

A Correspondence Approach to Vowel Harmony in Lena Spanish

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I. Introduction

- (1) In this talk, I will discuss vowel harmony in Lena Spanish, and will provide a morphemic, correspondence-based account. I will show that the idiosyncrasies of Lena fit into the predicted typology of morphemic vowel harmony without postulating novel representational structures.
- (2) Vowel harmony in Lena (often referred to as metaphony) is idiosyncratic because:
 - (a) It applies only in the presence of particular morphemes: masculine singular, masculine count.
 - (b) The target for harmony is a stressed vowel
 - (c) Intervening segments are skipped- locality principles are violated
- (3) Previous Accounts vs. Present Account
 - (a) Hualde (1992) autosegmental spreading—unwieldy repairs to induce non-locality
 - (b) Walker (2004) licensing constraints – in order to simultaneously raise the stressed vowel and violate locality principles
 - (i) High unstressed vowels are marked, and must be licensed through constraints
 - (ii) Three types of licensing: direct, indirect and identity
 - (iii) Licensing connected through correspondence chains
 - (iv) Proximity constraints target closest licenser
 - (v) Weak positions (high unstressed vowels) are licensed via licensing constraints
 1. complex novel representational assumptions
 2. doesn't explain directionality and morpheme-specific nature
 - (c) Correspondence Approach
 - (a) Uses a modified version of correspondence theory: no new constraints
 - (b) No novel representations
 - (c) Predicts Non-locality
 - (d) Local conjunction used to get features spreading to stressed vowel
- (4) The remainder of this talk will be structured as follows.
 - (a) First, I will define morphemic vowel harmony and argue that Lena fits into the definition of morphemic harmony.
 - (b) I will then provide the general correspondence approach to morphemic vowel harmony.

- (c) This is then followed by a correspondence-based analysis of harmony in Lena, as well as a similar dialect, Tudanca

II. Morphemic vs. Phonological Vowel Harmony

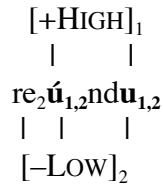
- (5) There are two types of vowel harmony: morphemic and phonological (Finley, 2006, Finley, in prep).
- (6) Phonological vowel harmony is standard vowel harmony (such as Finnish/Turkish) and can be defined as follows:
 - (a) Typically general agreement of segments (though a particular feature value may spread).
 - (b) Induced by markedness principles
 - (c) Exceptions in terms of undergoers: which morphemes undergo or do not undergo harmony
- (7) Morphemic vowel harmony occurs when a morpheme is realized via some vowel feature spreading to all (or some subset) of the vowels in the lexical item
 - (a) Applies to specific morphemes, inherently exceptional morphemes are harmony triggers
 - (b) The morpheme is associated with a specific feature value
 - (c) This feature value is realized onto the vowels in the base form of the lexical item s
- (8) Lena harmony is morphemic
 - (a) Realization of masculine singular/count seems to depend on raising of vowels¹
 - (b) Harmony only applies in specific morphemic environments: trigger harmony
 - (c) It is a specific feature value [+HIGH, -LOW] that gets realized
- (9) Because Lena harmony fits the definition of morphemic harmony, it is possible to use a morphemic analysis of vowel harmony in Lena. The next section will provide the correspondence-based approach to morphemic vowel harmony.

III. Morphemic Vowel Harmony and Correspondence Theory

- (10) In this section, I will explain how morphemic vowel harmony can be analyzed using correspondence constraints. The morphemic feature of the morpheme is realized on the vowels in the lexical item through a correspondence relation between this feature and the vowels in the lexical item.
- (11) Morphemic Harmony Through Correspondence: An illustration

¹ Though some do not need harmony to be realized (e.g. [fére] 'type of hawk' (m sg) is the same as its plural counterpart [féres] (Hualde 1989))

- (a) Morpheme: Masculine/Singular
- (b) Morphemic Feature(s): [+HIGH] [-LOW]
- (c) Correspondence between vowels and these features



- (d) This is achieved through high-ranked morpheme-specific featural correspondence constraints. A combination of morpheme-specific L-ANCHOR, R-ANCHOR and O-CONTIGUITY² (McCarthy and Prince, 1995) are used to create the lexical correspondence required by the morphemic feature³.
- (12) L-ANCHOR-[αF]-MORPH: The [F] feature of MORPH must be in correspondence with the leftmost vowel of the lexical domain (which therefore must be [αF])
 - (13) R-ANCHOR-[αF]-MORPH: The [F] feature of MORPH must be in correspondence with the rightmost vowel of the lexical domain (which therefore must be [αF])
 - (14) O-CONTIGUITY-[αF]-MORPH: The output vowels in correspondence with a MORPH [F] feature must form a string of contiguous vowels
 - (15) Facts about these constraints:
 - (a) ANCHOR constraints in this context are gradient⁴ and realizational
 - (i) (the lack of realization of the morphemic feature will cause a violation of both ANCHOR constraints)
 - (b) L-ANCHOR is violated once for every vowel that is not in correspondence with the morphemic feature at the left edge of the lexical domain, and analogously for R- ANCHOR
 - (16) Floating features?
 - (a) Dillon (ms) gives a morphemic analysis of Lena Spanish using the constraint REALIZE MORPHEME (Kurusu, 2001)
 - (b) Kurisu (2001) treats morpheme realization through a single constraint REALIZE MORPHEME
 - (c) No floating features
 - (d) Minimal possible change

² Abbreviated versions may appear in some tableau to save space: ANCHOR: ANCH, and O-CONTIGUITY as O-CONT.

³ INTEGRITY is assumed to be low-ranked for all cases of morphemic harmony presented in this paper.

⁴ The gradient effects of ANCHOR arise from the fact that the correspondence relation in question is concerned with the vowels in the lexical domain and the morphemic feature. This serves the same function as the MATCH constraints proposed by McCarthy (2003)

- (e) Multiple changes are not directly predicted
 - (i) Uses sympathy theory to account for morphemic vowel harmony, German umlaut
 - (ii) The problem with this approach is that there is no reason in principle to think of the process of realizing a morpheme via vowel harmony as the same mechanisms underlying opaque interaction.
- (2) Correspondence approach directly predicts morphemic harmony and is therefore preferred

IV. Predictions and Typology

- (17) The three constraints that are needed to induce harmony: L-ANCHOR, R-ANCHOR, and O-CONTIGUITY, are all ranked with respect to IDENT. The factorial typology yields four different types of interactions, listed below.
- (18) Type 1: All correspondence constraints outrank IDENT
 - (a) All vowels are in correspondence with the morphemic feature: Full harmony: Kanembu (Akinlabi, 1996, Hall et al., 1973, Jouannet, 1982), Korean
- (19) Type 2: IDENT is top ranked
 - (a) No Harmony; no morpheme realization: default
- (20) Type 3: R-ANCHOR or L-ANCHOR ranked above IDENT
 - (a) Harmony on one edge only (Edge-only effects): Korean, Mayak
- (21) Type 4: O-CONT is low ranked
 - (a) Gapped representations: Lena (Spanish) (Hualde 1992, 1989; Walker 2003).
- (22) The morphemic feature will also be in correspondence with prominent positions, such as stressed vowels.
 - (a) This is accounted by appealing to local conjunction of correspondence constraints and *Structure constraints
 - (b) This appeals to the Worst of the Worst notion (Smolensky, 2006): It's worse for a morpheme to be out of correspondence if that lack of correspondence involves a stressed vowel
 - (c) Conjoin *V with ANCHOR, O-CONT, etc.
 - (d) Interactions of conjoined and plain correspondence constraints predicts different effects that are shown in Lena and Tudanca
- (23) The following section will provide an analysis of Lena and Tudanca.

V. Analysis of Lena Spanish

- (24) The case of Lena is different from prototypical cases of morphemic harmony because rather than realization at both edges of the lexical item, the [+HIGH, -LOW] feature is realized at the right edge and the stressed vowel only.
- (25) Lena vowel harmony (Hualde, 1992, Hualde, 1989, Walker, 2004)
- | | [+HIGH, -LOW] Feature Attached | No Morphemic Features |
|-----|---------------------------------------|------------------------------|
| (a) | kordíru 'lamb' (m sg) | 'korderos' (m pl) |
| (b) | reúndu 'round' (m sg count) | 'reóndo' (mass) |
| (c) | burwíbanu 'wild strawberry' (m sg) | 'burwébanos' (m pl) |
| (d) | gétu 'cat' (m sg) | 'gátos' (m pl) |
- (26) The raising process spreads to the stressed vowel (a, b), but it does not have to spread all the way to the left edge, and it can skip unstressed vowels (c). Low vowels only raise to mid vowels (d).
- (27) The feature triggering raising cannot be just [+HIGH] because low vowels raise to mid in the face of harmony. Since mid vowels raise to [+HIGH], the feature cannot simply be [-LOW], otherwise they would not need to raise. Thus, I will assume that the harmonic feature is both [+HIGH, -LOW].
- (28) The fact that harmony spreads to the stressed vowel and stops can be accounted for by conjoining L-ANCHOR-[+HIGH, -LOW] with *V̇ constraint.
- (a) This will force the [+HIGH, -LOW] feature to be realized on the stressed vowel.
- (b) The conjunction L-ANCHOR-[+HIGH, -LOW] & *V̇ is violated whenever there is a violation of L-ANCHOR and one of the vowels that is not in correspondence with the feature is stressed.
- (29) R-ANCHOR causes the [+HIGH, -LOW] feature to be realized on the right edge.
- (30) Harmony does not spread between the right edge of the word and the stressed vowel, skipping any unstressed vowels that intervene between. Ranking of ID above O-CONTIG gives this result.
- (31) Since low vowels cannot raise to [+HIGH] (by violating both ID[HIGH] and ID[LOW] through the local conjunction of ID[HIGH] and ID[LOW] (Kirchner, 1996)), they raise to [-LOW]. This is the local conjunction to account for raising chain shifts that Kirchner discusses.

(32) Lena Spanish Morphemic harmony

/páʃaro/ [+HIGH] ₁ [-LOW] ₂	R-ANCH [HIGH] ₁ [LOW] ₂	ID [LOW] & _{SEG} ID [HIGH]	L-ANCH [HIGH] ₁ [LOW] ₂ & *V	ID [LOW]	ID [HIGH]	O-CONT [HIGH]
a. [pé ₂ e ₂ ru _{2,1}]			*	**! (W)	*	(L)
b. [pé ₂ ʃaru _{2,1}]			*	*	*	*
c. [páʃaru _{2,1}]			**!(W)	(L)	*	(L)
d. [páʃaro ₂]	*!**** (W)		**	(L)	(L)	(L)
e. [pí _{2,1} ʃaru _{2,1}]		*!(W)	(L)	*	** (W)	(L)

(33) The optimal candidate is (b), because it satisfies R-ANCHOR and has the fewest ID violations.

- (a) Because ID outranks O-CONTIGUITY, the more harmonic candidate (a) cannot win.
- (b) Because low vowels can only raise to mid, candidate (e) cannot win.
- (c) Candidate (c) cannot win because it has two violations of L-ANCHOR & *V because neither [+HIGH] or [-LOW] are realized on the stressed vowel.
 - (i) A low vowel raising to only mid is better than not raising at all.


(34) For the next tableaux, to save space, correspondence with [+HIGH]₁ implies correspondence with [-LOW]₂

(35) Tableau (36) shows that because standard L-ANCH is ranked below ID, the leftmost vowel will only be raised if it is stressed.

(36) Lena Spanish Morphemic harmony


/kordéro/ [+HIGH] ₁ [-LOW] ₂	R-ANCH [HIGH] ₁ [LOW] ₂	L-ANCH [HIGH] ₁ [LOW] ₂ & *V	ID[HIGH]	L-ANCH [HIGH] ₁ [LOW] ₂	O-CONT [HIGH] ₁ [LOW] ₂
a. [ko ₂ rdé ₂ ro ₂]	*!*** (W)	* (W)	(L)	*** (W)	
b. [ko ₂ rdí ₁ ru ₁]			**	* (L)	
c. [ku ₁ rdí ₁ ru ₁]			***! (W)	(L)	
d. [ko ₂ rdí ₁ ro ₂]	*!(W)		* (L)	*	
e. [ku ₁ rdé ₂ ro ₂]	*!* (W)		(L)	(L)	

(42) Tudanca Spanish Morphemic harmony

/kárabu/ [-ATR] ₁	R-ANCH [ATR] ₁	O-CONT [ATR]	L-ANCH [ATR] ₁ & *V́	ID [ATR]	L-ANCH [ATR] ₁
a. [kárabu]	*!*(W)		*(W)		*** (W)
b.  [kÁ ₁ rA ₁ bU ₁]				*** (L)	
c. [kÁ ₁ rabu]	*!* (W)			*(L)	
d. [kárabU ₁]			*!(W)	*(L)	** (W)
e. [kÁ ₁ rabU ₁]		*! (W)		** (L)	

(43) In this case, the fully harmonic candidate wins because the leftmost vowel is stressed (eliminating (d)), and R-ANCH is high-ranked, eliminating (a) and (c). High-ranked O-CONTIGUITY eliminates candidate (e).

(44) Tudanca Spanish Morphemic harmony

/ antigwísimu / [-ATR] ₁	R-ANCH [ATR] ₁	O-CONT [ATR] ₁	L-ANCH [ATR] ₁ & *V́	ID [ATR]	L-ANCH [ATR] ₁
a. [antigwÍ ₁ simU ₁]		*! (W)		** (L)	**
b.  [antigwÍ ₁ sI ₁ mU ₁]				***	**
c. [A ₁ ntI ₁ gwÍ ₁ sI ₁ mU ₁]				*****! (W)	(L)
d. [antigwÍ ₁ simu]	*!* (W)			*(L)	**
e. [antigwísimU ₁]			*! (W)	*(L)	**** (W)

(45) In this case, when the leftmost vowel is unstressed, this vowel does not change (eliminating (c)), but the local conjunction requires the stressed vowel to change (eliminating (e)). High-ranked O-CONTIGUITY eliminates (a) and high-ranked R-ANCHOR eliminates (d).

(46) If the leftmost vowel is already [-ATR], the ranking will prefer the output with a [-ATR] leftmost vowel but is NOT in correspondence with the morphemic feature.

(47) Tudanca Spanish Morphemic harmony

/ Antigw ₁ simu / [-ATR] ₁	R-ANCH [ATR] ₁	O-CONT [ATR] ₁	L-ANCH [ATR] ₁ & *VÈ	ID [ATR]	L-ANCH [ATR] ₁
a. [Antigw ₁ Í ₁ simU ₁]		*!(W)		** (L)	**
b. [Antigw ₁ Í ₁ sI ₁ mU ₁]				***	**
c. [A ₁ ntI ₁ gw ₁ Í ₁ sI ₁ mU ₁]				*****! (W)	(L)
d. [A ₁ ntigw ₁ Í ₁ sI ₁ mU ₁]		*! (W)		* (L)	(L)
e. [Antigw ₁ ísimU ₁]			*! (W)	* (L)	**** (W)

(48) This section has shown that it is possible to account for vowel harmony in Lena Spanish as a morphemic process

(49) The account laid out here makes it possible for vowels intervening between the right edge of the word and the stressed syllables to be transparent to harmony without positing any new representational assumptions, as Walker (2004) is forced to do.

VI. Conclusion

(50) In this talk, I have given a morphemic analysis of vowel harmony in Lena Spanish. Rather than treating the phenomenon as purely phonological, and postulate novel representations, it is possible to integrate the pattern into the theory of morphemic vowel harmony, filling in the typological predictions of the theory.

(51) The gapped representation prediction is filled by Lena, but not in a straightforward way, as the correspondence interacts with stress. Are there languages with more straightforward gapped representations.

(52) Used local conjunction to get morphemic harmony to spread to stressed syllable. What other uses of local conjunction are there in morphemic harmony?

(53) What are the other idiosyncrasies of morphemic vowel harmony- where can the morphemic feature dock to?

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