

### Comaltepec Chinantec Clitic Phonology

1. - Cross-linguistically, affixes typically possess fewer contrasts than do roots. Moreover, affixes are typically the target of harmony processes, rather than the trigger.  
 - Steriade (1994): "Positional neutralization" (morphologically or prosodically constrained)  
 - In Comaltepec clitic phonology these patterns are explained when considering the contrastive load borne by these distinct morphological subgroupings.

1) morphology, 2) phonetics, 3) phonotactics, 4) perception.

2. Comaltepec segment inventory:

p	t	tʃ	k	i	ɨ	u
b	d	dʒ	g	e	ʌ	o
	s			æ		a
		z <sub>l</sub>				
m	n		ŋ			
	l					
		j	w			
h,ʔ						

3. consonants:

pɨʔ <sup>H</sup>	[pɨʔ <sup>H</sup> ]	little (i)	laryngeals	hi <sup>L</sup>	[hi <sup>L</sup> ]
book					
b <sup>L</sup> ʔ <sup>LH</sup>	[(m)b <sup>L</sup> ʔ <sup>LH</sup> ]	ball	ʔo <sup>H</sup>	[ʔo <sup>M</sup> ]	papaya
mɨi <sup>H</sup>	[mɨi <sup>M</sup> ]	plain			
ti <sup>L</sup>	[ti <sup>L</sup> ]	thin (i)	vowels:		
d <sup>o</sup> ʔ <sup>LH</sup>	[(n)d <sup>o</sup> h <sup>HLH</sup> ]	maguey	sapɨi <sup>H</sup>	[lih <sup>H</sup> ]	flower
so <sup>H</sup>	[so <sup>M</sup> ]	ascent	heʔ <sup>HL</sup>	[heʔ <sup>LM</sup> ]	frog
nu <sup>L</sup>	[nũ <sup>L</sup> ]	grass	liʔ <sup>H</sup>	[lih <sup>H</sup> ]	circle
lo <sup>L</sup>	[lo <sup>L</sup> ]	rabbit	b <sup>L</sup> ʔ <sup>LH</sup>	[b <sup>L</sup> ʔ <sup>LH</sup> ]	short
tʃi <sup>H</sup>	[tʃih <sup>H</sup> ]	term of endearment	lu <sup>L</sup>	[lu <sup>L</sup> ]	fly
dʒi <sup>L</sup>	[(n)dʒi <sup>L</sup> ]	dog	hoʔ <sup>LH</sup>	[hoʔ <sup>LH</sup> ]	maggot
j <sup>ʌ</sup> ʔ	[j <sup>ʌ</sup> ʔ <sup>M</sup> ]	aboved	ʒæ <sup>L</sup>	[dʒæ <sup>L</sup> ]	person
z <sup>o</sup> ʔ <sup>L</sup>	[z <sup>o</sup> ʔ <sup>L</sup> ]	sweet	ta <sup>LH</sup>	[ta <sup>LH</sup> ]	work
ki <sup>HL</sup>	[ki <sup>LM</sup> ]	garbage			
gu <sup>LH</sup>	[(ŋ)gu <sup>hHLH</sup> ]	owl			
ŋu <sup>HL</sup>	[ŋũh <sup>HL</sup> ]	meat			

wi [wi<sup>M</sup>] spider

4. tones:

L	hi <sup>L</sup>	[hi <sup>L</sup> ]	book
H	hlo <sup>ʔH</sup>	[hlo <sup>ʔH</sup> ]	pretty
	zi <sup>L</sup> mo <sup>ʔH</sup>	[zi <sup>L</sup> mo:h <sup>HM</sup> ]	flea
HL	gin <sup>ʔHL</sup>	[gin <sup>ʔLM</sup> ]	swing
LH	li <sup>LH</sup>	[li <sup>LH</sup> ]	tepejilote palm shoot
	hi <sup>ːLH</sup>	[hi:h <sup>HLH</sup> ]	edible tuber
Ø	dʒjuː	[dʒœː <sup>M</sup> ]	earthen jar

5. maximal syllable:

(L)C(G)(L)V(:)(T)(N)(ʔ)

Long, glottally checked syllables are attested only in morphologically complex environments.

6. plain vowels:

breathy vowels:

gwoː <sup>L</sup>	[gwoː <sup>L</sup> ]	good (i)	ɡjʌːŋ	[ɡjʌːŋ <sup>M</sup> ]	hand
he <sup>ʔHL</sup>	[he <sup>ʔLM</sup> ]	frog	liː <sup>H</sup>	[lih <sup>H</sup> ]	flower

7. codas:

hu <sup>ʔH</sup>	[huh <sup>ʔH</sup> ]	pineapple
ta <sup>ʔHL</sup>	[ta <sup>ʔLM</sup> ]	honey
ɡjuː <sup>H</sup>	[ɡjuː <sup>H</sup> ]	good (a)
hwi <sup>nHL</sup>	[hwiː <sup>LM</sup> ]	many
gin <sup>ʔHL</sup>	[gin <sup>ʔLM</sup> ]	swing

8. morphologically complex codas:

ʔja <sup>L</sup> <sub>Z</sub>	[ʔjaʂ <sup>L</sup> ]	her griddle
ʂi <sup>L</sup> <sub>Z</sub>	[ʂi <sup>L</sup> ʔ <sup>H</sup> ]	his clothing
hi <sup>L</sup> <sub>p</sub>	[hi <sup>L</sup> <sub>p</sub> ]	it's a book
pi <sup>L</sup> <sub>p</sub>	[pi <sup>L</sup> ʔ <sup>H</sup> <sub>p</sub> ]	it's little

9. clitics:

<u>person/ number</u>	<u>full form:</u>	<u>reduced forms:</u>
1s	hnæ <sup>LH</sup>	R
1px	hnæ <sup>L</sup> <sub>p</sub>	na <sup>L</sup> , R <sup>L</sup>
1pi	hnæ <sup>LH</sup> <sub>p</sub>	
2s	ʔnju <sup>L</sup>	ʔ
2p	ʔni <sup>L</sup> <sub>p</sub> , na <sup>L</sup>	
3	ʔ <sup>L</sup> <sub>Z</sub>	z <sup>L</sup>
animal	ʔ <sup>L</sup> <sub>Z</sub>	ne <sup>L</sup>

(R = "reduplicant", px = plural exclusive, pi = plural inclusive)

10. *R* copies the preceding supralaryngeal gesture, vowel or nasal. Laryngeal gestures are not copied, and intervening laryngeals are transparent.

ni <sup>L</sup> <sub>i</sub> n <sup>LH</sup> <sub>R</sub>	[ni <sup>L</sup> <sub>i</sub> n <sup>LH</sup> <sub>R</sub> ]	I will sweat
ka <sup>L</sup> <sub>kjan</sub> <sup>R</sup>	[ka <sup>L</sup> <sub>kjā</sub> <sup>M</sup> <sub>ʔ</sub> <sup>L</sup> ]/[ka <sup>L</sup> <sub>kjā</sub> <sup>M</sup> <sub>ʔ</sub> <sup>L</sup> ]	I slept
hmi <sup>L</sup> <sub>ʔi</sub> <sup>MH</sup> <sub>R</sub>	[hmi <sup>L</sup> <sub>ʔi</sub> <sup>MH</sup> <sub>R</sub> ]	I ask (him)
ka <sup>L</sup> <sub>n</sub> <sup>R</sup>	[ka <sup>L</sup> <sub>n</sub> <sup>M</sup> <sub>h</sub> <sup>L</sup> ]	I got it

11. modal, open roots, *R* is incorporated into the stem syllable, lengthening short syllables, and having no effect on long syllables.

mi <sup>R</sup>	[mi <sup>M</sup> ]	I ask
ʔi <sup>MH</sup>	[ʔi <sup>HM</sup> ]	I know
ʔi <sup>R</sup>	[ʔi <sup>hM</sup> ]	I answer
si <sup>L</sup> <sub>hwi</sub> <sup>H</sup> <sub>R</sub>	[si <sup>L</sup> <sub>hwi</sub> <sup>HM</sup> ]	I stack it up
ni <sup>L</sup> <sub>læ</sub> <sup>H</sup> <sub>R</sub>	[ni <sup>L</sup> <sub>læ</sub> <sup>H</sup> <sub>hæ</sub> <sup>L</sup> ]	we will buy it
ni <sup>L</sup> <sub>læ</sub> <sup>H</sup> <sub>na</sub>	[ni <sup>L</sup> <sub>læ</sub> <sup>H</sup> <sub>na</sub> <sup>L</sup> ]	we will buy it
hmi <sup>L</sup> <sub>k</sub> <sup>MH</sup> <sub>R</sub>	[hmi <sup>L</sup> <sub>k</sub> <sup>MH</sup> <sub>ʔ</sub> <sup>L</sup> ]	we help

hmi<sup>L</sup>kō<sup>?</sup>MH<sub>na</sub><sup>?</sup>      [m̥mi<sup>?</sup>L<sub>kō</sub><sup>?</sup>MH<sub>na</sub><sup>?</sup>L]      we help

12. After controlled open syllables, *R?* is incorporated into root syllable resulting in a long closed controlled syllable.

kāR<sup>?</sup>                      [kā:<sup>?</sup>M]              we charge  
 hi:R<sup>?</sup>                      [hi:<sup>?</sup>M]              we plow  
 ne<sup>MH</sup>R<sup>?</sup>                      [nē:<sup>?</sup>HM]              we see

13. tone

inputs and surface outputs to clitic sandhi

<u>Rime</u>	V	Ṿ	V:	Ṿ:	V?	Ṿ?
<u>Tone</u> ↓						
L	x	CV <sub>L</sub> <sub>h</sub> V <sub>L</sub>	x	CV: <sub>L</sub> <sub>h</sub> V <sub>L</sub>	V <sub>L</sub> ?V <sub>L</sub>	CV <sub>L</sub> <sub>h</sub> ?V <sub>L</sub>
M		CV <sub>M</sub> <sub>h</sub> V <sub>L</sub>		CV: <sub>M</sub> <sub>h</sub> V <sub>L</sub>	V <sub>M</sub> ?V <sub>L</sub>	CV <sub>M</sub> <sub>h</sub> ?V <sub>L</sub>
H	CV: <sub>M</sub>	CV <sub>H</sub> <sub>h</sub> V <sub>L</sub>	CV: <sub>M</sub>	CV: <sub>H</sub> <sub>h</sub> V <sub>L</sub>		<b>CV<sub>H</sub><sub>h</sub>?V<sub>H</sub></b>
LM	x	CV <sub>LM</sub> <sub>h</sub> V <sub>L</sub>			V <sub>LM</sub> ?V <sub>L</sub>	<b>CV<sub>LM</sub><sub>h</sub>?V<sub>M</sub></b>
LH	CV: <sub>L</sub> <sub>H</sub>	CV <sub>LH</sub> <sub>h</sub> V <sub>L</sub>			V <sub>LH</sub> ?V <sub>H</sub>	
HLH				CV: <sub>HLH</sub> <sub>h</sub> V <sub>H</sub>		
MH	CV: <sub>M</sub> <sub>H</sub>				V <sub>MH</sub> ?V <sub>H</sub>	
HM			CV: <sub>M</sub> <sub>H</sub>			
HMH				CV: <sub>HMH</sub> <sub>h</sub> V <sub>H</sub>		
HL	CV: <sub>L</sub> <sub>H</sub>	CV <sub>HL</sub> <sub>h</sub> V <sub>L</sub>	CV: <sub>L</sub> <sub>H</sub>	CV: <sub>L</sub> <sub>H</sub> <sub>h</sub> V <sub>L</sub>	V <sub>HL</sub> ?V <sub>L</sub>	CV <sub>HL</sub> <sub>h</sub> ?V <sub>L</sub>

- 14.

Undersived root inputs and clitic outputs

<u>Rime</u>	V	Ṿ	V:	Ṿ:	V?	Ṿ?
<u>Tone</u> ↓						
L	x	CṾ <sub>L</sub> V <sub>L</sub>	x	CṾ: <sub>L</sub> V <sub>L</sub>	V <sub>L</sub> ?V <sub>L</sub>	CṾ <sub>L</sub> ?V <sub>L</sub>
∅		CṾV <sub>L</sub>		CṾ: <sub>V</sub> V <sub>L</sub>	V?V <sub>L</sub>	CṾ?V <sub>L</sub>
H	CV: <sub>L</sub> <sub>H</sub>	CṾ <sub>H</sub> V <sub>L</sub>	CV: <sub>L</sub> <sub>H</sub>	CṾ: <sub>H</sub> V <sub>L</sub>		<b>CṾ<sub>H</sub>?V<sub>H</sub></b>
HL	CV: <sub>L</sub> <sub>H</sub>	CṾ <sub>HL</sub> V <sub>L</sub>	CV: <sub>L</sub> <sub>H</sub>	CṾ: <sub>HL</sub> V <sub>L</sub>	V <sub>HL</sub> ?V <sub>L</sub>	<b>CṾ<sub>HL</sub>?V</b>
LH	CV: <sub>L</sub> <sub>H</sub>	CṾ <sub>LH</sub> V <sub>L</sub>		CṾ: <sub>LH</sub> V <sub>H</sub>	Ṿ <sub>LH</sub> ?V <sub>H</sub>	

15. examples with LH:

ni<sup>L</sup> njōn<sup>?</sup>LH R      [ni<sup>?</sup>L<sub>njō</sub><sup>?</sup>L<sub>ō</sub>H]      night will overtake me

ni <sup>L</sup> hwi <sup>?</sup> L <sup>H</sup> R	[ni <sup>~</sup> L <sub>fi</sub> L <sup>?</sup> i <sup>H</sup> ]	I will whistle (to him)
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examples with H:

ni <sup>L</sup> be <sup>?</sup> H R	[ni <sup>~</sup> L <sub>beh</sub> H <sup>?</sup> e <sup>H</sup> ]	I will roll it up
si <sup>H</sup> R	[si <sup>H</sup> ]	my name is
ni <sup>L</sup> d <sub>3</sub> a <sup>?</sup> H R <sup>?</sup>	[ni <sup>~</sup> L <sub>d3ah</sub> H <sup>?</sup> a <sup>?</sup> H]	we will go home
?wA <sup>?</sup> H R <sup>?</sup>	[?wA <sup>?</sup> H]	we go out

16.. Explanation for clitic patterning:

1) Morphology: Comaltepec root syllables possess a richer inventory of contrastive elements than do non-root syllables (prefixal and suffixal syllables).

A given affixal element is more likely to be determined by assimilatory processes harmony.

2) Phonetics: Translaryngeal harmony; full copy of the preceding supralaryngeal gesture:

V	L	V
place		place

The presence of intervocalic laryngeals has no influence on the supralaryngeal configuration: as no rightward contrastive element blocks its propagation, tongue position may persist through an intervening laryngeal, and is consequently maintained as a suffixal vocalic gesture.

		<u>input:</u>		<u>output:</u>	
		root:	suffix:	root:	suffix:
SL:	low vowel:	■ ■ ■ ■ ■	•	■ ■ ■ ■ ■	
L:	abduction:	■ ■ ■ ■ ■		■ ■ ■ ■ ■	
		a h		a h a	

  

		<u>input:</u>		<u>output:</u>	
		root:	suffix:	root:	suffix:
SL:	nasal:	■ ■ ■ ■ ■	•	■ ■ ■ ■ ■	
L:	abduction:	■ ■ ■ ■ ■		■ ■ ■ ■ ■	
		ŋ		ŋ n	

3) Phonotactics: Pronoun clitics are always vowel-initial; roots never possess obstruent codas; the preceding vocalic or nasal value may freely spread into the suffixal nuclear position unimpeded by any intervening supralaryngeal value, and across potentially intervening (placeless) laryngeals.

4) Perception: Since no contrastive information is neutralized upon spreading into the suffixal domain, exposure to root vowel quality is optimized, hence increasing the likelihood of acoustically encoding the contrastive value.

Increased temporal exposure *per se* may not be the main motivation for spreading. (long vowels are often diachronically subject to diphthongization (Andersen 1971, Hayes

1989). Diphthongization obviously does not increase exposure to a single value, but instead cues the contrast by its transition into another gesture.

Formant transitions are where optimal encoding takes place (cf. Bladon 1986). Consequently, the more often formant transitions for a given contrast are encoded, the more likely that this contrast is recoverable. Therefore, spreading is optimal when this spreading crosses other contrastive values. Ideally, these intervening values are supralaryngeally articulated.

17. formalism:  
morphological constraint: align right

Comaltepec clitic perceptual constraint:

☺ optimal: right-spread stem-final supralaryngeal value

18. conclusion:  
Cross-linguistically, affixes typically possess fewer contrasts than do roots. Moreover, affixes are typically the target of harmony processes, rather than the trigger.

Steriade (1994): "Positional neutralization" (morphologically or prosodically constrained).

These patterns are explained when considering the contrastive load borne by these distinct morphological subgroupings.

1) morphology, 2) phonetics, 3) phonotactics, 4) perception.