiva del català (Assaig de caracterització de la pronúncia del vocalisme i consonantisme del català al segle XX)*. Barcelona: Institut d'Estudis Catalans.
- Serra, Pep 1996 *La fonologia prosòdica del català*. Ph.D.diss., Departament de Filologia i Filosofia, Universitat de Barcelona.
- Vennemann, Theo 1988 *Preference laws for syllable structure*. Berlin; Nova York; Amsterdam: Mouton de Gruyter.

* This work is supported by the grants BFF2001-3798, from the *Ministerio de Ciencia y Tecnología*, 2001/SGR/00004, from the *Departament d'Universitats, Recerca i Societat de la Informació de la Generalitat de Catalunya*, 1999FI, from the *Generalitat de Catalunya* (1999FI), and a grant from the *Institut Menorquí d'Estudis*. For valuable comments on this subject, I am grateful to Maria Rosa Lloret, and to the audience of PaPI 2003, especially to John Kingston and Elisabeth Selkirk. I also want to express my gratitude to Patricia Esteban, who has reviewed the formal aspects of this paper, and to two anonymous reviewers for their insightful comments on this paper.

¹ The data from Majorcan Catalan is due to Recasens ([1991] 1996), Dols 1993 and Pons (2004b). The data from Minorcan is due to Pons (2004b). The data from Alguer Catalan is due to Serra (1996) and Scala (2003).

² According to *Richness of the Base* (Prince & Smolensky 1993), there are no language particular restrictions on underlying representations, so that for a form such as [ˈtrɔŋc], in which we do not have empirical evidence of the underlying place specification of the nasal segment, can be postulated either an underlying form /trɔŋc/ or /tronc/. The ranking constraint is ultimately the responsible for the selection of the actual form in a language. That is why we do represent the underlying form of *trɔnc* or *menj* with an alveolar nasal. In fact, the constraint ranking adduced for MaC in § 5.1 gives the desired results either if we depart from an underlying form with a palatal nasal or an alveolar nasal.

³ In this paper, we disregard sequences of sibilants because their behavior escapes the scope of the present paper. For an analysis of sibilant contacts in Balearic Catalan within autosegmental phonology, see Palmada (1994a, 1994b, 1996), and for an analysis of these contacts within OT, see Pons (2002, 2003, 2004b).

⁴ In MaC, MAX-IO dominates AGREE(place), and MAX-IO is dominated by *ICC, so that *ICC dominates AGREE(place).

⁵ Before going on, it is important to draw attention on the relation established between candidates with splitted segments and the faithfulness constraints IDENT(Features). According to these constraints, the elements which stand in a correspondence relation must have the same featural specification, so that the splitted sequence [jm] corresponding to the underlying segment /j/ violates IDENT(nas), because just one of the correspondents segments is nasal (i.e. [m]). The reverse situation occurs in relation to the constraint IDENT(pal): just one of the

candidates is palatal (i.e. [j]). To solve these kinds of limitations, Struijke 2000 and Struijke & de Lacy (2000) propose to modify the effects of the constraints of the family IDENT(Features) and propose what they call *Existential Faithfulness* (b), in substitution to the *Standard Faithfulness* (a)

a *Standard Faithfulness* IDENT(Trets) (McCarthy & Prince 1995a)
 \forall -IDENT(F): "If x is αF , then all correspondents of x are αF "

b *Existential faithfulness* IDENT(Trets) (Struijke 2000, Struijke & de Lacy 2000)
 \exists -IDENT(F) "If x is αF , then some correspondents of x are αF "

The analysis adopted in this paper departs from this last definition of faithfulness, so that a candidate with a splitted sequence such as [jm] corresponding to /j/ satisfies either IDENT(nas) and IDENT(pal).

⁶ For a complete analysis of cluster simplification, see Pons (2004b).

⁷ This constraint ranking should be completed with other constraints (like MAX-IO, ALIGN-Words) to avoid other possible strategies such as deletion or vowel insertion.

⁸ This constraint is a shorthand for the sonority distance hierarchy proposed by Gouskova (2004) and applied in Pons (2005).