

(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 ^L ɽi:n ^{LHR}	[nĩ ^L ɽi:HLH _{np} H]	I will sweat
ka ^L kjanʔ ^R	[ka ^L kjã ^M ɽ _n ^L]/[ka ^L kjã ^M ɽ _n ^L]	I slept
hmi ^L ɽiʔ ^{MHR}	[m̩mĩ ^L ɽi ^M Hɽ _i ^H]	I ask (him)
ka ^L nɔ ^R	[ka ^L nõ ^M hõ ^L]	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 ^R	[mĩ ^M]	I ask
ɽi ^{MH}	[ɽĩ ^{HM}]	I know
ɽi ^R	[ɽĩ ^{hM}]	I answer
si ^L hwɪ:ɽ ^{HR}	[si ^L wɪ:ɽ ^{HM}]	I stack it up
ni ^L læ ^{HR}	[nĩ ^L læ ^H hæ ^L ʔ]	we will buy it
ni ^L læ ^H naʔ	[nĩ ^L læ ^H ɽnã ^L ʔ]	we will buy it
hmi ^L kõʔ ^{MHR}	[m̩mĩ ^L kõ ^M Hɽõ ^L ʔ]	we help
hmi ^L kõʔ ^{MH} naʔ	[m̩mĩ ^L kõ ^M Hɽnã ^L ʔ]	we help

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

kāR? [kã:ʔ^M] we charge
 hi:R? [hi:ʔ^M] we plow
 ne^{MHR}? [nē:ʔ^{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	CVL _h V _L	x	CV:L _h V _L	V _L ?V _L	CVL _h ?V _L
M		CVM _h V _L		CV:M _h V _L	V _M ?V _L	CVM _h ?V _L
H	CV:M	CVH _h V _L	CV:M	CV:H _h V _L		CV ^H _h ?V ^H
LM	x	CVLM _h V _L			V _{LM} ?V _L	CVLM _h ?V _M
LH	CV:LH	CVLH _h V _L			V _{LH} ?V _H	
HLH				CV:HLH _h V _H		
MH	CV:HM				V _{MH} ?V _H	
HM			CV:HM			
HMH				CV:HMH _h V _H		
HL	CV:HL	CVHL _h V _L	CV:HL	CV:HL _h V _L	V _{HL} ?V _L	CVHL _h ?V _L

14.

Underspecified root inputs and clitic outputs

<u>Rime</u>	V	Ṿ	V:	Ṿ:	V?	Ṿ?
<u>Tone</u> ↓						
L	x	CṾLV _L	x	CṾ:L _V L	V _L ?V _L	CṾL?V _L
∅		CṾV _L		CṾ:V _L	V?V _L	CṾ?V _L
H	CV:H	CṾH _V L	CV:H	CṾ:H _V L		CṾ ^H ?V ^H
HL	CV:HL	CṾHL _V L	CV:HL	CṾ:HL _V L	V _{HL} ?V _L	CṾ ^H L?V
LH	CV:LH	CṾLH _V L		CṾ:LH _V H	Ṿ _{LH} ?V _H	

15. examples with LH:

ni^L njon^{?LH} R [ni^L njõŋ^L?õ^H] night will overtake me
 ni^L hwi^{?LH} R [ni^L fi^L?i^H] I will whistle (to him)

examples with H:

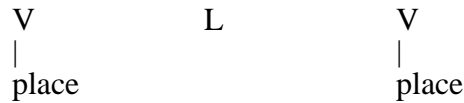
ni ^L be [?] H R	[ni ^{~L} beh ^H ?e ^H]	I will roll it up
si: ^H R	[si: ^H]	my name is
ni ^L dʒa [?] H R?	[ni ^{~L} dʒah ^H ?a [?] H]	we will go home
?wA: ^H R?	[?wA: [?] H]	we go out

16.. Explanation for clitic patterning:

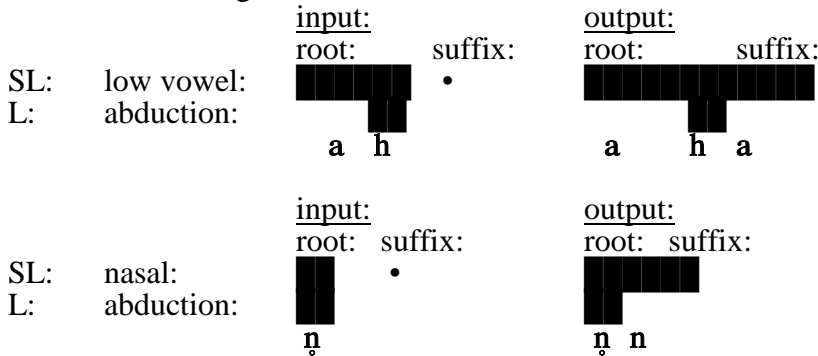
1) Morphology: Comaltepec root syllables possess a richer inventory of contrastive elements than do non-root syllables (prefixal and suffixal syllables).

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:



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.



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.