

Analysing Pasiego vowel harmony (nearly) four decades after SPE

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The aim of this paper is twofold: to point out the crucial role the choice of representation plays in OT analyses, and to contribute to the growing body of evidence indicating that binary features are superfluous. I present a case study of raising and tenseness harmony in Pasiego Montañés Spanish (McCarthy 1984).

Pasiego has the classical 5-vowel system consisting of **i**, **e**, **a**, **o**, **u**, as well as the lax counterpart of each of these.¹ Two types of harmony are operative in the system: height harmony, where the tonic vowel spreads its height (causing both lowering and raising), and tenseness harmony, where a word-final lax vowel causes all vowels to become lax.² The low vowels do not participate in the height harmony (they act as blockers), but they undergo tenseness harmony.

de Lacy (to appear) argues that, since height harmony causes both raising and lowering, binary feature representations are needed to account for it. Using the ranking **ID[LOW] » AGREE[HIGH] » ID[HIGH]**, he claims that, in case of an input non-tonic **a**, the winning candidate would have the feature specifications [+high,+low], and thus be phonetically uninterpretable. Although he entertains the possibility that one could devise a representation without this problem, he swiftly rejects this path, suggesting that “weeding out interpretive contradiction from the entire feature system is much harder” (p. 7.). Instead, he proposes an intricate piece of extra machinery called the Interpretive Loop, which deletes a phonetically uninterpretable winner from the candidate set and then re-runs **EVAL**, repeating the process until an interpretable winner emerges.

I argue that, rather than ignoring the advances made in work on phonological representations in the last 40 years and unnecessarily complicating the evaluation mechanism, one should choose a model that does not suffer from the shortcomings of SPE. Using the Parallel Structures Model of Morén (2003), I propose the representations in (1) for Pasiego vowels.³ The constraints in (2)-(6) govern the harmony processes.

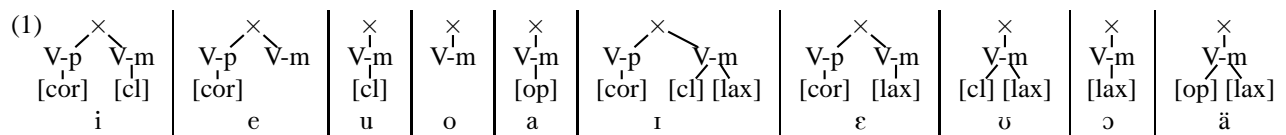
The analysis accounts for the following aspects of Pasiego vowel harmony. 1. Height harmony (7)-(8) is spreading of the **V-manner** node, thus it is symmetric in the lowering and the raising direction. 2. Tenseness harmony (9), on the other hand, is the spreading of the feature **[lax]**, thus it is asymmetrical, since the absence of a feature cannot spread. 3. The low vowels do not undergo height harmony (8), since, as **[open]** is a dependant of **V-manner**, sharing their **V-manner** with non-[open] vowels would violate high-ranked **ID[OPEN]**. 4. Low vowels undergo tenseness harmony, however, because spreading **[lax]** does not violate **ID[OPEN]** (9). 5. Vowels on either side of a low vowel do not engage in height harmony, since spreading **V-manner** would violate **ID[OPEN]**. These facts are interconnected in the present analysis, while in an SPE framework they have to be independent rules accidentally found in the same language.

In sum, I argue that the choice of the representational framework is crucial to understanding phonological phenomena, regardless of the computational model one employs. The paper also demonstrates that binary features are not necessary to describe symmetric spreading processes.

¹Phonetically, there’s no **ɛ** in Pasiego; however, as McCarthy (1984:300) points out, there is phonological evidence for a tense-lax distinction for this vowel as well.

²Tenseness harmony is triggered by word-final **o** in masculine singular count nouns. Since the aim of this paper is not to investigate the morphological conditioning of tenseness harmony, but to account for the behaviour of individual segments in the harmony process, I disregard this complication here.

³The following abbreviations are used: **V-p**=**V-place**, **V-m**=**V-manner**, **[cor]**=[coronal],[**cl**]=[closed],[**op**]=[open]. Since **V-place** is irrelevant for the harmony processes discussed here, it is omitted when empty.



- (2) **IDEN[OPEN]** Let S_i be an input segment, S_o its output correspondent, G_i the set of all n -tuples containing the skeletal slot and **[open]** in S_i ; G_o the set of all n -tuples containing the skeletal slot and **[open]** in S_o . Assign a violation mark for every S_o for which $G_i \neq G_o$.
- (3) **IDEN(V-M)(STRESS)** Let S_i be an input segment, S_o its output correspondent, G_i the set of all n -tuples containing the skeletal slot and **V-manner** in S_i ; G_o the set of all n -tuples containing the skeletal slot and **V-manner** in S_o . Assign a violation mark for every stressed S_o for which $G_i \neq G_o$.
- (4) **MAX[LAX]** Let S_i be an input segment, S_o its output correspondent, G_i the set of all n -tuples containing the skeletal slot and **V-manner** in S_i ; G_o the set of all n -tuples containing the skeletal slot and **V-manner** in S_o . Assign a violation mark for every S_o for which $G_i \not\subseteq G_o$.
- (5) **AGREE[LAX]** A vowel is **[lax]** iff its neighbouring vowels are **[lax]**.
- (6) ***(V-M)** Assign a violation mark for every **V-manner** in the output.

(7)

$\begin{array}{c} \times \quad \times \\ \diagdown \quad \diagup \\ V\text{-m} \quad V\text{-m} \\ \text{[cl]} \\ /bebís/ \end{array}$	ID[OP]	ID(VM)(STR)	*V-M
$\begin{array}{c} \times \quad \times \\ \diagdown \quad \diagup \\ [bebís] V\text{-m} \quad V\text{-m} \\ \text{[cl]} \\ *! * \end{array}$			
$\begin{array}{c} \times \quad \times \\ \diagdown \quad \diagup \\ \Rightarrow [bibís] V\text{-m} \\ \text{[cl]} \\ * \end{array}$			
$\begin{array}{c} \times \quad \times \\ \diagdown \quad \diagup \\ [bebés] V\text{-m} \\ \text{[cl]} \\ *! \quad * \end{array}$			

(8)

$\begin{array}{c} \times \quad \times \\ \diagdown \quad \diagup \\ V\text{-m} \quad V\text{-m} \\ \text{[op]} \\ /sertál/ \end{array}$	ID[OP]	ID(VM)(STR)	*V-M
$\begin{array}{c} \times \quad \times \\ \diagdown \quad \diagup \\ \Rightarrow [sertál] V\text{-m} \quad V\text{-m} \\ \text{[op]} \\ ** \end{array}$			
$\begin{array}{c} \times \quad \times \\ \diagdown \quad \diagup \\ [sertél] V\text{-m} \\ \text{[op]} \\ *! \quad * \quad * \end{array}$			
$\begin{array}{c} \times \quad \times \\ \diagdown \quad \diagup \\ [sartál] V\text{-m} \\ \text{[op]} \\ *! \quad * \end{array}$			

(9)

$\begin{array}{c} \times \quad \times \quad \times \\ \diagdown \quad \diagup \quad \diagup \\ V\text{-m} \quad V\text{-m} \quad V\text{-m} \\ \text{[op]} \quad \text{[lax]} \quad \text{[cl]} \\ /soldáu/ \end{array}$	AGREE[LAX]	MAX[LAX]	ID[OP]	ID(VM)(STR)	*V-M
$\begin{array}{c} \times \quad \times \quad \times \\ \diagdown \quad \diagup \quad \diagup \\ [soldáu] V\text{-m} \quad V\text{-m} \quad V\text{-m} \\ \text{[op]} \quad \text{[lax]} \quad \text{[cl]} \\ *! \quad *** \end{array}$					
$\begin{array}{c} \times \quad \times \quad \times \\ \diagdown \quad \diagup \quad \diagup \\ \Rightarrow [soldáu] V\text{-m} \quad V\text{-m} \quad V\text{-m} \\ \text{[lax]} \quad \text{[op]} \quad \text{[cl]} \\ *** \end{array}$					
$\begin{array}{c} \times \quad \times \quad \times \\ \diagdown \quad \diagup \quad \diagup \\ [soldóu] V\text{-m} \\ \text{[op]} \\ *! \quad * \quad * \quad * \end{array}$					
$\begin{array}{c} \times \quad \times \quad \times \\ \diagdown \quad \diagup \quad \diagup \\ [säldá?] V\text{-m} \quad V\text{-m} \\ \text{[lax]} \quad \text{[op]} \quad \text{[cl]} \\ *! * \quad ** \end{array}$					

References

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