The egoism of vowels

Long epenthesis and mora projection

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Epenthetic vowels

(cf., for example, Piggott 1995, Vaux 2002, Hall 2011)

- inserted 'too early': they are opaque for many processes (stress and/or segmental processes)
  1. epenthetic vowels are defective, they lack a μ (e.g. Piggott 1995)
  2. they are inserted at a later stage in the derivation

➙ **This talk:**

1. epenthetic vowels have **'too much'** structure (=two μ's)
2. they are inserted **'too late'**

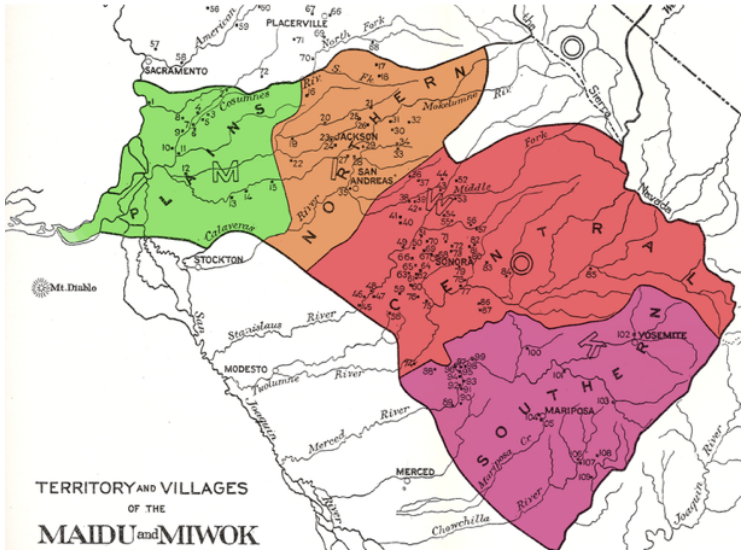
Main Claim

- long epenthetic vowels as result of morphological lengthening: an opacity problem (in OT)
  → an argument for **morph-contiguous prosodic licensing**
- the morph-contiguous μ-licensing constraint correctly predicts a two-fold typology of languages
  (morph-contiguous μ-licensing vs. alternating μ-licensing)
- alternative OT-accounts fail to predict long epenthesis

A case study: Southern Sierra Miwok

Southern Sierra Miwok (=SSM)

- a few semispeakers or passive speakers today (Hinton 1994, Golla 2011)
- one of five moderately diverse Miwok languages (Yokuts-Utian)



Phonological Background

(Freeland 1951, Broadbent 1964, Callaghan 1987, Sloan 1991)

- syllables:
  light: CV, CVC#
  heavy: CVC, CVː, CVːC#, CVCC#
- iambic lengthening: vowel lengthening of the second V if neither the first nor second syllable is heavy (Hayes 1995, Buckley 1998)
- epenthesis of /ʔ/ or /i̵/

(1) *Phonological vowel epenthesis in SSM* (Broadbent 1964:20)

heːl–maː	heːli̵maː	'I am fighting'

SSM Additive morphological length manipulation I

(2) *Affixes trigger vowel lengthening* (Broadbent 1964)

lit–h–a–ːmeʔ	lith**aː**meʔ	'it's risen on us'	63
kelːa–na–ːmeʔ	kelːan**aː**meʔ	'It snowed on us'	63
wileːp–a–ːmeʔ	wileːp**aː**meʔ	'it flashed no us'	63

(3) *Affixes trigger gemination* (Broadbent 1964)

ʔenup–ːe–niːte–ʔ	ʔenu**pː**eniːteʔ	'I chased you'	48
halik– ːe–te–ʔ	hali**kː**eteʔ	'I hunted'	106
joːh–ːa–ci–ʔ–hYː	jo**hː**aciʔhYː	'it was killed'	119
joːh–k–ːa–koː	joːhu**kː**akoː	'they were killed'	82

(4) *Non-concatenative morphology: vowel lengthening* (Broadbent 1964)

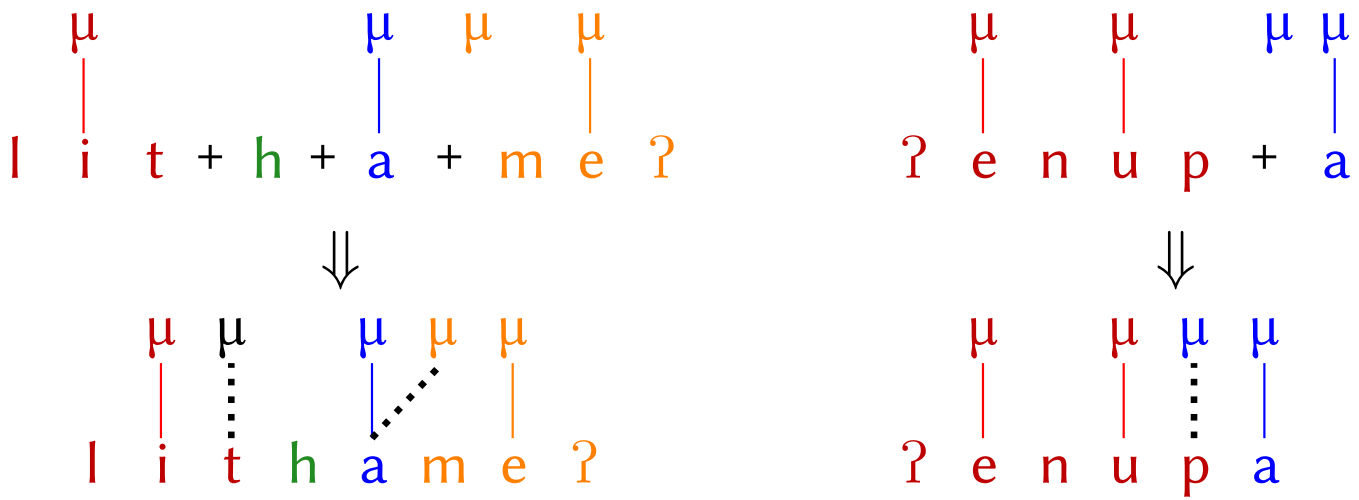
wɨn–si–na–ː	wɨnsin**aː**	'he just now came'	84
ʔamːu–k–a–ː	ʔamːuk**aː**	'he got hurt just now'	82
teːp–a–ː	teːp**aː**	'he cut it'	48
joːh–k–a–ː	joːhuk**aː**	'he got killed'	82

A μ-affixation analysis for SSM I

➙ lengthening morphology = μ-affixation

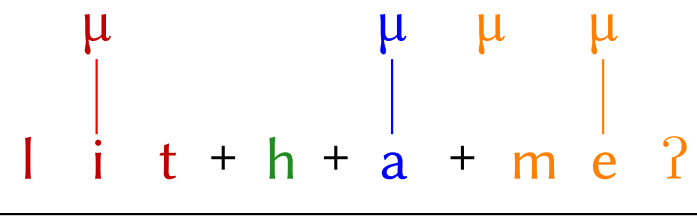
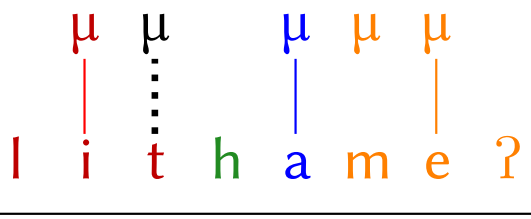
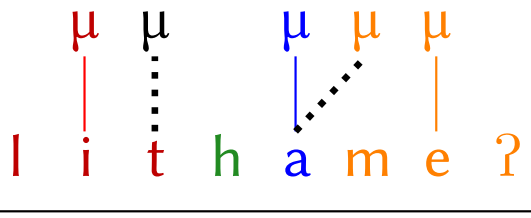
(Samek-Lodovici 1992, Davis&Ueda 2002+2006, Bye&Svenonius 2012, Grimes 2002, Wolf 2007, Topintzi 2008, Flack 2007, Yoon 2008, Kirchner 2007+2012, among others)

(5)



A μ-affixation analysis in OT

(6) *Vowel lengthening*

	*FLOAT	*μμμ	*V:	*Cμ
				
a. 	*!			
☞ b. 			*	

(In all tableaux/depictions, WBP μ-assignment to coda consonants is silently assumed)

A general opacity problem arising from Richness of the Base

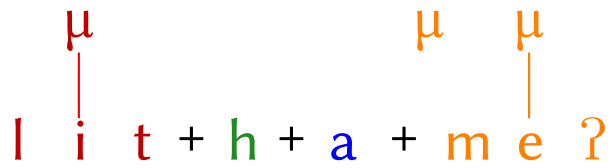
- μ's on short vowels (and codas in weight-sensitive languages) are non-contrastive = not necessarily part of the underlying representation

(7)

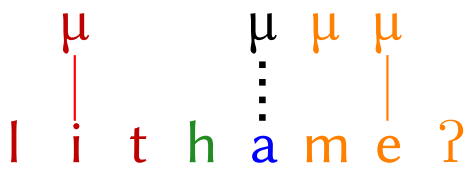
	*Float	* σ μμμ	Dep μ	*V:
l i t + h + a + m e ʔ				
a. l i t h a m e ʔ	*!			
☞ b. l i t h a m e ʔ				
☛ c. l i t h a m e ʔ			*!	*

A rule-based account

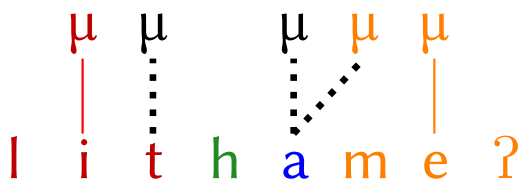
(8) i. Underlying:



ii. Link μ-less Vs to epenthetic μ's:



iii. Associate unassociated μ's:



- lengthening arises since rule ii. is ordered before rule iii.: an instance of **counterbleeding** (Kiparsky 1973, McCarthy 2007, Bakovic 2011)

SSM Additive morphological length manipulation II

- if phonologically motivated epenthesis applies before an affix triggering lengthening, a **long epenthetic segments surface**

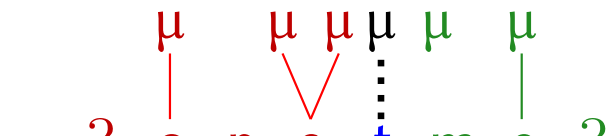
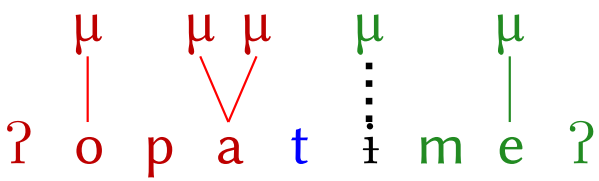
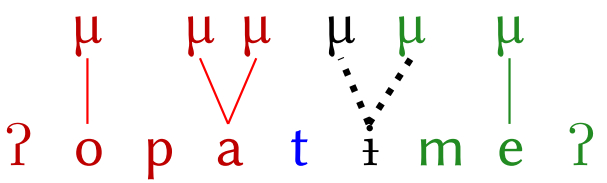
(9) *Long epenthesis I* (Broadbent 1964, Sloan 1991)

a.	ʔumuːc–ːmeʔ	ʔumuːcɨːmeʔ	‘it’s raining on us’	B63
	ʔopaː–t–ːmeʔ	ʔopaːtɨːmeʔ	‘it’s clouding up on us’	B63
b.	leːleː–nɨ–ːa	leːleːnɨʔːa	‘school’	S29
	ʔeseːl–ŋHe–ːa–ci–ʔ–hɨː	ʔeseːlŋːeʔːaciʔhɨː	‘his birth’	B119

Yet another opacity problem for a μ-affixation analysis

- a second μ dominating the epenthetic vowel?

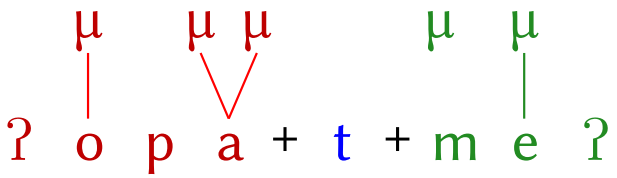
(10)

	*Float	*μμμ	Dep μ	*V:
				
a.	*!	*		
☞ b. 				
☛ c. 			*!	*

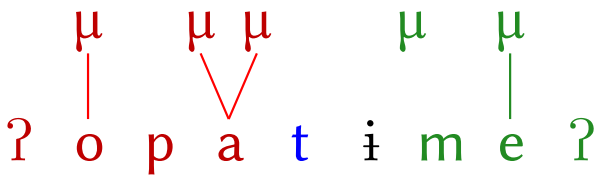
A rule-based analysis

(11)

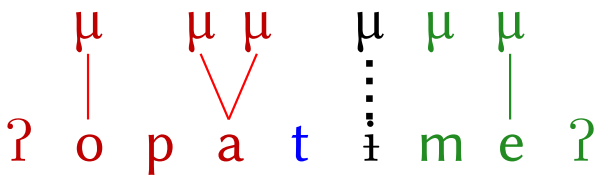
i. Underlying:



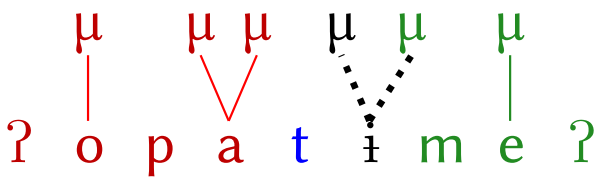
ii. Insert V to avoid illicit CVVC:



iii. Link μ-less Vs to epenthetic μ's:



vi. Associate unassociated μ's:



SSM Additive morphological length manipulation III

- if lengthening is expected for a base that ends in a consonant cluster, a final **long epenthetic vowel** is realized

(12) *Long epenthesis II* (Broadbent 1964:82)

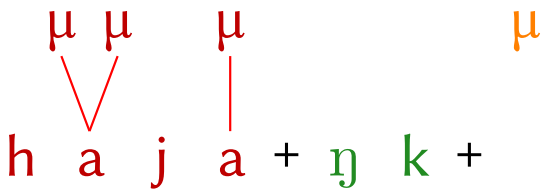
haːja–ŋk–ː	haːjaŋkiː
daylight–VB–3.SG	'it is daylight'

→ vs. the contexts in (9): this epenthetic vowel has no independent (phonological) motivation!

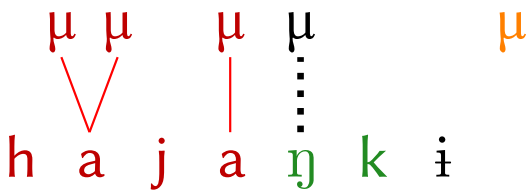
A rule-based analysis

(13)

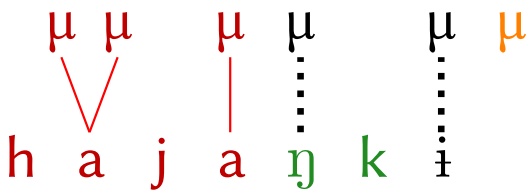
i. Underlying:



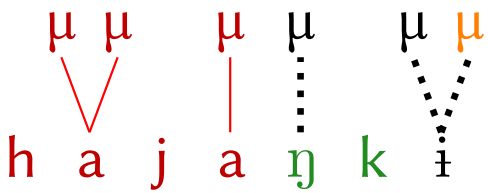
ii. Insert a V for every unassociated μ:



iii. Link μ-less Vs to epenthetic μ's:



vi. Associate unassociated μ's:



Interim summary

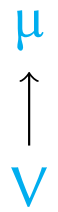
So far:

- morphological lengthening in SSM can be analysed as μ affixation
- a **general opacity** problem: opaque μ projection on short vowels
- long epenthetic vowels in SSM add a **specific opacity problem**: vowels that are underlyingly absent project 'their own' μ

Morph-contiguous prosodic licensing

- The unmarked situation: Every phonological element is only dominated by prosodic nodes that are not affiliated with another morpheme.
  ∼ MorphemeContiguity across prosodic tiers

(14)



Assign a violation mark for every V_j that is only dominated by μ's affiliated with another morpheme $_k$

= every V must be dominated by at least one μ that has the same morphological affiliation or no morphological affiliation

The constraint refers to…

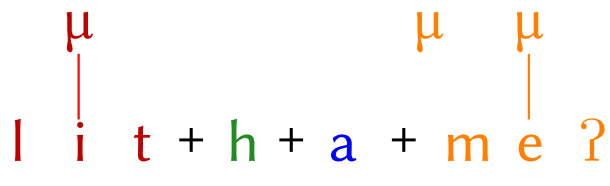
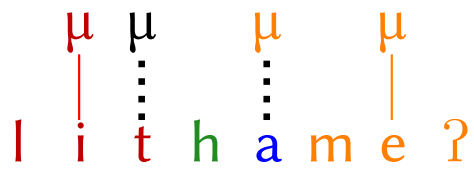
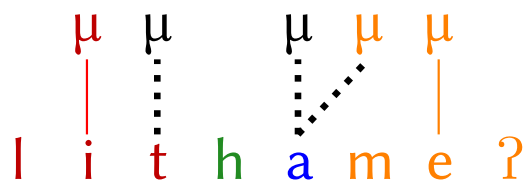
- morphological ‘colours’; the assumption that all elements belonging to one morpheme can be identified by a colour (∼index); epenthetic elements lack a colour (Oostendorp 2006)

- bidirectional parsing constraints for strict/weak prosodic layering

  cf. License-X (Kiparsky 2003), Headedness (Selkirk 1995), or Parse-into-X (Spaelti 1994, Ito&Mester 2009)

V ⟶ μ and the general opacity problem

(15)

	*Float	μ ↑ V	*σμμμ	Dep μ
				
a.		*!		
b.			*!	
☞ c.				*

V ⟶ μ and the specific opacity problem I

(16)

	*Float	μ ↑ V	*σμμμ	Dep S	Dep μ
μ μ μ μ μ / ʔ o p a + t + m e ʔ					
a. μ μ μ μ μ / ʔ o p a t m e ʔ	*!		*		*
b. μ μ μ μ / ʔ o p a t i m e ʔ		*!		*	
☞ c. μ μ μ μ / ʔ o p a t i m e ʔ				*	*

V ⟶ μ and the specific opacity problem II

(17)

	*Float	μ ↑ V	*μμμ	Dep S	Dep μ
μ μ μ μ / h a j a + ŋ k +					
a. μ μ μ μ μ / h a j a ŋ k			*!		*
b. μ μ μ μ μ / h a j a ŋ k ɨ		*!		*	*
☞ c. μ μ μ μ μ μ / h a j a ŋ k ɨ				*	**

Further predictions

V ⟶ μ as a violable constraint…

- a low-ranked V ⟶ μ predicts that some vowels are exempt from morphological lengthening:

  – epenthetic vowels

  – vowels without an underlying μ

➙ **this prediction is borne out**

Arbizu Basque

(Hualde 1990, Weijer 1992, Artiagoitia 1993, Hualde&Urbina 2003, Hualde 2012)

- the genitive indefinite (&superlative) suffix /–n/ triggers V-lengthening (18-a) or insertion of unmarked /e/ (18-b)

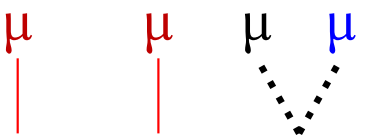
→ this V-epenthesis is independently motivated since a nasal can never be the second part of a coda cluster

(18) *Suffixes trigger lengthening in Arbizu Basque* (Hualde 1990:283)

	Base	Gen.Indef		
a.	alaba	alab**aː**n	'daughter'	*V-final*
	paːte	paːt**eː**n	'wall'	
	asto	ast**oː**n	'donkey'	
	mendi	mend**iː**n	'mountain'	
b.	txakurː	txakurː**e**n	'dog'	*C-final*
	gizon	gizon**e**n	'man'	

Low-ranked V ⟶ μ : Exceptions to morphological lengthening

(19) *Epenthetic vowels in Arbizu Basque: no morphological lengthening*

	μ μ μ | | g i z o n + n	*Cn.	*Float	Dep S	*V:	μ ↑ V
a.		*!			*	
☞ b.				*		*
c.				*	*!	

Diegueno

(Walker 1970, Langdon 1970, Miller 1999, Wolf 2007, Lacy 2012)

- there are 9 strategies to form plural of N/V in various combinations
- the most frequent one is vowel lengthening (20-a), sometimes coocurring with other strategies as well (20-b)
- for some lexically marked stems, lengthening is absent (20-c)

(20) *Vowel lengthening in Diegueno* (Walker 1970, Wolf 2007)

	Base	Plural		
a.	ʧuːpuɬ	ʧuːpuːɬ	'to boil'	Wa7
	ʃuːpiṭ	ʃuːpiːṭ	'to close'	Wa7
	ɬʲap	ɬʲaːp	'to burn'	Wa7
b.	kaːkap	nekaːkaːp	'to go around'	M105
	xtup	xuːtuːp	'to jump'	M105
c.	jil	aʧuːjil	'to carry (load) on back'	M105
	uʔux	ʧuʔux	'to cough'	M103

Low-ranked V ⟶ μ : Exceptions to morphological lengthening

(21) *Lexical marked nouns in Diegueno: no morphological lengthening*

	*Float	*V:	μ ↑ V
a. μ μ / j i l		*!	
☞ b. μ / j i l			*

A typology of morphological vowel epenthesis

(22)

Context I	Context II	Example	
Long underlying V	**Short** epenthetic V	Arbizu Basque	alternating
Long underlying V	**Short** underlying V	Diegueno	μ-licensing
Long underlying V	**Long** epenthetic V	SSM	morph-contiguous
Long underlying V	**Long** underlying V	Gidabal	μ-licensing

Interim summary

My analysis

- morphological lengthening in SSM follows from standard μ-affixation
- high-ranking of the constraint $V \longrightarrow \mu$ demanding morph-contiguous μ-projection predicts long epenthetic vowels
- it predicts a correct typology of languages with morph-contiguous and those with alternating μ-licensing

Alternative accounts

Stratal OT

(e.g. Kiparsky 2000, Bermúdez-Otero to appear)

- ‘Egalitarian Stratal OT’: At every stratum, all independent morphological objects undergo phonological evaluation (i.e. all morphological objects which are not part of other morphological objects) (Trommer 2011:72)

→ morphemes are evaluated prior to concatenation and hence enter the derivation (fully) prosodified

Stratal OT and the general opacity problem: ☺

(23) *Stratum 1: Lexical Array*

	μ | l i t	μ ↑ V	WbP	Dep μ		a	μ ↑ V	WbP	Dep μ
a.	μ | l i t		*!		…	a.	a	*!		
☞ b.	μ μ | ⋮ l i t			*		☞ b.	μ ⋮ a			*

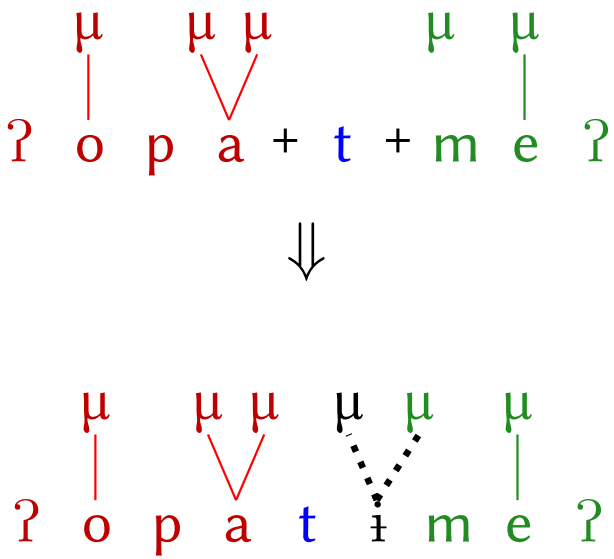
➙ no μ-less vowel enters the derivation of morphologically complex forms

Stratal OT and the specific opacity problem: ☹

- The epenthetic vowel is not motivated/inserted before the lengthening context is present

  ➙ Epenthesis applies 'too late': a look-ahead problem

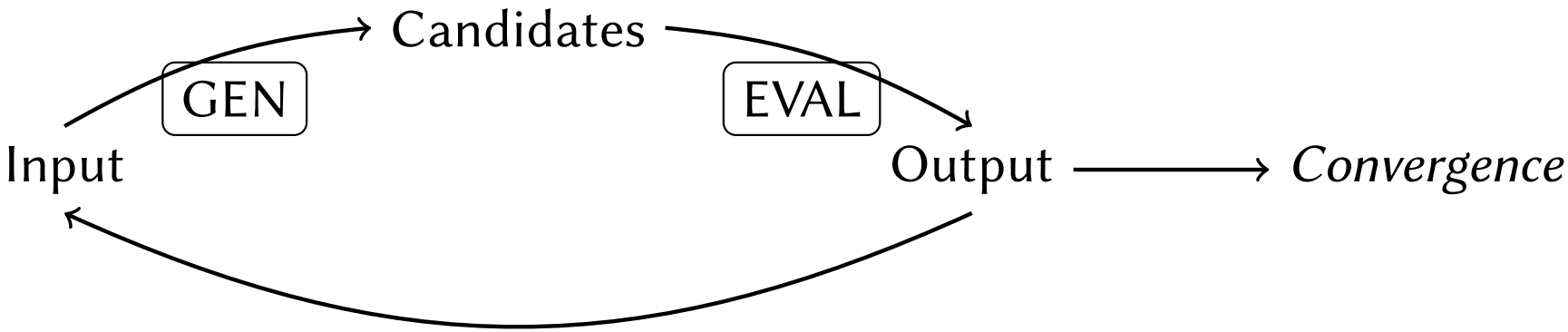
(24)



Harmonic Serialism

(Prince&Smolensky 1993, McCarthy 2008 et seq.)

- GEN is restricted: only a single step/operation applies to form candidates
- serial optimization: each step in a HS derivation is more harmonic than the step preceding it



Optimal Interleaving

(Wolf 2008)

- insertion of a morpheme is one step

(25)

MAX F	For every instance φ of the feature F at the morpheme level, assign a violation-mark if there is not an instance φ' of F at the morph level, such that $\varphi \Re \varphi$'. (Wolf 2008:26)

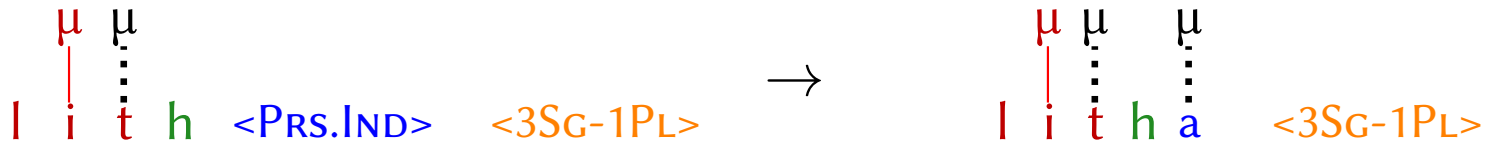
Two versions of HS: Gradualness

(26) *Faithfulness-based: HS^1* (McCarthy 2008+2010, Elfner 2013)
Candidates differ from their input only by a single violation of a basic faithfulness constraint.
➙ Syllabification (=μ-insertion) is never contrastive, comes for free

(27) *Operation-based: HS^2* (Elfner 2009, Pater 2012, Pruitt 2012, Torres-Tamarit 2012)
Candidates differ from their input only by the application of one phonological operation.
➙ Syllabification (=μ-insertion) is a phonological operation

HS and the general opacity problem: ☺

HS[1]: morpheme realization and parsing into prosodic structure is one step:

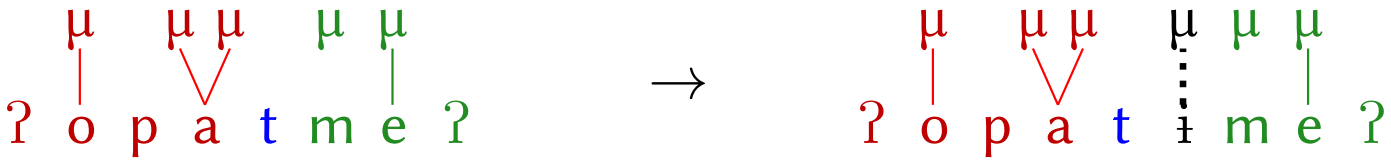


HS[2]: morpheme insertion more important or providing μ-less V's with μ's?

	MAX-F ≫ PARSE-S		PARSE-S ≫ MAX-F
=	all morphemes are inserted before μ-less vowels are supplied with μ's	=	μ-less vowels are never inserted
→	**the same opacity problem as in parallel OT**	→	**no opacity problem**

HS and the specific opacity problem: ☹

➙ no opacity problem if epenthesis and parsing into prosodic structure is one step:



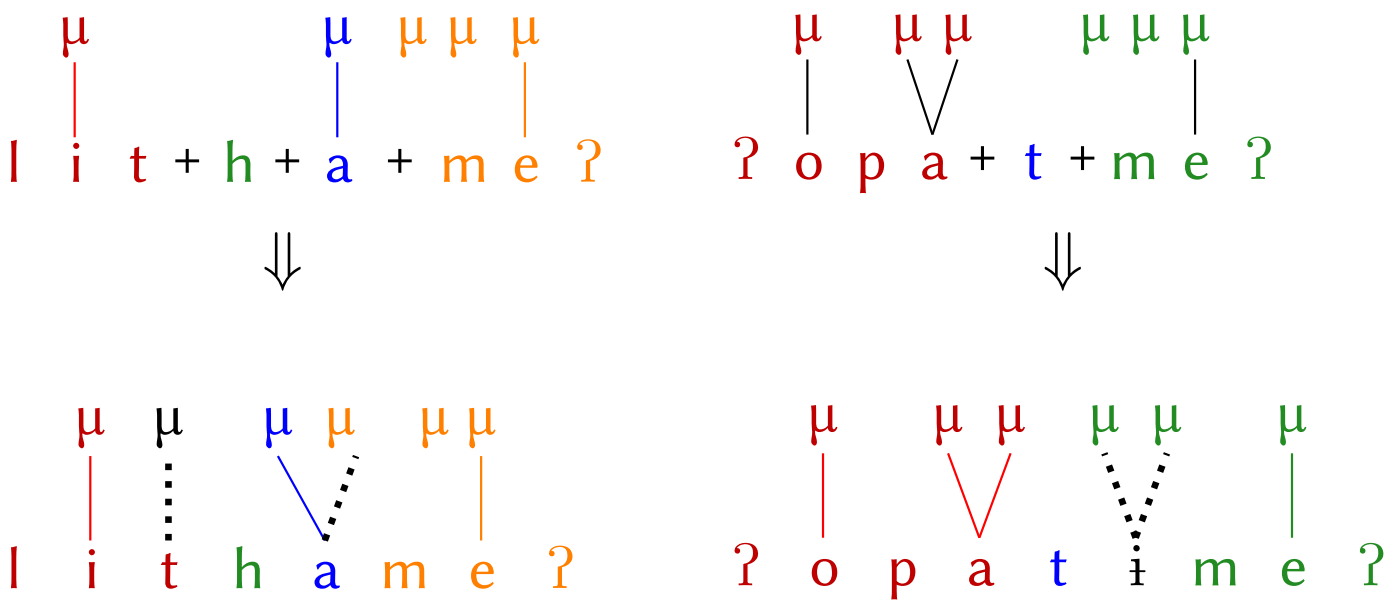
But

there are concrete arguments against the assumption that epenthetic vowels are inherently dominated by a μ

The typology of epenthetic vowel and the insights that **some epenthetic vowels are best analysed as μ-less** (e.g. Piggott 1995)

An alternative in standard POT: Two floating μ's instead of one

(28)



But…

- …we know that epenthesis is allowed to ensure that the μ ('s) is (are) realized: *Float ≫ Dep-S

(29) *Long epenthesis, cf. (24)* (Broadbent 1964:82)

haːja–ŋk–ː haːjaŋkiː 'it is daylight'

(30) *A misprediction: overapplication of epenthesis*

		*μσμ	*Float	Dep S	*Vː
	l i t + h + a + m e ʔ				
☛ c.	l i t h a m e ʔ		*!		*
☞ d.	l i t h a ʔ i m e ʔ			**	*

Summary

- morph-contiguous prosodic licensing solves the opacity problem of long epenthetic vowels in morphological lengthening contexts
- alternative accounts that can solve the general opacity problem of μ-affixation fail to predict long epenthesis
- re-ranking of $V \longrightarrow \mu$ correctly predicts alternating lengthening languages