

### Vowel harmony in Romance varieties: representing minimal contrast

This study focuses on the role of *minimal contrast* in phonology. Minimally contrastive segments are pairs of segments that differ in just property or dimension of contrast (Jakobson et al. 1952). Here, I present evidence for the importance of minimal contrast from vowel height harmony in the Romance variety of Lena (Northwestern Spain, Dyck 1995), where the presence of minimal height contrasts determines the harmony application. In view of these facts, a new system to encode minimal contrast is proposed and framed within Optimality Theory (OT). Finally, an analysis of Lena harmony is developed incorporating the new representation of minimal contrast.

Evidence for the relevance of minimal contrast comes from vowel height harmony in Lena. In this variety, post-tonic high vowels trigger raising of a stressed vowel. Examples of the height harmony are shown in (1).

(1) Examples of Lena metaphony in the masculine singular forms (from Hualde 1989)<sup>1</sup>.

<i>masc. sg.</i>	<i>fem. sg.</i>	<i>masc. pl.</i>	
g <u>é</u> tu	gáta	gátos	‘cat’
kord <u>í</u> ru	kordéera	kordéeros	‘lamb’
ts <u>ú</u> bu	tsóba	tsóbos	‘wolf’

Interestingly, this harmony is triggered only by high vowels that are minimally contrastive for height. In Lena, only back vowels contrast for height, and the high back vowel is the only trigger. This pattern illustrates a phonological process sensitive to minimal contrast. In Lena, the trigger is always a word-final inflectional suffix. Lena’s inflectional system is asymmetrical—only back vowels contrast for height. Production of the front vowel ranges from [i] to [e] but it lacks a height contrast. Relevant here is that, even when a front vowel is realized as a high vowel specified as [+high], it never triggers harmony. The generalization is that only a high vowel that minimally contrasts for height can trigger the harmony. Data from other Romance varieties closely related to Lena further support this conclusion.

The facts from Lena show that the application of height harmony depends on whether the trigger is minimally contrastive for height. Therefore, I argue that the phonological representation must include information about minimal contrast, which can be active or relevant for different phonological processes. I formalize this contrast with a *contrast-coindexing* mechanism, which applies to minimally contrastive segments that are able to distinguish pairs of words. Framed within OT, the *contrast-coindexing* function is argued to apply after GEN generates the candidates and before EVAL operates over them.

As for the analysis of Lena harmony, following Walker (2005), I argue that Lena’s harmony takes place in order to improve perceptibility of a height feature in a perceptually weak position. Walker (2005) presents a schema for positional licensing constraints, which requires features in perceptually weak positions, e.g. an inflectional suffix, to be associated with a strong position, e.g. a stressed syllable. The observation that Lena harmony singles out [+high] when it is *contrast-coindexed* for height is incorporated in a licensing constraint. This constraint targets only minimally contrastive [+high] in a weak inflectional position.

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<sup>1</sup> An accent mark over a vowel indicates stress.