

## A New Account of Moraic Faithfulness and Compensatory Lengthening

**1. Introduction.** The prosodic faithfulness constraints DEP- $\mu$  and DEP-LINK- $\mu$  (McCarthy 1997) have been defined as banning insertion of a mora and of an association line between a mora and a segment, respectively. However, these constraints are problematic since they give rise to unattested patterns of syllabification and reduplicant copy as described below. This paper proposes replacing DEP- $\mu$  and DEP-LINK- $\mu$  with two new constraints P-DEP- $\mu$  and P-DEP-LINK- $\mu$ , which distinguish between regular syllabification of vowels and coda consonants and lengthening phenomena. This leads to a new account of compensatory lengthening (CL) as preservation of segments instead of moras.

**2. Problems for DEP- $\mu$  and DEP-LINK- $\mu$ .** The interaction of the constraints, Weight-by-Position (WBP) (Hayes 1989), which requires coda consonants to be moraic, and  $*\mu/C$  (Broselow, Chen and Huffman 1997), which bans moraic consonants, determines the moraic status of coda consonants. Whenever WBP dominates  $*\mu/C$  in any given language, coda consonants are weight-contributing, i.e., moraic. However, DEP- $\mu$  can block assignment of a mora by WBP. These two constraints can be ranked with  $*\mu/C$  and  $*ComplexOnset$  (Prince and Smolensky 1993) to predict unattested syllabification contrasts such as *ak.la* vs. *a.kla* within a language, depending on whether /k/ is underlyingly moraic or not, given Richness of the Base (Prince and Smolensky 1993). See tableaux (a) and (b).

On the other hand, DEP-LINK- $\mu$ -BR can lead to a type of syllable copy reported as nonexistent (Marantz 1982, Moravcsik 1978). This constraint blocks linking of a coda consonant in the reduplicant to a mora, even if both elements are present somewhere in the base. As a result, the reduplicant copies an open syllable from a CV.CV base and a closed syllable from a CVC.CV base. The problem again is that DEP-LINK- $\mu$  penalizes linking between a segment and a mora to satisfy WBP. See tableaux (c) and (d) for the interaction of this constraint in a reduplication process.

**3. New prosodic faithfulness constraints.** In the view of these problems, I propose that DEP- $\mu$  and DEP-LINK- $\mu$  should be replaced by P(ositional)-DEP- $\mu$  and P-DEP-LINK- $\mu$ , which have the effect of penalizing insertion of a mora or association line only if the result is lengthening of the segment. In the case of P-DEP- $\mu$ , an inserted mora that is the only prosodic unit linked to a particular segment—a positional  $\mu$ -licenser (cf. Bermúdez-Otero (n.d.))—does not violate this constraint.

(1) Positional  $\mu$ -licenser:

$\mu$  is a positional  $\mu$ -licenser of a segment  $\alpha$ , iff  $\mu$  is the only prosodic unit dominating  $\alpha$ .

This is incorporated in the definition of P-DEP- $\mu$ :

(2) P-DEP- $\mu$ :

If a mora is inserted, it must be a positional  $\mu$ -licenser.

The representations in (3)-(6) show how P-DEP- $\mu$  works. Assuming that the moras are inserted, (3) and (4) do not violate the constraint, while (5) and (6) do, since these segments are headed by two prosodic units.

This approach is extended to P-DEP-LINK- $\mu$ , which allows only for insertion of association lines from positional  $\mu$ -licensors to segments.

**4. New approach to compensatory lengthening.** An immediate consequence is that without traditional DEP- $\mu$ , compensatory lengthening can no longer be analyzed as conservation of a mora. The moraic conservation approach to CL (Hayes 1989, among others) predicts that only deletion of mora-bearing segments, i.e., vowels and coda consonants, can lead to this phenomenon. Evidence against the moraic approach comes from Piro and Samothraki Greek (Kavitskaya 2002) (see data for Samothraki Greek in (7)). These two languages show CL triggered by the deletion of onset consonants, which are universally non-moraic. Thus, building on Selkirk's (1991) theory of gemination, I propose an analysis of CL as root number preservation. A markedness constraint specifies the banned element. For example, a constraint penalizes sequences of /r/ and a vowel in the case of Samothraki Greek. The force behind lengthening is the requirement to satisfy MAX-IO, which bans deletion. So, CL arises as a mechanism to preserve the same number of segment roots as in the input. Tableau (e) exemplifies the analysis for the Greek variety.

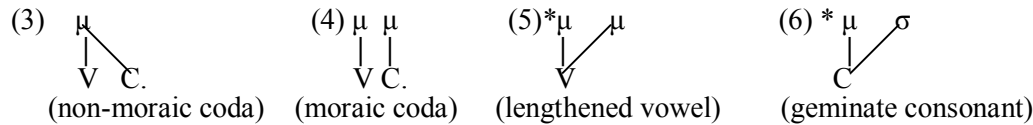


Tableau (a) moraic /akla/ → [ak.la]

/a <sup>μ</sup> k <sup>μ</sup> l a <sup>μ</sup> /	Dep-μ	WBP	*ComOns	*μ/C
$\begin{array}{c} \mu \quad \mu \\ \swarrow \downarrow \\ a \quad k \quad l \quad a \end{array}$		*!		
$\begin{array}{c} \mu \quad \mu \quad \mu \\ \downarrow \downarrow \downarrow \\ a \quad k \quad l \quad a \end{array}$				*
$\begin{array}{c} \mu \quad \mu \\ \downarrow \downarrow \\ a \quad k \quad l \quad a \end{array}$			*!	

Tableau (b) non-moraic /akla/ → [a.kla]

/a <sup>μ</sup> k <sup>μ</sup> l a <sup>μ</sup> /	Dep-μ	WBP	*ComOns	*μ/C
$\begin{array}{c} \mu \quad \mu \\ \swarrow \downarrow \\ a \quad k \quad l \quad a \end{array}$		*!		
$\begin{array}{c} \mu \quad \mu \quad \mu \\ \downarrow \downarrow \downarrow \\ b \quad a \quad k \quad l \quad a \end{array}$		*!		*
$\begin{array}{c} \mu \quad \mu \\ \swarrow \downarrow \\ c \quad a \quad k \quad l \quad a \end{array}$			*	

Tableau (c) /RED-CVCV/ → [CV-CV.CV]

RED-CVCV	DEP-LINK-μ	WBP	Max-BR	*μ/C
$\begin{array}{c} \mu \quad \mu \\ \downarrow \downarrow \\ a.CVC.-CV.CV \end{array}$	*!		*	*
$\begin{array}{c} \mu \quad \mu \quad \mu \\ \swarrow \downarrow \downarrow \\ b.CVC.-CV.CV \end{array}$	*!	*	*	
$\begin{array}{c} \mu \quad \mu \quad \mu \\ \downarrow \downarrow \downarrow \\ c.CV.-CV.CV \end{array}$			**	

Tableau (d) /RED-CVCCV/ → [CVC-CVC.CV]

RED-CVCCV	DEP-LINK-μ	WBP	Max-BR	*μ/C
$\begin{array}{c} \mu \quad \mu \\ \downarrow \downarrow \\ a.CVC.-CVC.CV \end{array}$			**	**
$\begin{array}{c} \mu \quad \mu \quad \mu \\ \swarrow \downarrow \downarrow \\ b.CVC.-CVC.CV \end{array}$	*!	*	**	*
$\begin{array}{c} \mu \quad \mu \quad \mu \\ \downarrow \downarrow \downarrow \\ c.CV.-CVC.CV \end{array}$			***!	*

(7) Standard      Samothraki  
 rúxa              ú:xa              “clothes”  
 róta              ó:ta              “ask!”

Tableau (e) /ruxa/ → [u:xa]

/r <sub>1</sub> u <sub>2</sub> x <sub>3</sub> a <sub>4</sub> /	*rV	MAX-IO	IDENT(F)
a. r <sub>1</sub> u <sub>2</sub> x <sub>3</sub> a <sub>4</sub>	*!		
b. u <sub>2</sub> x <sub>3</sub> a <sub>4</sub>		*!	
c. u <sub>1</sub> u <sub>2</sub> x <sub>3</sub> a <sub>4</sub>			*

REFERENCES

Bermúdez-Otero, R. n.d. Underlying nonmoraic coda consonants, faithfulness, and sympathy. ms. University of Manchester.  
 Broselow, E., S. Chen & M. Huffman. 1997. Syllable weight: convergence of phonology and phonetics. *Phonology* 14: 47-82.  
 Hayes, B. 1989. Compensatory lengthening in moraic phonology. *LI* 20: 253-306.  
 Kavitskaya, D. 2002. *Compensatory Lengthening: phonetics, phonology, diachrony*. Doctoral dissertation. University of California, Berkeley.  
 Marantz, A. 1982. Re Reduplication. *LI* 13: 483-545.  
 McCarthy, J. 1997. Faithfulness and prosodic circumscription. ROA-201.  
 Moravcsik, E. 1978. Reduplicative constructions. In J. Greenberg (ed.), *Universals of Human Language*, vol 3: Word Structure. Stanford: Stanford University Press.  
 Prince, A. & P. Smolensky. 1993. *Optimality Theory: constraint interaction in generative grammar*. Ms., Rutgers University, New Brunswick and University of Colorado, Boulder.  
 Selkirk, E. 1991. A two-root theory of length. In *UMOP 14: Papers in Phonology*, eds. E. Dunlap & J. Padgett, 123-171. GLSA.

