

# The egoism of vowels: Long epenthesis and mora projection

## Main Claim

I argue that the existence of long epenthetic vowels as result of morphological lengthening is another argument for a mechanism demanding morpheme-unique moraic licensing. The constraint I propose not only solves the opacity problem of long epenthetic vowels but the general problem of opaque  $\mu$  assignment in contexts of (phonological or morphological)  $\mu$  augmentation.

## The phenomenon: long epenthesis

- some affixes in Southern Sierra Miwok (=SSM) trigger lengthening of a preceding segment (1-a) (not the result of iambic lengthening in SSM; Callaghan (1987); Hayes (1995))
- if epenthesis applies between the base and the lengthening-triggering affix, the epenthetic vowel (=V) is long (1-b)

**Phonological Background**

- syllables: CV, CVC# (=light) and CVCV, CV:, CV:C# (=long)
- illicit syllables are avoided through epenthesis, e.g. /he:l-ma:/ → [he:lima:] 'I am fighting' (Broadbent, 1964, 20)

(1) *Lengthening-triggering suffixes in SSM* (Broadbent, 1964, 63)

- a. lit -h -a -:me? litha:me? 'it's risen on us'  
 kel:a -na -:me? kel:ana:me? 'It snowed on us'  
 ?opa:- t -:me? ?opa:ti:me? 'it's clouding up on us'  
 ?umu:c -:me? ?umu:ci:me? 'it's raining on us'

- similar facts in cases where V lengthening alone is the exponent of a morpheme (e.g. 3.SG): V epenthesis avoids an illicit final cluster and the epenthetic V is long (2-b)

(2) *Lengthening morpheme in SSM* (Broadbent, 1964, 82+84)

- a. jo:h -k -a -: jo:hka: 'he got killed'  
 win -si -na -: winsina: 'he just now came'  
 b. ha:ja -ɲk -: ha:jaɲki: 'it is daylight'

An easy analysis?

Morphological lengthening = A floating  $\mu$  is (part of) the representation of an affix and associates to a base-V.

### → opaque $\mu$ assignment!

The epenthetic V's in (1-b)+(2-b) are apparently dominated by their 'own' epenthetic  $\mu$  in addition to the affix  $\mu$

(3) *A rule-based analysis for long epenthetic V's, (1-b)*

- i. Underlying:      ii. Insert V to avoid illicit CVVC:
- iii. Associate  $\mu$ -less Vs to epenthetic  $\mu$ 's:      v. Associate unassociated  $\mu$ 's:

(this is basically the analysis Sloan (1991) gives (with X-slots) for the pre-lengthening suffixes)

- the long epenthetic V only arises since rule iii. is ordered before rule iv.
- an instance of **counterbleeding** (Kiparsky, 1973)

- in OT, DEP- $\mu$  would harmonically bind a candidate that inserts a  $\mu$  and associates the epenthetic V to the affix  $\mu$
- other potential examples of long epenthetic V's as result of morphological lengthening can be found in Guajiro (Alvarez 2005) and Quechua (Weber 1996)

## My Proposal

- (4) Assign a violation mark for every  $V_i$  that does not project a morph-unique  $\mu$  (=a  $\mu$  that does not bear a different morphological colour).

(cf. V-Wr ('All vowels must project their own  $\mu$ ') that Goldrick (2000) proposes for opaque  $\mu$  assignment in CL contexts)

- it demands that every V must be dominated by at least one  $\mu$  that has the same morphological affiliation or no morphological affiliation at all (=epenthetic  $\mu$ ) (morphological 'colours'=all elements belonging to one morpheme can be identified by a morph-unique colour and epenthetic elements lack a colour (van Oostendorp, 2006))
- bleeding candidate (5-b) is excluded by  $V \rightarrow \mu$  since V is only dominated by a  $\mu$  with a different morphological affiliation

(5) *Morph-unique  $\mu$  projection & long epenthesis (phonologically motivated)*

	*FLOAT	$\mu$ ↑ V	*CVVC	DEP S	DEP $\mu$
a.	*!		*		
b.		*!		*	
c.				*	*

- related to the general opacity problem in standard OT for morphological or phonological (=compensatory lengthening)  $\mu$ -association, illustrated in (6) –  $\mu$ 's on short V's and (moraiic) codas are non-contrastive and must hence not be part of the underlying representation ('Richness of the Base' (Prince and Smolensky, 1993/2002)) – but if they are not, association of a (phonological/morphological)  $\mu$  will not result in lengthening (cf. the bleeding candidate (7-a))

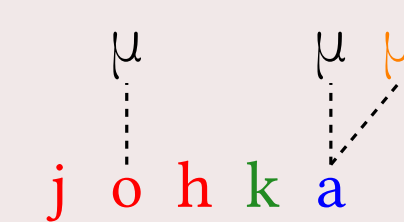
(for discussion and summary of several OT solutions that have been proposed see, for example, Topintzi (2010))

(6) *A rule-based analysis for morphological lengthening (2-a)*

- i. Underlying:      ii. Associate  $\mu$ -less Vs to epenthetic  $\mu$ 's:



- iii. Associate unassociated  $\mu$ 's:



- easily predicted by  $V \rightarrow \mu$  as well – the bleeding candidate (7-a) is blocked

(7) *Morph-unique  $\mu$  projection &  $\mu$  affixation in general, (2-a)*

	*FLOAT	$\mu$ ↑ V	*CVVC	DEP S	DEP $\mu$
a.	*!				*
b.					**

## A prediction

- in a language where  $V \rightarrow \mu$  is ranked low, only certain morphemes are predicted to be subject to morphological lengthening (=V dominated by a  $\mu$  underlyingly), others not
- **this prediction is borne out:**

- there are in fact various examples for languages where only certain (lexical) classes of words undergo morphological lengthening and others realize their underlying length faithfully, an example is given in (8) for the lengthening-triggering suffix -we? 'plural' in Zuni
- other examples for  $\pm$ undergoers in morphological lengthening contexts: Hausa (Newman, 2000), Tzutujil (Dayley, 1985), Diegueño (Walker, 1970), or various Algonquian languages (Costa, 1996)

(8) *Lengthening in Zuni* (Newman, 1965; Saba Kirchner, 2007)

	lupa	'box of ashes'	lupa:we?	'boxes of ashes'	> [+undergoer]
	homata	'juniper tree'	homata:we?	'juniper trees'	
	mo	'spherical object'	mowe?	'spherical objects'	> [-undergoer]

- a similar argumentation can be found in Zimmermann (2013) where it is argued that the contrast between underlyingly moraic or  $\mu$ -less V's can result in morpheme-specific V deletion that is attested in, for example, Yine

## (Im)possible alternative analyses for SSM

- I. Strata* (Trommer, 2011; Bermúdez-Otero, in preparation) multiple optimization steps and every base is optimized (=prosodic structure is assigned) before a new affixation step
  - epenthesis in (1-b) is only required after the lengthening-triggering morpheme is added and hence at a point in the derivation where the floating  $\mu$  is already part of the underlying structure – there is no intermediate step with the epenthetic V and without the morphemic  $\mu$  that could be optimized

- II. Harmonic Serialism* (McCarthy, 2010) it would be necessary to assume that a.) epenthesis is the insertion of a V that is already dominated by a  $\mu$  and that b.) epenthesis and association of a floating  $\mu$  is one step
  - epenthetic V's in some languages are ignored by phonological processes and best analysed as generally  $\mu$ -less (Piggott, 1995; van Oostendorp, 1995; Hall, 2011)

## Conclusion

- the constraint  $V \rightarrow \mu$  can predict opaque  $\mu$  assignment in (morphological or phonological)  $\mu$  augmentation contexts; for epenthetic V's (5) or underlyingly  $\mu$ -less V's (7)
- long epenthetic V's as a result of morphological lengthening are predictable through affixation of a  $\mu$ , the analysis hence strengthens the claim that nonconcatenative morphology is an epiphenomenon and arises from taking into account the full range of possible (defective) phonological structures as underlying morpheme representations (Lieber, 1992; Bermúdez-Otero, 2012; Bye and Svenonius, 2012)

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