

Depalatalization in Spanish revisited*

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A well-known fact of the phonology of Spanish is the non-occurrence of palatal nasals and laterals in syllable-final position (e.g., *desdén-desdeñar*, *clavel-clavel-lina*). Some scholars have recently claimed that they are lexical remnants that should be treated in terms of allomorphy (cf. Pensado 1997, Harris 1999). In this paper, we examine the empirical basis of depalatalization, we provide evidence for maintaining depalatalization as an actual phenomenon by appealing also to the phonology of borrowings and to other cases of place centralization, and we provide a parallel OT account of these facts. Overapplication of depalatalization in onset position in plural and diminutive forms (e.g., *desdenes*, *claveles*, *clavelito*) is analyzed as an output-output effect, in line with work by Baković (1998, 2001) with respect to the plural cases. In our view, however, this output-output effect extends to diminutives because it is restricted by the strongest version of ‘base’ proposed in Kager (1999a,b).

Keywords: Allomorphy, base, base-identity, borrowings, centralization, delabialization, depalatalization, diminutive, output-output correspondences, plural, overapplication, xenonym; Spanish.

Anda, y que te ondulen
con la ‘permanén,’
y pa suavizarte
que te den ‘col-crém.’
Se lo pués pedir
a Victoria Kent,
que lo que es a mí,
no ha nacido quién.

From the zarzuela *Las Leandras* by F. Alonso,
E. González del Castillo and J. Muñoz Román.

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1. The (scarcity of) data

It is common in natural languages that the set of possible final consonants is a subset of the set of possible segments in all positions, and that an underlying segment that is not possible in final position is (minimally) changed to one of the subset. One such case is final depalatalization in Spanish, a process that has received wide attention in the phonological literature.

In Spanish, nasals and laterals contrast in place of articulation; nasals show a three-way contrast and laterals, a two-way contrast:¹

- | | | | | |
|-----|--------|--------------|--------|-----------|
| (1) | ca[m]a | 'bed' | po[l]o | 'pole' |
| | ca[n]a | 'white hair' | po[ʎ]o | 'chicken' |
| | ca[ɲ]a | 'cane' | | |

Castilian Spanish, the variety on which we base our analysis, shows not only depalatalization but generalized centralization of any place to alveolar in word-final position (other varieties, such as Mexican Spanish, accept final [m], but all disallow palatals; cf. Harris 1984). There is no word with the form in (2), for any sequence X.

- (2) *X[m] *X[ɲ] *X[ʎ]

Contreras (1977), following the generalization first posited by Alonso (1945), proposed a rule of nasal and lateral depalatalization that turns /ɲ/ into [n] and /ʎ/ into [l] before consonant and in word-final position. Harris (1983) used similar data to reformulate the rule in terms of syllable structure by replacing {C, #} by reference to the rhyme.² Nasal depalatalization provided an argument for cyclic application (as exemplified by the now famous triplet *desdén–desdenes–desdeñes* 'disdain (noun, singular) — disdains (noun, plural) — you disdain (subjunctive)'), which has been much quoted in subsequent literature (Kiparsky 1982, 1985; Kenstowicz 1994; Cole 1995; Baković 1998; Peperkamp 1997; Bermúdez-Otero 2006). First to argue against Spanish depalatalization was Pensado (1997), basically on psycholinguistic grounds. She was followed by Harris (1999) who gives detailed argumentation to "debunk once and for all the legend of Nasal Depalatalization" (47). In this paper we reconsider the empirical status of Spanish centralization (i.e., /m/ → [n], /ɲ/ → [n], /ʎ/ → [l]) and propose a phonological analysis within Optimality Theory.

When we take a close look at Spanish centralization, we find that it is based on a rather fragile empirical foundation (although this is not the kind of argument used by those authors who claim that it does not exist).³ Harris (1983) gives four examples for

1. The majority of Spanish varieties have replaced by now all instances of [ʎ] by [j] (or other variants like [ç]). Whatever we say about [ʎ] in the paper refers to the varieties that still retain it.

2. Harris (1984) examines depalatalization again, but there is no significant change.

3. Pensado (1997) argues that some of the pairs that have been used as evidence for the process are not derivationally connected because their semantic relatedness is extremely distant.

/ʎ/ and three for /ɲ/. Pensado (1997) gathers more putative empirical support, with eleven cases of each.

Another kind of evidence is, of course, the nonexistence of [m], [ɲ], and [ʎ] in word-final position (and in syllable rhyme except under assimilation), but this alone does not imply that there is an active process of centralization. When we look for other kinds of evidence, namely alternations, we are faced with the fact that the cases are extremely limited.

Notice that scarcity of evidence can be of two sorts. There might be few cases because there are counterexamples ('exceptions'), i.e., in this case words ending in [m], [ɲ] or [ʎ]; or the lexicon might just lack, except for a few cases, pairs of morphologically related words in which underlying /m/, /ɲ/ or /ʎ/ appear as onsets in one member of the pair and in final position in the other. Spanish is an instance of the latter. This is due to the fact that in Spanish the main source of final /m/, /ɲ/, /ʎ/, namely bare stem nominals and verbs, yields very few cases. For verbs, only irregular forms like second-person singular imperative *sal* 'go out' or *ten* 'have', and a few others have bare stems. In nominals, certain stem final consonants, including /m/, /ɲ/, /ʎ/, normally require an inflective gender vowel — or an epenthetic vowel, for some authors (henceforth, \tilde{n} = [ɲ], \tilde{l} = [ʎ]): *ramo* 'bouquet', *pañó* 'cloth', *pan* 'bread'; *tallo* 'stem', *talle* 'waist', *tal* 'such'.

Historically (Menéndez-Pidal 1968: 170; see also Pensado 1997), final consonants arise through the loss of final *e* which took place only if the consonant was *d*, *n*, *l*, *r*, *s*, *z* (i.e., present-day phonetic [d], [n], [l], [r], [s], [θ]); for other consonants, class C*, the *e* was retained. Cases of final C* without *-e* (like *chef* and *match*) are sporadic and have different historical origins (mainly word borrowing). Moreover, in many of these cases historical centralization to *n*, *l* took place but related forms in onset environments centralized also analogically. These are most typically old borrowings like *bajel* 'vessel', *cordel* 'cord', *pincel* 'paintbrush', *betún* 'shoe polish' (from Catalan: *vaixell*, *cordill*, *pinzell*, *betum*); *Adán*, *imán* 'magnet', *Jerusalén*, *Joaquín* (from Semitic sources ending in [m]); *ron* (from English: *rum*), and words that escaped conservation of the vowel through proclisis (*don* 'Mister', *él* 'he', *aquel* 'that', *mil* 'thousand', from the older forms *dom*, *ell*, *aquell*, *mill*). Some derived words from the previous examples are *bajelero* 'vessel's owner', *cordelería* 'cordage', *pincelada* 'brush-stroke', *betunero* 'bootblack'; *adanita* 'Adam's descent', *jerusalenita* 'from Jerusalem', *joaquinismo* '(derived nominal)'; *ronero* 'rummy'.

If the alternations don't exist or if they are sufficiently limited or problematic, we might conclude that there is no active process: proposing a depalatalization rule would be similar to positing a putative rule of final *n*, *l* deletion after [j] on the sole basis of *rey* — *rein-a*, *rein-ad-o* 'king — queen, kingdom' and *fray* — *frail-e*, *frail-un-o* 'preverbal term of address for a monk — monk, monkish'. So we should carefully analyze how extensive alternations involving [m]–[n], [ɲ]–[n], [ʎ]–[l] are. Although this has not always been common practice, in this and other cases as well, when presenting a phonological process, care should be taken to ascertain its generality. This means stating whether there are exceptions or not and how extensive they are, and how many lexical items are affected productively by the phenomenon.

We have compiled a list of lexical items that are related, or might be thought to be related, by one of these alternations. The list might not be totally exhaustive, but it should come close to it.⁴ We have disregarded some items with quite remote semantic relationship.⁵ We leave out for the moment [m]–[n] alternations, for which we offer examples in (7) below. In (5) we also consider assimilatory environments which might be argued to support the process too. (The following abbreviations are used: A = adjective, N = noun, MASC = masculine, FEM = feminine, NEUT = neuter, PL = plural.)

(3) [n]–[ɲ] alternations:

<i>Word-final</i>	<i>Non-final in inflection</i>		<i>Non-final in derivation</i>	
[n]	[n], [ɲ]		[ɲ]	
desdén	desdenes	‘disdain(s)’	desdeñar	‘to disdain’
			desdeñoso	‘disdainful’
don	dones	‘Mister(s)’		
	doña	‘Madam’		
bretón	bretones	‘Breton’	Bretaña	‘Brittany’
catalán	catalanes	‘Catalan’	Cataluña	‘Catalonia’
champán	champanes	‘champagne(s)’	champañería	‘ch. bar’
			champañera	‘for ch. (A)’

(4) [l]–[ʎ] alternations:

<i>Word-final</i>	<i>Non-final in inflection</i>		<i>Non-final in derivation</i>	
[l]	[l], [ʎ]		[ʎ]	
él	ella(s)	‘he’, ‘she(PL)’		
	ello(s)	‘it/they-MASC’		
aquel	aquella(s)	‘that-MASC’, ‘that-FEM(PL)’		
	aquello(s)	‘that-NEUT/those-MASC-PL’		
doncel	donceles	‘male virgin(s)’		
	doncella(s)	‘female virgin(s)’	doncellez	‘virginity’
clavel	claveles	‘carnation(s)’	clavellina	‘carn.-like plant (genus dianthus)’
piel	pieles	‘skin(s)’	pellejo	‘skin’
			pelliza	‘pelisse’
Sabadell		‘town name’	sabadellense	‘from Sabadell’
mil	miles	‘thousand(s)’	millón	‘million’
			millar	‘thousand’
tropel	tropeles	‘mob(s)’	atropellar	‘to run over’
útil	útiles	‘useful’	utillaje	‘tool equipment’

(5) Assimilatory environments:

[l], [n]		[ʎ], [ɲ]	
beldad	‘beauty’	bello	‘beautiful-MASC’
humilde	‘humble’	humillar	‘to humiliate’

4. We have gathered the data from the relevant literature mentioned in this paper, as well as from Bosque and Pérez Fernández’s (1987) reverse dictionary and our own compilation of borrowings.

5. More dubious examples can be found in Saporta (1959), a very good source for alternations in general, and Pensado (1997), who argues convincingly for the non-relatedness of some cases.

cabalgar	'to ride'	caballo	'horse'
tinte	'tint (N)'	teñir	'to tint'
cinto	'girdle (N)'	ceñir	'to girdle'
rencilla	'quarrel (N)'	reñir	'to quarrel'
Valderobles	'Oak Valley'	valle	'valley'
Caldevilla	'Town Street'	calle	'street'

The cases of putative alternation are already severely limited, but, in addition, many of these cases should be discarded for different reasons: dubious semantic/morphological relationship, presence of independent allomorphy or existence of counter-alternations.

The numeral *mil* is not transparently related to *millón*, but it is to *millar* (like *cien-centenar* 'a hundred-hundred'); but at the same time we have *milenio* 'millennium' (cf. *decenio* 'decade', *trienio* 'period of three years'), *milésimo* 'thousandth' (cf. *centésimo* 'hundredth', *veintésimo* 'twentieth', *millonésimo* 'millionth') with unexpected *l*. Pairs like *tropel-atropellar*, *útil-utilaje*, and *humilde-humillar* in (5) are very distant semantically, and once again we have counter-cases with onset *l*: *tropelía* 'outrage', *utilísimo* 'useful (superlative)', *utilidad* 'usefulness'. Other cases present morphological problems. For *n-ñ*, the roots *bretón-* – *Bretañ-*, *catalán-* – *Cataluñ-* show independent allomorphy that makes it impossible to posit a single lexical underlying form (and at the same time we have, for *catalán*, *catalanismo*, **catalañismo*). The same applies to the roots in assimilatory cases: *humild-* – *humill-*, *cabalg-* – *caball-*, *tint-* – *teñ-*, *cint-* – *ceñ-*, *renc-* – *reñ-*. Note also that *don-doña* are regularly related, but *dones* is obsolete.

We are left with three clear cases for the nasals (6a) and six for laterals (6b) (we can add *beldad*, if the *l* is not attributed to assimilation, (6c)).

(6)	Word-final	Non-final in inflection	Non-final in inflection&derivation
a.	[n]	[n]	[ɲ]
	desdén	desdenes	desdeñar, desdeñoso
	don		doña
	champán	champanes	champañería, champañera
b.	[l]	[l]	[ʎ]
	él		ella(s), ello(s)
	aquel		aquella(s), aquello(s)
	doncel	donceles	doncella(s), doncellez
	clavel	claveles	clavellina
	piel	pieles	pellejo
	Sabadell		sabadellense
c.	Assimilatory environments		
	beldad		bello

In the case of [m]–[n], alternations (7) are more numerous (recall that *m*-centralization is not general; it applies in Castilian Spanish and close varieties).

(7)	isla[n]	'Islam'	islámico	'islamic'
	íte[n]	'item'	itemización	'itemization'
	oh[n]	'ohm'	óhmico	'ohmic'
	tóte[n]	'totem'	totemismo	'totemism'

Abrahán	'Abraham'	abrahámico	'abrahamic'
Vietna[n]	'Vietnam'	vietnamita	'Vietnamese'
Amsterda[n]	'Amsterdam'	amsterdamés	'Amsterdamese'
Surina[n]	'Surinam'	surinamés	'Surinamese'
Fro[n]	'Fromm'	frommiano	'frommian'

The scarce number of alternations seems to cast some doubt on the existence of the process of centralization, but crucial evidence can be gathered from situations in which a lexical representation with final *ñ*, *ll* is forced by expansion of the lexicon.⁶ The most typical, but not the only source, is foreign loans, which today show, for consonants in final position, the following behavior: (a) loss of p, t, k, or their adaptation to [β], [ð], [ɣ], respectively (*beep*, *déficit*, *coñac*); (b) conservation or loss of b, g (*Jacob* 'Jakob', *blog*); (c) conservation of f, x, ʃ (*chef*, *sij* 'Sikh', *match*), along with historical class C√ = d ([ð]), n, l, r, s, θ; (d) exceptionless centralization of m and ɲ to n and of λ to l (cf. (8)). Notice that stops are only adapted for voicing/spirantization, and that centralization of palatals usually extends also to ʃ, ʒ, as in [aʃʃis] < [haʃʃis] 'hashish', [béjs] < [béʒ] 'beige'. There are indications of older centralization, like *ron*, *champán*, *detal*, cited above (and the more recent English borrowing *cold-cream* > '*col-crém*' [kolkrén] that appears at the beginning of the zarzuela lyrics), but today the process is fully operative: speakers invariably centralize loans with final m, ɲ to n, and λ (for those who have λ in their inventory) to l; here the option of deletion that is found for p, t, k, or other changes, is never instantiated.

(8)	m → n	ɲ → n	λ → l ⁷
	Prim	champagne	Sabadell
	Grimm	seny	Maragall
	réquiem	Montseny	Coll
	eslalom	Capmany	Urgell
	módem	Fortuny	Llull
	referéndum	Montmany	Collell
	médium	Jubany	Bofill
	boom	Ferreny	Tusell
	tedéum	Sispony	Creixell
	fórum	Montgrony	Moll

For borrowing from Catalan, when the loan enters through the orthographic form ([ɲ] = *ny*, [λ] = *ll*), Catalan *ny* is regularly rendered, as expected, [ni], but onset *m*, *ll* as [m], [λ], respectively: *Fortuny* is [fortún] if the source is phonetic, and [fortúni] if it is orthographic, but *Mollerussa* is always rendered as [moʎerúsa]. Notice that some loans contain [λ] both in the onset and finally: *Llull* [lúl], *Collell* [kolél]. In the case

6. It is revealing that in older periods the result of borrowings with final C* was not centralization, but addition of an epenthetic (or inflectional) -e: *azabache* < Arabic [azzabáðʒ], *bagaje* < French [bagáz]; also *miriñaque*, *debate*, *jefe*, *yate*, *detalle*.

7. Most are well-known places or family names. Glosses for the rest are 'requiem', 'slalom', 'modem', 'referendum', 'medium', 'boom', 'Te Deum', 'forum', 'champagne', 'good judgement'.

of *m*, the examples are much more numerous, since final *m* is much more common in the languages that are the sources of loans.

We now discuss briefly the arguments against centralization/depalatalization in the literature.

Harris's (1999) rejection of depalatalization is not based on the scarcity of data, but on the phonology of epenthesis and the morphology of gender inflection. His argument goes as follows. There is a rule of final epenthesis (9d) that inserts *e* after a set of final consonants that cannot be syllabified as codas. Members of this set (we will denote it by *C-*, and its complement by *C+*) cannot be syllabified as a rhyme. For *C+*, syllabification of this final consonant as a coda makes epenthesis unnecessary (this is incorporated in the rule by the requirement that the final *C* be syllabically unparsed):⁸

- (9) a. $C- = p, t, k, b, g, f, \text{fj}, x, m, \text{ɲ}, \lambda$
- b. $C+ = r, l, n, d, s, \theta$ or $\left[\begin{array}{l} +\text{cor} \\ +\text{ant} \\ \left\{ \begin{array}{l} +\text{voice} \\ +\text{cont} \end{array} \right\} \end{array} \right]$
- c. "Syllabify as codas only consonants in *C+*"
- d. $\text{S} \quad (\text{S} = \text{"thematic suffix"})$
 $\quad |$
 $\quad \emptyset \rightarrow e / C __]_{\text{XO}}$ "Epenthesize after final *C-*" *nube, toque, jefe, eje,*
 $\quad \ddagger$ *madre, dulce*
 $\quad \sigma$
- e.

Syllabification:	$/ka\lambda/$ kaλ ∨ σ	$/kal/$ kal ∨ σ
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- f. Epenthesis:

	$ka\lambda e$ ∨ σ	kal ∨ σ
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Since there are numerous examples of words ending in *C-* (*esnob, coñac, déficit, chef, golf, zigzag, bloc* 'pad', *sij, match*, etc.), they are included in a special class ("xenonyms") whose members are described as follows:⁹

xenonyms ... are borrowings ... plus certain onomatopoeic words. ... [They] vary from speaker to speaker, and they come and go at the whim of popular culture and the news on TV. Xenonyms have easily spotted formal characteristics: they have no form-class morpheme in either singular or plural, and they may have final consonants and consonant clusters ... not found in native Spanish words [...] they are not fully integrated into the morphophonological system of Spanish. (Harris 1999: 57)

8. This "anomalous" *C-* set is different from our "anomalous" *C**, since we consider final consonants like [f], [fj], and [x] as synchronically "normal".

9. There is a general tendency by many authors in the literature on Spanish phonology to minimize without justification the importance of adapted loans and new words in general.

Thus a word like *chef*, even though [f] ∈ C-, has no form-class morpheme because it is a “xenonym”, and hence it does not undergo (9d).

It follows that if a word with underlying final C-, like /desdeŋ/ or /eʎ/, is not a xenonym, then it is subject to epenthesis, and should end up as *[dezðeŋe] and *[éʎe], respectively. Harris (1999: 63) concludes that, since this is not the case, the underlying forms are /desden/ or /el/, and the alternations should be treated under an irregular allomorphic analysis (by a “readjustment rule”, in Distributed Morphology terminology, which turns /ŋ/ into [n] in the context [[desde ____]_v]_N), [[do ____]_v]_N, etc.).

The case of “xenonyms” deserves more careful empirical attention. We have to distinguish historical borrowings and new words (onomatopoeic, but also acronyms, truncated forms, etc.) from synchronic ones. Historical borrowings are usually fully nativized, since the language learner cannot find in the primary linguistic data indications of foreign origin — unless they behave differently from the rest of the vocabulary, and do it in a *homogenous* way, with respect to a *set* of grammatical properties. As Itô and Mester (1998: 62) put it, “native” and other strata should be “distinct subsets whose members behave alike with respect to several different criteria within the grammar”. In addition, most onomatopoeic words, truncated words, acronyms, etc. are usually incorporated as nativized.

As far as we know, the rest of phonological processes of Spanish apply to putative xenonyms and to the rest of the vocabulary in a similar way: initial epenthesis ([e]stock, [e]spaguetis), spirantization (clu[β]), voice assimilation (zi[xθ]ag ‘zigzag’, puzzle [púðle]), place assimilation (ping-pong [pimpón]), glide formation (réqu[j]em), c/r distribution (CD-[r]om, b[r]ut), glide fortition ([ʙw]isqui ‘whisky’, [dʒ]ak ‘yak’).

Here is a sample of additional examples with final C- = p, t, k, b, g, f, tʃ (tsch, tch, dge), x (j):

(10)	club	‘club’	mamut	‘mammoth’	Rif	‘Rif’
	esnob	‘snob’	robot	‘robot’	NIF	‘identity number’
	Job	‘Job’	bulldog	‘bulldog’	chef	‘chef’
	ketchup	‘ketchup’	zigzag	‘zigzag’	naif	‘naive’
	crep	‘crepe, crêpe’	grog	‘grog’	puf	‘pouf’
	hábitat	‘habitat’	boutique	‘dressshop’	rosbif	‘roast beef’
	argot	‘slang’	anorak	‘parka’	kitsch	‘kitsch’
	suite	‘suite’	ad hoc	‘ad hoc’	match	‘match’
	entrecot	‘entrecôte’	coñac	‘brandy’	zarevich	‘czarevitch’
	accésit	‘additional prize’	stock	‘stock’	bridge	‘bridge’
	cénit	‘zenith’	tictac	‘tick tock’	sij	‘sikh’
	input	‘input’	bloc	‘writing pad’	boj	‘boxwood’

As for the external characterizations in terms of speaker to speaker variation and popularity, this may apply to a restricted subset, but there is a large number of words with final C- that are fixed and invariable within Castilian Spanish, and the same applies to other dialects.¹⁰ The core of Harris’s arguments lies in the adduced formal

10. So-called xenonyms are very frequent in native speakers’ internalized lexicons. By ranking his classes in (13) by “increasing number of words of each type”, Harris (1999: 57) claims that class I-x

characteristics of xenonyms. These are the following: (a) they can end in C-, (b) they have no class morpheme in singular or plural. But here we are left with a *single* property of the class, namely (b), since (a) is the *facta probanda* to justify the syllabification rule. Even worse, (b) is false: new words ending in unstressed *a*, *e*, *o* (and even *i*) are regularly adapted by analyzing this vowel as a gender marker (there are also cases with this vowel interpreted as belonging to the root, but they are much more limited: *maoísmo*, *taoísmo*, *laísmo* ‘use of *la* instead of *le*’, *dequeísmo* ‘improper use of *de que*’, *egoísmo*, *anecoico*).

(11)	pizz-a		pizz-ería, pizz-ero	‘pizza place’, ‘pizza maker’
	eusker-a	‘Basque’	eusker-ización	‘basquization’
	folklor-e		folklor-ismo, folklor-ico	‘(derived nominals)’
	Goeth-e		goeth-iano	‘(derived adjective)’
	(violon)cell-o		(violon)cell-ista	‘cello player’
	atrezz-o		atrezz-ista	‘atrezzo handler’
	perestroik-a		perestroik-izar	‘(derived verb)’
	Sarajev-o		sarajev-ita	‘(derived adjective)’
	güisqu-i	‘whisky’	güisqu-ería	‘whisky bar’
	sid-a	‘AIDS’	sid-oso, sid-atorio	‘AIDS-affected’, ‘AIDS hospital’

Pensado’s (1997) rejection of depalatalization (summarized with some comments in Eddington 2004: 50–52) is based on a set of psycholinguistic experiments designed to establish phonological relatedness of some of the examples used to argue for depalatalization. The subjects were 53 undergraduate Spanish Philology students. Some of the tasks consisted of asking what is the word which is the base of a derivative like *desdeñoso*, *pellejo*; asking for a definition of a word like *desdeñoso* using a related word; and asking for a specific derivative of words like *don* and *él*. In another experiment subjects were given two related nonce words (e.g., *siparén–sipareñar*) and were asked to give the form of related words (the plural, the participle in *-ado*, the derivative in *-oso*). Pensado concedes that “these data are too sketchy to be conclusive” (598). This is quite true, because many parameters were not properly controlled. Search for a definition might favor one of the words related to the stimulus because it might be easier to define it on its basis. In other cases the existence of different senses or phonological closeness can influence choice. *Tinte*, for instance, means ‘dye, dyeing’ or ‘dry-cleaner’s’, but the latter is more common and might favor taking *tintorería* ‘dry-cleaner’s’ as the cognate against *teñir*. *Tinta* and *tintar* could also have been favored because they are closer to *tinte* than *teñir* ‘to dye’. In the experiment with nonce words the pairs of stimuli, one with the palatal, the other with the alveolar consonant, were given in the two possible orderings (*enapil–enapillar* and *enapillar–enapil*; *siparén–sipareñar*, and *sipareñar–siparén*), so that the effect of ordering of stimuli could be controlled. But there was no

(i.e., feminines ending in *-o*) is larger than the class of xenonyms. This is clearly not the case, under any reasonable definition of “xenonym”. The class of feminines in *-o* is much more restricted. There might be two or three dozen feminines in *-o*, some of which are also “xenonyms” (e.g., *soprano*), and many of which do not have related words to test whether *-o* is a gender morph (as in *mano–manita*) or not (as in *ego–egoísta*).

such control for the answers, which were given in fixed ordering: plural — participle in *-ado* — derivative in *-oso*. Thus the answer to the plural could have biased the answer to the other two related forms in the same direction. There is in fact an interesting result of this experiment that can be derived from the data given in the paper. We can compare the effect of ordering of stimuli for η and λ cases globally as compared to control cases (which contained [r]–[l] and [aw]–[o] alternations, which are clearly irregular). If we take number of cases with no allomorphy in the answers, the ratio between orderings is 1.47 for the palatals and 4.83 for the control cases. This suggests that ordering is the basic factor in the control cases, but that there is something else going on in the case of $[\eta]$ and $[\lambda]$. Another necessary control in experiments of this sort is to run pairs of similar experiments in which the regular phonological character and the irregular allomorphic character of the alternations being tested are not at all in doubt. Only thus we could be certain of the correct interpretation of the results obtained for unclear cases such as depalatalization in Spanish.

Our analysis, which we develop in detail in Section 3, is based on the following descriptive observations. First, although the number of real alternations is scarce, the absolute impossibility of final λ , η (and m in some varieties) and the treatment of borrowings are sufficient to justify an active process. Second, there is a large set of fully nativized words ending in consonants other than r , l , n , d , s , θ , which cannot be ascribed to a special lexical stratum. They aren't phonologically "illegal", "ill-formed" or "not fully integrated". Some of them remain unchanged in final position, like fricatives and affricates; others undergo whichever processes are active in the language, as in the case of centralization of sonorants.

2. Previous OT analyses of 'depalatalization'

As previously mentioned, within derivational phonology Spanish depalatalization is a well-known example of cyclic application (Harris 1983). In the parallel version of Optimality Theory, one way of dealing with cyclic effects has been to enrich the theory with output-output (OO) correspondence relations, which are responsible for paradigmatic effects between morphologically related forms. Of particular interest is the base-oriented approach, according to which one form acts as a base and imposes its characteristics onto other related forms (cf., among others, Benua 1995, 1997 and Kenstowicz 1996, 2002, based on McCarthy and Prince's 1995 insights on correspondence relations). With regard to the depalatalization issue in Spanish, Bakovič (2001), based on work by Bakovič (1998), has followed up this line of research. Under his view, and following Beckman's (1998) work on positional faithfulness, the coda condition against palatals is accounted for by the constraints and ranking in (12):¹¹

- (12) a. • IO-IDENTITY(PLACE) (ID(PL)): The specification for place of articulation of an I must be preserved in its O correspondent.

11. Here, for the sake of illustration the intervening markedness constraint used is *PALATAL, which only bans palatal nasals and laterals.

- IO-IDENTITYONSET(PLACE) (IDONS(PL)): The specification for place of articulation of an I segment must be preserved in its O correspondent if the segment in question is parsed as an onset
 - *PALATAL (*PAL): Do not have a palatal place of articulation.
- b. *Ranking*: IDONS(PL) >> *PAL >> ID(PL)

The ranking IDONS(PL) >> *PAL >> ID(PL) ensures that input palatal segments are maintained in onset position but not in codas, as the tableaux in (13) illustrate. (N = noun, V = verb; in the tableaux throughout the paper, we use for convenience orthographic transcription except for the consonants under discussion.)

(13)

desde _n (N)	IDONS(PL)	*PAL	ID(PL)
desde _n		*!	
☞ desde _n			*

desde _n -es (V)	IDONS(PL)	*PAL	ID(PL)
☞ desde _n es		*	
desdenes	*!		*

Overapplication of depalatalization in plurals (as in *desdenes*, *claveles*) is captured by considering that surface resemblance between plural and singular forms is due to the effect of an OO faithfulness constraint that enforces place faithfulness of the affixed form with respect to its base in this morphological context. Bakovič (2000: 23), based on Benua's (1997) Transderivational Correspondence Theory (TCT), defines the stem-affixed form faithfulness constraints as follows:¹²

- (14) STEM/AFFIXED-IDENTITY[F] (SA-ID[F]): A segment in an affixed form [*Stem+affix*] must have the same value of the feature [F] as its correspondent in the stem of affixation [*Stem*].

Bakovič (2001) uses a specific SA-ID[F] constraint that involves the place features, SA-ID(PL), to account for the Spanish data. By ranking SA-ID(PL) high, the alveolar character of the nasal/lateral segment is carried over stem-faithfully from the singular to the plural form, as the tableaux in (15) show.

(15)

desde _n (N) <i>Stem</i> : —	SA-ID(PL)	IDONS(PL)	*PAL	ID(PL)
desde _n			*!	
☞ desde _n				*

desde _n -es (N) <i>Stem</i> : desde _n	SA-ID(PL)	IDONS(PL)	*PAL	ID(PL)
desde _n es	*!		*	
☞ desdenes		*		*

12. The linear order of *stem* and *affix* in (14) is not relevant. In TCT, any morphological relation (prefixation, suffixation, truncation, etc.) is covered by this definition.

In this analysis, it is crucial that the OO relation is formulated in a way such that it is restricted to this morphological context (i.e., plural with respect to singular in nouns) in order to prevent it from applying to verbal forms: *desdenes* (N), *desdeñes* (V). One possibility is to require that OO correspondences be actual words, the position taken in Bakovič (1998) based on Benua's (1995, 1997) base hypothesis, according to which OO correspondence relations only hold between independently occurring surface forms. This hypothesis reproduces in parallel terms Brame's (1974) *Natural Bracketing Hypothesis*, followed by Kiparsky 1982, Selkirk 1982, and Inkelas 1989, among others. In Bakovič's (1998) analysis, the bound root in *desden-es* (N) is forced to be similar to the root in *desdén* (N) because *desdén* is an independent word, while the bound root in *desdeñ-es* (V) has no base to resemble because all verbal forms are suffixed bound roots. Although such an analysis holds for the *desdén-desdenes-desdeñes* triplet (the cases analyzed in Bakovič's work), it runs into problems when a wider empirical base is taken into account. First, there are some nominal inflected forms that unexpectedly do not show up with depalatalization. These are pairs such as *don-doña*, *doncel-doncella*, *él-ella*, *ello, ellos, ellas*, and *aquel-aquella, aquello, aquellos, aquellas*. Second, depalatalization extends to diminutives (e.g., *clavelito*) and to other evaluative forms (e.g., the augmentative form *clavelazo* and the alternative diminutive form *clavelín*), but not to other derived forms (e.g., *clavellina*).¹³

In what follows, we provide an alternative base-oriented account for all these cases built on the more specific notion of 'base' proposed by Kager (1999a,b), which derives from Benua (1995, 1997) and previous literature.

3. An alternative OT base-priority approach

Before developing our analysis, let us summarize the data to be accounted for. The crucial patterns of Castilian Spanish are given in Table 1. Each row shows a family of related words; (c) and (c') exemplify different varieties, the latter belonging to more formal registers. 'Coronal' refers to dento-alveolars and '-Coronal' includes other places of articulation. For simplicity, we do not mark the assimilated dental character of the nasal next to the *-cit /θit/* diminutive suffix.¹⁴

Palatal nasals and laterals behave alike. Depalatalization occurs in coda position and extends to onset position in plural and diminutive related forms, except in *ellos* and *aquellos* (cf. (a), (b) in Table 1). In the case of palatal nasals, though, the effects of

13. Another OT analysis is developed in Kikuchi (1999), who discards an OO correspondence approach and provides an alternative Sympathy approach (cf. McCarthy 1999) for these problematic plural forms. We will not discuss this analysis here, because it only covers the singular-plural cases like *desdén-desdenes* and *doncel-donceles*, and because given that the OO constraints seem to be well supported, resorting to Sympathy seems unnecessary.

14. Since this work is based on Castilian Spanish, we do not deal with the velar nasal varieties that systematically show word-final [ŋ] instead of [n]. (See Bakovič 2001 and Shepherd 2003 for the interaction of the velar nasal realization and depalatalization.)

Table 1. Patterns of non-coronal nasals and laterals for Castilian Spanish.

	CODA POSITION		ONSET POSITION
	CORONAL	CORONAL	-CORONAL
a. /ɲ/	desdé[n] champá[n], champa[n]cito	desde[n]es (N) champa[n]es	desde[ɲ]ar, desde[ɲ]es (V), desde[ɲ]oso champa[ɲ]era, champa[ɲ]ería
b. /ʎ/	donce[l] clave[l] é[l] aque[l]	donce[l]es, donce[l]ito clave[l]es, clave[l]ito	donce[ʎ]a, donce[ʎ]as, donce[ʎ]ez clave[ʎ]ina e[ʎ]os, e[ʎ]a, e[ʎ]as, e[ʎ]o aque[ʎ]os, aque[ʎ]a, aque[ʎ]as, aque[ʎ]o
c. /m/	tóte[n], tóte[n]s, tote[n]cito	also tóte[n]es	tote[m]ismo, toté[m]ico
c'. /m/	tóte[n], tote[n]cito		tóte[m]es, tote[m]ismo, toté[m]ico

overapplying depalatalization to diminutives in onset position are not seen because this consonant does not surface in prevocalic position. As is well-known after work by Jaeggli (1980), polysyllabic words ending in [n] add the diminutive allomorph *-cit* (*canción-cancioncita* 'song') and in this context the nasal assimilates to the place of the following consonant: *cancio[nθ]ita* and also *champa[nθ]ito*. Monosyllabic words with a stem ending in [n] do add a vowel initial allomorph, i.e., *-ecit* (as in *tren-treñecito* 'train'). However, no monosyllabic word with an *-ɲ/* stem has a familiar diminutive form (the word *don*, for example, does not have a common diminutive form that speakers can reliably judge). The facts about labial nasals are more complex (cf. (c), (c') in Table 1). The nasal delabializes in coda position and further assimilates pre-consonantly. On the basis of prescription, the standard plural of *-m* [n] words acquire *-es* and the labial is maintained (*tóte[m]es*, and also *álbu[m]es*, *tam-ta[m]es*, *Abraha[m]es*; cf. (c') in Table 1). However, except for *álbumes*, the other words more commonly show plurals in *-s*, with an assimilated nasal (*tóte[n]s*, *ta[n]-ta[n]s*, *Abraha[n]s*, and less frequently *álbu[n]s*; cf. (c) in Table 1). As for the *-es* plurals, most speakers extend delabialization to onset position (*tóte[n]es*, *ta[n]-ta[n]es*, and the most usual form *álbu[n]es*; cf. (c) in Table 1). Delabialization is not encountered in onset position in diminutives because, as mentioned with respect to palatals, the allomorph *-cit* is added to *-[n]* stems (*tote[n]cito*, *albu[n]cito*, *Abraha[n]cito*; cf. (c), (c') in Table 1).¹⁵

15. It should be noted that although some speakers accept as possible any diminutive in *-cit* from *-m* words, others are reluctant to create diminutives (and also some plurals) for reasons other than phonological. The forms *albu[n]cito*, *tote[n]cito*, and *Abraha[n]cito* are nevertheless accepted by almost all speakers (some speakers with *tóte[m]es* also accept *tote[m]ito*). No reliable augmentative or alternative diminutive form with a vowel initial affix is encountered either. This data limitation does not alter our results because our concern is on the phonological facts, which are regular once such evaluative forms are originated. (On the compatibility of diminutive formation with certain words in Castilian Spanish, see Lázaro Mora 1999: §71.3; the situation is quite different in American Spanish, where the use of diminutives is very common. For an overall review of plural formation, see Ambadiang 1999: §74.3.)

A few further facts concerning the distribution of non-coronal segments are to be taken into account in the analysis. First, since nasals assimilate place in pre-consonantal position, places of articulation other than coronal are possible in the coda (*tren pequeño* [m p] ‘small train’, *tren grande* [ŋ g] ‘big train’).¹⁶ Second, in no variety does the alveopalatal affricate become alveolar word-finally; therefore, palatal consonants are not completely lacking in word-final position but only sonorants (i.e., -[tʃ]), as in *match* or *Rostropovich*, but *-[ɲ] and *-[ʎ]. Lastly, recall from §1 that word-final obstruents are not categorically disallowed (e.g., *che[f]*, *Jo[β]*). Hence, any general ban against obstruents or non-coronal consonants in word-final position is too strong and does not reflect the real facts of Castilian Spanish and most other dialects.¹⁷

In light of the previous data, it is clear that depalatalization is not to be seen as an independent phenomenon but is an instance of a general process of place neutralization affecting nasals and laterals in coda position. Overapplication of nasal/lateral depalatalization and delabialization in onset position is an OO effect, as already suggested by Bakovič (1998, 2001). In our view, however, this OO effect is restricted by the specific notion of base proposed by Kager (1999b: 282), drawn on Kager (1999a):

(16) *Definition of ‘base’:*

- a. The base is a free-standing output form — a *word*.
- b. The base contains a subset of the grammatical features of the derived form.

According to the first criterion (16a), the base must always be an output itself, an existing word (in line with Kenstowicz’s 1996, 2002 and Benua’s 1995, 1997 work). According to the second criterion (16b), the base is compositionally related to the affixed word in a morphological and semantic sense, and is in a subset relation with it. It must be, obviously, a proper subset since otherwise base and derived form would be identical lexical items. Kager’s proposal restricts the number of possible correspondence relations and predicts that base-identity relations cannot be established when the two criteria for base-hood are not satisfied. In our view, the morphological relation of a plural form with respect to a singular form (i.e., its base) is included in this definition (e.g., *clavel* [NOUN, MASCULINE], *claveles* [NOUN, MASCULINE, PLURAL]), as well as that of a diminutive form with respect to the non-diminutive form (i.e., its base) (e.g., *clavel* [NOUN, MASCULINE], *clavelito* [NOUN, MASCULINE, DIMINUTIVE]). Other morphologically related forms (e.g., feminine with respect to masculine, one inflected verbal form with respect to another inflected verbal form, a derived form with respect to the non-derived one) do not match both criteria for base-hood. They have no base, and thus the relevant base-identity constraint is irrelevant for candidate selection.

16. As is well-known, laterals only assimilate to coronals. This is viewed as an effect of the undominated context-free markedness constraint LATERAL/CORONAL (“All laterals are coronal”). We will not further discuss this issue here.

17. For present purposes, we attribute the different behavior of palatal sonorants and (alveo)palatal obstruents to their manner features. An alternative is to attribute it to their place features. (See also note 21.)

The fact that plurals satisfy the two criteria for base-hood is not controversial. On the compositional side, the number category can be assumed to be a single privative feature [PLURAL] (arguments in the literature in favor of this view are found, among others, in Harris 1992). Hence, the base (i.e., the singular word) clearly contains a proper subset of the grammatical (semantic, morphological) features of the derived form (i.e., the plural word). As for the shape of the base, the plural is always formed over the singular; it is the singular word (with its gender markers) plus the plural morph. We will not discuss here whether the additional *e* vowel that appears in plurals like *desdenes* or *claveles* is epenthetic or part of the plural morph. As we shall see, both views are compatible with our analysis of depalatalization. The situation is quite different in masculine–feminine pairs. In particular, the masculine form, which could be appropriate as base in a morphological compositional sense under an interpretation of gender as a single privative feature [FEMININE], is not a proper subset of the semantic features of the feminine form: for most cases masculine–feminine pairs lack a clear semantic correlate, in the case of sex distinctions inclusion should be out of question. Additionally, the feminine form is not formed over the free-standing masculine output; rather it is built over the stem (e.g., *gat-o*, *gat-a* ‘cat (male, female)’). The masculine–feminine pairs fail the criteria for base-hood; thus, they cannot undergo the base-identity constraints.

Diminutive forms, in contrast, have bases by both criteria: the diminutives contain all morpho-semantic features of their corresponding non-diminutive forms and have as base a free-standing output. The compositional criterion is well-accepted; the output criterion needs independent evidence since, at first sight, diminutive formation looks like gender formation, in the sense that the diminutive morph appears next to the stem and not next to the free-standing form of the source (cf. *gat-o*, *gat-it-o*; *gat-a*, *gat-it-a*). The dependence of diminutive formation on the form of the free-standing non-diminutive word is proven, among other facts, by allomorph selection. For instance, in general monosyllabic words add the allomorph *-ecit* (17a) while polysyllabic words add *-(c)it* (17b) (see, among others, Jaeggli 1980).

- (17) a. *-ecit* : *sol* → *solecito* ‘sun’ *tren* → *trenecito* ‘train’
 b. *-(c)it* : *solo* → *solito* ‘alone’ *canción* → *cancioncita* ‘song’

Furthermore, in general, in polysyllabic words the *-cit* allomorph is chosen when the non-diminutive word ends in [r] or [n] (18a), while *-it* is chosen when it ends in [r] or [n] that are followed by an inflectional vowel (18b). According to Kenstowicz (2002), based on work by Aguero-Bautista (1998), the reason for this allomorph selection is to maintain the syllabic profile of the non-diminutive source. That is, *-cit* locks the final consonant of the stem in the coda while *-it* draws it into the onset; hence the diminutive stems end up having the same syllabification as their source.¹⁸

18. Although it is true that none of the aforementioned criteria (and others mentioned in the literature) for allomorph selection handles all the data, most authors agree in the dependence of diminutive formation on the shape of the source word (cf., among others, Jaeggli 1980; Prieto 1992; Lloret 1995, 1998; Ambadiang 1996; Aguero-Batista 1998; Kenstowicz 2002).

- (18) a. -cit : amor → amorcito 'love' canción → cancioncita 'song'
 b. -it : loro → lorito 'parrot' corona → coronita 'crown'

Another piece of evidence comes from restrictions on diminutive formation. Several authors have noticed the apparently unrelated fact that nominals ending in *-s* that do not have a different plural form do not have a diminutive derivative either, and in this case the restriction on diminutive formation is not semantically or pragmatically grounded (cf. Varela 1990: 133).

- (19) francés — franceses — francesito 'French'
 lunes — lunes (*lúneses) — *lunecito 'Monday'
 tesis — tesis (*tésises) — *tesecita 'thesis'
 Cf. domingo — domingos — dominguito 'Sunday'
 artículo — artículos — articulito 'article'

Lloret (1995, 1998) pointed out that this correlation is not fortuitous but is connected to the morphological structure of the non-diminutive source. From the descriptive point of view, these are the observed generalizations: if *-s* is part of the stem, the nominal has a different plural form and a corresponding diminutive form (20a). If *-s* is plural inflection, as in *pluralia tantum* words (20b) and in compounds whose second element contains a plural (20c), the nominals do not have a surface distinct plural form but do have diminutives. However, if *-s* belongs to the marginal *-(V)s* nominal ending (where *s* is not affiliated to the plural morpheme), the words have no different plural form and no corresponding diminutive (20d).

- (20) a. [francés]_{STEM} [[[francés]_{STEM} it] o]
 b. [[tije] a] s_{PLURAL} [[[tije] it] a] s_{PLURAL}
 c. [[[par] a] [[[ray] o] s_{PLURAL}]] [[[par] a] [[[ray] it] o] s_{PLURAL}]
 d. [[tes]_{STEM} is] *[[[tes]_{STEM} (ec)it] a]

The precise formal explanation of these facts is not at issue here, but it is clear from the data above that diminutive formation depends on the form of the non-diminutive free-standing word, i.e., the base in Kager's terms.¹⁹

Table 2 summarizes the cases where the base-identity correspondence relation holds (a) or does not hold (b).

In this table the only odd elements are the pairings *él-ellos* and *aquel-aquellos*. Below we provide an explanation based on the fact that *él* and *aquel* cannot function as bases for *ellos* and *aquellos* because they differ in the gender marker (*-Ø* vs. *-o*).

19. Some authors (Prieto 1992, Ambadiang 1996) consider that diminutives like *lunecito* and *tesecita* are possible (yet admittedly rare). Interestingly enough for our purposes, though, the fact that these words select *-ecit* instead of *-(c)it*, as would be predicted on the basis that their source words are polysyllabic (*lunes*, *tesis*), is also explained through the morphological structure of the whole non-diminutive words. (There are no recordings of such cases in the CREA; neither are there for diminutives such as *tesiscita*, *dosiscita*, *lunescito*. For an overall review of diminutive formation, see Lázaro Mora 1999.)

Table 2. Patterns of base-identity relations.

a. Base identity	SINGULAR → PLURAL	desdé[n] → desde[n]es donce[l] → donce[l]es
	NON-DIMINUTIVE → DIMINUTIVE	clave[l] → clave[l]ito
b. No base identity	MASCULINE — FEMININE	do[n] — do[n]a donce[l] — donce[Λ]a, é[l] — e[Λ]a
	SINGULAR — PLURAL	é[l] — e[Λ]os; aque[l] — aque[Λ]os
	X(inflected verb) — Y(inflected verb)	desde[n]ar — desde[n]es
	X (simplex) — Y(derived)	desdé[n] — desde[n]oso clave[l] — clave[Λ]ina

The base-identity constraint that comes into play is defined in (21a). The regressive assimilatory effects encountered in [nasal + consonant] sequences are captured through the markedness constraint defined in (21b).

- (21) a. IDENTITY-BASE(PLACE) (ID-BA(PL)): Let α be a segment in the base, and β be a correspondent of α in the affixed form. If α is [γ Place], then β is [γ Place].
 b. AGREE(PLACE) (AGR(PL)): NC clusters must agree in place.

For the varieties of Castilian Spanish with systematic nasal/lateral depalatalization in diminutives and plurals and delabialization of /m/ in the same contexts (i.e., (a), (b), and (c) in Table 1, repeated here as (23)), the ranking at work is the one given in (22). Here we use, following Bakovič (2001), *–CORONAL (“Do not have a place of articulation other than coronal”, adapted from Prince and Smolensky 1993) to restrict all places of articulation except coronal (the unmarked place).²⁰ This constraint captures the facts of dialects that only show alveolar nasals and laterals in coda position, unless under assimilation. In order for *–CORONAL to affect nasals and laterals but not necessarily other consonants, we need to circumscribe the effects of IDENT(PLACE) to specific manners of articulation. We follow Padgett (1997), upon work by Jun (1994), in assuming that the faithfulness IDENT constraints can refer to manner and place of articulation simultaneously. Under this approach, the IDENT(OBSTRUENTPLACE) constraint is considered to be universally ranked higher than other manner-place faithfulness constraints, because obstruents resist assimilations more than other consonants. On the contrary, IDENT(NASALPLACE) is considered to occupy a low position in the ranking because the place cues of nasals in codas are very weak and therefore they easily assimilate. For our purposes, it is sufficient to identify the low position of IDENT(SONORANTPLACE) (ID(SONPL)) with respect to certain place markedness constraints.²¹ (Although the ranking of the IDENT(OBSTRUENTPLACE) constraint is

20. *–COR compacts the universal hierarchy of place markedness: *LABIAL, *DORSAL >> *CORONAL (cf., among others, Padgett 1997, Lombardi 2003).

21. The singularity of sonorant consonants with respect to obstruents as far as place of articulation is concerned is typologically grounded by different facts. Many languages, for example, have palatal

not at issue here, note that in the varieties where non-coronal coda obstruents, including those in word-final position, are maintained without becoming coronal, IDENT(OBSTRUENTPLACE) would be ranked above *-COR.)

- (22) *Ranking*: AGR(PL) >> ID-BA(PL) >> IDONS(PL) >> *-COR >> ID(SONPL)
- (23) a. /ɲ/: desd[ɲ], desde[n]es (N)
 desde[n]ar, desde[n]es (V), desde[n]oso
 b. /ɲ/: champá[n], champa[n]es, champa[n]cito
 champa[n]era, champa[n]ería
 c. /ʎ/: clave[l], clave[l]es, clave[l]ito
 clave[ʎ]ina
 d. /ʎ/: é[l]; aque[l]
 e[ʎ]os, e[ʎ]a, e[ʎ]as, e[ʎ]o; aque[ʎ]os, aque[ʎ]a, aque[ʎ]as, aque[ʎ]o
 e. /m/: tóte[n], tóte[n]es (also tóte[n]s), tote[n]cito
 tote[m]ismo, toté[m]ico

Centralization in the singular forms of items like *desde/ɲ/* (23a), *champa/ɲ/* (23b), *clave/ʎ/* (23c), and *tóte/m/* (23e) is explained by the ranking of *-COR above ID(SONPL) (cf. (24)). The maintenance of the non-coronal input places of articulation in onset positions is explained by the ranking of IDONS(PL) above *-COR (cf. (25)). The fact that centralization of nasals and laterals is carried over the onset position in plurals and diminutives is due to the higher ranking of the base-identity constraint ID-BA(PL) (cf. (26)). Note that the base-identity constraint is irrelevant for candidate selection in the case of other inflected and derived forms, because they do not satisfy the two criteria for base-hood that were previously stated (cf. (25)).

(24)	desdeɲ (N) Base: —	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
	desd[ɲ]			*!	
	☞ desdén				*
	totem Base: —	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
	tótem			*!	
	☞ tóten				*

obstruents but not palatal sonorants (they have \int , ζ , ʃ or dʒ but not ɲ or ʎ). Moreover, languages that have palatal obstruents and sonorants often centralize the latter in codas but not the former. For example, Alguerese Catalan shows systematic /ɲ/, /ʎ/ centralization but there is not a corresponding phenomenon for obstruents: *ba[n]-ba[ɲ]ar* 'bath-to bathe', *fi[l]-fi[ʎ]a* 'son-daughter' but *pe[ʃ]* 'fish', *mi[ʃ]* 'middle' (for an OO analysis along the lines put forward here, see Jiménez and Lloret 2006). Palatal and labiovelar glides are excluded from centralization because, among other reasons, there are not corresponding dento-alveolar glides. As said, in our analysis, the lack of centralization of some obstruents (f , ʃ , etc.) is easily accounted for by ordering IDENT(OBSTRUENTPLACE) before IDENT(SONORANTPLACE)). The centralization in borrowings of final \int , ζ (as in [aʃis] < [haʃis] 'hashish', [béʒs] < [be'ʒ] 'beige') is explained by the fact that Castilian Spanish lacks such sounds and is accounted in OT terms by ranking * \int , * ζ high.

clave ^λ	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: —				
clave ^λ			*!	
☞ clavel				*

(25)

desde ^η -es (V)	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: —				
☞ desde ^η es			*	
desdenes		*!		*

totem-ico	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: —				
☞ totémico			*	
toténico		*!		*

clave ^λ -ina	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: —				
☞ clave ^λ ina			*	
clavelina		*!		*

(26)

desde ^η -es (N)	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: desdén				
desde ^η es	*!		*	
☞ desdenes		*		*

totem-es	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: tóten				
tótemes	*!		*	
☞ tótenes		*		*

clave ^λ -es	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: clavel				
clave ^λ es	*!		*	
☞ claveles		*		*

clave ^λ -ito	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: clavel				
clave ^λ ito	*!		*	
☞ clavelito		*		*

The constraint ID-BA(PL) is irrelevant in the pairings *él-ellos* and *aquel-aquellos* (23d) because, although these pairs satisfy the compositional singular-plural relation, the plurals are not formed over independent words. That is, *ellos* and *aquellos* do not have as base masculine singular forms like *ello* and *aquello* (which do exist as neuter forms but not as masculines); they are related instead to *él* and *aquel* (without the masculine *o* allomorph) (cf. (27)).

(27)

eÁ	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: —				
eÁ			*!	
☞ el				*

eÁ-o-s	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
Base: —				
☞ eÁos			*	*
elos		*!		*

The allomorphy regarding the masculine morpheme (i.e., \emptyset in the singular but *o* in the plural) prevents the base-correspondence relation from being properly established. As (28) shows, the plural *desdenes* properly includes the singular, which is not the bare root [desdén], but the root plus the null gender marker: [[desdén] \emptyset]. Similarly, *ellos* differs from its singular by the presence of the plural marker, which clearly does not include the gender marker *-o-*. Since the singular is not the plural minus the plural marker, i.e. [[él] \emptyset] \neq [[él] *o*], the pair cannot establish a proper subset relation. Note that this does not alter the relation of the singular forms ending in consonant and their corresponding *-es* plural forms (e.g., *desdén-desdenes*), since whether we interpret the vowel of *-es* as epenthetic or as part of the plural morph, it cannot be parsed as part of the singular word (i.e., the base).²²

(28)

[[desdén] \emptyset]	[[[desdén] \emptyset] es]
[[él] \emptyset]	[[[eÁ] <i>o</i>] s]

The assimilated nasal realizations in pre-consonantal position are accounted for by the ranking of AGR(PL) above ID-BA(PL), as the tableaux (29) illustrate.

(29)

tótem suyo	AGR(PL)	ID-BA(PL)	IDONS(PL)	*-COR
Base: tóten				
...m s...	*!	*		*
☞ ...n s...				

tótem mío	AGR(PL)	ID-BA(PL)	IDONS(PL)	*-COR
Base: tóten				
☞ ...m m...		*		**
...n m...	*!			*

Diminutives in *-cit* and plurals in *-s* (and not in *-es*) from base words with a final nasal can also be accounted for with the same ranking, due to the effect of the highly ranked AGR(PL) constraint (cf. (30)).

22. Our interpretation of the facts goes against an explanation of these *e* vowels that only appear in the plural forms as class markers, because under this view the *o* segment in *ellos* and *aquellos* and the *e* segment in *desdenes* and *claves* have the same morphological status. Therefore, the contrast between the palatal in the former and the alveolar in the latter would remain unexplained. For discussion on the epenthetic or lexical character of these vowels, see, among others, Bonet (2006).

(30)	totem-cito Base: tóten	AGR(PL)	ID-BA(PL)	totem-s Base: tóten	AGR(PL)	ID-BA(PL)
	totemcito	*!	*	tótems	*!	*
	☞ totencito			☞ tótens		

Notice that in the case of *-m* words, an underlying form with *-/m/* is chosen in items like *tótem* on the basis of the alternations that surface in derived words (cf. *tóte[n]* but *tote[m]ismo*, *toté[m]ico*). However, in cases like *ad infinitum* *-[n]*, which do not have any related derived word, or in words like *álbum* *-[n]* in the varieties that do not show any related derived word with *[m]*, the right candidate is selected whether we choose an underlying form with a labial or one with an alveolar segment. Given the theory of richness of the base (ROTB), this is a desirable consequence of the analysis. The tableaux in (31) illustrate this point with respect to two attested plural forms of the word *álbum*: *álbu[n]s* and *álbu[n]es*.

(31)	album-s Base: álbun	AGR(PL)	ID-BA(PL)	album-s Base: álbun	AGR(PL)	ID-BA(PL)
	álbums	*!	*	álbums	*!	*
	☞ álbuns			☞ álbuns		
	album-es Base: álbun	AGR(PL)	ID-BA(PL)	album-es Base: álbun	AGR(PL)	ID-BA(PL)
	álbumes		*!	álbumes		*!
	☞ álbunes			☞ álbunes		

Other Castilian Spanish varieties show the same facts that we have reported up to now except that centralization of word-final labial nasals does not extend to other morphologically related words (cf. (c') in Table 1, repeated here as (32a)). In this case, the more specific positional faithfulness constraint *IDENTONSET(LABIAL)* (*IDONS(LAB)*), which enforces the preservation of the labial segments of the input when they are parsed as onsets, is ranked before the more general constraint *IDONS(PL)*, and it crucially dominates the base-identity constraint too. The ranking in (32b) dictates this distribution of the labials.

- (32) a. */m/*: *tóte[n]*, *tote[n]cito* but *tóte[m]es*, *tote[m]ismo*, *toté[m]ico*
 b. *AGR(PL)*, *IDONS(LAB)* >> *ID-BA(PL)* >> *IDONS(PL)* >> **-COR* >> *ID(SONPL)*

The tableaux in (33) illustrate the effects of this ranking in morphologically base-related pairs as far as labials are concerned.

(33)	totem Base: —	IDONS (LAB)	ID-BA(PL)	IDONS(PL)	*-COR	ID(SONPL)
	tótem				*!	*
	☞ tóten					

totem-es Base: tóten	IDONS (LAB)	ID-BA (PL)	IDONS(PL)
☞ tótemes		*	
tótenes	*!		*

totem-cito Base: tóten	AGR (PL)	IDONS (LAB)	ID-BA (PL)	IDONS(PL)	*-COR	ID(SON PL)
totemcito	*!		*		*	
☞ totencito						*

The cases of centralization in new lexical items that were crucial for defending the active status of the process can be handled straightforwardly. A word like *módem* 'modem', if set up with underlying /m/, will have the coda /m/ centralized to give [móðen]. Lexicon Optimization (cf. Prince and Smolensky 1993, Itô et al. 1995) will prefer /n/, if no alternations exist, but in any case *[móðem] is dictated by the ordering of constraints. Whenever alternations exist, related words with the non-coronal lateral or nasal in the onset will be enough to overcome Lexicon Optimization to establish the non-coronal in the lexical form, as in *isla[n]-islá[m]ico*, both from the root /islam/.

For the sake of comparison, we finally include the analysis of other Spanish varieties that disallow palatal nasals and laterals word-finally (and in the base-related forms) but not [m] (34a). The proposed ranking to account for this distribution is given in (34b). In this case, the compact *-COR constraint that we have been using for simplicity has to be replaced by the two more specific constraints *PALATAL (*PAL) and *LABIAL (*LAB). The more marked character of the palatal segments with respect to the labial ones justifies the higher position of *PAL in the ranking (cf. Padgett 1997).²³

- (34) a. /m/: tóte[n]s (*tóte[n]es) but tóte[m], tote[m]ismo, toté[m]ico
 b. AGR(PL) >> ID-BA(PL) >> IDONS(PL) >> *PAL >> ID(SONPL) >> *LAB

Tableaux (35)–(36) illustrate how this ranking handles the crucial data involving palatals and labials, respectively.

(35)

desde[n] (N) Base: —	ID-BA (PL)	IDONS(PL)	*PAL	ID(SON PL)
desde[n]			*!	
☞ desde[n]				*

desde[n]-es (N) Base: desde[n]	ID-BA (PL)	IDONS(PL)	*PAL
desde[n]es	*!		*
☞ desde[n]es		*	

23. Recall from the discussion on the ranking presented in (22) that the maintenance of non-coronal final obstruents such as -[f] and -[ʃ] is handled by ranking IDENTITY(OBSTRUENTPLACE) before *PALATAL, and hence before IDENTITY(SONORANTPLACE) and *LABIAL for the ranking in (34b).

(36)

totem	AGR (PL)	ID-BA (PL)	IDONS(PL)	*PAL	ID(SON PL)	*LAB
Base: —						
☞ tótem						*
tóten					*!	

totem-s	AGR (PL)	ID-BA (PL)
Base: tótem		
tótems	*!	*
☞ tótens		*

4. Conclusion

Although Castilian Spanish displays few cases with morpho-phonological alternations ([n]–[m], [ɲ]–[ɲ], [l]–[ʎ]), we have provided evidence showing that there is an active process of centralization. We have presented an OT analysis based on positional faithfulness and OO faithfulness constraints (extending previous works by Bakovič 1998, 2001). We have further shown that these asymmetric OO constraints are to be established using the strongest version of base proposed by Kager (1999a,b), echoing Brame (1974).

Many other Spanish varieties show more limited effects of centralization, but our analysis extends, under appropriate modifications, to them as well. The same analysis can also be extended to other languages, such as Occitan, which systematically shows nasal place centralization (*fu[n]–fu[m]ar* ‘smoke–to smoke’, *ba[n]–ba[ɲ]ar* ‘bath–to bathe’), and Alguerese Catalan, in which there is systematic centralization with palatal nasals and laterals but not with labials (*ba[n]–ba[ɲ]ar*, *fi[l]–fi[ʎ]a* ‘son–daughter’ but *fu[m]–fu[m]ar*).

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