Avoiding an intruder

Tone association in Zacatepec Chatino

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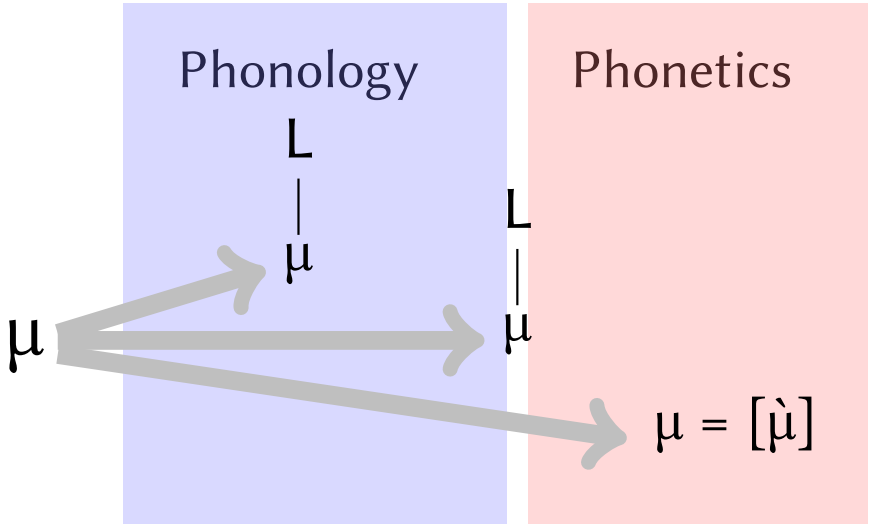
Main Claim

A toneless TBU:



- the complex tonology of Zacatepec Chatino follows in an account that **contrasts a phonological and a phonetic default-tone**
  ➙ combines different concepts of default-tone in one language
- two levels of default-ness are predicted in an **OT-system** where an expected default repair can be blocked in certain contexts

Data

Zacatepec Chatino (=ZAC, Villard, 2015)

- Otomanguean language, spoken in the town of San Marcos Zacatepec by around 300 people (all above 50 years of age)
- data from Villard (2015)
  (cf. also Villard (2010); Villard and Woodbury (2012))

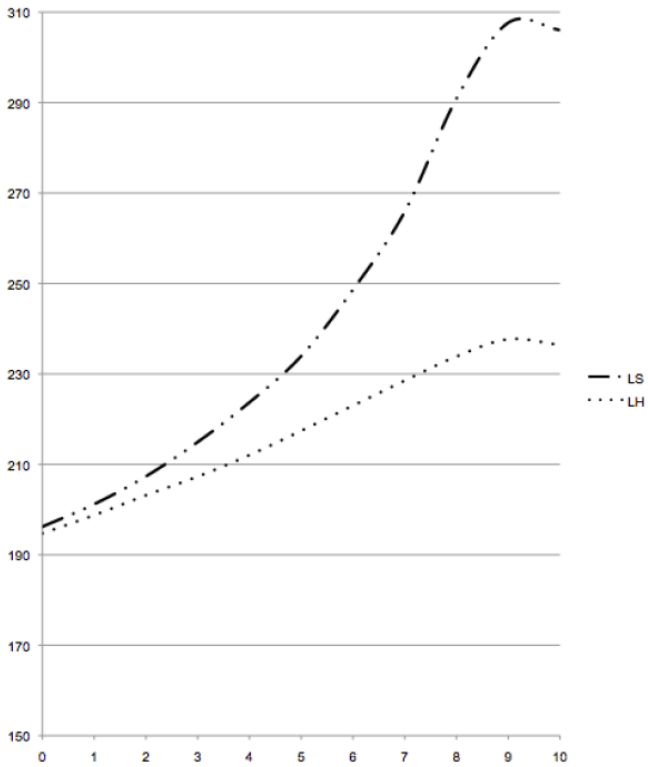
(1) *Classification (Kaufman, 2006; Broadwell et al., 2014)*

<table>
<tr><td rowspan="6">Otomanguean</td><td rowspan="3">Eastern</td><td rowspan="2">Mazatecan-Zapotecan</td><td rowspan="2">Zapotecan</td><td>Zapotec</td></tr>
<tr><td>Chatino</td></tr>
<tr><td>Mazatecan</td><td></td></tr>
<tr><td rowspan="2">Amuzgo-Mixtecan</td><td>Amuzgo</td><td></td></tr>
<tr><td>Mixtecan</td><td></td></tr>
<tr><td rowspan="3">Western</td><td rowspan="2">Tlapanec-Manguean</td><td>Tlapanec-Sutiaba</td><td></td></tr>
<tr><td>Chorotegan</td><td></td></tr>
<tr><td rowspan="2">Otopaman-Chinantec</td><td>Otopaman</td><td></td></tr>
<tr><td>Chinantec</td><td></td></tr>
</table>

Tones in ZAC

- TBU=μ
- 4 level tones: low (=a^{L}), mid (=a^{M}), high (=a^{H}), and superhigh (=a^{S})
- 2 rising contours: LH and LS

(2) *Contour tones on monomoraic word: F0 (Villard, 2015, 148+149)*



Tone spreading and phonological default I

- phrasal contexts: final H and S spread to some words (3-a-d) but not others (3-e)

(3) *H/S-spreading and default L's and (Villard, 2015, 184+187)*

	Underlying		Surface		
a.	kwi^{M}na^{H} kula	/M.H/ /X.X/	kwi^{M}na^{H} ku^{H}la^{H}	[M.H][H.H]	'old snake'
b.	yu^{L}sin^{LS} kula	/L.LS/ /X.X/	yu^{L}sin^{LS} ku^{S}la^{S}	[L.LS][S.S]	'old sea turtle'
c.	tit^{y}uk^{L}wa^{LS} naten^{L}	/X.L.LS/ /X.L/	ti^{L}t^{y}uk^{L}wa^{LS} na^{S}ten^{L}	[L.L.LS][S.L]	'twelve people'
d.	tit^{y}uk^{L}wa^{LS} kwana^{M}	/X.L.LS/ /X.M/	ti^{L}t^{y}uk^{L}wa^{LS} kwa^{S}na^{M}	[L.L.LS][S.M]	'twelve thiefs'
e.	tit^{y}uk^{L}wa^{LS} mu^{L}l^{yLS}	/X.L.LS/ /L.M/	ti^{L}t^{y}uk^{L}wa^{LS} kwa^{L}na^{M}	[L.L.LS][L.M]	'twelve mules'

→ there are underlyingly toned and **tone-less TBU's** in ZAC

→ final H and S spread to all following tone-less TBU's

Tone spreading and phonological default II

- tone-less TBU preceded by M, a tone-less TBU, or no TBU: realized as L

(4) *Default-L (Villard, 2015, 184+187)*

	Underlying		Surface		
a.	kwana kula	/X.X/ /X.X/	kwa^{L}na^{L} ku^{L}la^{L}	[L.L][L.L]	'old mirror'
b.	nkanan^{M} kwila	/X.M/ /X.X/	nka^{L}nan^{M} kwi^{L}la^{L}	[L.M][L.L]	'I looked for fish'
c.	ka^{L}kwen^{M} kwila	/L.M/ /X.X/	ka^{L}kwen^{M} kwi^{L}la^{L}	[L.M][L.L]	'you will vomit fish'
d.	kwi^{M}to^{M} kula	/M.M/ /X.X/	kwi^{M}to^{M} ku^{L}la^{L}	[M.M][L.L]	'old hen'

→ L is the **phonological default-tone**; avoids tone-less TBU's

Spreading/epenthesis and larger phrasal contexts

- spreading across words: in (5-a), an LS-final word is followed by words without a tone and they all become S-toned (Villard, 2015, 158)
- (5-b) shows again the impossibility of M to spread (Villard, 2015, 159)

(5) a. /yu^{L}sĩn^{LS} nkayako ʦaka lijya kula nd^{y}ikaː ʦaːn/
[yu^{L}sĩn^{LS} nka^{S}ya^{S}ko^{S} ʦa^{S}ka^{S} li^{S}jya^{S} ku^{S}la^{S} nd^{y}i^{S}kaː^{S} ʦaːn^{S}]
'The turtle ate an old sugar cane every day.'

/L.LS/ /X.X.X/ /X.X/ /X.X/ /X.X/ /X.X/ /X/
[L.LS] [S.S.S] [S.S] [S.S] [S.S] [S.S] [S]

b. /kãnʔ^{M} nkayako ʦaka lijya kula nd^{y}ikaː ʦaːn/
[kãnʔ^{M} nka^{L}ya^{L}ko^{L} ʦa^{L}ka^{L} li^{L}jya^{L} ku^{L}la^{L} nd^{y}i^{L}kaː^{L} ʦaːn^{L}]
'That one ate an old sugar cane every day.'

/M/ /X.X.X/ /X.X/ /X.X/ /X.X/ /X.X/ /X/
[M] [L.L.L] [L.L] [L.L] [L.L] [L.L] [L]

Floating H and LS

- several words ending in **floating H or LS tones** that are realized on the **rightmost tone-less TBU of the following word**
- potential **preceding TBU's become M**

(6) *Realization of floating H and LS (Villard, 2015, 187+223+233)*

	Underlying		Surface		
a.	kwana$^{M\,(H)}$ kula	/X.M (H)/ /X.X/	kwa^{L}na^{M} ku^{M}la^{H}	[L.M][M.H]	'old thief'
b.	kwa$^{M\,(H)}$ nkajilyan^{M}	/M (H)/ /X.X.M/	kwa^{M} nka^{M}ji^{H}lyan^{M}	[M][M.H.M]	'already I farted'
c.	kwa$^{M\,(H)}$ nkasa^{L}lo^{M}	/M (H)/ /X.L.M/	kwa^{M} nka^{H}sa^{L}lo^{M}	[M][H.L.M]	'already you threw it aw.'
d.	mul^{L}ya$^{M\,(LS)}$ kula	/L.M (LS)/ /X.X/	mul^{L}ya^{M} ku^{M}la^{LS}	[L.M][M.LS]	'old mule'
e.	naten$^{L\,(LS)}$ kula	/X.L (LS)/ /X.X/	na^{L}ten^{L} ku^{M}la^{LS}	[L.L][M.LS]	'old people'
f.	kwa$^{M\,(H)}$ nta^{M}sa^{H}la^{M}	/M (H)/ /M.H.M/	kwa^{M} nta^{M}sa^{H}la^{M}	[M][M.H.M]	'already you are opening it'

Floating H and LS in larger phrasal contexts

- local realization of floating tone: **on following word**
- from this local position, it can then again spread to following words

(7) a. /kin^{y}i$^{M\ (H)}$ nkayako tsaka lijya kula nd^{y}ika: tsa:n/
[ki^{L}n^{y}i^{M} nka^{M}ya^{M}ko^{H} tsa^{H}ka^{H} lij^{H}ya^{H} ku^{H}la^{H} nd^{y}i^{H}ka:^{H} tsa:^{H}]
'The bird ate an old sugar cane every day.'

/X.M (H)/ /X.X.X/ /X.X/ /X.X/ /X.X/ /X.X.X/ /X.X/
[L.M] [M.M.H] [H.H] [H.H] [H.H] [H.H.H] [H.H]

b. /naten$^{L\ (LS)}$ nkayako tsaka lijya kula nd^{y}ika: tsa:n/
[na^{L}ten^{L} nka^{M}ya^{M}ko^{LS} tsa^{S}ka^{S} lij^{S}ya^{S} ku^{S}la^{S} nd^{y}i^{S}ka:^{S} tsa:n^{S}]
'People ate an old sugar cane every day.'

/X.L (LS)/ /X.X.X/ /X.X/ /X.X/ /X.X/ /X.X.X/ /X.X/
[L.L] [M.M.LS] [S.S] [S.S] [S.S] [S.S.S] [S.S]

Floating L

- Villard (2015) lists a third floating tone: L

(8) *Realization of floating L (Villard, 2015, 187+246)*

	Underlying		Surface		
a.	ʔa$^{\text{L (L)}}$ nkaji$^{\text{M}}$n$^{\text{y}}$an$^{\text{H}}$	/L (L)/ /X.M.H/	ʔa$^{\text{L}}$ nka$^{\text{M}}$ji$^{\text{M}}$n$^{\text{y}}$an$^{\text{H}}$	[L][M.M.H]	's/he did not ask for it'
b.	ʔa$^{\text{L (L)}}$ nkajilyan$^{\text{M}}$	/L (L)/ /X.X.M/	ʔa$^{\text{L}}$ nka$^{\text{M}}$ji$^{\text{M}}$lyan$^{\text{M}}$	[L][M.M.M]	'I did not fart'
c.	ʔa$^{\text{L (L)}}$ nkalukwa$^{\text{LH}}$	/L (L)/ /X.X.LH/	ʔa$^{\text{L}}$ nka$^{\text{M}}$lu$^{\text{M}}$kwa$^{\text{LH}}$	[L][M.M.LH]	's/he did not sweep it'
d.	ʔa$^{\text{L (L)}}$ ntusane$^{\text{L (L)}}$	/L (L)/ /X.X.L (L)/	ʔa$^{\text{L}}$ ntu$^{\text{M}}$sa$^{\text{M}}$ne$^{\text{M}}$	[L][M.M.M]	's/he sprays it'
e.	ʔa$^{\text{L (L)}}$ nkasa$^{\text{L}}$lo$^{\text{M}}$	/L (L)/ /X.L.M/	ʔa$^{\text{L}}$ nka$^{\text{M}}$sa$^{\text{M}}$lo$^{\text{M}}$	[L][M.M.M]	'you did not throw it aw.'

- …but in the majority of contexts, there is no additional L, there are rather multiple **additional M's**!

Floating L: Summary of empirical facts

(9)

	μ	μ μ	μ μ μ
1.	/X/ [ML]	/XX/ [M.L]	/XXX/ [M.M.L]
2.	/L (LS)/ [M (LS)]	/X.L (LS)/ [M.M (LS)]	/X.X.L (LS)/ [M.M.M (LS)]
3.	/L (L)/ [M (L)]	/X.L (L)/ [M.M (L)]	/X.X.L (L)/ [M.M.M (L)]
4.	/M/ [M]	/X.M/ [M.M]	/X.X.M/ [M.M.M]
5.	/M (H)/ [M (H)]	/X.M (H)/ [M.M (H)]	/X.X.M (H)/ [M.M.M (H)]
6.	/M/ [M]	/L.M/ [M.M]	/X.L.M/ [M.M.M]
7.	/M (LS)/ [M (LS)]	/L.M (LS)/ [M.M (LS)]	/X.L.M (LS)/ [M.L.M (LS)]
8.	/LH/ [LH]	/X.LH/ [M.LH]	/X.X.LH/ [M.M.LH]
9.	/LS/ [LS]	/L.LS/ [L.LS]	/X.L.LS/ [M.L.LS]
10.	/M/ [M]	/M.M/ [M.M]	/X.M.M/ [M.M.M]
11.	/H/ [H]	/M.H/ [M.H]	/X.M.H/ [M.M.H]
12.	/ML/ [ML]	/M.L/ [M.L]	/M.M.L/ [M.M.L]
13.	/L (L)/ [L (L)]	/LS.L (L)/ [LS.L (L)]	/M.LS.L (L)/ [M.LS.L (L)]
14.	/M/ [M]	/H.M/ [H.M]	/M.H.M/ [M.H.M]
15.	/L/ [M]	/L.M/ [M.M]	/L.M.L/ [M.M.M]

- no change for the tonal melody
- all tone-less TBU's become M
- L realized on rightmost tone-less TBU and M on all preceding ones
- the first L is overwritten with M; potentially preceding tone-less TBU's become M
- apparently arbitrary change: μ-1: [ML] and μ μ μ-15: [MMM]

→ additional L in only in 3 contexts!

Floating L: Linking rules in Villard (2015)

In a sequence of words where W1 hosts a /L/ floating tone and W2 is of **tone class**

- **1** (unspecified for tone), the floating tone links to the rightmost mora in W2. All moras to the left of the newly linked floating tone in W2 are assigned a /M/ tone.
- **2** (/L (LS)/, **3** (/L (L)/, **6** (/L-M/) or **15** (/L-M-L/), the mora-linked /L/ tone gets replaced by a /M/ tone, and all moras (if any available) to the left of the newly linked /M/ tone in W2 are assigned a /M/ tone.
- **4** (/M (H)/,**5** (/M/), **10** (/M-M/) or **11** (/M-H/), the floating /L/ does not get realized at all, and all tonally unlinked moras to the left of the leftmost mora-linked tone are assigned a /M/ tone.
- **9** (/L-LS/), the floating tone links to the rightmost tonally unlinked mora in W2 (if any available). All moras (if any available) to the left of the newly linked floating tone in W2 are assigned a /M/ tone.
- **7** (/L-M (LS)/ and is dimoraic, the mora-linked /L/ tone gets replaced by a /M/ tone. If W2 is a trimoraic Tone Class 7, then the surface pattern is the same as Subrule C ([M-L-M]).

→ language-specific rules

→ not all contexts are captured

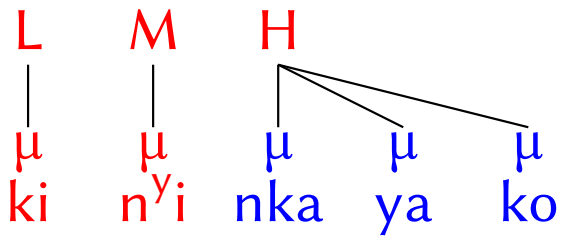
→ misprediction for μ-class 1: [ML] instead of [L]

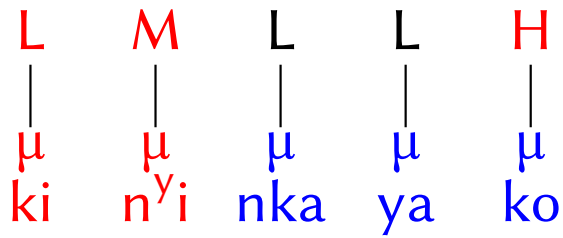
Summary: The theoretical challenge of the floating tones I

1. Why are floating H and LS realized on the **rightmost tone-less TBU**, ignoring intervening tone-less TBU's?
2. Why do the **intervening TBU's become M**?

We could expect

spreading of the floating tone, or default-L's





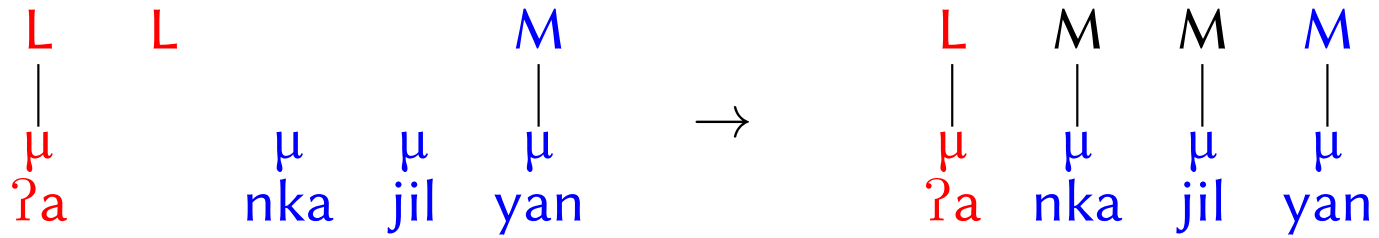
...But M?

Summary: The theoretical challenge of the floating tones II

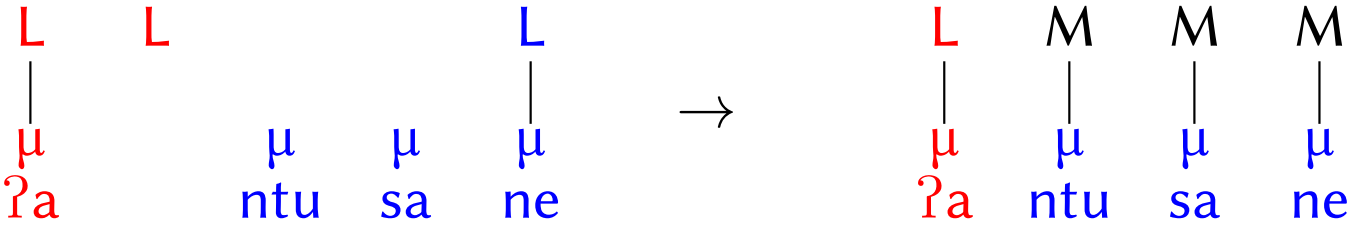
3. Why does the 'floating L' does not result in an additional L-tones but rather **additional M-tones** in the majority of contexts?

(10)

a.



b.



Analysis

The analysis in a nutshell

1. Strong preference for **tones to be at the right edge** of the phrase
   - triggers H/S-spread to tone-less TBU's
   - ensures that floating tones 'float' to the right

2. Insertion of the **default-L-tone is impossible between tones of the same morpheme**
   - TBU's preceding the landing site of a floating tone remain tone-less

3. there are no floating L-tones, only **OCP-effects for L-tones**
   - L-deletion adjacent to L
   - no L-epenthesis adjacent to L

4. tone-less TBU's that don't receive an epenthetic L in the phonology: interpreted as **default-M**

Tone epenthesis: Constraints

(11) a. μ>T
Assign * to every μ that is not linked to a tone.

b. DepT
Assign * to every output tone without an input correspondent.

c. *LongT
Assign * to every tone that is asssociated to more than one TBU.

Tone epenthesis: Tableau

(12)

μ μ μ μ kwa na ku la	μ>T	DepL	*LongL
a. μ μ μ μ kwa na ku la	4*!		
b. L μ μ μ μ kwa na ku la	3*!	*	
☞ c. L μ μ μ μ kwa na ku la		*	*
d. L L L L μ μ μ μ kwa na ku la		4*!	

Tone spreading: Constraints

(13) a. ALIGN(T,PH)
Assign * to every TBU that intervenes between the rightmost TBU a morphologically coloured tone T is associated to and the right edge of the phrase.

b. MAXAL
Assign * to every tone_1 and TBU_1 that are not associated to each other in the output if their input correspondents are associated to each other.

Tone spreading for H: Tableau

(14)

		MaxAL	*LongM	Align	*LongH/S	μ>T	DepL	*LongL
	M H μ μ μ μ kwi na ku la							
a.	M H μ μ μ μ kwi na ku la			5*!		**		
☞ b.	M H μ μ μ μ kwi na ku la			3*	*			
c.	M H μ μ μ μ kwi na ku la	*!*		*		**		
d.	M H L μ μ μ μ kwi na ku la			5*!			*	*

No tone spreading for M: Tableau

(15)

L M μ μ μ μ kak wen kwi la	MaxAL	*LongM	Align	*LongH/S	μ>T	DepL	*LongL
a. L M μ μ μ μ kak wen kwi la			5*		*!*		
b. L M μ μ μ μ kak wen kwi la		*!	3*				
☞ c. L M L μ μ μ μ kak wen kwi la			5*			*	*

Floating tone realization: Constraints

- floating tones are realized at the rightmost tone-less TBU due to ALIGN
- they can not be preceded by an epenthetic tone due to CONTIGUITY (16-c): the **tone sequence of a morpheme may not be disrupted** (Landman, 2002)

(16)

a. T>μ
Assign * to every tone that is not linked to a μ.

b. MAXT
Assign * to every input tone without an output correspondent.

c. MCONTT
Assign * to every tone that is not of morphological colour α and preceded and followed by a tone of morphological colour α.

Floating H-realization I: Rightmost tone-less TBU

(17)

	M H M μ μ μ μ kwa nka jil yan	MContT	*LongM	T>μ	MaxT	Align	*LongH/S	μ>T	DepL
a.	M H M μ μ μ μ kwa nka jil yan			*!		3*		**	
b.	M H M μ μ μ μ kwa nka jil yan					5*!		*	
☞ c.	M H M μ μ μ μ kwa nka jil yan					4*		*	

Floating H-realization II: No morpheme-internal epenthesis

(18)

	MCONTT	*LONGM	T>μ	MAXT	ALIGN	*LONGH/S	μ>T	DEPL
M H M μ μ μ μ kwa nka jil yan								
☞ c. M H M μ μ μ μ kwa nka jil yan					4*		*	
d. M L H M μ μ μ μ kwa nka jil yan	*!				4*			*
e. M H M μ μ μ kwa nka jil yan					4*	*!		
f. M H M μ μ μ μ kwa nka jil yan		*!			3*			

Floating tone realization: The fate of the intervening tone-less TBU's

They remain tone-less:

- no association of the floating tone since **association of H/S to more than one TBU is only optimal if it avoids** ALIGN**-violations**, never μ>T-violations: ALIGN ≫ *LONGH/S ≫ μ>T; cf. (18-e)

- no spread of the stem-final tone:
  - if it is an M-tone: blocked by *LONGM ≫ ALIGN; cf. (18-f)
  - if it were a H/S-tone: predicted by ALIGN ≫ *LONGM
    ➙ But **there are no H/S-final stems with a floating tone!**

'Floating L'

- observation 1: 'floating L's' don't result in an additional L in most contexts but **additional M-tones** (potentially deleting L's)
- observation 2: all bases with a 'floating L' **end in L**!
  And there are very few L-final bases that don't end in a 'floating L'

→ **There are no floating L's but OCP-effects for adjacent L-tones**

- deletion of L → tone-less TBU → M
- no epenthesis of L → tone-less TBU → M

Assumption: Spreading of L

- there is **never progressive spread of underlying L-tones** (preceding contexts: only epenthetic L's violated *LongL)
- cf., for example, Hyman (2000); Hansson (2001); McCarthy (2004); Mullin (2011) for directionality preferences restricting spreading

(19) *Spr-L_R
Assign * to every L-tone that is associated to TBU x in the input but associated to TBU x and y in the output if y follows x.

OCP-L: No epenthesis of L

(20)

	*SPR-LR	OCP-L	MAXT	ALIGN	μ>T	DEPL	*LONGL
L M μ μ μ μ ʔa nka jil yan							
☞ a. L M μ μ μ μ ʔa nka jil yan				3*	**		
b. L L M μ μ μ μ ʔa nka jil yan		*!		4*		*	*
c. L M μ μ μ μ ʔa nka jil yan	*!			*			*

OCP-L: Deletion of L

(21)

		*Spr-L$_R$	OCP-L	MaxT	Align	μ>T	DepL	*LongL
	L L | | μ μ μ μ ʔa ntu sa ne							
a.	L L | | μ μ μ μ ʔa ntu sa ne		*!		***	**		
☞ b.	L | μ μ μ μ ʔa ntu sa ne			*	***	***		
c.	L μ μ μ μ ʔa ntu sa ne	*!		*				*

OCP-Analysis: Summary

(22)

1.	/X/ [ML] 6	/XX/ [M.L] 6	/XXX/ [M.M.L] 6
2.	/L (LS)/ [M (LS)] 2	/X.L (LS)/ [M.M (LS)] 2, 4	/X.X.L (LS)/ [M.M.M (LS)] 2, 4
3.	/L (L)/ [M (L)] 2	/X.L (L)/ [M.M (L)] 2, 4	/X.X.L (L)/ [M.M.M (L)] 2, 4
4.	/M/ [M] 1	/X.M/ [M.M] 1, 4	/X.X.M/ [M.M.M] 1, 4
5.	/M (H)/ [M (H)] 1	/X.M (H)/ [M.M (H)] 1, 4	/X.X.M (H)/ [M.M.M (H)] 1, 4
6.	/M/ [M] 1	/L.M/ [M.M] 2	/X.L.M/ [M.M.M] 2, 4
7.	/M (LS)/ [M (LS)] 1	/L.M (LS)/ [M.M (LS)] 2	/X.L.M (LS)/ [M.L.M (LS)] X
8.	/LH/ [LH] 3	/X.LH/ [M.LH] 4, 3	/X.X.LH/ [M.M.LH] 4, 3
9.	/LS/ [LS] 3	/L.LS/ [L.LS] 3	/X.L.LS/ [M.L.LS] 4, 3
10.	/M/ [M] 1	/M.M/ [M.M] 1	/X.M.M/ [M.M.M] 1, 4
11.	/H/ [H] 1	/M.H/ [M.H] 1	/X.M.H/ [M.M.H] 1, 4
12.	/ML/ [ML] 1	/M.L/ [M.L] 1	/M.M.L/ [M.M.L] 1
13.	/L (L)/ [L (L)] 5	/LS.L (L)/ [LS.L (L)] 3	/M.LS.L (L)/ [M.LS.L (L)] 1
14.	/M/ [M] 1	/H.M/ [H.M] 1	/M.H.M/ [M.H.M] 1
15.	/L/ [M] 2	/M.L/ [M.L] 1	/L.M.L/ [M.M.M] X

1 no effect for H and M following L

2 L following L is deleted

3 doubly-linked L's are specially preserved: no deletion

4 L-epenthesis blocked for TBU following L

5 floating M precedes L and prevents L-deletion
(=asymmetry of surface-identical /L (L)/)

6 prominent final TBU may not remain tone-less in input and output: L-epenthesis is enforced

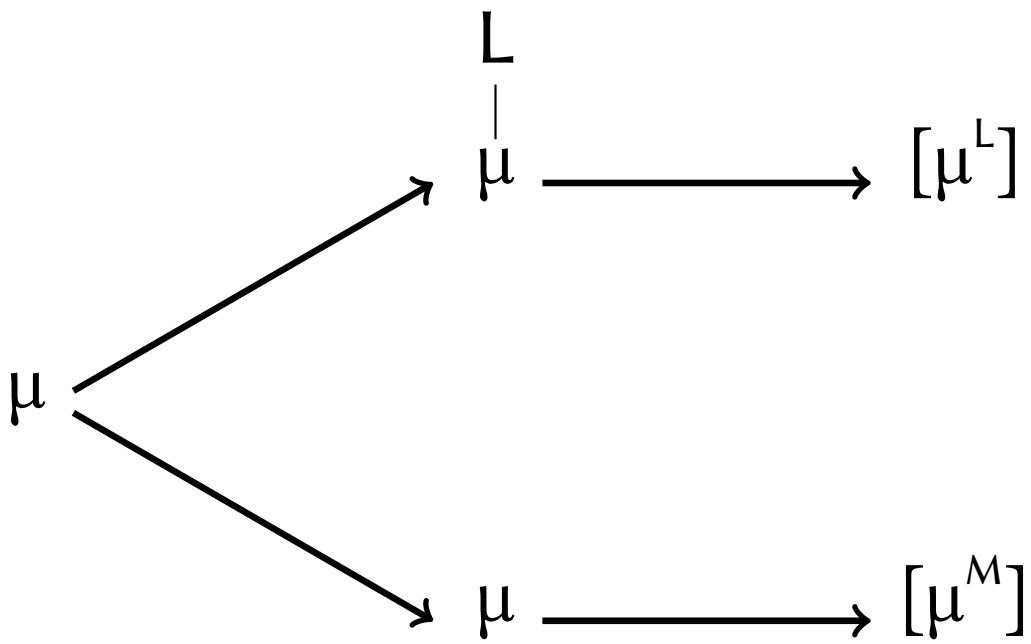
X unexpected:

- μ μ μ (15) – listed (inconsistently) as not attested underlyingly
- μ μ μ (7) – ? ([MMM] is expected)

Discussion

The assumption for ZAC

(23)



Toneless TBU's and their tonal interpretation (cf. e.g. Hyman, 2000)

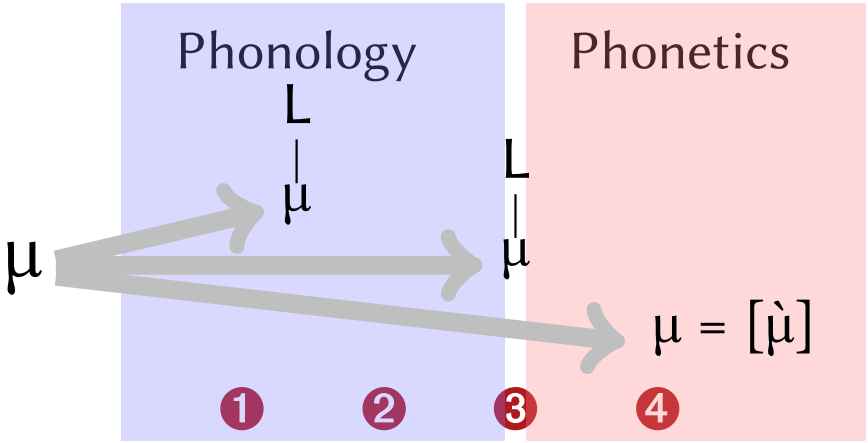
(24)

a.	/H/ [H]			/ø/ [L]	Somali^{H}, Navajo^{Y},...
b.	/ø/ [H]			/L/ [L]	Ruwund^{N}, Mandinka^{Y},...
c.	/H/ [H]		/ø/ [L]	/L/ [L]	Mundurukú^{Pi},...
d.	/H/ [H]	/ø/ [M]		/L/ [L]	C. Mixtec^{Bu}, Yoruba^{Pu},...
e.	/H/ [H]	/M/ [M]		/ø/ [L]	Z. Chatino^{C},...
f.	/H/ [H]	/ø/ [H/L]		/L/ [L]	Margi^{H}, Nande^{H},...
g.	/H/ [H]	/ø/ [M/H]		/L/ [L]	Engenni^{H},...
h.	/H/ [H]	/M/ [M]	/ø/ [M]	/L/ [L]	S.J.Zapotec^{Bi},...

...

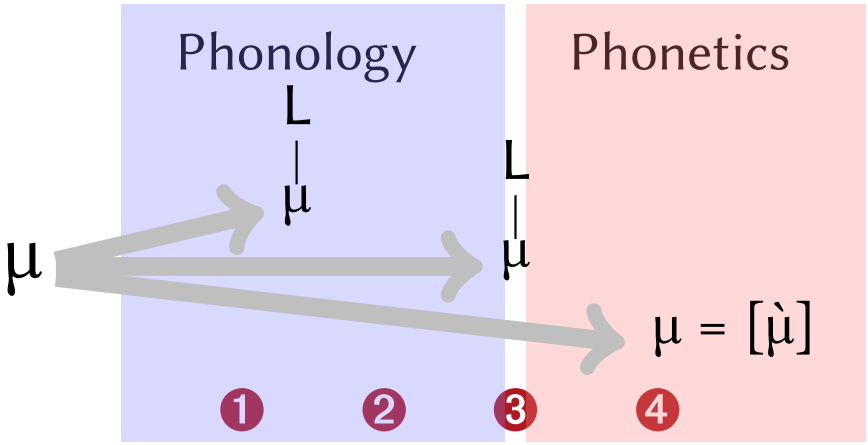
(Bi=Bickmore and Broadwell (1998), Bu=Buckley (1991), C=Campbell (2016), H=Hyman (2000), N=Nash (1994), Pi= Picanço (2005), Pu=Pulleyblank (1986), Y=Yip (2002))

When do toneless TBU's get their tone 1



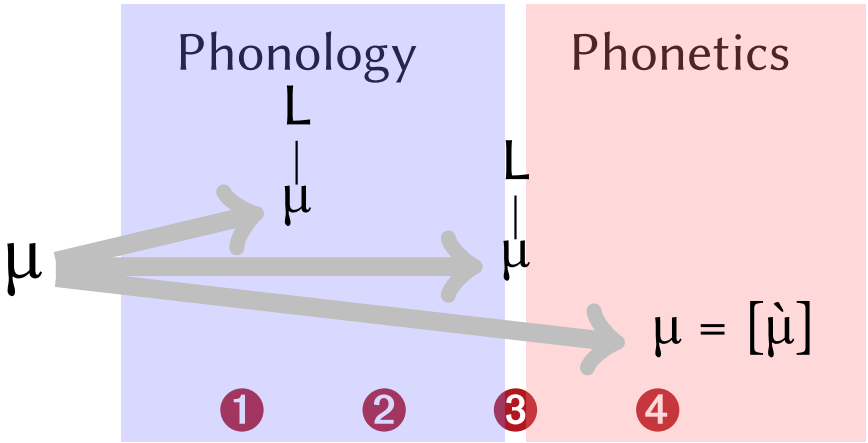
1. **default-tone in the lexical phonology**
   - evidence: tone assigned to toneless TBU's is phonologically active
   - e.g. Pulleyblank (1986) on Dschang or Paster and Kim (2011) on Tiriki

When do toneless TBU's get their tone 2



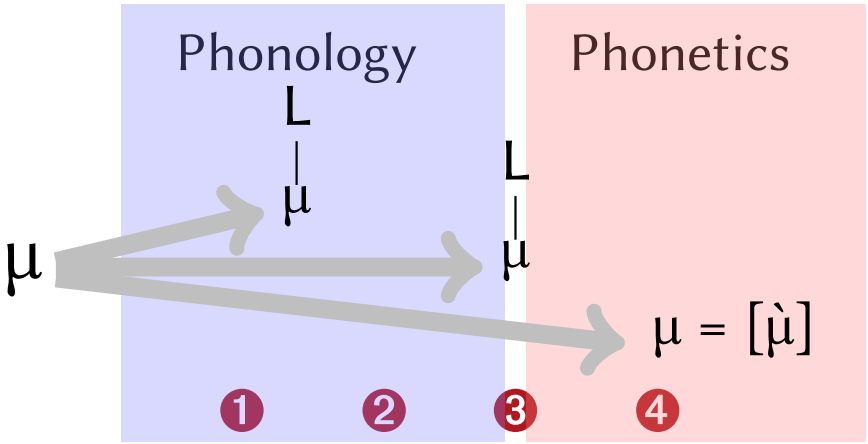
1. default-tone in the lexical phonology
2. **default-tone in the post-lexical phonology**
   - evidence: tone inert in lexical phonology but present in post-lexical phonology (e.g. assignment of phrase-final tones and/or creation of contour tones)
   - e.g. Hyman and Byarushengo (1984) on Haya or Pulleyblank (1986) on Tiv

When do toneless TBU's get their tone 3



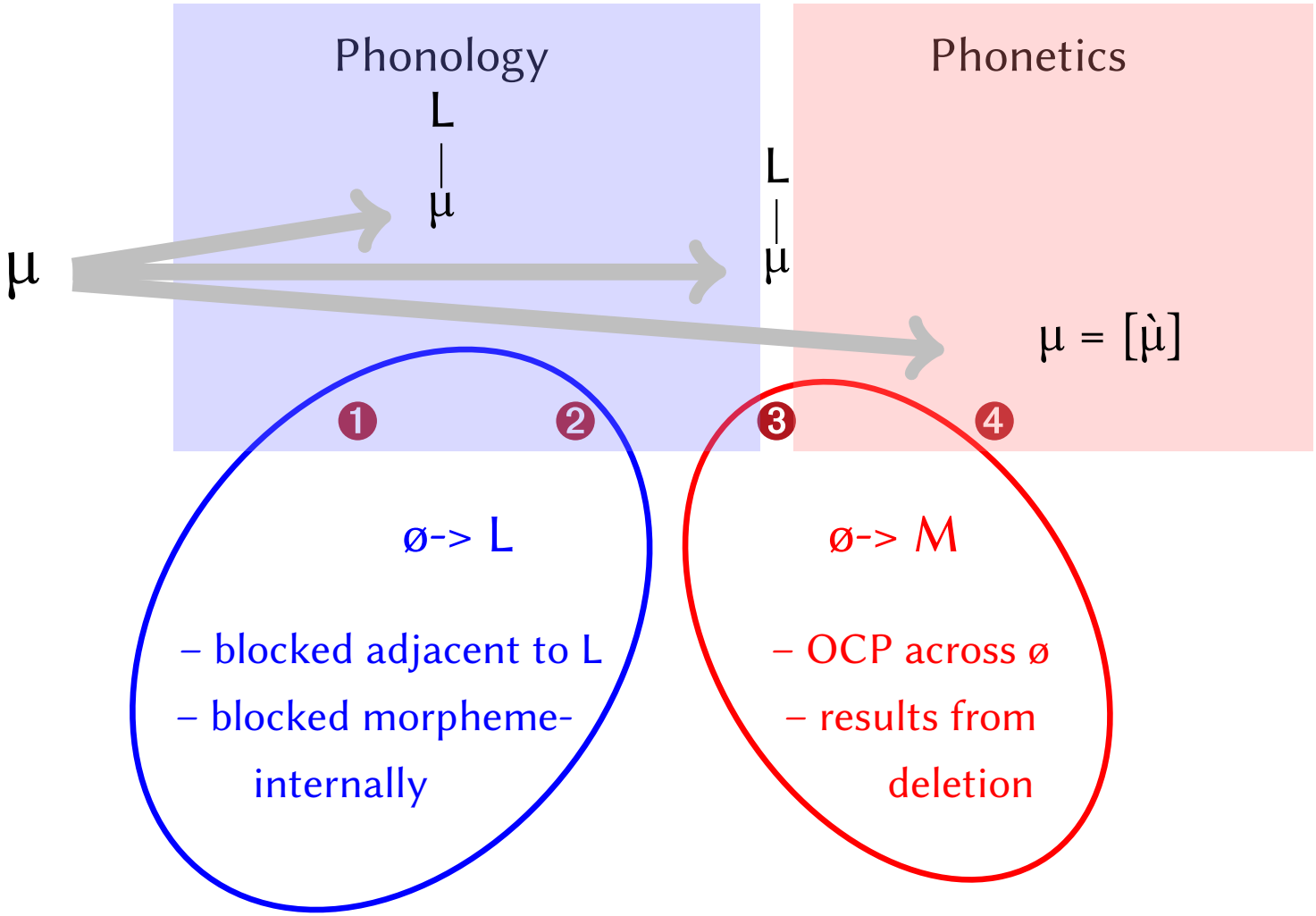
1. default-tone in the lexical phonology
2. default-tone in the post-lexical phonology
3. **default assigned after/at the end of phonology**
   - different interpretations: 1. redundancy rules, 2. interface condition, 3. phonetic rule (e.g. Yip, 2002)
   - evidence: tone is phonologically inert but has stable phonetic interpretation
   - e.g. Pulleyblank (1986) on Yoruba or Mtenje (1987) on Chichewa

When do toneless TBU's get their tone 4



1. default-tone in the lexical phonology
2. default-tone in the post-lexical phonology
3. default assigned after/at the end of phonology
4. **default phonetic interpretation**
   - transitional function: linear or sagging interpolation (Pierrehumbert, 1980; Shih, 1987; Keating, 1988; Choi, 1995)
   - evidence: phonologically inert and phonetically unstable
   - e.g. Myers (1998) on Chichewa or McPherson (2011) on Tommo So

The argument for ZAC



Summary

- the complex tonology of ZAC follows in an account where the phonology assigns epenthetic **default L** to tone-less TBU's but this repair is blocked in some contexts and TBU's **remain toneless in the phonology and receive a default-M interpretation**
- the putative floating L's were argued to be simple phonological **OCP-effects**
- **different 'default'-concepts** argued independently to exist in different languages can **coexist in one language**

Appendix

Appendix: No OCP-effect for contour tones

(25) OCP-L

Assign * to every pair of adjacent L-tones that are associated as only tones to TBU's.

(26)

	OCP-L	MaxT	Align	μ>T	DepL	*LongL
L L H | ╲╱ μ μ μ μ ʔa nka luk wen						
☞ a. L L H | ╲╱ μ μ μ μ ʔa nka luk wen			***	**		
b. L H | | μ μ μ μ ʔa nka luk wen		*!	***	**		

Appendix: Floating LS realization and the OCP

(27)

	*Spr-LR	OCP-L	T>μ	MaxT	Align	μ>T	DepL	*LongL
L LS μ μ μ μ na ten ku la								
a. L LS μ μ μ μ na ten ku la			**		**	***		
b. L L S μ μ μ μ na ten ku la		*!			***	*		
☞ c. L L S μ μ μ μ na ten ku la					**	*		*
d. L L S μ μ μ μ na ten ku la	*!				*			*
e. L L S μ μ μ μ na ten ku la		*!			**			**

Appendix: OCP-L and Deletion of second of two L's

- Positional faithfulness for the tones of the initial word

(28) MaxT$_{1W_D}$: Assign * for every tone without an output correspondent that is linked to the initial word of a phrase in the input.

(29)

L, μ, ʔa; μ, ntu; μ, sa; L, μ, ne	MaxT$_{1W_D}$	*Spr-L$_R$	OCP-L	MaxT	Align	μ>T	DepL	*LongL
☞ b. L, μ, ʔa; μ, ntu; μ, sa; μ, ne				*	***	***		
d. L, μ, ʔa; μ, ntu; μ, sa; μ, ne	*!			*				*

Appendix: OCP-L and doubly-linked L's

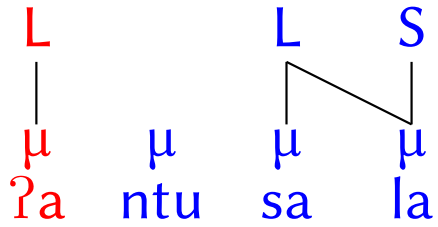
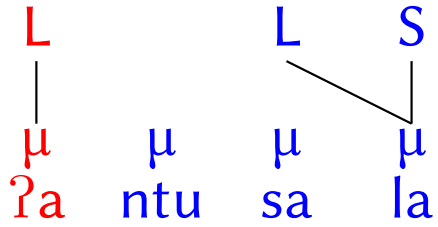
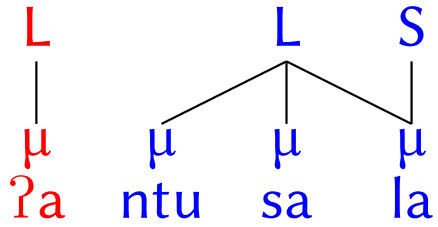
- TBU's linked to two tones are subject to a special faithfulness constraint: no deletion of such L's

(30) a. MaxAL$_{C\text{-}T}$
Assign * to every association line without an output correspondent that links to a tone T if T is not the only tone linked to a TBU.

b. DepAL$_{C\text{-}T}$
Assign * to every association line without an input correspondent that links to a tone T if T is not the only tone linked to a TBU.

Appendix: OCP-L and doubly-linked L's

(31)

	DepAL$_{C\text{-}T}$	MaxAL$_{C\text{-}T}$	OCP-L	MaxT	Align	μ>T	DepL	*LongL
L L S μ μ μ μ ʔa ntu sa la								
☞ a. 			*		***	*		*
b. 		*!			***	**		
c. 	*!		*		***			*

Appendix: Exceptions to OCP-L

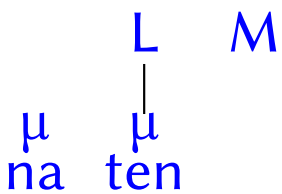
- some L-final stems don't trigger any change on the following stem

(32) *Exceptional L-final stems (based on Villard, 2015, 213)*

	Nouns	Adj/Adv	3Sg.Compl. Verbs
X	29.9%	31.4%	13%
MM	15.5%	18.2%	14.7%
MH	13.1%	8.8%	31.2%
M (H)	12%	5.9%	10.4%
…			
MML	4%	2.2%	1.3%

→ those contain a **floating M-tone**: no OCP-L effect
(floating M's never realized: T>μ ≫ MaxH/S ≫ DepAL ≫ MaxM)

(33) *L-final stems not triggering an OCP-effect*



Appendix: Locality of floating tones

(34) NoMSkip

Given a sequence of TBU's with different morphological colours $TBU_{\alpha}TBU_{\beta}TBU_{\gamma}$:

Assign * if tones of morphological colour M are associated to TBU's of morphological colour α and γ but not to TBU's of morphological colour β.

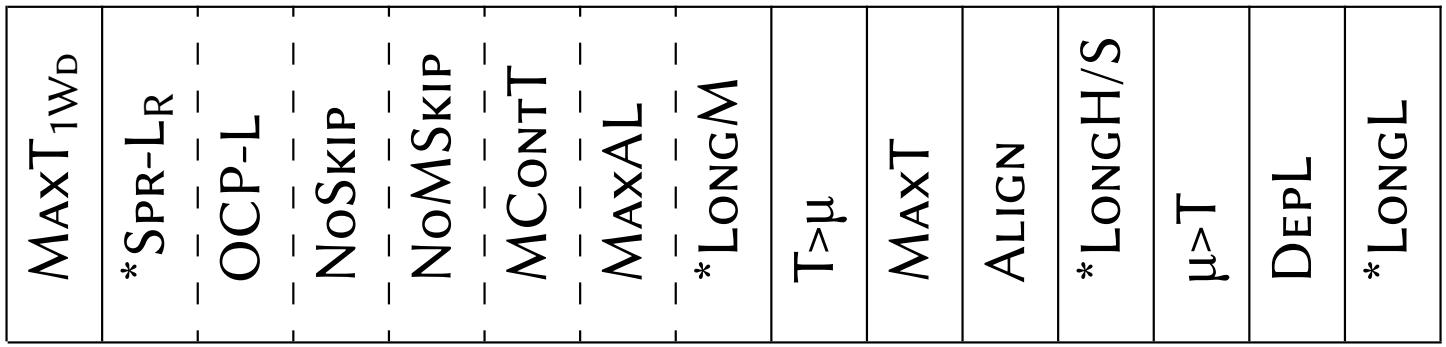
Appendix: Floating tones and tone spread

(35)

	OCP-L	NoMSkip	MContT	T>μ	Align	*LongH/S	μ>T
L LS μ μ μ μ μ μ μ [na ten] [nka ya ko] [tsa ka]							
a. L LS μ μ μ μ μ μ μ [na ten] [nka ya ko] [tsa ka]				*!*	5*		6*
b. L L S μ μ μ μ μ μ μ [na ten] [nka ya ko] [tsa ka]		*!			5*		5*
c. L L S μ μ μ μ μ μ μ [na ten] [nka ya ko] [tsa ka]					9*!		4*
☞ d. L L S μ μ μ μ μ μ μ [na ten] [nka ya ko] [tsa ka]					7*	*	**

Appendix: Full Ranking

(36)



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