Valencian vowel harmony

Jesús Jiménez

Valencian Catalan vowel harmony is a phenomenon by which the two [RTR] mid vowels /ɛ/, /ɔ/ in stressed position spread the features Front and Round to the vowel /a/. In the prototypical case, both /ɛ/ and /ɔ/ trigger feature spreading to posttonic /a/. In some varieties, however, only /ɛ/ or only /ɔ/ triggers the process. On the other hand, there are also more liberal varieties where both vowels spread their features in both directions, to the left and to the right. In this paper, Valencian vowel harmony is explained as a means to make the features of stressed [RTR] mid vowels more perceptible, following the postulates of Optimal Domains Theory (Cole & Kisseberth 1994, 1995). The uniform behavior of both vowels is made to follow from the fact that the features Front and Round belong to the same class, Color features. In accordance with Feature Domain Theory (Padgett 1995a,b) we do not assume any hierarchical organization within the Color class, which allows the independent spreading of Front and Round.*

1. Introduction

Valencian is the southernmost dialect of the Catalan language. It is spoken in approximately the territory that constituted the ancient Kingdom of València, with the exception of some relatively small western and southern areas, where the native language is Spanish. Within the Valencian dialect three major subdialects are usually distinguished: Northern Valencian, Central Valencian or Apitxat and Southern Valencian (cf. Veny 1983, among others).[1] Vowel harmony is especially prevalent in Southern Valencian, but it is also attested in a number of localities in the Central and Northern areas.

Vowel harmony in Valencian has attracted the attention of researchers since the pioneering work of Alcover (1903) and Hadwiger (1905). In spite of this, at present we do not have any comprehensive study of Valencian vowel harmony in all of its varieties. Colomina (1985a) describes in detail the variation existent in the Alacantí or southernmost area of Southern Valencian, providing a lineal generative analysis. Subsequently, Palmada (1991, 1994a) has analyzed Valencian harmony using the mechanisms of Autosegmental Phonology. In this paper, we offer an overview of the

Rivista di Linguistica, 10.1 (1998), pp. 137-161 *(ricevuto nel settembre 1997)*

different harmony systems found in Valencian Catalan, casting our analysis within the framework of Optimality Theory (OT) and, more specifically, Optimal Domains Theory (Cole & Kisseberth 1994, 1995). In addition, we will attempt to establish a link between the spreading of [-back] = Front and [+round] = Round, which go together in most varieties with a harmony process, employing Feature Class Theory (FCT, Padgett 1995a,b). Our goal is to construct a system of principles that can predict the different types of harmony found in Valencian.

Typically, Valencian harmony is a phonological process by which posttonic /a/ becomes [ɛ] or [ɔ] when preceded, respectively, by stressed /ɛ/ and /ɔ/. This is illustrated in the following examples where two varieties with and without harmony are compared: [2]

(1)

			Canals	València	
a.	terra	/tɛra/	[téɾɛ]	[téra]	'land'
	tela	/tɛla/	[télɛ]	[tɛla]	'cloth'
	perla	/pɛɾla/	[pɛɾlɛ]	[pɛɾla]	'pearl'
	afecta	/afɛkta/	[afɛ́ktɛ]	[afɛ́kta]	'it affects'
b.	cosa	/kɔza/	[kɔ́zɔ]	[kɔ́za]	'thing'
	porta	/pɔɾta/	[pɔɾtɔ]	[pɔ́ɾta]	'door'
	boira	/bɔira/	[bɔ́jɾɔ]	[bɔ́jɾa]	'fog'
	aporta	/apɔɾta/	[apɔɾtɔ]	[apɔɾta]	's/he brings'

Colomina (1985a) accounts for vowel harmony facts of the type illustrated by the Canals examples in (1) by means of the following two rules, within the framework of lineal generative phonology:

(2) Colomina (1985a)

a. /a/ —> [ɛ] / # (seg) /é/ [-syll]$_1$ __ #

b. /a/ —> [ɔ] / # (seg) /ɔ́/ [-syll]$_1$ __ #

Most varieties with a harmony process present the results illustrated for Canals in (2a) and (2b). However, there are some varieties which have harmony only when the stressed vowel is /ɛ/, as in Cullera, or only when the stressed vowel is /ɔ/, as in Borriana:

(3)

		Cullera	Borriana	
a.	terra	[téɾɛ]	[téra]	'land'
	tela	[télɛ]	[téla]	'cloth'
	perla	[pɛɾlɛ]	[pɛɾla]	'pearl'
	afecta	[afɛ́ktɛ]	[afɛ́kta]	'it affects'
b.	cosa	[kɔ́za]	[kɔ́zɔ]	'thing'
	porta	[pɔɾta]	[pɔ́ɾtɔ]	'door'
	boira	[bɔ́jɾa]	[bɔ́jɾɔ]	'fog'
	aporta	[apɔ́ɾta]	[apɔɾtɔ]	's/he brings'

There is no harmony ever with any other stressed vowel. In non-harmonic contexts, final /a/ is usually realized as [a]. This is true both in varieties with harmony, such as Canals, and in varieties without harmony, such as that spoken in the city of València. However, in a few local varieties, this final vowel is realized as [ɛ] (e.g. in Sueca), [ɔ] (e.g. in Ontinyent) or [ə] (e.g. in Palmera) in all words, regardless of the quality of the stressed vowel:

(4)

	Canals, València	Sueca	Ontinyent	Palmera	
capa	[kápa]	[kápɛ]	[kápɔ]	[kápə]	'cape'
mira	[míɾa]	[míɾɛ]	[míɾɔ]	[míɾə]	's/he looks'
lluna	[ʎúna]	[ʎúnɛ]	[ʎúnɔ]	[ʎúnə]	'moon'

The change of quality of final unstressed /a/ in all words illustrated in (4) is a phenomenon that must be considered independent of the harmony process; even though it may very well have arisen by analogy with harmonic words, that is, those containing stressed /ɛ/ or /ɔ/. The independence of these two phenomena is clear in those varieties which have harmony and, in addition, neutralization of final /a/ as [ɛ] or [ɔ] in non-harmonic contexts, such as those of Benitatxell and Ontinyent:

(5)

		Bentitatxell	Ontinyent	
terra	/tɛra/	[téɾɛ]	[téɾɛ]	'land'
cosa	/kɔza/	[kɔ́zɔ]	[kɔ́zɔ]	'thing'
mira	/miɾa/	[míɾɛ]	[míɾɔ]	's/he looks'

Although, in these varieties, the effect of neutralization coincides with the result of one of the two harmony processes (with /ɛ/ and with /ɔ/, respectively), the existence of harmony with the other vowel allows us to conclude that harmony takes place with both [RTR]-mid vowels and that the neutralization of word-final /a/ with one of the [RTR]-mid vowels in non-harmonic contexts is an independent process. This independence is even more clear in a variety such as that of Palmera where only /ɔ/ triggers harmony, and otherwise final /a/ is realized as schwa:

(6)

PALMERA

a.	cosa	[kɔ́zɔ]	'thing'
	porta	[pɔ́ɾtɔ]	'door'
b.	terra	[tɛ́rə]	'land'
	capa	[kápə]	'cape'
	mira	[mírə]	's/he looks'
	lluna	[ʎúnə]	'moon'

Instead, in varieties where harmony is restricted to words with only one of the two [RTR]-mid vowels and this coincides with the result of neutralization, it would seem that there is nothing that would allow us to postulate the existence of harmony, since the independently motivated neutralization of final /a/ with one of the two [RTR]-mid vowels produces the same result. In Sueca, for instance, final /a/ is always realized as [ɛ] regardless of the quality of the stressed vowel. In Xaló, on the other hand, final /a/ is always [ɔ]:

(7)

	SUECA	XALÓ	
terra	[tɛ́rɛ]	[tɛ́rɔ]	'land'
cosa	[kɔ́zɛ]	[kɔ́zɔ]	'thing'
mira	[mírɛ]	[mírɔ]	's/he looks'

Nevertheless, there is an argument in favor of the existence of a harmony process even in these cases: whereas in these varieties harmonic realizations are kept with almost no variation across styles or generations,[3] the neutralization of /a/ as [ɛ] or [ɔ] in non-harmonic contexts is a receding phenomenon, limited to the least formal registers (cf. Casanova 1997). That is, in a given locality with neutralization in [ɔ], for instance, we may find that there is variation between [mírɔ] and [míra], [tɛ́rɔ] and [tɛ́ra], but there is no variation in words such as [kɔ́zɔ], where the stressed vowel is /ɔ/. Given that from the point of view of sociolinguistic variation these are independent phenomena, we may also treat them independently from each other. In this paper, we will concentrate only on the harmony process. We will leave aside the positionally conditioned (not segmentally-conditioned) realizations of final /a/.

Assuming, thus, that harmony, on the one hand, and nonconditioned allophony and neutralization of /a/, on the other, are two phenomena which can be separated descriptively, we obtain all the possibilities represented in (8). In the left column, we note the different options regarding harmony, and on the top row we indicate the realization of final stressless /a/ in contexts without harmony. From the combination of these two parameters, we obtain twelve possible systems. For the three possibilities indicated with a double question mark, we do not know of any variety with these characteristics. The remaining empty spaces are assumed to be impossible.[4]

(8) Harmony and realization of final unstressed /a/ in non-harmonic contexts

	-a	-ɛ	-ɔ	-ə
no harmony	València			??
ɛ-a→ɛ-ɛ, ɔ-a→ɔ-ɔ	Canals	Benitatxell	Ontinyent	??
ɛ-a→ɛ-ɛ	Cullera	Sueca		??
ɔ-a→ɔ-ɔ	Borriana		Xaló	Palmera

In addition to the variation reflected in the table in (8), the geographical distribution of these phenomena is also rather variable.[5] To begin with, harmony is not found in the whole Valencian territory. With a high degree of consistency it characterizes only the Southern Valencian subdialect. Nevertheless, there are towns belonging to the other two subdialects where harmony processes of the same type are also attested (e.g. Borriana). Sometimes, in these other areas the phenomenon is limited to certain social groups. For instance in the

Central Valencian varieties spoken in El Cabanyal and Albuixec only older speakers present harmony.

Secondly, the distribution of the different types of harmony is not regular either, even in Southern Valencian. It is pretty much impossible to trace isoglosses. We may note that, in any case, the most general situation is to have harmony with both [RTR]-mid vowels.

From a theoretical point of view, the interest of the Valencian harmony process lies precisely on the amount of variation that it presents. As has been mentioned, in addition to the prototypical case where both [RTR]-mid vowels trigger harmony, there are varieties where only one of them does. Furthermore, in a few restricted cases, harmony is bidirectional from the stressed vowel. The problem is how to develop a system of principles which is able to account for the general situation, capturing the necessary link between the harmonizing features, and which, at the same time, has enough inherent flexibility to predict the existence of other marginal situations. The analysis must also be congruent with the general properties of the Valencian vowel system.

The remainder of this paper is organized in three sections. In section 2, we present the main points of the theoretical framework that we will use in the formalization of the facts. In section 3, the different types of harmony found in Valencian are analyzed within this framework. Finally, in section 4 we summarize the facts and the predictions made by our analysis.

2. *Theoretical background*

In this paper we assume the postulates of Optimality Theory (OT, cf. McCarthy & Prince 1993a, Prince & Smolensky 1993, among others). One of the basic contributions of this theory is the elimination of phonological rules. That is, the output is obtained from the input without a derivation, at least within a given level. Potential outputs are evaluated by a number of general well-formedness constraints. Among the list of output candidates compatible with a given input, the optimal output is selected. The differences that can be observed in the treatment of a given sequence in different languages, or different dialects of the same language, are not due to the existence of different principles, since all phonological principles are assumed to be universal. Instead, within OT, it is assumed that this

variation is the result of different orderings among universal principles. That is, differences among languages are due to the different priorities established in each language for the satisfaction of these principles. The grammar of a language thus consists of a set of universal principles ordered in a specific hierarchy. In case two principles are in conflict, the winning candidate will be the one that satisfies the higher ranked principle. In any case, however, violations are minimized.

Let us exemplify the proposals made in OT with a simple example from Valencian Catalan which is related to the main topic of this paper. As in all other Catalan dialects, in Valencian the [RTR]-mid vowels /ɛ/, /ɔ/ can only occur in a stressed syllable. Underlying /ɛ/, /ɔ/ become [e], [o], respectively, in stressless syllables. The principles that allow us to select the optimal candidate are, on the one hand, the requirement that the feature [RTR] be projected from underlying to surface representation, Max-RTR (cf. McCarthy & Prince 1994); and, on the other, a constraint which restricts the feature [RTR] to stressed positions (cf. Palmada 1991, 1994a,b):

(9) a. Max-RTR: Every RTR element of S1 has a correspondent in S2.

b. Stress-RTR: Only stressed syllables can license the feature RTR.

The ranking that is established between these two principles in Catalan would be Stress-RTR >> Max-RTR (that is, Stress-RTR dominates Max-RTR). This follows from the universal ranking of positional faithfulness. Stress-RTR can be interpreted as a positionally-defined faithfulness restriction. That is, Stress-RTR is roughly equivalent to Max-Stress/RTR and forces the realization of RTR in the most prominent position in the word: the stressed syllable. Consequently, Stress-RTR or Max-Stress/RTR must dominate Max-RTR, which demands the realization of RTR independently of context.

This ranking produces the correct results for two inputs like /tɛla/ 'cloth' and /tɛlɐ/ 'loom'. In the first example, /ɛ/ is in stressed position and permits the appearance of RTR. The winning candidate is, therefore, (10a). In the second example, on the other hand, stress falls on the second syllable and the presence of RTR on the first syllable would violate the Stress-RTR constraint. Consequently, the optimal candidate is (11b), which does not contain the feature RTR.

(10) Input: /tɛla/; ranking: Stress-RTR >> MAX-RTR

	Stress-RTR	MAX-RTR
☞ a. tɛ́la		
b. téla		*!

(11) Input: /tɛlɛr/; ranking: Stress-RTR >> MAX-RTR

	Stress-RTR	MAX-RTR
a. tɛlɛ́r	*!	
☞ b. telɛ́r		*

In Autosegmental Phonology, vowel harmony is based on phonological representations. We will assume, instead, the proposals of Optimal Domain Theory (ODT, Cole & Kisseberth 1994, 1995). In ODT some of the basic postulates of Autosegmental Theory are rejected. Harmony follows not from the representations but from the requirement that a given feature must characterize a morphologically or phonologically defined domain (Cole & Kisseberth 1994). A feature underlyingly associated with a segment may be realized over a larger domain to maximize perceptibility and articulator stability.

Within the ODT framework no specific feature geometry is assumed. Features spread separately. Nevertheless, a set of features may behave as a unit in a given harmony process. From Padgett (1995a,b) we adopt the assumption that features may belong to specific sets without implying that they are included under a single node. Thus, the features Front and Round belong to the same class, Color features, and, consequently, a given phonological operation may spread them jointly. This seems to be the unmarked option; but it is not the only possibility. These two features may also behave independently from each other. In this paper, we will assume that Catalan vowels are characterized by two feature classes, Height and Color, and that spreading operations may act on these classes or on individual features. With this proposal, we are able to capture the naturalness of the prototypical cases without excluding those patterns that depart from the unmarked situation.

3. Valencian vowel harmony

In the next subsections we will first present the Valencian vowel inventory and then examine the different types of vowel harmony. We will argue that the different attested possibilities can be captured with minimal variations in the hierarchy of principles.

3.1. Vowel inventory

We characterize the Valencian vowels as in (12). We assume that all features are unary (cf. Palmada 1991, 1994a,b, for a somewhat different view):

(12) Valencian vowel inventory

		Front		Round
ATR	High	i		u
		e	(ə)	o
		ɛ		ɔ
RTR	Low		a	

In this table, Front and Round are Color features (Odden 1991, Padgett 1995a,b) and High, Low, ATR and RTR are Height features. Notice, in particular that ATR and RTR are Height features, required by the existence of four degrees of aperture. We only indicate those features which appear to play an active role in the phonology of Valencian.

Some Valencian varieties systematically lack the vowel [ə]. This is due to a constraint that prevents certain feature combinations from surfacing.

In the next subsections we will consider the different types of harmony found in Valencian, starting from the most common situation.

3.2. Prototypical vowel harmony: Canals

The Canals variety presents the unmarked case in which the two stressed [RTR]-mid vowels spread their Color features to a final /a/ producing a uniform vowel sequence.

(13) CANALS

a.	terra	/tɛra/	[téɾɛ]	'land'
	tela	/tɛla/	[téle]	'cloth'
	cosa	/kɔza/	[kózɔ]	'thing'
	tova	/tɔva/	[tóvɔ]	'soft, fem. sg.'
b.	història	/istɛria/	[istéɾjɛ]	'hysteria'
	pèrdua	/pɛrdua/	[pɛrðwɛ] ~ [pɛrðua]	'loss'
	boira	/bɔira/	[bójɾɔ]	'fog'
	història	/istɔria/	[istóɾjɔ]	'history'

It can be observed in (13b) that the presence of an intervening consonant or glide is irrelevant for the harmony process. On the other hand, a syllabic high vocoid between the stressed and the final vowels blocks the application of the process. In this variety, in a word such as *pèrdua* the sequence of vocoids can be pronounced either as a diphthong or as a hiatus, depending on the style. As shown above, the pronunciation of the high vocoid as a glide or as a vowel conditions the application of vowel harmony. In (14) additional examples are given showing that when an ATR vowel intervenes between the stressed and the final low vowel harmony is blocked:

(14) CANALS

mèdica	[méðika]	'medical, fem. sg.'
tètrica	[tétɾika]	'gloomy, fem. sg.'
pèrdua	[pérðua]	'loss'
pècora	[pékoɾa]	'harpy'
ròtula	[ɾótula]	'kneecap'
còmica	[kómika]	'comical, fem. sg.'

Final /a/ is realized as [a] with all other stressed vowels, including /e/ and /o/:

(15) CANALS

pera	[péɾa]	'pear'
mira	[míɾa]	's/he looks'
tota	[tóta]	'all, fem. sg.'
suma	[súma]	'sum'
casa	[káza]	'house'

Harmony takes place only within the morphological word and does not even affect clitics:

(16) CANALS

porta-la	/pɔɾta#la/	[pɔɾtɔla]	'take it, fem. sg.'
pela-la	/pɛla#la/	[pélɛla]	'peel it, fem. sg.'
cou-la	/kɔw#la/	[kówla]	'boil it, fem. sg.'

These examples containing clitics can be compared to word-internal cases such as *apòstata* [apóstɔtɔ] 'apostate', where harmony does apply. From this example we can also conclude that vowel harmony is not necessarily restricted to only the vowel immediately following the stressed one. Nevertheless, it should be noted that there are almost no words where a potential low vowel target occurs in a posttonic nonfinal syllable (in a proparoxytonic word) and the stressed vowel is /ɛ/ or /ɔ/; none in the common vocabulary. The learned word *apòstata* 'apostate' is the only example we have been able to find. But, in any case, the speakers that we have consulted have clear intuitions that this word could be adapted with vowel harmony; something which is impossible in cases involving clitics.

An apparent counterexample to the claim that harmony is restricted to the domain of the morphological word would be *poc a poc* [pókɔpók] 'little by little' where the preposition *a* undergoes harmony. However, this example can be treated as a lexicalized unanalyzed item.

We may describe Color harmony in the Canals variety of Valencian Catalan as a process with the following characteristics: it is triggered by RTR mid vowels in stressed position and affects RTR posttonic vowels. The process is blocked by any syllabic element between trigger and potential target, but not by consonants or glides.

(17) Canals vowel harmony (prototypical Valencian harmony process)

Argument: Color
Trigger: Mid RTR stressed vowels
Target: RTR vowels
Direction: From left to right
Domain: Morphological word
Transparent segments: Consonants and glides
Opaque segments: Vowels