Double or Nothing: Romance Alignment Strategies

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1. Introduction

The frequent appearance of double consonants in word-initial position in all existing transcriptions of Faetar (*e.g.*, Kattenbusch 1982, Morosi 1890, Rohlfs 1973, Valente 1973) suggests that Faetar has word-initial geminates, a rarity among the world's languages. This is a natural assumption for Italian scholars to make, as many dialects of Italian exhibit a process known as *raddoppiamento sintattico* (RS) in which initial consonants are geminated in certain environments. In this paper, I provide an Optimality Theoretic analysis of RS for Italian. Then, I show that, while Faetar has adopted word-medial geminates from Italian (Nagy 1994), it has not borrowed the process of initial gemination. This fact is accounted for independently by a constraint hierarchy which was developed to account for the process of word-final deletion of segments and syllables (Nagy & Reynolds 1994).

Romance languages show evidence of conflict between a general tendency for stress to appear at the right edge of the word and the necessity of pronouncing all segments in the input, or underlying form. Historically, the languages have used different strategies to resolve the conflict between these constraints. In French and in Francoprovençal (FP), material in post-tonic syllables was deleted, making these languages stress-final. In Italian, post-tonic material remains, so that stress is generally on the penult. Cognates showing this are given in (1).

(1)

Latin	Francoprovençal	Italian	Faetar	Gloss
canis	[kan]	[kané]	[tʃín(ə)]	*dog*
florem	[flur]	[fióre]	[fjúr(ə)]	*flower*

Faetar is a language which has developed in a situation of contact between Francoprovençal and Italian. Not surprisingly, its strategy for prosodic/ morphologic alignment is a combination of Francoprovençal and Italian patterns. Due to the variable process of post-tonic deletion in Faetar, words may either have alignment of the stress at the right edge of the word, like FP, or may surface with all segments present, but with mis-alignment, like Italian. This is shown in (1), where each word may appear with or without the final vowel.

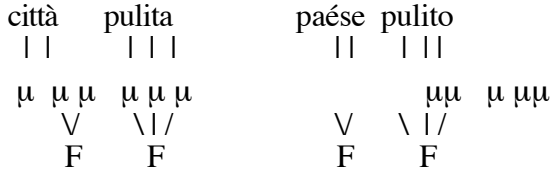
Faetar and Italian use two different strategies to avoid mis-alignments between morphological and phonological words: Italian has a process known traditionally as *raddoppiamento sintattico* (RS) which doubles a segment in order to have enough segmental material to fill the final foot of the word. Faetar, instead, (variably) deletes material until it is left with exactly the right amount of segmental material to fill the foot with nothing left over, showing synchronic evidence of a process which occurred diachronically in the development of French languages from Latin.

Optimality Theory is the ideal framework to capture this type of behavior. By referring to optimal "shapes" or outputs, rather than various derivational processes of insertion and deletion, it is possible to highlight the teleological similarities of two processes which, on the surface, seem very different. Italian RS and Faetar final segment/syllable deletion are two different results stemming from the same set of constraints. Due to different orderings of the constraints between the two languages, different forms emerge as optimal.

2. Italian *raddoppiamento sintattico*

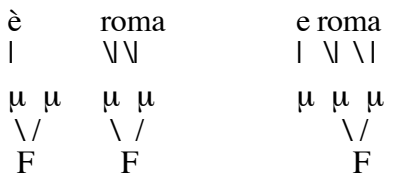
Italian *raddoppiamento sintattico* is a process in which word-initial consonants which immediately follow a stressed vowel in word-final position are geminated (are spread to the preceding moraic coda position).[1] The same consonant, when it immediately follows an unstressed vowel is not geminated. An example is the phrase *città ppulita* 'clean city', in which the initial consonant of the second word is lengthened because it follows a tautophrasal word ending in a stressed vowel. This lengthening is in contrast to the [p] in *paese pulito* 'clean town', where no lengthening occurs because the initial /p/ doesn't follow a final stressed vowel.

(2)



There is a second type of RS in which gemination is triggered by members of a small set of proclitics which are not stressed but, have an empty moraic position at the end of the word. I provide an analysis for the first type, which will be referred to as stress-triggered RS, and then extend the analysis to the second type, referred to as lexically-triggered RS. Schematically, this looks the same, except that the empty mora is lexically-marked, rather than being a necessary part of the foot. (This must be the case because if there were a strong requirement that *all* morphemes be bimoraic, then there would be no cases of monosyllables that do not trigger RS. There are, however, many such words, such as *e*, meaning 'and,' as opposed to *è*, meaning 'is'.)

(3)



"It is Rome." "... and Rome"

2.1. RS in Apulia

The second type of RS is much more wide-spread in Italy. Evidence from Jaberg & Jud's (1928-1940) dialect atlas of Italy suggests that only lexically-triggered RS occurs in the Apulian dialects that surround Faeto (Jaberg & Jud #715). I have selected four representative points for comparison. These are Colle Sannita (Jaberg & Jud #714), the closest surveyed town to the north of Faeto; Ascoli Satriani (Jaberg & Jud #716), the closest surveyed town to the south of Faeto; Bari (Jaberg & Jud #719), a city toward which many Faetans are oriented; and Napoli (Jaberg & Jud #721), the largest city in the region. In examining the material in the dialect atlas, however, it is clear that this is a widespread trend: the majority of points south of Rome exhibit RS, while no points in the north do.

[1] Many studies report that RS only applies across two adjacent words in the same syntactic phrase (Nespor & Vogel 1986). However, recent work has shown that the syntax is not important. Rather, RS is an utterance-level phenomenon and can occur between any two words, as long as they are not separated by a pause (Agostiniani 1993). Thus, I will not consider the effect of syntactic environment in my analysis.

(4) shows the forms listed in Jaberg and Jud (1928-1940) for several phrases which contain morphemes that trigger RS (Dulcibella 1934, Grandgent 1927) on the first consonant of the following word. These forms show a strong tendency to have a double initial consonant in all of the towns surrounding Faeto, but not Faeto itself.

(4) RS in towns neighboring Faeto

Entry	Gloss	Faeto	Colle Sannita	Ascoli Satriani	Bari	Napoli
12	*to place*	a fodʒ:	a bbənəˈvendə	a ˈbba:rə	a ˈttardə	a ˈrromə
647	*to sleep*	s adurmi:j	a ddorˈmi	a ddɔrmə	a dərmɪ	a ddərmi
1584	*to choose*	a kaˈpa	jtʃə kkaˈpa	a kkaˈpa	a kkaˈpa	ja kkatˈta
668	*he wears*	iʎ e βəste	s ɛvvəstu:tə	e vəstu:tə	s a vvəstu:tə	ɛbbəstu:tə
1340	*it is good*	e buŋ	e bbo:nə	je bbu:nə	je bbwe:nə	ɛbbwo:nə
1602	*he is bad*	e malammeŋ	e mmaləmɛntə	je kkatti:və	je ffətɛnt	e mmalamɛnt

2.2. Phonological analysis of RS

In Optimality Theoretic terms, the lack of initial consonant lengthening in Faetar is readily explained. I first present an account of the constraints which promote RS in (standard Tuscan) Italian. Then I show that there are crucial differences between the ordering of the constraints which account for RS in Italian and those that account for final segment deletion in Faetar.

I turn first to a phonological description of the phenomenon. Stress-triggered RS applies to all word-initial consonants, whether single or as the first member of a cluster, with the exception of [s] in cluster-initial position. That is, it will apply in phrases like *città pulita* 'clean city', *città triste* 'sad city', and *città sicura* 'safe city', but not in *città sporca* 'dirty city'.

This process can be explained by the fact that the stressed syllable at the end of the first word must be the head of a foot. In Italian, feet are moraic trochees. Thus, in order for the [tà] mora of *città* to be parsed, it must be followed by a second moraic segment/syllable in the same foot. Adding a coda consonant solves this problem. However, the [p], in addition to acting as the coda of the second syllable of the first word must also act as the onset to the first syllable of the second word. Therefore, it is ambisyllabic. Because the [p] has spread to a second slot, it becomes twice as long. This ambisyllabicity doesn't occur when the first word is not stress-final because there is no unfooted mora at the end of a word like *paése*.

A similar analysis accounts for lexically triggered RS: the clitics that trigger RS have the form shown on the left in Figure (3) above, while monomoraic morphemes which don't trigger RS have the form shown on the right. The monomoraic morphemes that don't trigger RS simply don't have the stray mora to fill. They are degenerate in that way (not forming a foot), but they form a very small class in Italian.

The constraints used in the following analysis are from McCarthy & Prince (1994). I define each of the necessary constraints and then provide tableaux which show how the constraints conspire to cause gemination in all and only the appropriate environments.

(5) Constraints involved in RS:

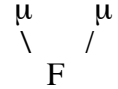
Segment to syllable alignment
ONSET (ONS): Syllables have onsets. $\sigma[C > \sigma[V$

NO CODA (NOCOD): Syllables do not have codas. Following Itô (1986), a doubly-linked C does not violate this constraint. *C]

Prosodic category to syllable alignment

LEXICAL WORD = PROSODIC WORD (LX=PR): The edges of every lexical word (morpheme, in these cases) correspond to the edges of a prosodic word.

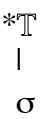
FOOT BINARITY (FTBIN): Each foot contains two moras.



Faithfulness

PARSE MORA (PARM): Every mora should be dominated by a foot.

FILL: Epenthesis is not permitted. Syllable positions must be filled with segmental material.



In order the get the RS effects in the appropriate contexts, the constraints must be ranked as follows:

PARM >> NOCODA >> ONSET >> FILL >> FTBIN >> LX=PR

It is crucial that PARM be highly ranked quite high to rule out candidates in which the final mora of the first word is not footed. Also, LX=PR must be ranked lowest in this hierarchy, as even the optimal candidate violates it. Crucially, it must be below FILL.

FILL, in turn, must be ranked below ONSET, to account for vowel lengthening in word internal open stressed syllables (Napoli & Nagy 1995).

The following tableaux show how the constraints interact to get the correct output forms. Except for the crucial rankings mentioned above, the exact ordering of the constraints cannot be determined by the data.

Tableau (6) shows that RS applies to a word-initial single consonant following a stressed vowel. The symbol "p]p" indicates that /p/ is linked to two syllables.

(6)	'clean city'	ParM	NoCoda	Ons	Fill	FtBin	Lx=Pr
	1. città]|pulita	*!				*	
	2. città|p]u		*!	*			*
⇒	3. città|p]pu						*
	4. città|pu]						**!
	5. città|𝕋] pu		*!		*		*

Tableau (7) shows that, in contrast to a stress-final word, RS doesn't apply when the consonant follows an unstressed vowel. This is because the first candidate has no violation of any candidates as the final vowel is already footed without incurring any alignment violations.

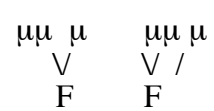
(7) 'clean town'	ParM	NoCoda	Ons	Fill	FtBin	Lx=Pr
⇒ 1. paése]lpulito						
2. paése|p]u			*!	*	*	*
3. paése|p]pu					*!	*
4. paése|pu]					*!	**
5. paése|𝕋] pu	*!	*		*		*

RS also applies to the first consonant of a cluster because only if the word-initial consonant is ambisyllabic does it satisfy NOCODA, as seen in Tableau (8).

(8) 'sad city'	ParM	NoCoda	Ons	Fill	FtBin	Lx=Pr
1. città]ltriste	*!				*	
2. cittàlt]ri		*!				*
3. cittàltr]i		**!	*			**
⇒ 4. cittàlt]tri						*
5. cittàltri]						***!
6. cittàl𝕋] tri		*		*		*

Finally, I show in Tableau (9) how this set of constraints prohibits the geminated form from surfacing in a [sC] cluster-initial word. In most analyses of Italian, /s/ in cluster initial position has been considered extrasyllabic, as it consistently violates the Sonority Hierarchy which is upheld in other clusters. I analyze /s/ in cluster initial position as being moraic, and not, initially, syllabified with any other segments. Therefore, it can serve as the second half of a foot. That is, it doesn't need to move into coda position (of word 1), and it doesn't even start out in onset position (of word 2). Because /s/ is filling only one syllabic position in the optimal form (rather than both an onset and a coda position like other initial consonants), it is not lengthened. The structure of the phrase *città sporca* is:

(9)



(10)	ParM	NoCoda	Ons	Fill	FtBin	Lx=Pr
1. città]lsporca	*!				*	
2. cittàls.]por		* !				*
⇒ 3. cittàl.s]por						*
4. cittàlsp]or		**!	*			**

This analysis correctly describes the facts of RS in Italian. Next, I show that, in contrast, geminated forms of this type cannot be optimal in Faetar, according to the constraint hierarchy developed for Faetar word-final deletion in Nagy & Reynolds (1994).

3. Final segment deletion in Faetar

Before considering the Faetar process of final segment deletion, I briefly present the stress system of Faetar. As is usual for Romance languages, stress is as far to the right as possible: on the rightmost unreduced vowel. This pattern can be seen in the following examples.

(11)	[tʃəká]	'blind'
	[dʒurnát]	'day'
	[tʃarriérə]	'road'
	[bámbələ]	'doll'
	[məkkánəkə]	'mechanic'

Adapting terminology from Kenstowicz (1994), this can be accounted for as follows:

(12) PEAK$_{syll}$ >> EDGEMOST

These constraints will not be involved in the analysis, as they are higher ranked than any of the constraints involved in triggering RS or final segment deletion.

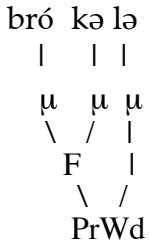
3.1. The data

Variants of the following type have been observed in recorded speech (Nagy & Reynolds 1994, Reynolds & Nagy 1994):

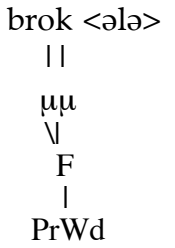
(13)	[ˈbrokələ] ~ [ˈbrokəl] ~ [ˈbrokə] ~ [brok]	'fork'
	[tawoˈlinnə] ~ [tawoˈlin] ~ [tawoˈli]	'little table'
	[ˈtawələ] ~ [ˈtawl$_{ɫ}$]	'table'
	[kaiˈjunnə] ~ [kaiˈjun]	'pig'

The different forms actually used by any given speaker must all be evaluated by the same set of constraints. Depending on which constraints are most highly ranked, a different candidate may emerge as optimal. The variation observed may be accounted for by assuming that the constraints are not always in the same order. Different orderings will produce different optimal candidates, of all the types listed in (13). For example, the following candidates for /brokələ/ each violate different sets of constraints. (Constraints are defined and discussed in Nagy & Reynolds 1994.)

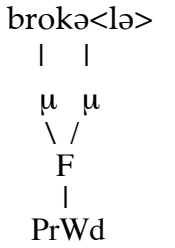
(14) Candidate which violates ALIGNPR



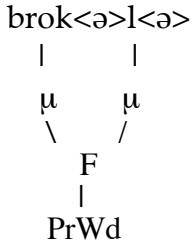
(15) Candidate which violates PARS (3 times), *CODA



(16) Candidate which violates PARS (2 times), *SCHWA

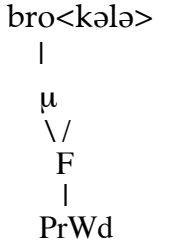


(17) Candidate which violates PARS (2 times), *HNUC



(18) Candidate which violates PARS (4 times), FILL

(19) Candidate which violates PARS (4 times), FTBIN



3.2. Analysis

This variation can be accounted for by a struggle between the constraints ALIGNPR (Align the right edge of the word to the right edge of the stressed syllable) and PARSESEG (All segments in the input must surface). When ALIGNPR is ranked above PARSESEG, the shortest, stress-final forms surface. When PARSESEG is ranked above ALIGN, the full, non-aligned forms surface. The constraint hierarchy (adapted from Nagy & Reynolds 1994:5) is:

(20) FTBIN, POSSCOD, FILL >> *CXCOD >>

$$\left\{ \begin{array}{l} \cdots\cdots\cdots\cdots \text{ALIGN-PRWD} \cdots\cdots\cdots\cdots \\ \quad \left\{ \begin{array}{l} \text{NOCODA} \\ \text{*CXONS} \end{array} \right\} \text{ >> PARSE >> ONS >> } \left\{ \begin{array}{l} \text{*SCHWA} \\ \text{HNUC} \end{array} \right\} \end{array} \right\} \text{ ..... >> PARM}$$

The brackets indicate the domains of the Floating Constraints, so ALIGNPRWD may appear anywhere in the hierarchy within the large set of brackets. NOCODA may be ranked just above or just below *CXONS. *SCHWA may be ranked just above or just below HNUC. The 28 possible combinations of rankings produce no more than 4 optimal forms for any one word, and produce exactly the forms which were observed in the recordings, in the right order of frequency (Nagy & Reynolds 1994:6).

This ranking hierarchy allows, for example, for the input /bró.k\.l\/ to have the following output forms: [bró.k\.l\], [bró.kl], [bró.k\], and [brók]. The shortened forms are quite frequent. This indicates that the (frequently-violated) PARSEMORA constraint must be low-ranked in this language-- lower than all of these constraints which, together, select a unique optimal form for each possible ranking. That is, all of the shortened forms violate PARSEMORA, so it must be lower-ranked than all of the constraints listed in (20), as it does not rule out those candidates.

Also, we see that FILL is a high ranking constraint in Faetar, as material is never added to fill prosodic categories. In contrast, we noted above that FILL is low-ranking in Italian, as it is violated by all stressed open syllables.

4. Contrasting rankings for the two languages

Having shown what ordering of constraints accounts for RS in Italian, I next show that that order cannot be reconciled with the constraint ranking which has been established for Faetar (Nagy & Reynolds 1994:5).

The crucial constraints to consider are those which also appear in the constraint hierarchy for Italian RS. The one other important constraint for this argument is PARM , which must be very low-ranked in Faetar, as it plays no role in selecting optimal candidates. This is evident from the fact that there are frequently unparsed moras in Faetar output forms-- in all the shortened forms of the words discussed. In Tableau (21), candidates for the phrase [marí notə] 'our Maria' are evaluated, given the constraint ranking developed to account for the independent phenomenon of variable final deletion. This is a phrase which would be an ideal candidate to undergo RS, as the first word ends in a stressed open syllable, if that process occurred in Faetar. However, because PARM is crucially ranked below the constraints listed in the tableau, the ungeminated form which violates no constraints is optimal, and RS does not occur.

(21) No RS in Faetar

	Fill	FtBin	ParS	NoCoda	Ons	AlignPr
⇒ 1. marìl] notə						
2. marìl n]o		*!		*	*	*
3. mariln] no		*!				
4. marì𝕋l] no	*!			*		
5. marìl𝕋] no	*!			*		

By exactly the same analysis, RS will not produce the optimal candidate in a phrase containing a lexical trigger of RS. Thus, the ranking of constraints previously determined to account for final segment deletion is the same ranking which prohibits RS from occurring in Faetar.

5. Summary

Faetar and Italian use different strategies to avoid violations in the alignment of prosodic and morphological constituents. The same set of constraints is crucially ranked in different orders for Faetar and Italian. For Italian RS, PARM must be ranked high in the set of constraints or only the un-geminated form would surface. In contrast, for Faetar, PARM must be ranked below the entire set of constraints being considered, or only the full forms would surface in the deletion cases considered. (Even if PARM were ranked higher in the Faetar hierarchy, none of the RS candidates would violate it, so there is no motivation for RS.)

I have shown that OT can cleanly account for the difference in grammars between Faetar and Italian, providing an explanation of why RS geminates do not occur in Faetar, although lexical geminates in medial position are acceptable structures in the language.

I have also shown that an OT model developed to account for one phenomenon (word-final deletion) also accounts for a second (the lack of RS), indicating that the hierarchy of constraints is not an ad-hoc construct designed to account for a single phenomenon, but rather a simple set of constraints which account for various phenomena in the grammar, which, under a generative analysis, would need to be accounted for by separate sets of rules.

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