Tone sandhi and vowel harmony patterns in Chang negation

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The Indo-Myanmar buffer zone

Chang territory of Tuensang District, Nagaland
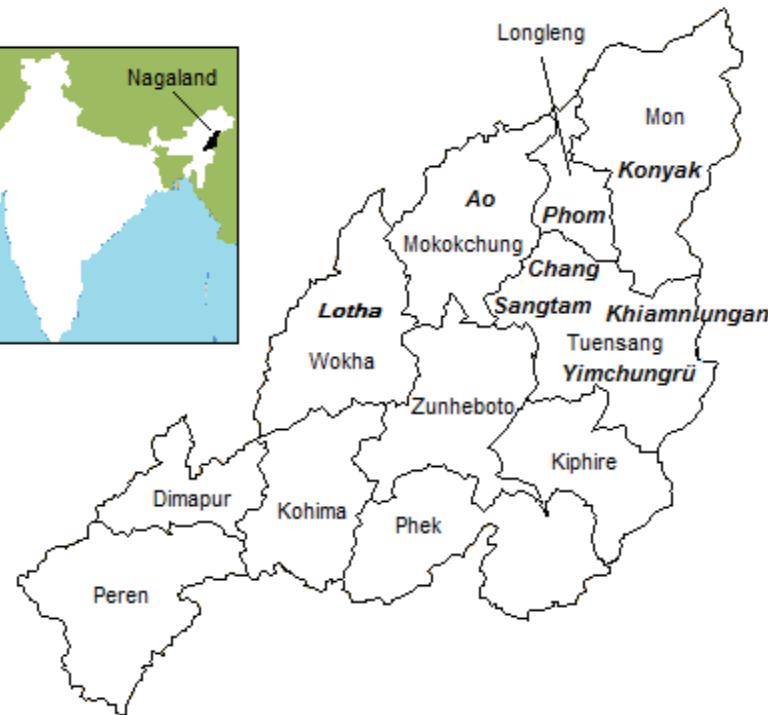
- Bodo-Konyak-Jinghpaw branch of TB

- 61,000 in Chang community (2001 Census of India)

- Bi- and multilingual villages (Chungli Ao, Phom, Yimchungrü, Sangtam)

- In contact with Chungli Ao, Sangtam, Khiamniungan, Konyak

- Tuensang Village the prestige dialect; by 1917 it had been established for 11 generations. Small grammar by Hutton (1929)

Tuensang Town, Tuensang District

Typological features of Chang

- A typical 'Sal' language (Burling 1983, 2003) demonstrating the shared lexical innovations of the Bodo-Konyak-Jinghpaw branch of TB

- relatively simple phonological system typical of Konyak languages, but unusual in having a vowel length contrast for some articulatory positions

- 3 lexical tones; the domain of tone is the syllable, (C)V(:)C structure

- word structure **not** sesqui-syllabic

- moderately synthetic and agglutinative word formation

- morphologically complex verb stems potentially inflected for tense, aspect and modality

Tuensang Village, Tuensang District

Fig 1. Chang Tonemes (open sylls): 2 female speakers
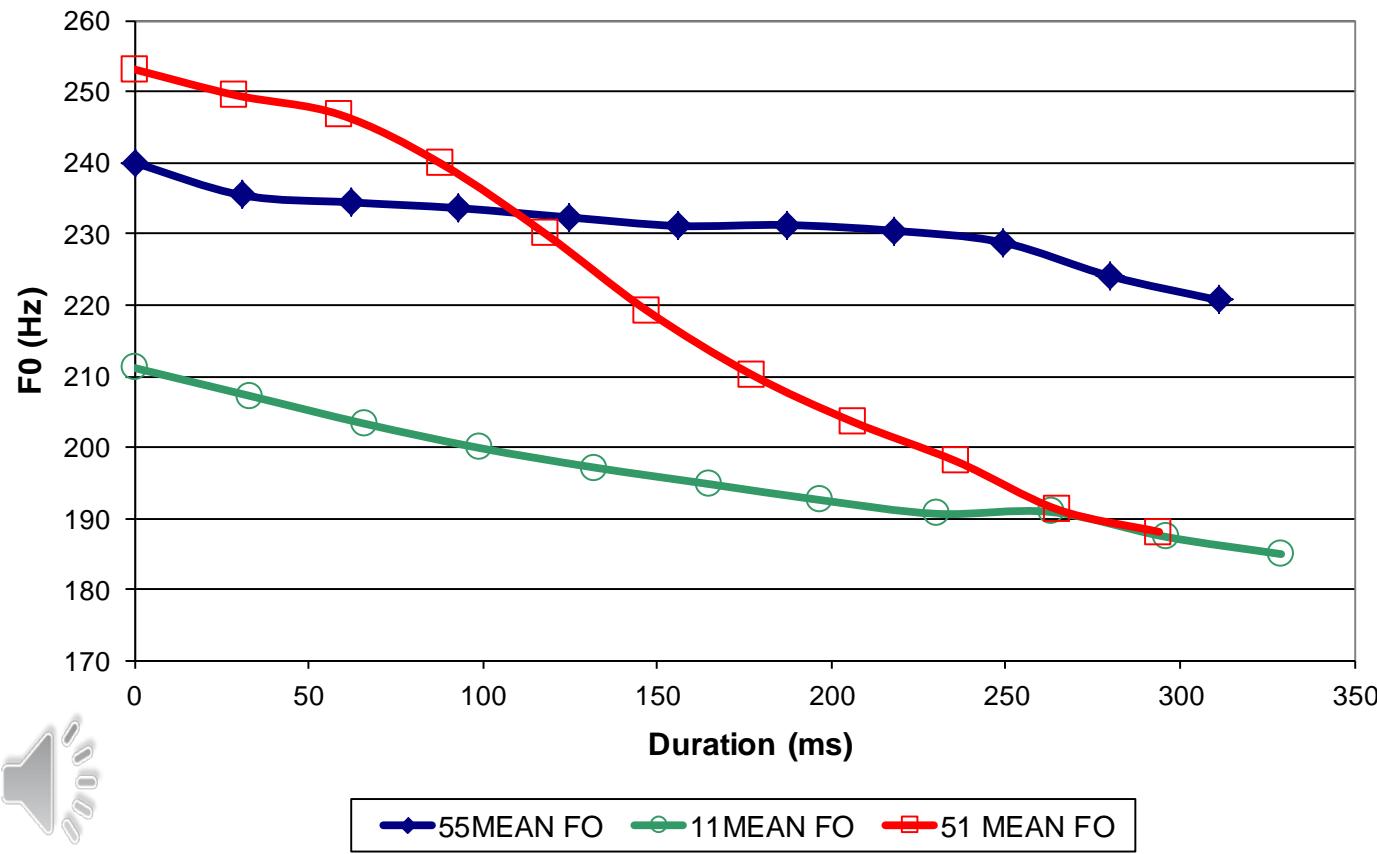
Tonal contrasts on monosyllables:
$s\partial n^{55}$ 'breast' $s\partial n^{11}$ 'body hair' $s\partial n^{51}$ '1pl.incl.'

/55/ > [33] tone sandhi in Chang disyllables

Carrier sentence:

ŋo¹¹	/	*ŋəɪ¹¹*	_____	*-Ø-kəɪ¹¹*
1SG.ABS	/	1SG:ERG		-PAST-DECL

'I VERB-ed'

haʊ⁵⁵-kəɪ¹¹	[haʊ³³-kəɪ¹¹]	'go-PAST-DECL'
we⁵⁵-kəɪ¹¹	[we³³-kəɪ¹¹]	'count-PAST-DECL'
jaːn⁵⁵-kəɪ¹¹	[jaːn³³-kəɪ¹¹]	'descend-PAST-DECL'
u⁵⁵-kəɪ¹¹	[ʊ³³-kəɪ¹¹]	'dry-PAST-DECL'

Figure 2. Chang Tonemes, 1 female speaker with /55/ --> [33] sandhi allotone in disyllables
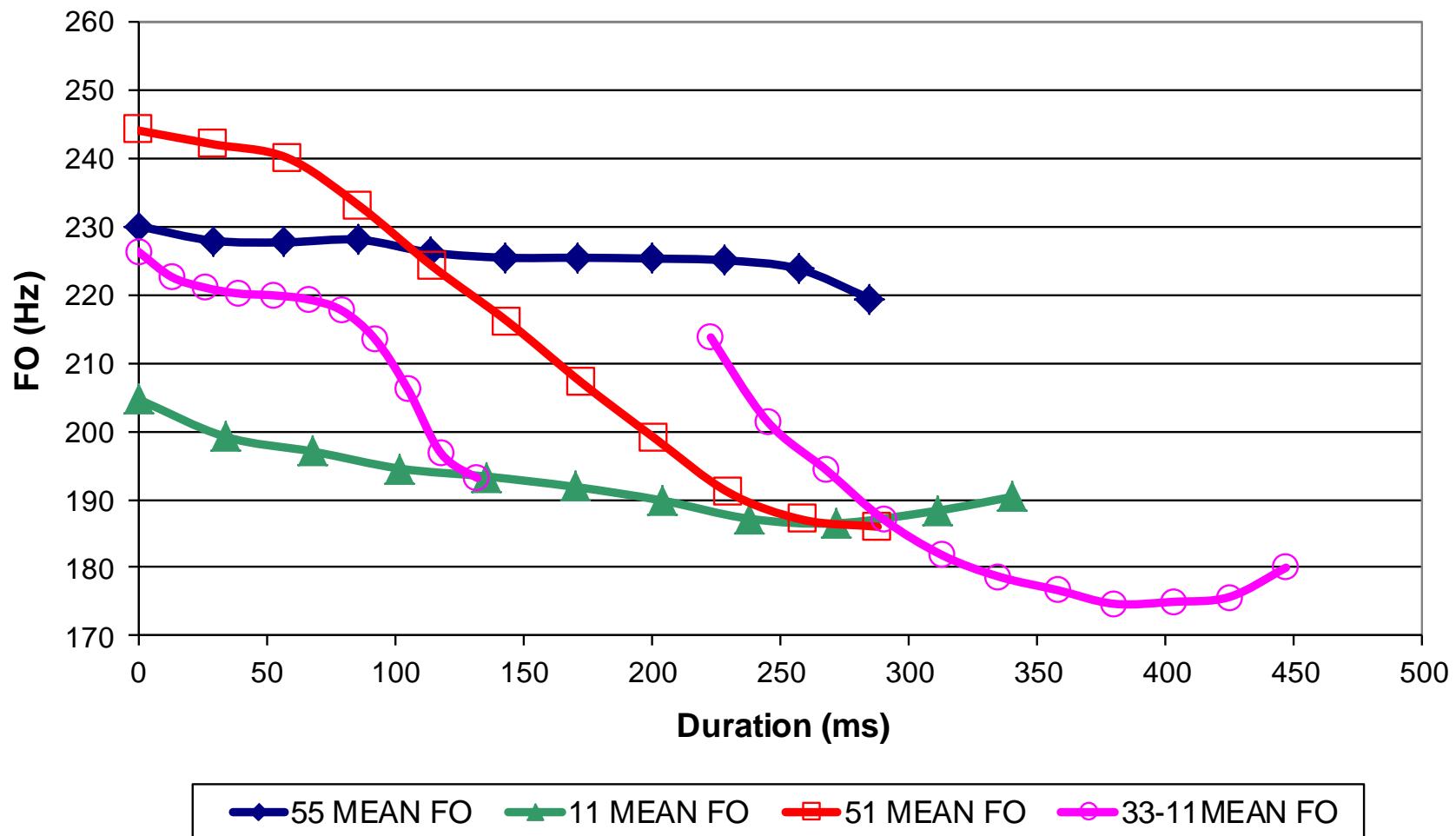
Characteristics of Chang tone

- The High and Low tones are found on all syllable types

- The falling tone is almost exclusively limited to rhymes containing diphthongs, long vowels, or nasal codas e.g. *sow*⁵¹ 'ghost', *jam*⁵¹ 'jungle', *iː*⁵¹ 'liquor' (but cf. *ɲiʔ*⁵¹ 'two', *lak*⁵¹ 'six')

- Negative prefixes only contrast H and L tones

- H and L tones are probably basic to the system, with the falling tone resulting from historical H-L syllable mergers.

Citation forms of verbs v. negated stems
√55+55 tones : 11+√55 tones

Citation form		Negated form	
we⁵⁵-pɯ⁵⁵	count-NMLZ	*a¹¹-we⁵⁵*	NEG-count
kʌm⁵⁵-pɯ⁵⁵	do-NMLZ	*a¹¹-kʌm⁵⁵*	NEG-do
ɲaːt⁵⁵-pɯ⁵⁵	knead-NMLZ	*a¹¹-ɲaːt⁵⁵*	NEG-knead
kaːp⁵⁵-pɯ⁵⁵	close-NMLZ	*a¹¹-kap⁵⁵*	NEG-close
khom⁵⁵-pɯ⁵⁵	be. crooked-NMLZ	*a¹¹-kom⁵⁵*	NEG-be.crooked
ki⁵⁵-pɯ⁵⁵	exist-NMLZ	*a¹¹-ki⁵⁵*	NEG-exist
u⁵⁵-pɯ⁵⁵	dry-NMLZ	*u¹¹-u⁵⁵*	NEG-dry
aːk⁵⁵-pɯ⁵⁵	be.sharp-NMLZ	*ɯ¹¹-aːk⁵⁵*	NEG-be.sharp

Citation forms of verbs v. negated stems
√11+55 tones : 55+√11 tones

Citation form		Negated form	
pʊk¹¹pɯ⁵⁵	bear-NMLZ	*a⁵⁵-pʊk¹¹*	NEG-bear
tak¹¹-pɯˑ⁵⁵	bite-NMLZ	*a⁵⁵-tak¹¹*	NEG-bite
loʊʔ¹¹pɯ⁵⁵	come-NMLZ	*a⁵⁵-loʊʔ¹¹*	NEG-come
ɲɪn¹¹pɯ⁵⁵	crack-NMLZ	*a⁵⁵-ɲɪn¹¹*	NEG-crack
ʃen¹¹pɯ⁵⁵	fill-NMLZ	*a⁵⁵-ʃen¹¹*	NEG-fill
aʊ¹¹pɯ⁵⁵	be.hot-NMLZ	*u⁵⁵-aʊ¹¹*	NEG-be.hot
ɲiʔ¹¹pɯ⁵⁵	laugh-NMLZ	*a⁵⁵-ɲiʔ¹¹*	NEG-laugh
hʌp¹¹pɯ⁵⁵	see-NMLZ	*ɯ⁵⁵-hɯp¹¹*	NEG-see

Tone patterns under negation: disyllables

- If the verb root is H, then the negative prefix is realized with a L tone
- If the verb root is L, then the negative prefix is realized with a H tone

$\rightarrow$ an obligatory contour principle appears to be responsible for ensuring that a HH or LL pattern does not occur under negation

or,

possibly the negative prefix is tonally unspecified and takes the

opposite tone of the root due to the OCP constraint:

NegPFX $_{-\alpha\ tone}$ – $\sqrt{}$Verb $_{+\alpha\ tone}$

However …

Tone patterns under negation: trisyllables

Trisyllabic verb stems formed with the reciprocal suffix *-juʔ⁵⁵* have an array of tonal realizations not constrained by an OCP:

	Citation form		Negated form	
exchange	*tʃe⁵⁵-juʔ⁵⁵-pɯ¹¹*	HHL	*a¹¹-tʃe⁵⁵-juʔ¹¹*	LHL
abandon	*ʌp⁵⁵-juʔ⁵⁵-pɯ¹¹*	HHL	*ɯ⁵⁵-ɯp⁵⁵-juʔ¹¹*	HHL
argue	*o⁵⁵-juʔ⁵⁵-pɯ¹¹*	HHL	*o¹¹-o⁵⁵-juʔ¹¹*	LHL
flee	*sat⁵⁵-juʔ⁵⁵-pɯ¹¹*	HHL	*a¹¹-sat⁵⁵-juʔ¹¹*	LHL
adhere	*khʌŋ¹¹-juʔ⁵⁵-pɯ¹¹*	LHL	*ʌ⁵⁵-khʌŋ⁵⁵-juʔ¹¹*	HHL
jest	*ek¹¹-juʔ⁵⁵-pɯ¹¹*	LHL	*e⁵⁵-ek⁵⁵-juʔ¹¹*	HHL
meet	*haʊ¹¹-juʔ⁵⁵-pɯ⁵⁵*	LHH	*ɯ⁵⁵-ɯ⁵⁵juʔ¹¹*	HHL
mix	*soʊ¹¹-juʔ⁵⁵-pɯ⁵⁵*	LHH	*ə¹¹-soʊ⁵⁵juʔ¹¹*	LHL

Penultimate ~ final tone patterns: trisyllables

with causative suffix *-tiʔ⁵⁵ᐟ¹¹*:

	Citation form		Negated form	
send	*hoʊ⁵⁵-tiʔ⁵⁵-pɯ¹¹*	HHL	*o¹¹-o⁵⁵-tiʔ¹¹*	HHL
dry up	*u⁵⁵-tiʔ⁵⁵-pɯ¹¹*	HHL	*u⁵⁵-u⁵⁵-tiʔ¹¹*	HHL
send	*hoʊ⁵⁵-tiʔ⁵⁵-pɯ¹¹*	HHL	*o¹¹-o⁵⁵-tiʔ¹¹*	HHL
elongate	*loʊ⁵⁵-tiʔ⁵⁵-pɯ¹¹*	HHL	*a¹¹-loʊʔ⁵⁵-tiʔ¹¹*	HHL

with reciprocal suffix *-juʔ⁵⁵ᐟ¹¹*:

exchange	*tʃe⁵⁵-juʔ⁵⁵-pɯ¹¹*	HHL	*a¹¹-tʃe⁵⁵-juʔ¹¹*	LHL
abandon	*ʌp⁵⁵-juʔ⁵⁵-pɯ¹¹*	HHL	*ɯ⁵⁵-ɯp⁵⁵-juʔ¹¹*	HHL
argue	*o⁵⁵-juʔ⁵⁵-pɯ¹¹*	HHL	*o¹¹-o⁵⁵-juʔ¹¹*	LHL
flee	*sat⁵⁵-juʔ⁵⁵-pɯ¹¹*	HHL	*a¹¹-sat⁵⁵-juʔ¹¹*	LHL

2. Vowel harmony under negation

- PTB reconstructed form of negative morpheme is *ma* (Benedict 1972; Matisoff 2003)

- various allomorphs of a reduced morpheme consisting of just a vowel occur in Chang

- the default allomorph is mid-low central vowel, often slightly backed, occurring before all root-initial consonants except the glottal approximant *h*

Default form of the negative allomorph

	Citation form	Negated form
be swollen	*pok¹¹-pɯ⁵⁵*	*a⁵⁵-pok¹¹*
bite	*tak¹¹-pɯˑ⁵⁵*	*a⁵⁵-tak¹¹*
carry (on back)	*kʌn¹¹-pɯ⁵⁵*	*a⁵⁵-kʌn¹¹*
exist	*ki⁵⁵-pɯ⁵⁵*	*a¹¹-ki⁵⁵*
grind	*ʃi⁵⁵-pɯ⁵⁵*	*a¹¹-ʃi⁵⁵*
know	*ŋeʔ¹¹-pɯ⁵⁵*	*a⁵⁵-ŋeʔ¹¹*
laugh	*ɲi¹¹-pɯ⁵⁵*	*a⁵⁵-ɲiʔ¹¹*
make elongated	*loʊ⁵⁵-tiʔ⁵⁵-pɯ¹¹*	*a¹¹-loʊʔ⁵⁵-tiʔ¹¹*
cut (saw)	*lip¹¹-pɯ⁵⁵*	*a⁵⁵-lɪp¹¹*

Vowel harmony in negative allomorphs

The vowels of vowel-initial roots are copied by the negative prefix, and depending upon the articulatory position, potentially the sound change may involve both vowels.

	Citation form	Negated form
abandon-RECIP	*ʌp⁵⁵-juʔ⁵⁵-pɯːˈ¹¹*	*ɯ⁵⁵-ɯp⁵⁵-juʔ¹¹*
argue-RECIP	*o⁵⁵-juʔ⁵⁵-pɯ¹¹*	*o¹¹-o⁵⁵-juʔ¹¹*
congeal	*on⁵⁵-pɯ⁵⁵*	*u¹¹-on⁵⁵*
be deaf	*o¹¹-pɯ⁵⁵*	*u⁵⁵-o¹¹*
dry	*u⁵⁵-pɯ⁵⁵*	*u¹¹-u⁵⁵*
enjoy	*o⁵⁵lɪn⁵⁵-pɯ⁵⁵*	*o⁵⁵-o⁵⁵lɪn¹¹*
enter	*ʌt⁵⁵-pɯ⁵⁵*	*ɯ⁵⁵-ɯt¹¹*
exceed	*aɪ¹¹-pɯ⁵⁵ (ai >ei?)*	*ɯ⁵⁵-ej¹¹*
slap	*ɪp¹¹-pɯ⁵⁵*	*i⁵⁵-ɪp¹¹*

Vowel harmony in *h* root-initial stems

The glottal approximant appears to be transparent to vowel harmony changes affecting the negative prefix and vowels of root-initial stems.

	Citation form	Negated form
be frightened	*hʌt¹¹-pɯː⁵⁵*	*ɯ⁵⁵-hɯt⁵⁵ [ɯːt⁵⁵]*
breathe (air)	*hʌk⁵⁵ hɪn⁵⁵*	*hʌk⁵⁵ i¹¹-hɪn⁵⁵*
conceal	*hu¹¹-pɯ⁵⁵*	*u⁵⁵-huʔ¹¹*
cry	*haːp⁵⁵-pɯ⁵⁵*	*ɯ¹¹-haːp⁵⁵*
die	*hej⁵⁵-pɯ⁵⁵*	*ɯ⁵⁵-heʔ¹¹*
be deep	*hʌɯ⁵⁵-pɯ⁵⁵*	*ɯ¹¹-hʌɯ⁵⁵*
get	*hʌp¹¹-pɯ⁵⁵*	*ɯ⁵⁵-hɯp¹¹*
hide (v.)	*hʊ¹¹-pɯ⁵⁵*	*ʊ⁵⁵-hʊʔ¹¹*
hold	*hʌt¹¹-pɯ⁵⁵*	*ɯ⁵⁵-hɯt¹¹*
rub	*hʌm⁵⁵-pɯ⁵⁵*	*ɯ¹¹-hɯm⁵⁵*
send-CAUS	*hoʊ⁵⁵-tiʔ⁵⁵-pɯ¹¹*	*o¹¹-o⁵⁵-tiʔ¹¹*

Questions for further investigation

- If a floating tone is involved in the tone sandhi manifestations seen under the negation of trisyllabic stems, then why doesn't it affect disyllabic stems?

- Is the domain of tone sandhi perturbations the final and penultimate syllables? – more work needed to explore this.

- If the negative prefix is a phonologically reduced form that is a reflex of PTB *ma, then is a floating tone analysis credible? One would plausibly expect that a floating tone originates historically from a syllable that has lost its segmental representation.

- If the negative prefix is indeed a phonologically reduced prefix that is tonally unspecified, then why and how does it trigger a change in the vowel of a verb root?

  e.g 'rub' $hʌm^{55}$-$pɯ^{55}$: $ɯ^{11}$-$hɯm^{55}$ 'didn't rub'

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