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The Romance Plural Isogloss and Linguistic Change

A Comparative Study of Romance Nouns

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Abstract

Romance nouns show a well-known morphological isogloss. There are two groups of languages: those pluralizing by suffixing -s (such as Spanish), and those pluralizing by changing the quality of the final vowel (such as Italian). In this paper, I propose an explanation of this isogloss. More precisely, I argue that the cross-linguistic diversity within Romance depends on morpho-phonological parameters on the structure of the noun. These parameters consist of language-particular restrictions on the form of the (nominal) roots and the exponents of gender and number.

Keywords

Romance languages, linguistic change, noun structures, spell-out, morphology, phonology.

1. Introduction

Romance nouns display a well-known isogloss with respect to the expression of the plural. There are two groups of languages: those that pluralize by adding the suffix -s,

and those that pluralize by changing the quality of the final vowel of the noun. Table 1

below illustrates such an isogloss providing examples from Portuguese, Spanish,

French, Italian and Romanian.[1]

(1) Romance noun plural isogloss

Portuguese	Spanish	French	Italian	Romanian	
[loβᵘʃ]	[loβos]	/løz/, [lø][2]	[lupi]	[lupⁱ]	'wolves'

Literature on historical linguistics (cf. among others Tagliavini 1972: 131-139) has

explained this situation by distinguishing a Western Romania (including Pt, Es, Fr,

etc) from an Eastern Romania (including It, Ro, etc). [3]

In this paper, I propose an explanation of the morphological isogloss. More

precisely, I argue that this cross-linguistic diversity within Romance depends on

morpho-phonological parameters on the structure of the noun. These parameters

consist of language-particular restrictions on the form of (nominal) roots and on the

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[1] I use the following abbreviations: Pt = Portuguese, Es = Spanish, Fr = French, It = Italian, Ro = Romanian, F = feminine, M = masculine, Num = number, sg = singular, pl = plural, Nom = nominative, Gen = genitive, Dat = dative, Acc = accusative, Voc = vocative and Abl = ablative.

[2] French [lø], spelled *leu*, is used only in the following idiom: *à la queue leu-leu* 'one-by-one line'. The plural *leus* existed in Old French. Modern French borrowed the form [lu], spelled *loup*, from Occitan. The phonemic transcription /løz/ is necessary to show the plural morpheme /z/, which surfaces only in the well-known context of *liaison* (Encrevé 1988, Dell 1973). I return to French plural in section 3.2.1.

[3] Following a comment of an anonymous reviewer, I believe it is worth mentioning that the split between Eastern and Western Romania is a philological generalization based mainly on the existence of two isoglosses. The first one involves the above-mentioned plural in nouns. The other consists of the lenition of intervocalic voiceless stops, occurring only in Western Romania: Latin ROTAM 'wheel' > *roða* (Pt), *rueða* (Sp), *roue* (Fr) vs. *ruota* (It), *roată* (Ro).

The Italian peninsula is cut into two parts: Northern Italy belongs to Western Romania, and Southern Italy to Eastern Romania. The isogloss goes from Massa to Senigallia (cf. Wartburg 1936). Modern Italian is the result of vernacular Tuscan, thus belonging to Eastern Romania.

exponents of gender and number. For the sake of clarity, I repeat the two main goals

of this paper below:

(2) Goals of the paper

a. To show that Romance noun structures share a unique set of functional

 categories.

b. To show how parameters on the structure of the noun account for cross-linguistic

 diversity.

The analyses presented in this paper are consistent with a syntactic approach

to word formation, such as Distributed Morphology (Embick 2010, Halle and Marantz

1993, Marantz 1995, 1997). In this theory, words are built in the syntax and each

terminal node corresponds to a morpheme.[4] Morphemes are feature matrices devoid

of phonological content. The phonological exponents of each morpheme are inserted

through an operation called *spell-out*. In addition, I adopt the general framework of

Government Phonology (Kaye, Lowenstamm and Vergnaud 1985, 1990), and the

more specific CV option (Lowenstamm 1996, Scheer 2004). Following Bendjaballah

and Haiden (2008), I assume that each exponent surfaces according to one of the

following phonological types:

(3)　a. Segmental　　b. Skeletal　　c. Segmental and skeletal　　d. Silence

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[4] Specific operations such as Fusion, Merger and Fission can change the correspondence between a terminal node and a given morpheme. Only Fission will be introduced, cf. section 3.1.

```
           ka                        k a                    ø
                                      | |
                        CV            CV
```

In the first case, the exponent consists only of a sequence of (auto)segments. In an autosegmental framework, a segment is audible only if it is associated with a skeletal tier. Thus, exponents of type (3a) are not audible unless they find C and/or V positions. Conversely, type (3b) consists of a CV unit, and no segments. This is an exclusively skeletal type. Type (3c) is complex, i.e. a fully audible sequence of segments. Finally, (3d) consists of a null exponent, i.e. a phonological zero.

The paper is organized as follows. In section 2, I present the historical explanation of the isogloss and my hypothesis on the origin of the vocalic plural. Italian is used as a case study. Section 3 shows the parametric choices made by each individual language with respect to the internal organization of the noun structure. I present first Latin nouns, then three case studies: French, Spanish and Italian nouns. Each language exemplifies a particular situation of the evolution from Latin nouns. Finally, section 4 concludes.

2 The isogloss

This section is divided into two parts. The first presents the traditional hypothesis concerning the origin of the isogloss; the second illustrates my own proposal, based on a particular phonetic evolution of the Acc marker -s.

2.1 The historical explanation of the isogloss

The situation shown in (1) originates, diachronically, from the Latin declensional system. It is traditionally accepted that Romance nouns derive from Latin Acc as far as singular is concerned, as shown in the table below:[5]

(4) Singular nouns in Latin and Romance

Latin	Portuguese	Spanish	French[6]	Italian	Romanian
Nom PONS	*	*	*	*	*
Acc PONTEM	[põntə]	[pwente]	[põ]	[ponte]	[pod]

The pattern shown in (4) accounts for the overwhelming majority of singular nouns in Romance.

In contrast, plural cannot be explained on the simple basis of the comparison with the Acc. In fact, as already mentioned, it displays an interesting isogloss, which has been described in the following manner:

(5) Romance plural isogloss

a. Western Romance (Pt, Es, Fr, etc) pluralizes using -s;

b. Eastern Romance (It, Ro, etc) pluralizes using -i.

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[5] Latin nouns are spelled in small caps; vocalic length is marked by a dash on the vowel.
[6] Latin COMES (Nom), COMITEM (Acc) 'mate' > Fr [kɔ̃t] 'count, earl' removes any doubt: French nouns continue Latin Acc forms. See below, fn 7.

This situation is illustrated in the table below:

(6) Plural nouns in Latin and Romance

Latin	Portuguese	Spanish	French[7]	Italian	Romanian
Nom LUPĪ	*	*		[lupi]	[lupⁱ]
Acc LUPŌS	[loβᵘʃ]	[loβos]	/løz/	*	*

The data above suggest that Portuguese, Spanish and French plurals are continuations of the Acc form LUPŌS, whereas Italian and Romanian plurals originated from the Nom LUPĪ.[8]

The explanation depicted in (6) is based on a phonological observation: Western Romance conserved final -s, whereas Eastern Romance disallowed this

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[7] Modern French has developed through various well-documented stages of Old and Middle French. In these stages of the language, five main declensions existed (Picoche 1979:68-73) as well as two distinct syntactic cases: subject case (SC) and oblique case (*cas régime*, CR). In M nouns from declension 2 (such as MURUS 'wall'), singular was characterized by the presence of -s at SC and a zero marker at CR, whereas plural displayed the reverse situation. In turn, M nouns from declension 3 (such as PATER 'father'), displayed -s marking only in the plural of CR:

(i)	Singular	Plural		(ii)	Singular	Plural	
SC	*murs*	*mur*	'wall(s)'	SC	*pere*	*pere*	'father(s)'
CR	*mur*	*murs*	'wall(s)'	CR	*pere*	*peres*	'father(s)'

As far as the origin of Modern French plural marker /z/ is concerned, the general view, which I assume here, is that the silent morpheme /z/ is the direct continuation of Latin Acc -s. Additional details as well as the complete list of inflectional paradigms can be found in La Chaussée 1989, Picoche 1979 and Zink 1986.

[8] The evolution of adjectives follows a very similar path. In fact, Latin adjectives are organized in two classes: class 1 inflects as declension 1 nouns in the F (BONA, BONAE, etc..) and declension 2 nouns in the M (BONUS, BONĪ, etc..) and in the neuter (BONUM, BONĪ); class 2 follows declension 3 (FACILIS M/F, FACILE Neu;). In Romance, these patterns are generally conserved: It *buono* M/*buona* F vs. *facile* M/F, Sp *bueno* M/*buena* F vs. *fácil* M/F, Fr *bon* M/*bonne* F (underlyingly: /bon/ vs. /bonə/) vs. *facile* M/F. Due to space constraints, I will not be addressing adjectives in this paper.

consonant from final positions.[9] This hypothesis is based mainly on the assumption that, in Italian, the phonological evolution would have blurred the distinction between the singular and the plural. This idea is schematized below:

(7) Italoromance

	Loss of -m	Loss of length	Loss of -s	Low. of -u	It forms
Singular					
Nom LUPUS			*lupu	*lupo	lupo
Acc LUPUM	*lupu			*lupo	lupo
Plural					
Nom LUPĪ		*lupi			lupi
Acc LUPŌS		*lupos	*lupo	*lupo	lupo

Once Acc -m had been lost and length neutralized, final -s was dropped. At this stage of the phonological evolution, Italoromance could not distinguish between Nom and Acc in the singular, as both forms were presumably *lupu. At the same time, plural displayed two distinct forms: *lupi in Nom, and *lupo in Acc. Later, the lowering of (short) -u caused the neutralization between the singular and the Acc plural, all forms hence being *lupo.

In his historical grammar of Italian, Rohlfs (1969) accepts the hypothesis that Italian plural -i originated from Latin Nom, declension 2. According to him, the crucial

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[9] Recall that, in French, plural /z/ surfaces only followed by a vowel, i.e. in the already mentioned context of *liaison*. This consonant has been elided since the 12th century.

argument is the merging of sg Acc *lupo (<LUPUM) and pl Acc *lupo (<LUPŌS). In addition, Sabatini (1965), building on philological data from Proto-Romance, embraces the same hypothesis (which he calls "the traditional hypothesis", *ibid.*: 34): Italian *lupi* derives from Latin declension 2 pl Nom LUPĪ.

However, the historical explanation of the isogloss depicted thus far seems inconsistent in at least one sense: it claims that Italian nouns result from two distinct syntactic cases depending on their number. Is it plausible that the Italian plural has been formed on the Nom, whereas the corresponding nouns in Portuguese, Spanish and French retained the Acc forms?

In the next subsection, I argue against this point of view, claiming that Italian nouns illustrate the continuation of Latin Acc both in the singular and in the plural.

2.2 Vocalic plurals derive from Latin Acc

In this subsection, I explore the hypothesis by which Italian nouns derive, diachronically, from Latin Acc, both in the singular and in the plural. Recall that Italian belongs to the Eastern Romania group. This group is characterized by the presence of a vocalic plural. Following an idea originally found in Reichenkron (1939) and later developed by Aebischer (1960), Maiden (1996) and D'hulst (2006), I propose that the Romance vocalic plural derives from the Latin Acc marker -s, through a phonetic evolution that transformed /s/ into /i/.

The comparison between Latin plurals from declensions 1, 2 and 3 on one side and the corresponding plurals in Italian on the other illustrates the starting point of the analysis.

(8) Latin and Italian plurals

	Case	Declension 1		Declension 2		Declension 3	
Gender		M	F	M	F	M	F
La	Nom	POETAE	ROSAE	LUPĪ	FAGĪ	DUCĒS	PACĒS
La	Acc	POETĀS	ROSĀS	LUPŌS	FAGŌS	DUCĒS	PACĒS
It	---	*poeti*	*rose*	*lupi*	*faggi* (M)	*duci*	*paci*
		'poets'	'roses'	'wolves'	'beeches'	'leaders'	'peaces'

Italian generalized the use of -i, except in F nouns from declension 1. Thus, -i is not gender-specific. Rather, it expresses only the plural (Lampitelli 2010, 2011, Passino 2009). This is exactly the same situation found in Latin: the Acc marker -s is used to express the plural, disregarding the gender. More precisely, Latin -s is a portmanteau morpheme expressing both Acc and plural.[10]

My hypothesis is the following: first, -s lost its specification of syntactic case.[11] As a consequence, it became a simple plural marker. Then, a phonetic change

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[10] We will see how gender is sometimes expressed by the theme vowel, cf. section 3.
[11] In Latin, the syntactic case system has weakened since the first century.

occurred, transforming the alveolar fricative into a palatal high vowel (cf. Reichenkron 1939, Straka 1979), as shown below:

(9) s → ʃ → j → i

The phonetic change depicted in (9) is responsible for the creation of plural marker -i in Italian.

This idea, first proposed by Reichenkron (1939), has been supported by Aebischer (1960), Maiden (1996) and D'hulst (2006). The last work, in particular, proposes that "the articulator feature of final [s] tends to survive" (D'hulst, 2006: 1327) spreading to the preceding vowel. This vowel can be either -o- (cf. LUPŌS) or -a- (ROSĀS). In other words, D'hulst's analysis claims that the plural marker -i is the result of the spreading of the feature [coronal] to either [o] or [a]. No distinction is made between the marker of number and the marker of gender, as they are both expressed by one vowel: [i] is masculine and plural, whereas [e] is feminine and plural.

In contrast, I propose that -i is an independent marker, expressing only plural. In this way, gender is expressed by the etymologic vowel, i.e. -o- marks masculine in LUPŌS and -a- marks feminine in ROSĀS.[12] The morpheme -i originates from Latin -s,

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[12] A caveat is in order here. Latin -s is clearly unspecified for gender, as it appears in both M and F nouns (as already mentioned, neuter displays syncretism of the direct cases). Italian -i behaves in a similar way: it pluralizes both M and F nouns (cf. table 8). The suffix -i is not involved with gender. I claim that the theme vowels are the expression of this lexical property of the root, cf. infra section 3.2.3.

which marks the Acc and the plural, but not the gender. In other words, neither -i nor -s involve gender because they are one and the same.

Thus, there is a unique plural marker in Latin and Italian. This analysis allows one to account for both Latin and Italian nouns, as will become clear in subsections 3.1 and 3.2.3, dedicated respectively to Latin and Italian noun structures.

Before turning to the structure of a noun in Romance, let me briefly discuss the evidence supporting the claim that Italian *lupi* is the continuation of Latin LUPŌS. Two arguments will be provided: the first one syntactic, the second phonetic.[13]

Consider the following Latin sentence (Väänänen 1934):

(10) FILIOS   ET   NEPOTES   MEMORIA   PATRI   POSUERUNT

     sons   and   nephews   to-the-memory   of-the-father   built

     'The sons and the nephews built [this] in memory of their father'

In (10) above, FILIOS is clearly a Nom. However, it has the form of an Acc of declension 2. The Nom bearing an Acc profile has been used quite often since the second century and a large documentation has been conserved (Väänänen 1934). The use of the Acc instead of a Nom is a crucial argument in favor of the hypothesis according to which LUPŌS is the base of the Italian plural.

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[13] Aebischer (1960, 1961), Sabatini (1965), Maiden (1996) and D'hulst (2006) build their hypotheses on exactly the same two arguments. D'hulst, however, argues that Italian M -i is derived from declension 2 Acc pl LUPŌS.

The phonetic argument comes from two phenomena which can be observed in Italian. The first case concerns a few monosyllabic words such as POS(T) 'after, later', NŌS 'we' and VŌS 'you (pl)'. The final -s has been replaced by -i as Italian examples illustrate: *poi, noi, voi*. The second case concerns the verbal system. The second person of the singular is -i. Crucially, Latin (as well as Western Romance) displays -s in this position. For instance, Latin AMĀS 'you love' corresponds to Italian *ami*.[14] This situation holds true for the all conjugations in Italian.[15]

In the next section, I explore the structures of Latin nouns. Then, I show the structure of nouns in Spanish, French and Italian.

3. The parameters of the evolution from Latin

The goal of this section is to illustrate how a few parametric choices regarding the forms of the exponents trigger the cross-linguistic variation we observe in Romance. The first part is dedicated to the exploration of the underlying structure of nouns in

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[14] Interestingly enough, the theme vowel is erased in the verb, but not in the noun:

(i) Latin Italian
a. verbs AMĀS > *amaj > *ame (instead of Standard Italian *ami*)
b. nouns ROTĀS > *rotaj > rwote (*rwoti)

The literature agrees in considering that when -s becomes -i, it palatalizes the theme vowel -a- in declension 1 F nouns. This is shown in (i.b). Thus, we expect that verbs behave in the same manner, e.g. *ame should stand for 'you love (sg)'. This was true in Old Italian (cf. Rohlfs 1969), whereas Modern Italian disallows such a derivation. Only *ami* 'you love (sg)' is correct. I deal with the derivation LUPŌS > *lupoi > *lupi* in section 3.2.3.

[15] Other cases of -i replacing -s exist in Romance. Rohlfs (1977) cites a well-known phenomenon in Gascon (a dialect of Occitan) where -s in coda-position became -i, as in ÁSINUM → *asinu* → *asnu* → *aine*. 'donkey'. Also, consider Chilean Spanish, where *(tu) vas* 'you go' becomes *(tu) vaj*.

Latin. In the second part, three case studies will be analyzed: French, Spanish and

Italian.[16] Finally, it will be shown how these three Romance languages differ from one

another with respect to realizations of gender, number and theme vowel.

3.1 Latin nouns

In Latin, nouns are organized into declensions, e.g. five distinct inflectional

paradigms. Each noun consists of a root followed by a theme vowel (henceforth Th)

and a number-case (henceforth num and K, respectively) ending, as shown below:

(11) Root + Th + num/K

Each declension is characterized by a particular Th, so that declension 1

selects for -*a*-, declension 2 selects for -*o*-, declension 3 selects for either -*i*- or zero,

declension 4 selects for -*u*- and, finally, declension 5 selects for -*e*- (Meiser 1998).

Both diachronic and synchronic phonological processes render surface forms opaque

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[16] I chose to focus on French, Spanish and Italian as case studies for the following reasons. The first reason is diachronic. French represents the most innovative language with respect to Latin: the strong phonetic erosion which has occurred since Old French impoverished the morphological system. Thus, it is interesting to analyze such a system and observe the differences between Latin and French. Conversely, Spanish is the ideal Romance language with respect to pluralization: Latin -s is maintained and generalized to the whole system, including loans (To some extent, Portuguese would have also been a good choice). Finally, Italian otherwise a rather conservative language (although not as much so as Sardinian) innovates with respect to pluralization.
The second reason is synchronic. I aimed at taking one language that pluralizes with -s and one that does so with -i. Spanish and Italian, respectively, seemed natural choices. French, in turn, is the counterpart of the Spanish case: it pluralizes with -s but this morpheme rarely surfaces. Finally, there is a practical reason. Literature on the origin of the Italian plural, like literature in formal linguistics dedicated to Spanish and French and Italian nouns as synchronic systems, is vast.
That said, further research will have to extend the analyses presented in this paper to other varieties of Romance, such as Catalan, Occitan, Italian dialects, Romanian, Latin American Spanish etc...

with respect to the sequence in (11). For instance, declension 2 pl. Nom, LUPĪ does not display the expected Th -o-.[17]

In addition, declensions 1 and 2 display a certain degree of predictability in terms of gender. Hence, a noun in declension 1 is generally feminine, whereas one appearing in declension 2 is generally masculine. Declension 3, however, does not allow for gender recognition.[18]

The table below illustrates the complete paradigms of declensions 1 and 2, as well as three sub-paradigms of the singular of declension 3.[19]

(12)	Declension 1		Declension 2			Declension 3		
#	sg.	pl.	sg.	pl.	sg.	sg.	sg.	sg.
gender	F	F	M	M	Neu	F	M	Neu
gloss	'rose'	'roses'	'wolf'	'wolves'	'egg'	'peace'	'leader'	'honor'
Nom	ROSA	ROSAE	LUPUS	LUPĪ	OVUM	PAX	DUX	HONOR
Gen	ROSAE	ROSĀRUM	LUPĪ	LUPŌRUM	OVĪ	PACIS	DUCIS	HONORIS
Dat	ROSAE	ROSĪS	LUPŌ	LUPĪS	OVŌ	PACĪ	DUCĪ	HONORĪ
Acc	ROSAM	ROSĀS	LUPUM	LUPŌS	OVUM	PACEM	DUCEM	HONOR
Voc	ROSA	ROSAE	LUPE	LUPĪ	OVUM	PAX	DUX	HONOR

---

[17] Note that Archaic Latin pl Nom of decl. 2 was -oi, cf. Gordon (1975) and Meiser (1998). Further details on the synchronic processes applying to the declensions can also be found in Niedermann (1953).

[18] I am not concerned with declensions 4 and 5, as they are not crucial for the purposes of this paper. Nouns belonging to both classes have generally been rearranged into one of the first three declensions. Note that declensions 1, 2 and 3 are the central classes in the nominal systems of the majority of Romance languages.

[19] By hypothesis, the structure proposed for declensions 1, 2 and 3 underlies the entire paradigm of Latin nouns.

Abl	ROSĀ	ROSĪS	LUPŌ	LUPĪS	OVŌ	PACE	DUCE	HONORI

The Latin data illustrates three facts. First, num and K endings are realized by a single suffix; for example -rum indicates both plural *and* Gen (declensions 1 and 2). Second, the portmanteau morpheme num-K is generally identical across declensions. For instance, the Acc is marked by -m in the sg and by -s in the pl (with the exception of Neu sg. from declension 3 and all Neu pl[20]). In other words, sg *and* Acc is spelled out as -m, whereas pl *and* Acc is spelled out as -s. Third, the num-K suffix is preceded by the theme vowel corresponding to the declension. In a few cases, however, the theme vowel is deleted, as in declension 2 pl. Nom LUPĪ 'wolves'.[21] These problems aside, the data in (12) confirm the underlying sequence proposed in (11).

Following previous work in DM (Embick and Halle 2005, Halle and Vaux 1998) I propose that Latin noun structures consist of a root merging to an nP. This projection is then merged to num(ber)P and in turn to KP. Furthermore, I propose that the underlying structure shown in (13a) undergoes Fusion (Calabrese 1998). Fusion is a particular theoretical mechanism that operates on terminal syntactic nodes (Noyer 1992) unifying nodes KP and numP under a unique label, num/KP, as shown in (13b):[22]

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[20] Neu is characterized by the identity of its direct cases, i.e. Nom, Acc and Voc. For this reason it escapes the generalization applied to all declensions by the same Acc suffixes.

[21] Halle and Vaux (1998) explicitly mention "deletion rules" to account for the deletion of the theme vowel.

[22] Cf. Calabrese (1998) for technical details on how Fusion applies to Latin structures.

An anonymous reviewer points out the lack of direct evidence for the existence of an independent node labeled Num in Latin. In other words, only K is empirically justified. This is an interesting point,

(13) Latin noun structures[23]

a.
```
          KP
        /    \
      K       numP
      |      /    \
  [K feat] num     nP
           |      /   \
         [±pl]   n     √
                 |
               [±F]
```

Fusion →

b.
```
         num/KP
        /      \
    num/K       nP
      |       /    \
  [ K feat ] n      √
  [ ±pl ]   / \
           n   Th
           |    |
         [±F]   Th
```
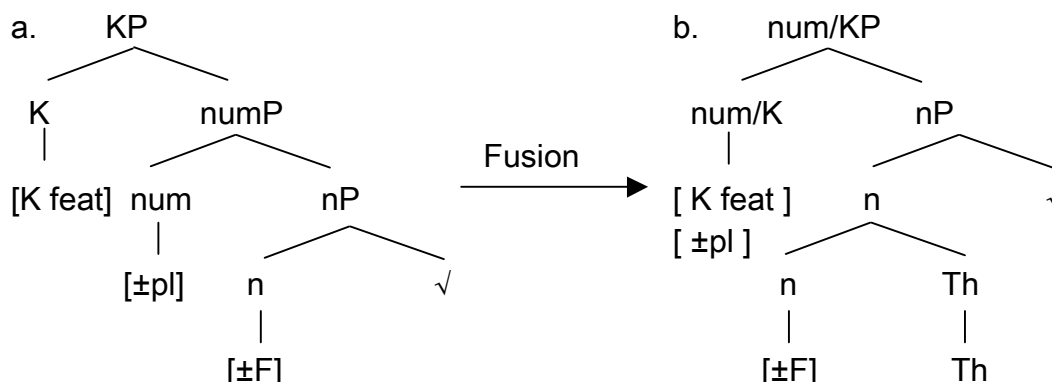
In addition to Fusion, the structure in (13b) displays an adjunct to *n*: *Th*.[24] This is a specific requirement of the language, that is, a lexical property. Each node introduces the features of a particular morpho-syntactic property: *Th* hosts the theme vowel, *n* hosts gender, *num* hosts number and, finally, *K* hosts the feature matrix corresponding each syntactic case.

As mentioned in the introduction, the realizational process applying to each terminal node is called spell-out. This consists of the insertion of phonological

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but space constraints prevent me from addressing it further. As a partial justification of this configuration, I assume that each morphological category is represented by an independent node in the syntactic structure. This is a central point of Distributed Morphology (cf. Calabrese 1998, Embick 2000, 2010, Embick and Halle 2005, Embick and Noyer 2007, Halle and Vaux 1998 and the references therein).

[23] "K feat" under the node K stands for "case features". As we are concerned only with Acc, I will not go into the details of the feature matrix of the syntactic case. Cf. Halle and Vaux (1998).

[24] Embick and Noyer (2007:305-310) propose an adjoined *Th* to *v* and *n* to account for theme vowel in both Latin verbs and nouns (called "Ornamental Morphology"): in their account, too, *n* is empty. In addition, Oltra-Massuet (2000) proposes that *Th* is adjoined to all major categories in Catalan verbs.

In my analysis, the node *Th* is adjoined at the same time as Fusion, whereas in Embick and Noyer's *Th* is adjoined at PF, prior to Vocabulary Insertion (cf. ibid.: 13-14). I consider this difference to be a minor detail. What is important, though, is the adjunction of the node *Th* as a lexical requirement, something that cannot be accounted for by the basic structure. Therefore, it is adjoined later. As theme vowels are properties of the root, the node *Th* is adjoined to all the Latin (nominal) roots.

material into the structure.[25] Each phonological item is referred to as a Vocabulary

Item (VI). A VI pairs a phonological object with its context of insertion. As far as Latin

nouns are concerned, the complete list of VI's involves quite a large number of items.

I propose to focus only on the Acc as it is the crucial case for our discussion. In order

to account for the Acc, we need the following VI's (cf. Halle and Vaux 1998 for a

complete list):

(14) VI's for Latin Acc nouns

m
|
a. CV ⇔ [Acc, -pl]

zero
|
e. CV ⇔ decl. 3

s
|
b. CV ⇔ [Acc, +pl]

u
|
f. CV ⇔ decl. 4

a
|
c. CV ⇔ decl. 1

e
|
g. CV ⇔ decl. 5

o
|
d. CV ⇔ decl. 2

VI's (14a) and (14b) constitute the exponents of the Acc sg. and the Acc pl.,

respectively. VI's (14c) through (14g) represent the exponents of the theme vowel in

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[25] A syntactic approach to word-formation is generally realizational, cf. Di Sciullo and Williams (1987) for a non-realizational syntactic approach to word-formation. That said, theories claiming an independent morphological module can still postulate a realizational process, e.g. through the application of rules of referral (cf. Paradigm Function Morphology, Stump 1993, 2001). This discussion, however, is tangential to the purposes of this paper.

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each declension. The VI's shown in (14) all consist of a complex spell-out, i.e. a spell-out including both segmental and skeletal material, cf. the representation (3c). In other words, each VI above is a fully pronounceable phonological item. This is the case for the root, too. In fact, the shape of the root is lexical: the length of the template depends on the number of segments composing the root.

The process of spell-out is subject to an intense debate, but is beyond the scope of this paper (Bendjaballah and Haiden 2008, Borer 2005, Caha 2010, Embick 2010, Embick and Marantz 2008, Faust 2011, Lampitelli 2011, Lowenstamm 2008, 2010, 2012, Piggott and Newell 2006, Scheer 2011, 2012). In the present discussion, I consider how spell-out provides each terminal node in the structure (13b) with phonological material. In addition, a complex head is created, e.g. a head not dominated by another head projection (Embick 2010:37-38). Below, I show the complex head of LUPŌS 'wolves' M pl Acc:[26]

(15) Latin complex head: LUPŌS 'wolves'

To create the well-formed surface noun, the phonological material must be linearized. The linearization of LUPŌS is shown below:

(16) The linearization of LUPŌS 'wolves'

```
Num/K                        s
Decl.                   o    |
Gender            M  /      |
Root         l u p  /      |
             | | | /        |
Template     CVCV + CVTh + CVnum/K          Output: LUPŌS 'wolves' M pl Acc
```

In a similar way, the representation of ROSĀS 'roses' F pl Acc includes the complex head below:

(17) Latin complex head: ROSĀS 'roses'

```
                    num/K
                  /       \
              n            num/K
            /   \            |
          n      Th          s
        /   \     |          |
     √ROS    n    a         CV
       |     |    |
      CVCV   F    CV
```

The linearization of this noun is shown as follows:

(18) The linearization of ROSĀS 'roses'

```
Num/K                        s
Decl.                   a
Gender            F
Root           r o s
               | | |
Template     CVCV + CVTh + CVnum/K          Output: ROSĀS 'roses' F pl Acc
```

By hypothesis, the structures shown for LUPŌS 'wolves' M pl Acc and ROSĀS

'roses' F pl Acc account for the whole system. According to DM, specific

readjustment rules may apply post-syntactically.

To summarize this subsection, Latin nouns are formed by the combination of

three distinct functional nodes (*n, num* and *K*). Two of these nodes undergo Fusion,

becoming a unique terminal *num/K*; an adjunct *Th* is created later in the derivation.

The spell-out process provides the terminals with phonological material, which is then

combined into surface forms throughout a linearization process.

The next subsection explores the nouns of Romance, highlighting the formal

changes undergone during the evolution of Romance from Latin.

3.2. Modern Romance nouns

Modern Romance nouns differ from Latin ones with respect to the following features: (i)

the absence of overt case morphology (except Romanian, which is not treated here), (ii)

the emergence of particular phonological restrictions. In this subsection, I illustrate how

these two types of changes impact French, Spanish and Italian nouns. More precisely, I

attempt to formalize the properties of both types of changes.

3.2.1 French

One of the main features of French nouns is the opaqueness of the morphological

decomposition with respect to the form of the inflectional exponents. In other words,

French nouns don't seem to fit the decomposition into discrete objects, e.g. gender

and/or number markers.

Modern French has evolved from well-attested stages traditionally referred to as

Old French (9th to 14th centuries) and Middle French (14th to 17th centuries). As

already mentioned (cf. section 2.1, fn 7), Old French had two syntactic cases: a subject

case (SC) and an oblique case (*cas régime*, CR). The distinction between these two

cases was lost in Middle French. Modern French nouns show the evolution of CR

nominal forms.

On the other hand, since Old French, the Romance variety known as *langue*

d'oïl has been plagued by much phonetic erosion. Consequently, a neutralization of

unstressed vowels occurred as well as a generalized loss of post-tonic consonants.

This process can be observed in the examples below:

(19) Phonetic evolution in French (cf. Zink 1986: 217)[27]

a.   Latin   ÁSĬNU(M) 'donkey'   b.   Latin   KAMPÁNĬA(M) 'countryside'[28]

                                        1st   kampánja

                                        2nd   kampájɲja

     3rd   ásenu

     4th   áznu

     5th   ázno   5th   tʃampájɲja

     7th   áznə   7th   tʃampáɲə

     11th ã:nə   11th   tʃãmpãɲə

                                        13th   ʃãmpãɲə

     15th ã:nœ   15th   ʃãmpãɲœ

     16th ɑ:nœ

     17th 'ɑ:n   17th   ʃãˈpaɲ

The phonetic erosion is even more surprising if we compare French ['ɑ:n] and [ʃãˈpaɲ] to

the Italian equivalents *asino* ['asino] 'donkey' and *campagna* [kamˈpa:ɲa] 'countryside'.

   The Modern French lexicon shows the effects of this phonetic erosion, as seen

in the following examples. It includes nouns ending either in a consonant or a vowel:

(20) French nouns

---

[27] The ordinal numbers indicate the century during which the phonological change occurred.
[28] Modern French [ʃãˈpaɲ] denotes the Region *Champagne* as well as the famous *Champagne* wine.
The equivalent of 'countryside' is [k]*ampagne*, a borrowing from the Picard variety (cf. TLFi).

Number	sg.	pl.	sg.	pl.	sg.	pl.	sg.	pl.
Gender	F	F	M	M	F	F	M	M
V#	[ʁu]	[ʁu]	[lu]	[lu]	[ami]	[ami]	[ami]	[ami]
	'wheel'		'wolf'		'(she) friend'		'(he) friend'	
C#	[pil]	[pil]	[fil]	[fil]	[fak]	[fak]	[pik]	[pik]
	'battery'		'wire'		'university'		'peak'	

The isolated forms of the nouns in the table (20) do not distinguish the singular from the plural.[29] As already mentioned, the plural morpheme /z/ surfaces only in the *liaison* context, as can be seen below (cf. Dell 1973, Sauzet 2004):

(21) *Liaison* contexts

    a. *un enfant*
        a   kid
        'a kid'

    b. *des peti*[z] *enfants*
        Det little   kids
        '(some) little kids'

    c. [lami]   *italien*
        Det.friend Italian
        'the Italian friend'

    d. [lez.amiz.it]*aliens*
        Det.friends.Italian
        'the Italian friends'

---

[29] There are some exceptions to this general pattern: *œil* [œj] sg - *yeux* [jø] pl 'eye(s)', *bœuf* [bœf] sg - *bœufs* [bø] 'ox(en)', *os* [ɔs] sg - *os* [o] pl 'bone(s)' as well as nouns like *cheval* [ʃ(ə)val] sg - *chevaux* [ʃ(ə)vo] 'horse(s)'. Cf. Lowenstamm (2012) for an analysis of the latter group.

In addition, gender is only partially predictable. For instance, a noun ending in a vowel can be M, F or both, as shown in the table (20). I submit that M gender has no exponent, e.g. a phonological zero. On the other side, F gender is marked by /ə/, as proposed by Dell (1973).[30]

I propose that, as a result of phonetic erosion, French underwent a morphological change in the structure of nouns, losing the projection KP as well as the adjunct *Th* and all the CV units associated with the VI's (cf. the list in 14 above). The root is the only item conserving its template.[31] This situation gives rise to the following structure:

---

[30] Lowenstamm (2008) proposes that F gender in French is marked by /a/. This hypothesis does not contradict my proposal, as /ə/ derives historically from unstressed /a/. Thus, one could argue that /ə/ and /a/ are two allomorphs of the morpheme of the F gender.

On the other hand, Lowenstamm (2012:392ff) distinguishes the notion of "gender profile" from that of "gender agreement". According to the author, the former is the morphological shape of a noun, whereas the latter is the syntactic gender triggered by agreement with the DP. In this account, nouns with floating consonants have overt masculine morphology, whereas the appearance of these segments on the surface entails feminine morphology:

(i) /bʀas/ [bʀa] 'arm' M   (ii) /bʀas/+F [bʀas] 'breaststroke'

  b ʀ a s   b ʀ a   s
  | | | | | | |
  CVCV   CVCV + CV$_F$

In Lowenstamm's (2012) analysis, F gender is expressed by an extra CV unit. Whether it is CV or /ə/ (as in the body of the paper), it has no bearing on the present argument.

[31] In my analysis, the loss of case from Latin to Romance is interpreted as the loss of the node K (cf. both structures in 13). In other words, the features introduced by the node K are erased in Romance (except in Old French and Romanian). I assume that the loss of the node K occurred sometime between Old and Middle French. For a wider discussion of this topic, see Smith (2011: 281-295), Sornicola (2011: 18-35) and Zink (1992).

Note that, in addition to the loss of KP, a language-particular parameter applies. It involves the CV units contained in the VI's (cf. 14). In French, each functional head loses its original CV. As a consequence, only the root bears a template.

(22) French noun structure

```
            numP
          /      \
        num        nP
         |        /    \
       [±pl]     n        √
                 |
               [±F]
```
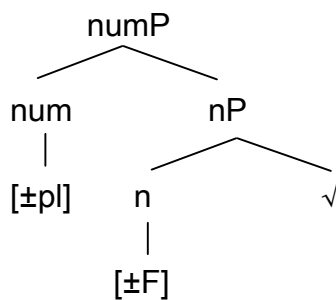
Following the procedure proposed for Latin, spell-out occurs once the structure

above has been created. The VI's for French nouns are the following:[32]

(23) VI's for French nouns

    a. zero ⇔ [-pl]   c. zero ⇔ [-F]

    b. /z/ ⇔ [+pl]   d. /ə/ ⇔ [+F]

Singular is marked by zero, whereas plural is expressed by the consonant /z/. As for

gender, M is zero, whereas the F exponent is the vowel /ə/.

Now, consider the noun [ʁu] 'wheel'. Its singular has the underlying form /ʁu/,

whereas its plural has /ʁuz/. The complex heads of both forms are shown below:

---

[32] As an anonymous reviewer points out, the VI's in (23) do not account for all French nouns, but for the majority, which share their inflectional patterns with adjectives. Nouns such as *père* 'father' are not accounted for by my analysis. However, one could argue that such nouns display a feminine profile although they are masculine in agreement. See Lowenstamm (2012) and footnote 30 above; see also Dell (1973).

(24) Complex heads of /ʁu/ F sg and /ʁuz/ F pl:

a. /ʁu/ F sg 'wheel'

```
              num
           /        \
         n           num
       /    \          |
     √RU      n       zero
      |       |
      CV      ə
```

b. /ʁuz/ F pl 'wheels'

```
              num
           /        \
         n           num
       /    \          |
     √RU      n        z
      |       |
      CV      ə
```
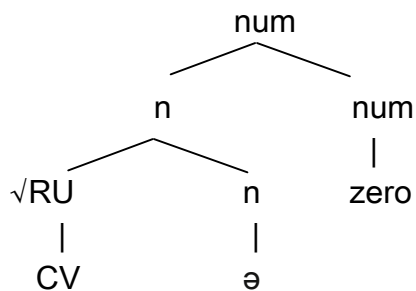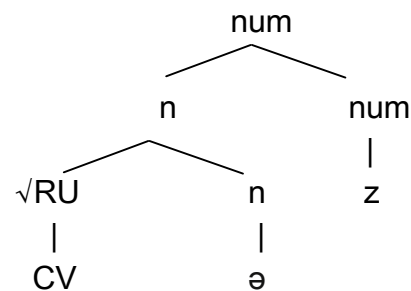
Finally, the linearization proceeds without any problems:

(25) Linearization of /ʁu/ F sg and /ʁuz/ F pl:

a. /ʁu/ F sg 'wheel'

```
Num
Gender        ə
Root          ʁ u
              | |
Template      CV

Output        [ʁu] 'wheel' F sg.
```

b. /ʁuz/ F pl 'wheels'

```
Num                 z
Gender        ə
Root          ʁ u
              | |
Template      CV

Output        [ʁu] 'wheels' F pl.
```

Spell-out in French adopts three different types of exponents. Roots are both segmental and skeletal, as they are fully formed and pronounceable phonological items. M and sg. are null objects, e.g. silence-type spell-outs (cf. 3d above). Finally, F and pl. display an exponent of the segmental type. The internal organization of the noun in French is responsible for the fact that neither the F exponent /ə/ nor the pl. exponent /z/ surface.

The next subsection explores the structures of Spanish nouns.

3.2.2 Spanish

As Spanish belongs to the Western branch of Romance, it inherited the pl. Acc -s from Latin. Indeed, Spanish nouns are characterized by the extensive use of the morpheme -s in the plural. This applies to all nouns, regardless of their gender or phonological shape.

On the other hand, gender is not easily identifiable on the simple basis of the phonological shape of a noun. As a general trend, M nouns end in -o (*lobo* 'wolf'), whereas F nouns end in -a (*rueda* 'wheel'). However, exceptions such as *mano* 'hand' F or *problema* 'problem' M are quite common. In addition, if a noun ends in -e or a consonant, gender is impossible to predict. This situation has been described and analyzed by Harris (1991), who proposed that Spanish nouns are comprised of a root followed by what he called 'word class marker'. Crucially, this marker does not correspond to gender.

A representative list of Spanish nouns is found below:

(26) Spanish nouns

Gender	F		M		F		M	
Num	sg.	pl.	sg.	pl.	sg.	pl.	sg.	pl.
V#	[rweða]	[rweðas]	[loβo]	[loβos]	[fwente]	[fwentes]	[pwente]	[pwentes]
	'wheel'		'wolf'		'spring, source'		'bridge'	
C#	[mar]	[mares]	[pan]	[panes]	[θjuðað]	[θjuðaðes]	[mal]	[males]
	'sea'		'bread'		'city'		'pain, disease'	

The line labeled V# contains nouns ending in a vowel in the sg. These represent the majority of nouns in the language. The line labeled C# displays those nouns whose sg. ends in a consonant. Note that a noun can end in a single consonant only if the latter is one of the following non-plosive coronals: [r], [l], [n], [s], [θ], [ð]. This fact has a historical origin, i.e. the deletion of unstressed -e in a final position: CIVITĀTE(M) ⟶ *kivitàte ⟶ *tʃiuitàt ⟶ *tʃiutàt ⟶ θjuðàð. Interestingly, only nouns of declension 3 underwent this process. In fact, Acc from this declension is generally marked by -*em*, as in CIVITĀTE(M) above.[33] Note that a root ending in a C[+coronal,-plosive] can select for either a final -a or a final -o. On the other side, such roots can never select for a

---

[33] Nouns such as TURRIS 'tower' display an Acc sg ending in -*im*: TURRIM. In addition, Neu nouns such as CORPUS 'body', MARE 'sea', etc display an Acc sg identical to the Nom.

final -e. In other words, nouns ending in C[+coronal,-plosive]+[e]# do not exist in

Spanish.

(27)   Roots ending in C[+coronal,-plosive]

Gender	M		F		M		M	
Number	sg.	pl.	sg.	pl.	sg.	pl.	sg.	pl.
[+cor., -plos.]#	[faro]	[faros]	[rana]	[ranas]	[laðo]	[laðos]	[palo]	[palos]
	'lighthouse'		'frog'		'side'		'stick'	

The data in (26) and (27) suggest the existence of two distinct groups of nouns. In

one, we have nouns ending either in -o (M gender) or -a (F gender). These nouns

employ a specific ending for each gender. In the other group, we have those nouns

that do not allow for gender recognition. Depending on the quality of the last

consonant of the root, the latter group of nouns can be further divided into two

subgroups. If the root ends in a C[+coronal,-plosive], then the noun has no additional

ending. In all other cases, the noun ends in -e. The insertion of -e depends only on a

phonological constraint, e.g. the ungrammaticality of *C[+plosive]#.

Let me turn to the plural. The nouns in (26) pluralize by suffixing the morpheme -s

to the sg. form, with no exceptions. In addition, nouns belonging to the group C# insert

the vowel -e- between the stem and the pl. morpheme. Spanish disallows two obstruents

from final positions, e.g. *mars 'seas'. Thus, in order to avoid such a situation, the strategy adopted by the language is epenthesis of the vowel [e].[34]

Nouns belonging to the group C# display an epenthetic [e] in the pl. I claim that this fact is related to the presence of the same vowel in the final position of nouns behaving like [fwente] and [pwente]. Crucially, the nouns ending in -e and those ending in a consonant correspond to the nouns that do not allow for gender recognition. In other words, they behave in the same manner with respect to the 'word class marker' (Harris 1991). Thus, final -e is an epenthetic vowel, exactly like the -e- inserted in the plural.

If this hypothesis is correct, Spanish nouns are organized in the following manner:

(28) Spanish nouns[35]

	group 1: o/a		group 2: no vowel, epenthesis	
	sg	pl	sg	pl
M	[loβo]	[loβos]	[pwente]	[pwentes]
			[mal]	[males]
F	[rweða]	[rweðas]	[fwente]	[fwentes]
			[θjuðað]	[θjuðaðes]

---

34 [e] is the epenthetic vowel in Spanish: *estado* 'state', *estructura* 'structure', *España* 'Spain', *estándar* 'standard' (initial #sC clusters are not tolerated in Spanish).
35 Harris' (1991: 43) "class]ø" corresponds to group 2 in table 28. Group 1, in turn, includes both nouns ending in -a and nouns ending in -o. As for the vowel -a, Harris claims it is the realization of the feminine gender (in the case of "inner core feminine nouns", cf. Harris *ibid.*: 44). The main divergences occur in the treatment of the vowel -o. In Harris' terms, -o is the default marker, whereas in my analysis, it is the realization of the masculine gender. Feminine nouns ending in -o are exceptions (*virago* 'virago'). Finally, nouns such as *día* 'day' (masculine *and* ending in -a) need a lexical specification in both approaches (see *ibid.*: 60).
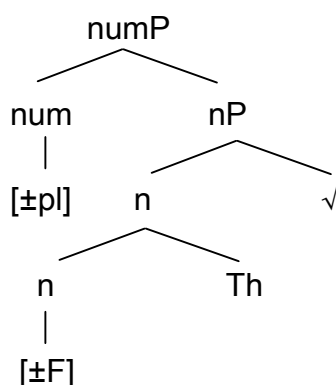
Nouns in group 1 are characterized by the presence of a final vowel determined by the gender, i.e. M=o, F=a. In contrast, nouns in group 2 do not distinguish between genders. An epenthetic [e] is inserted in order to prevent an impossible consonant cluster (such as CC#, or C[+plosive]#) from surfacing.

I propose that Spanish lost KP, retaining *Th* as an adjunct. The loss of KP is justified by the general loss of case in Romance. *Th* introduces the theme vowel, as in Latin.[36] Contrary to Latin, however, Spanish nouns belonging to group 2 above lack the expression of the theme vowel. I submit that the formal difference between group 1 and group 2 is the presence or absence of the adjunct *Th*.

The structures of nouns belonging to groups 1 and 2 are shown below.

(29) Spanish nouns

a. Nouns with *Th*, i.e. group 1　　　　　b. Nouns without *Th*, i.e. group 2
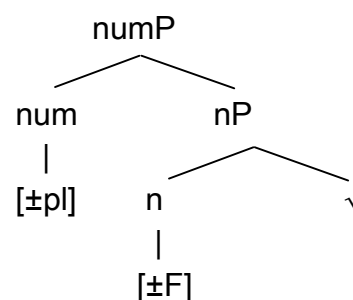
Note that the structures above differ only with respect to the presence of the adjunct *Th*. This node is responsible for overt gender marking (29a) and, as mentioned in section

---

[36] Note that, in declension 3, *Th* spells out as zero, cf. VI (14e) above.

3.1, is a lexical property of (a group of) roots in a given language. As shown, all Latin

roots allow for the adjunction of *Th* (although some *Th*'s are zeroes). In contrast,

Spanish roots are of two kinds: those selecting for the adjunction of *Th* and those not

requiring it. Interestingly, the structure (29b) is identical to the one proposed for French

(cf. 22 above). As for the spell-out, I propose the following list of VI's: [37]

(30) VI's for Spanish nouns

    a. zero ⇔ [-pl]   c. /o/ ⇔ [-F] / Th
       s   d. /a/ ⇔ [+F] / Th
       | e. zero ⇔ [±F]
    b. CV ⇔ [+pl]

VI's (30a) and (30b) represent the exponents of sg and pl, respectively. Note that pl. has

its own CV, reflecting the fact that all nouns are marked by -s when plural.[38] The

situation is more complicated with respect to gender. If the noun has a lexical *Th* (i.e. an

idiosyncratic property of the root), then gender is spelled out as either /o/ (M, 30c) or /a/

---

[37] As already mentioned, in my analysis, M nouns ending in -a and F nouns ending in -o are exceptions (cf. fn 35 below). The only way to account for this behavior is to posit the following two rules:
        (i) M ⇔ a / problem, etc... (list of roots)
        (ii) F ⇔ o / man, etc... (list of roots).
Note that the adjunct *Th* is responsible for overt gender marking (cf. 29a). Since the final vowels in *problema* and *mano* don't represent gender, these nouns don't display *Th*. Therefore, the difference between *problema* and *mano* on the one hand and *lobo* and *rueda* on the other is that only the latter displays the adjunct *Th*. In other words, *problema* and *mano* behave like nouns of group 2.
      An anonymous reviewer brought to my attention the existence of epicene nouns such as *testigo* 'witness'. I think the unexpected feminine value is due to a root-specific lexical marking (cf. the situation of Italian suffix -*ista* mentioned in fn 53 below). *Testigo* is both M and F: it has either two lexical entries (√testig$_M$ selecting for M gender and √testig$_F$ selecting for F gender) or one entry, √testig, which can select for both genders. The context of the selection depends on the biological sex of the referent (in English, *actor* and *actress* differ with respect to the biological sex of the referent, although grammatical gender is never marked on nouns). For this reason, the epicene nouns represent a marginal case.
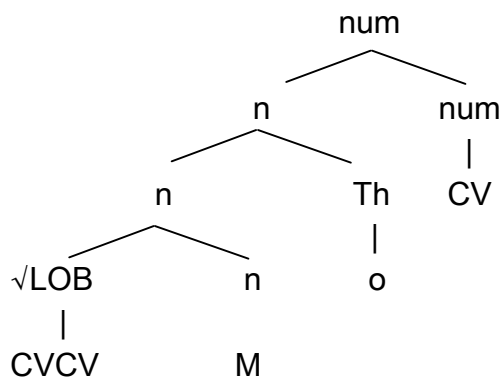[38] I return to this fact in the next subsection.

(F, 30d). If the root selects for no *Th*, then the gender is not overtly marked on the
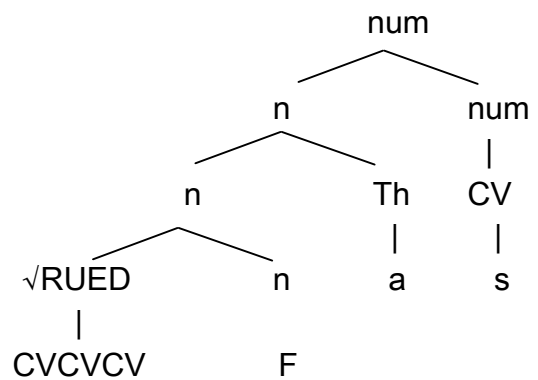
noun.[39]

Let me begin with the complex head and linearization of *lobo* M sg 'wolf' and

ruedas F pl. 'wheels', two nouns belonging to group 1. Their complex heads are

represented as follows:

(31) Complex heads of *lobo* M sg 'wolf' and *ruedas* F pl 'wheels':

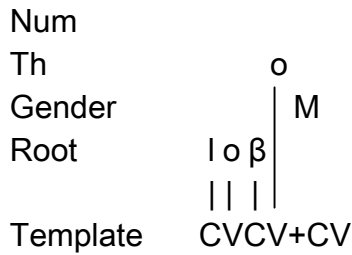a. *lobo* M sg 'wolf'   b. *ruedas* F pl 'wheels'

The linearization of both forms proceeds as follows:

---

(32) Linearization of *lobo* M sg 'wolf' and *ruedas* F pl 'wheels':

a. *lobo* M sg 'wolf'

```
Num
Th                o
Gender            | M
Root        l o β |
            | | | |
Template    CVCV+CV
```

Output   [loβo] M sg. 'wolf'

b. *ruedas* F pl 'wheels'

```
Num              s
Th               a  |
Gender           |  | F
Root     ʁ w e ð |  |
         | | | | |
Template CVCVCV+CV
```
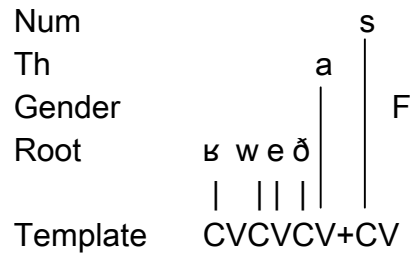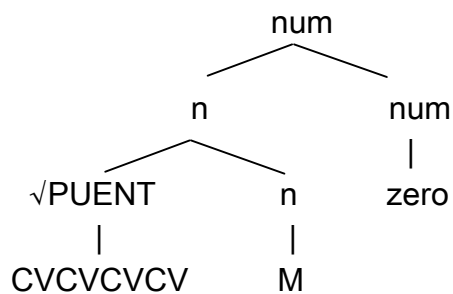
Output   [rweðas] F pl. 'wheels'

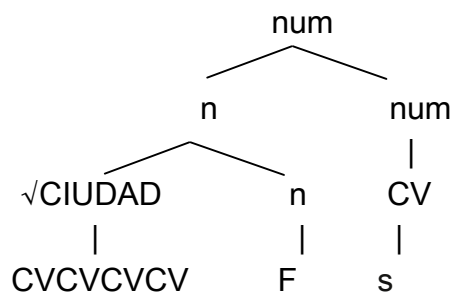Nouns belonging to group 2 are characterized by the absence of the adjunct *Th*. The VI /o/ ⇔ [-F] / Th (cf. 30c) and /a/ ⇔ [+F] / Th (cf. 30d) cannot be inserted, thus, the VI (30e) is chosen. Phonology does the rest: the noun can either end in a consonant or in the vowel -e.

(33) Complex heads of *puente* M sg 'bridge' and *ciudades* F pl 'cities'

a. *puente* M sg 'bridge'

```
            num
          /     \
        n        num
      /   \        |
  √PUENT    n     zero
    |       |
 CVCVCVCV   M
```

b. *ciudades* F pl 'cities'

```
            num
          /     \
        n        num
      /   \        |
  √CIUDAD   n      CV
    |       |      |
 CVCVCVCV   F      s
```

The nouns shown above are linearized as follows:

(34) Linearizations of *puente* M sg 'bridge' and *ciudades* F pl 'cities'

a. *puente* M sg 'bridge'   b. *ciudades* F pl 'cities'

```
Num                                Num                        s
Gender                 M           Gender                     |
Root        p w e n  t             Root        θ  j u ð a ð   |
            |  || | |                          |  || | ||     |
Template    CVCVCVCV               Template    CVCVCVCV + CV
                    |                                   |
Epenthesis          e              Epenthesis           e

Output     [pwente] M sg. 'bridge'  Output    [θjuðaðes] F pl. 'cities'
```

The representations above illustrate the epenthesis of [e] in two different morphological contexts: (34a) is a M sg noun, whereas (34b) is a F pl noun.

Before turning to Italian, let me briefly conclude the discussion of Spanish. Two observations are important. First, a specific parameter on the structure of the nouns (the optional vs. obligatory status of *Th*) accounts for the differences between Spanish and Latin on the one hand, and between Spanish and French on the other (e.g. the optional status of *Th* vs. the lack of *Th*). In addition to this parameter, the form of the phonological exponents plays a crucial role in a specific feature of Spanish morphology, e.g. the generalized presence of the plural morpheme -s. The Spanish plural is overtly marked on nouns precisely because its spell-out includes a CV unit. Recall that French plural does not bear a CV, i.e. it is silent unless it finds a free C position elsewhere.

In the next subsection, I analyze the case of Italian, wherein the presence of *Th* is shown to be fundamental in order for inflection to be overtly marked on nouns.

3.2.3 Italian

Italian nouns differ from French and Spanish nouns with respect to the following two features: (i) they must end in a vowel and (ii) they pluralize by transforming the last vowel into either -i or -e. In this section, I show how the analysis proposed so far accounts for this situation in Italian.

It is well known that Italian words end in a vowel. This pattern is consistent and the exceptions are limited to prepositions, the definite M article and loans.[40] The plural is formed by changing the quality of the final vowel. Interestingly, only nouns ending in a vowel in the singular can pluralize.[41] Thus, each noun belongs to an inflectional class, consisting of a pair of final vowels. I will henceforth refer to each pair of final vowels as a "vocalic pattern" (VPn).[42]

The table below illustrates possible VPn's in the lexicon of Italian:

(35) Italian nouns

---

[40] The prepositions ending in a consonant are: *per* [per] 'for', *in* [in] 'in' and *con* [kon] 'with'. The definite M article is *il* [il] 'the-M.sg'. As for the loans, here are a few examples: *film* [film] 'movie', *bar* [bar], *jeans* [dʒins], *software* [softwer] 'software', *sport* [sport] 'sport', *email* [imejl] 'e-mail', etc. Loans are all invariable with respect to number, e.g. they do not change their shape between the sg. and the pl. In this paper, I will be only marginally concerned with these nouns, cf. the representations (46) and, for further details, Lampitelli (2011:135-145).

[41] As will be shown (cf. 46), the fact that only nouns ending in a vowel in the singular pluralize follows from the architecture I propose. Passino's (2009) analysis, in turn, does not account for this.

[42] Nouns ending in a stressed vowel such as *città* 'city, town' are core inherited vocabulary. Their plural form is identical to the singular. Derived forms such as the diminutive *citta-d-ina* 'small town' or *citta-d-ino* 'citizen' reveal the presence of an epenthetic /d/. In Lampitelli (2011: 135ff) I provide a complete analysis of these nouns. I claim they are regular, exactly as *lupo* and *ruota*. The absence of overt inflection is due to their particular status as truncated words. In other words, final *-à* in *città* is part of the root /cittad/ and this is why it does not change in the plural. I will not discuss this group of nouns any further in this paper.

Num	sg.	pl.	sg.	pl.	sg.	pl.	sg.	pl.	sg.	pl.
Gen	F	F	M	M	M	M	F	F	M	M

V#	[rwota]	[rwote]	[poeta]	[poeti]	[lupo]	[lupi]	[fonte]	[fonti]	[ponte]	[ponti]
	'wheel'		'poet'		'wolf'		'source'		'bridge'	

VPn	a	e	a	i	o	i	e	i	e	i

The data above show the existence of four distinct VPn's, listed in (36):[43]

(36) VPn's in Italian nouns

    a. a - e   gender: F

    b. a - i   gender: M

    c. o - i   gender: M

    d. e - i   gender: F and M

Gender is predictable if a noun belongs to VPn (36a), (36b) or (36c). Conversely, the

VPn (36d) corresponds to both M and F nouns. That said, if the gender of the

singular is also taken into account, it is possible to predict the shape of the plural.

---

[43] An additional VPn exists in Italian. It consists of o - a (cf. *uovo* 'egg-M.sg' vs. *uova* 'egg-F.pl). This pattern characterizes a small number of nouns which change the gender in the plural. Cf. Acquaviva (2008) on this topic.
Also, the VPn (36b) a - i contains two F nouns: *ala* 'wing' and *arma* 'weapon'. Both nouns have a high register plural ending in -e: *ale* and *arme* (cf. TLIO). Finally, the VPn (36c) o - i contains one F noun: *mano* sg. vs. *mani* pl. 'hand(s)'. I will not be concerned with any of these exceptions.

Let me first focus on the shape of the plural. Plural nouns end in either -i or -e. In the former case, they can be either M or F, whereas in the latter, they can be only F. Crucially, plurals in -e belong to the only VPn containing exclusively F nouns (36a). Historically, these nouns belong to the declension 1 (cf. table 12, section 3.1).

By the hypothesis formulated above in section 2.2, Italian plurals derive from Latin Acc. More precisely, the Acc marker -s underwent a phonetic evolution which transformed it into -i, along the path shown in (9) and repeated below:

(37) s → ʃ → j → i (identical to 9)

If so, plurals such as *ruote* F 'wheels' and *lupi* M 'wolves' developed in the following manner:

(38) Historical derivation of Italian plurals:

    a. ROTĀS → *rotaʃ → *rotaj → *rwotai → rwote

    b. LUPŌS → *lupoʃ → *lupoj → *lupoi → lupi

The scheme in (38a) has been proposed by Maiden (1996), Reichenkron (1939) and Väänänen (1934), whereas (38b) has never been explored in these terms. The representation in (38) offers the possibility of a unique plural for both M and F gender. In other words, both M and F nouns pluralize with the morpheme -i, which is the evolution of the Latin plural Acc marker -s (cf. D'hulst 2006). If the plural marker is -i for both genders, then, synchronically, the F plural ending -e is made up of two

distinct exponents: one corresponding to the plural, the other corresponding to the F

gender. This means that the vowel [e] has an internal structure.

Couched within the framework of Government Phonology, the Theory of

Elements (Kaye, Lowenstamm and Vergnaud 1985) is a theory of segmental

representations. More precisely, it proposes the existence of three basic matrices,

corresponding to the Elements A, I and U. The combination of two or more Elements

entails the formation of all other vowels. This operation is called "fusion".[44] For

instance, the fusion of A and U (U being the head of the operation) gives rise to the

vowel [o], and the fusion of A and I (I being the head) gives rise to the vowel [e].[45]

The application of the Theory of Elements to the vowels appearing in the

VPn's shown in (36) is straightforward:

(39) VPn's as they result from the application of the Theory of Elements

	sg.		gender	sg.			
	Elem.	surface		Elem.	surface		
a.	A	[a]	F	A.I	[e]	*ruota*	*ruote*
b.	A	[a]	M	I	[i]	*poeta*	*poeti*
c.	A.U	[o]	M	I	[i]	*lupo*	*lupi*
d.	A.I	[e]	M / F	I	[i]	*ponte, fonte*	*ponti, fonti*

---

[44] This "fusion" is unrelated to Fusion, a syntactic operation proposed by DM and discussed above, cf. section 3.1.

[45] For additional details, cf. Kaye, Lowenstamm and Vergnaud (1985).

From observation of the data in (39), it follows that the Element I marks the plural.[46]

On the other hand, the plural [e] is made of the Elements I and A. As a consequence, the Element A is the exponent corresponding to the F gender.[47] The F plural ending -e results from the fusion of F gender A and plural I.[48]

As for the singular, the Element A appears in all VPn's. Consider, as already mentioned (cf. section 2.1 and table 7), Latin (final) short -u and -i lowered to -o and -e, respectively:

(40) Lowering of Latin (final) short -u and -i:

a. LUPU(M) ⟶ *lupo* (VPn o - i, M gender)

b. TURRI(M) ⟶ *torre* (VPn e - i, F gender)

---

[46] The hypothesis of an independent plural marker /I/ is supported by the existence of metaphony in Italian dialects:

(i)	Singular	Plural		Dialect of Calvello (Calabrese, 2011: 2633)
M	*niru*	*niri*	'black'	
F	*nera*	*nere*	'black'	

The final high vowels -i/-u affect the preceding underlying vowel -e. Thus, *niru* and *niri* display a stressed high vowel [i], whereas *nera* and *nere* have [e]. In an Element-based approach, this situation can be accounted for by decomposing the stressed vowels: [i]=/I/ and [e]=/A.I/. When the final vowel is high (-u or -i), harmony is triggered so only the Element /I/ surfaces. In contrast, in a feature geometry-based approach, the feature [+high] would trigger the harmony. In both cases, metaphony supports the hypothesis of the plural marker as a floating phonological item.
Further research should investigate in greater detail the microvariation within Italian dialects (cf. Manzini & Savoia 2005, vol. 3, 574-575 for an overview on plurality) but also within Spanish dialects where a few cases of metaphony are found (Hualde 1998).
[47] The idea that Elements can be interpreted as morphemes must be credited to Ségéral (1995).
[48] In Scheer (1998), the segment [s] is analyzed as /I.A̱.ɫ.h/, where I stands for "palatal", A for "R(etracted)T(ongue)R(oot)", ɫ for "A(dvanced)TR" and h for "noise". A is the head of this operation. The common Element between [s] and [i] is then the Element I. As a consequence, one can argue that the plural in all Romance dialects is the Element /I/. It can surface alone (Italian/Romanian -i) or in combination with other Elements (Italian F -e or Western Romance -s). In a similar way, D'hulst (2006) proposes, within a feature framework, that the unique plural morpheme is the feature [+coronal]. Further research should look with more detail into the comparison of these hypotheses.

I propose that the lowering phenomenon shown above consists of the appearance of the Element A in the representation of the singular.[49] More precisely, the Element A is the exponent of the singular in Italian. As a consequence, feminine nouns must have two A's.

Following the same lines of reasoning, I propose that the Element U is the exponent of the M gender. This hypothesis is consistent with the historical origin of nouns ending in -o. In fact, declension 2 nouns, such as LUPU(M) are M and contain the vowel -u. Thus, final [o] in M sg nouns results from the combination of the exponent of the M gender, U, and the exponent of the singular, A. In contrast, plural should be /U.I/, i.e. /M + plural/. The fusion between U and I gives rise to a front rounded vowel, such as [y], [œ] or [ø].[50] None of these vowels belong to the Italian phonological inventory. According to the Theory of Elements, however, in a language such as Italian, the Elements U and I are situated on the same line of representation. Consequently, they cannot undergo fusion. The vowels [y], [œ] and [ø] are thus prevented from surfacing. Italian plural can surface as either [i] or [u], but not as the combination of both Elements. I claim that, in Italian, the surfacing vowel is [i].[51]

Finally, let me focus on the Element I in (39d). It combines with A and gives rise to [e], nouns in this group being M (*ponte* 'bridge') as well as F (*fonte* 'source). In other words, this Element is responsible for the neutralization of gender. Therefore, the

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[49] An anonymous reviewer brought to my attention the fact that non-final unstressed u's (such as the first -u- in POPULU(M) > *popolo* 'people') are also lowered in Italian. In this case, though, lowering does not depend on a morphological operation, i.e. the appearance of the Element A. I leave the question open for further research.

[50] The exact nature of the resulting vowel depends on the presence of the cold vowel, phonetically [ɨ], and on the head of the operation. Cf. Kaye et al. (1985) for additional details.

[51] Cf. Lampitelli (2011) and Passino (2009) for the same analysis and a few cross-linguistic examples.

41

Element I is the exponent of a lexical property of nouns, which I call "Theme Element" (henceforth TE). Each TE can surface as A (giving rise to F nouns), U (giving rise to M nouns) or I (giving rise to both M and F nouns). In addition, a TE can also surface as zero. This is the case of *poeta* M sg. 'poet'.

The table below shows the internal composition of final vowels in Italian: [52]

(41) The internal composition of the final vowels[53]

	sg.	TE		gender	pl.	TE		examples	
a.	A	A	[a]	F	I	A	[e]	*ruota*	*ruote*
b.	A	zero	[a]	M	I	zero	[i]	*poeta*	*poeti*
c.	A	U	[o]	M	I	U	[i]	*lupo*	*lupi*
d.	A	I	[e]	M / F	I	I	[i]	*ponte, fonte*	*ponti, fonti*

Each final vowel results from two distinct exponents. One is the exponent of number, A for the sg and I for the pl, whereas the other is the exponent of TE, e.g. a lexical property

---

[52] The table shown in (41) is similar to those proposed by Lampitelli (2010:199, 2011:67-158) and Passino (2009:70). Both accounts are couched within Government Phonology and the CV option. In such a framework, the application of the Theory of Elements (Kaye et al. 1985) leads naturally to this analysis.
In Lampitelli (2010, 2011) as well as in the present analysis, there is an innovative flavor, which consists of the following three points: (i) the diachronic perspective, which relates the TE to the Latin declensions; (ii) the feature [TE], which spells out as a CV unit. This is the site of realization of the final vowel. This configuration accounts for the absence of overt inflection in loans (such as *film*, cf. 46); and finally (iii) the syntactic architecture, which connects Italian to Spanish and French.
[53] It is worth mentioning the existence of the suffix *-ista* (comunista 'comunist'). This suffix behaves as *poeta* in the M, but as *ruota* in the F. This means that the suffix imposes its own TE: zero in the M and A in the F.

of the root. I claim that each root selects for a particular TE. In two cases (41a and 41c),

the TE corresponds to the gender.[54, 55]

Italian has a group of loans that do not display overt inflectional morphology,

such as *film* M sg./pl. 'movie(s)'. The difference in behavior between nouns

displaying overt morphology and those that don't can be captured only by arguing

that the inflectional vowel results from the existence of a lexical property. I submit

that such a lexical property corresponds to the appearance of the TE. In turn, I argue

that the presence of the TE is related to the spell-out of the feature [+TE]. The

exponent of [+TE] is a CV unit, e.g. the site where the inflection is realized. In

contrast, loans select for the opposite feature, e.g. [-TE]. Its spell-out corresponds to
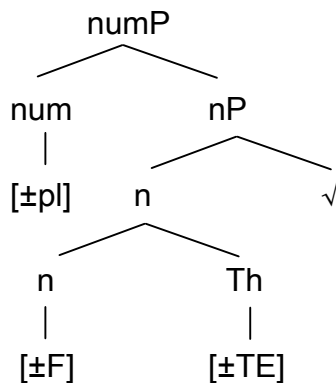
a null exponent.[56]

In order to account for such a dichotomy, I propose that Italian lost KP and

maintained *Th* as an adjunct to *n*. Consequently, the CV units associated to *num* and *Th*

have been lost. In other words, Italian structures are identical to those underlining

Spanish nouns ending in -o and -a (cf. 29a above), with the exception of *num*:

---

[54] A clarification is necessary: the quality of each TE depends on the combination of the gender and the root. In other words, one needs to know both the gender and the root in order to spell out the expected final vowel.

[55] Note that Spanish final -o, -a and maybe -e could have been analyzed in the same manner as Italian final vowels, i.e. within the Theory of Elements. This would have yielded the same results in terms of the internal phonological organization of these vowels. However, Spanish differs on an important point: the plural morpheme is consonantal and its exponent does not change the quality of the vowel. One could argue that, in Spanish, M is marked by the combination of two Elements, U and A, whereas F is marked by the Element A alone. The Element I, in turn, underlies the suffix [s], corresponding to the algorithm /I.A̲.ɫ.h/ (cf. fn 48). Thus, decomposing the Spanish vocalic inventory into basic Elements is not straightforward with respect to the internal organization of nouns. In other words, the Theory of Elements is a theory of the phonological representations of the segments: it does not predict whether or not an Element plays a morphological role.

[56] The overall situation is slightly more complicated than it appears from the data presented here, but its explanation would lead away from the topic of this paper. Cf. Lampitelli (2011:67-158) for an extensive analysis of Italian nouns.

(42) Italian nouns

```
              numP
            /      \
         num        nP
          |        /   \
        [±pl]     n      √
                /   \
               n     Th
               |      |
             [±F]   [±TE]
```

As for the spell-out, I propose the following list of VI's:

(43) VI's for Italian nouns

a. A ⇔ [-pl]   e. U ⇔ [-F] / elsewhere

b. I ⇔ [+pl]   f. A ⇔ [+F] / elsewhere

c. I ⇔ [±F] / list of roots (*ponte, fonte*, etc)   g. CV ⇔ [+TE]

d. zero ⇔ [-F] / list of roots (*poeta*, etc)   h. zero ⇔ [-TE]

(43a) and (43b) are the exponents of number. The selection of the exponent

corresponding to the TE is more complex. The exponent in (43c) marks those nouns

which do not distinguish the M form from the F form. VI (43d) corresponds to the

situation where TE=zero (cf. *poeta*). VI's (43e) and (43f) represent the exponents

corresponding to M [o] and F [a], respectively. These are the default items for the two

gender values. Finally, (43g) and (43h) are the exponents of the property TE.
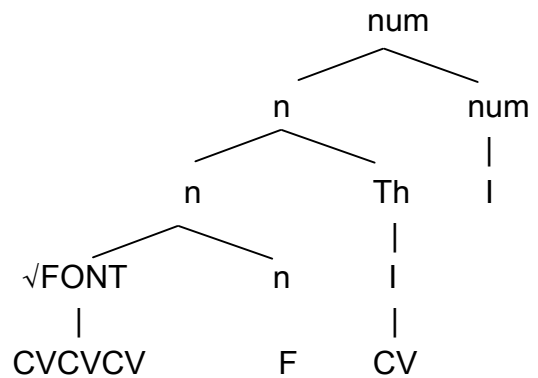
    The complex heads of *lupo* M sg 'wolf' and *fonti* F pl 'sources' are shown below:

(44) Complex heads of *lupo* M sg 'wolf' and *fonti* F pl 'sources':

a. *lupo* M sg 'wolf'   b. *fonti* F pl 'sources'

```
                num                                            num
               /   \                                          /   \
             n      num                                     n      num
            / \      |                                     / \      |
           n   Th    A                                    n   Th    I
          / \   |                                        / \   |
      √LUP   n  U                                   √FONT   n   I
        |    |  |                                      |    |   |
      CVCV   M  CV                                  CVCVCV   F   CV
```
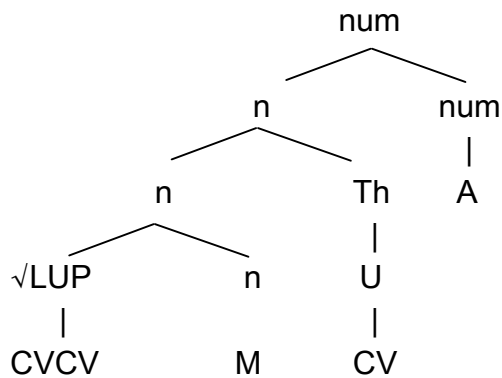
The linearization of each form is as follows:

(45) Linearization of *lupo* M sg 'wolf' and *fonti* F pl 'sources':

a. *lupo* M sg 'wolf'   b. *fonti* F pl 'sources'

Num		A	Num		I

```
a. lupo M sg 'wolf'                         b. fonti F pl 'sources'
Num                    A                    Num                        I
Th                     U                    Th                         I
Gender            M |                       Gender                 F |
Root          l u p   |                     Root          f o n t     |
              | | |   |                                   | | |  |    |
Template    CVCV+CV                         Template    CVCVCV+CV


Output      [lupo] M sg. 'wolf'            Output      [fonti] F pl. 'sources'
```

Italian nouns are formed in a way similar to that of Spanish nouns displaying the adjunct

Th (cf. 31, section 3.2.2 above). The crucial difference between the two languages lies in

the presence of a CV unit in the representation of the plural in Spanish, whereas *Th*

expresses this CV unit in Italian. In addition, Italian plural is simply segmental, i.e. it

45

needs a free skeletal position in order to surface. Note that Italian could not have

maintained Latin Acc -s: the C position on the external CV is not accessible as plural has

to be linearized to the right of the TE. This is the general pattern in Romance.

Also, note that the underlined V position in (45a) and (45b) is not accessible to

inflection. This becomes clear when we compare the linearizations in (45) to those of the

two following nouns: *marea* 'tide' and *film* 'movie'. The former selects for the feature

[+TE], whereas the latter selects for the feature [-TE], which corresponds to the absence

of the extra CV:

(46) Linearization of *marea* F sg 'tide' and *film* M sg 'movie':

a. *marea* F sg 'tide'			b. *film* M sg/pl 'movie(s)'	
Num		A	Num	A/I
Th		A	Th	none
Gender		F |	Gender	M
Root	m a r e	|	Root	f i l m
	| | | | |			| | | |
Template	CVC<u>V</u>+CV		Template	CVCVC<u>V</u>

Output	[marea] F sg. 'tide'		Output	[film] M sg/pl. 'film(s)'

In (46a), the underlined V position is occupied by a radical vowel, thus being unavailable

for inflection. An external CV is necessary: it is provided by the spell-out of the property

[+TE]. In contrast, in (46b) the underlined V position could in principle be the realizational

site of overt inflection. Indeed, *film* is invariable with respect to number and ends in a

consonant, e.g. an aberrant coda. However, *filmi* is absolutely ungrammatical. I

conclude that that position is not available. Again, an external CV would be the only

possibility: *film* selects for [-TE], which corresponds to a null exponent.[57]

Before concluding, let me briefly compare the way pluralization works in Italian

and Spanish. Recall that, in Spanish, a noun always takes -s in the plural. This occurs in

native lexicon as well as in loans and truncated nouns such as *moto(cicleta)s*

'motorcycle(s)'. In contrast, the Italian plural applies to a restricted set of nouns, namely

those belonging to one of the four VPn's shown in (35). In other words, in Italian, a noun

can pluralize only if its root selects for a TE.

I submit that this difference is accounted for by the fact that, in Spanish, the

feature [+pl] spells out as a segmental-and-skeletal position, whereas in Italian the same

feature spells out simply as a segmental exponent:

(47) Plural exponents in Spanish and Italian

    a. Spanish   b. Italian

      s
      |
    CV ⇔ [+pl]   I ⇔ [+pl]

VI (47a) provides a skeletal position to the segment associated with plurality. Hence,

whenever *num* contains the feature [+pl], plural is overtly marked. In contrast, the

Element I is spelled out devoid of skeletal position, and hence seeks to find one in order

---

[57] Passino (2009:70) argues that "A final empty nucleus in the representation nowadays does not automatically imply that the word undergoes inflection." In my analysis, the empty nucleus alone does not imply the presence of overt inflection; rather, the feature [+TE] is responsible.

to surface. As we saw, in Italian, such a position is provided by the property "theme vowel", i.e. the feature [+TE] (cf. the VI (43g) above).

In Spanish, the overtly marked plural depends on the CV whereas, in Italian, the appearance of the plural morpheme is a lexical property of the root. This explains why, in a truncated word such as *moto* 'motorcycle', the final -o does not change into -i in the plural as it does not depend on *Th*.

To summarize this section, I have showed how Italian behaves similarly to those Spanish nouns with the adjunct *Th*. Furthermore, I showed how Italian differs from Spanish (and French) with respect to the exponence of the plural and the presence of a CV unit low in the structure, e.g. below nP.

4. Conclusions

In this paper, I showed how Romance noun structures share a unique set of functional categories, e.g. *num*, *n*, and *Th*. Language-particular parameters on the realization of these categories account for the diversity between Romance varieties.

The first part of the paper proposed an explanation of the plural isogloss. Arguing that Italian plural -i derives from Latin Acc pl -s permitted us to unify the analysis of the nouns in Romance. In the second part, I focused on the parameters of the evolution. More precisely, I showed how French, Spanish and Italian can be accounted for based

on the structure proposed for Latin. I formalized the linguistic change as a phrase or head loss combined with the reorganization of the CV units.

As a conclusion, I showed how the internal organization of the nouns in Romance depends on the type of spell-out presented in (3) and on the syntactic architecture.

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