

Tonogenesis in Southeastern Monguor

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Italics are used for emphasis and for foreign language words.

12 pt. DoulosSIL Unicode font is used for linguistic transcriptions in IPA. Its subscripted numbers (here representing tone) are unstable, and may differ differently each time the document is opened.

12 pt. PMingLiU Unicode font is used for Chinese characters; 11 pt in linguistic examples.

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Abstract

As the result of language contact in the northern Tibetan region, one variety of the Mongolic language Monguor (ISO 639-3: MJG) realizes prosodic accent as a rising pitch contour. Furthermore, a small number of homophones have come to be distinguished by tonal contour. Although at least two Turkic and Mongolic languages have occasionally copied the most salient tonal features of some Chinese loanwords, this is the first known example of both distinctive pitch contrasts in native lexemes, as well as default prosodic accent at the utterance level. Such an incipient tonal system offers insight into the relationship between often-contested types of prosodic accent as well as the effects of intensive language contact.

Tonogenesis in Southeastern Monguor

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1. Introduction¹

Southeastern Monguor (hereafter *SEM*) is a Mongolic language in which a boundary is signaled on the last syllable of the word by a raised tone melody. Loss of segmental distinctions has resulted in simple tonal distinctions for some otherwise homophonous lexical pairs in the language. This is unusual for Mongolic, where prosody is not usually distinctive and serves to signal boundaries and give prominence to particular parts of an utterance. In the Mongolic languages, this boundary tone is conventionally referred to as stress. Stress is not contrastive in Mongolic, including in SEM, leading Svantesson et al (2005: 97) to state that “word stress is not a relevant concept in Mongolian phonology.” Here, I hypothesize that the development of contrastive prosody in SEM signals an incipient phonemic tonal system.

As tonal systems and tonogenesis have attracted more research, our understanding of the interactions of different prosodic phenomena, which used to be seen as mutually exclusive, has increased. Particularly relevant to the current study is literature on the interaction between stress and tone (summarized in Yip 2006; see also Beckman and Pierrehumbert 1986, de Lacy 2002, and Duanmu 1990). While these studies explore the various

realizations of stress, particularly those that primarily involve pitch, interacting *within* a language, this paper analyses the interactions of stress, tone, and morphology in a language *in contact* with tone languages. Current studies, which examine the interactions of prosody with phonetics, phonology and morphosyntax, open the door to several competing analyses of the same phenomenon. Mongolic prosody, for instance, has been considered stress-based, but there have been wide differences of opinion as to where stress is placed in the word, and whether “stress” is conditioned by vowel length (summarized in Svantesson et al 2005: 96-97).² Svantesson et al’s recent acoustic-based study concludes that intonation, which is non-contrastive, serves to focus on certain constituents (including in interrogatives), as well as to mark prosodic phrasal boundaries and give prominence to the rheme of an utterance.

In order to determine whether the current use of pitch is lexically or postlexically conditioned, we compare the tonal contrasts of apparent segmentally homophonic pairs present both in isolation and in carrier sentence.³ We examine the phonetic correlates of these prosodic phenomena, including raised F_0 (fundamental frequency), vowel length, and vowel quality.

Although Turkic and Mongolic languages of the Amdo (Northern) Tibetan Sprachbund sometimes copy rudimentary tonal features in Chinese loanwords (e.g. Li 1986, Dwyer 2007), no one has ever observed systematic and distinctive tonal prosody in native Turkic or Mongolic lexemes. Yet one

variety of Monguor has apparently developed a small set of tonally contrastive lexemes through historical deletion processes and language contact.

Southeastern Monguor (Mangghuer) is one of three principal varieties of the Monguor language complex (ISO 639-3 code: MJG), known in China as *Tǔ* 土. The three varieties are spoken by up to 70,000 people in northern Tibet.⁴ All varieties have acquired features at all levels of language from the local dominant languages, Northwestern Chinese and Amdo Tibetan. The Southeastern Monguor area, which is largely coextensive with Minhe county, has approximately 29,000 speakers⁵ and has had particularly heavy contact with Chinese language and cultural traditions and shows relatively few contact effects from Tibetan.

SEM is in the process of developing a contrastive pitch accent system modeled on the tonal realization of boundaries and applied to native lexical items. Even though this incipient tonogenesis appears to be motivated by contact with a tone language, the specific distinctions of the contact language, Northwest Chinese (NWC), are not necessarily realized in the SEM contrasts, even in Chinese loanwords. Below, (1)a ‘fish’ and (1)b ‘claw’ are loans into SEM from Northwest Chinese. ‘Fish’ is realized with a *rising* tone in Northwest Chinese and belongs to Tone 2 (the historical lower level 阳平 category), and ‘claw’ has a *high falling* tone in Northwest Chinese and belongs to Tone 3 (the historical rising 上 category). Yet both are pronounced with a rising tone in SEM. Thus, the rising tone appears to be independent of

the tonal contour of the original Chinese syllable (*contra* Li 1986 and Slater 2003).

- (1) a. *yur* [jy₂₄] ‘fish’ (NWC 鱼 [jy₂₄])⁶
 b. *zhuar* [tʂu₂₄] ‘claw’ (NWC 爪 [tʂua₅₄])

Compared with other examples of tonogenesis in Asia, the Monguor case is atypical. Phonetic explanations of tonogenesis have generally centered on phonation type and consonant voicing processes (Abramson 2004). In SEM, however, tonogenesis is largely due to contact-induced change rather than phonetic change alone. Specifically, under heavy contact with the local variety of Chinese, SEM tonal contours developed as an innovative prosodic realization of Mongolic boundary stress. Southeast Asian Chamic languages have a comparable range of tonogenesis cases motivated by contact rather than by phonetic features. In each case, typologically divergent languages in different locations underwent similar sound changes (e.g. Phan Rang Cham on the Vietnamese mainland and Tsat on Hainan Island), even though these changes gave prominence to different prosodic and segmental features: in the former, vowel quality distinctions, and in the latter, tonal properties (Thurgood 1996: 26). As in Chamic, tonogenesis in SEM is inexplicable unless we resort to both internal and external explanations.

In SEM most of these perceptible pitch rises are currently non-distinctive (e.g. *xer*₂₄ [çer₂₄] ‘to wake; to recover,’ *a₁₁ma*₂₄ [a₁₁ma₂₄] ‘mouth’), but there are some words which are only distinguished by tonal patterning, e.g. *bosi*

[p^uo₁₄ s₁₅₅] ‘cloth’ vs. bosi [p^uo₁₄ s₁₅₁] ‘louse.’ If not for the emergent tones, such pairs would result in homophony.

2. Contact environment and Mongolic prosody

The default prosodic pattern in SEM places lexical stress, which is realized by a raised tone melody, typically on the last syllable of the word. The raised tone melody is absent under two circumstances: in utterance-final syllables (where both downdrift and final prominence occur) and in final syllables of certain lexical pairs. Contrasting tone thus emerged in such latter examples, such as ‘cloth’ vs. ‘louse’ above, to avoid homophony.

Northwest Chinese⁷ and to a much lesser extent Amdo Tibetan constitute the major contact languages for Southeastern Monguor. Northwest Chinese has lexical tone; Amdo Tibetan does not. While the data below suggest that Northwest Chinese is the source of SEM tonal distinctions, from an areal perspective, these prosodic and other contact effects are decidedly bi-directional: some Northwestern Chinese dialects have entirely lost distinctive tones under the influence of surrounding non-tonal languages (e.g. the Wütún 五屯 Chinese-Tibetan creole, see Chen 1989).

In SEM, the Northern Chinese features are particularly pronounced in phonology, where Mongolic vowel harmony processes and historical final

obstruents have been lost. SEM, in contrast to other varieties of Monguor, has adopted a Northern Chinese CV(V)(R) syllable structure, where R is a sonorant. Distinctive tone contrasts are not a feature of any Mongolic language, though tonal and vowel-quality prominence can function to signal focus. Whether or not we consider this to be intonation patterning (Svantesson et al 2005) or stress, the prototypical Mongolic language does not use prosody to make phonemic distinctions. In SEM, while the incipient tone is still non-distinctive in most environments, in a few cases, tone (or at least pitch accent) has become distinctive.

If this feature resulted from contact with Northwest Chinese, how sensitive is Monguor tonal assignment in lexemes copied from Chinese? SEM may be sensitive to Chinese morphophonology (see section 5 below). Even though no other languages of this area exhibit distinctive tone on native Mongolic lexemes, this preliminary investigation of native Mongolic and other non-Sinitic lexemes in SEM shows a clear and largely consistent high tonal assignment to ultimate syllables. That it is largely not contrastive suggests that underlying Mongolic stress is likely realized as a distinct tonal melody.

In Southeastern Monguor, lexical stress entails a noticeable pitch rise in final syllables. The assignment of tonal prominence to the final syllable of a word has been associated with the deletion of short vowels in initial syllables, e.g. Proto-Mongolic **ire-* ‘to come’, SEM, SW Monguor, Baonan *re-*, N Monguor *ire-~re-* [ire]~[re], SEM *ri-* [zɿ]. This reduction has led to consonant clusters in initial syllables in all of these language varieties *except*

SEM, e.g. Old Mongolian *jek^he > e.g. Khalkha [ix], (via spirantization, metathesis and deletion) Northern Monguor [sge], SEM [ʃɤk^uo] ‘big’).⁸

No other non-dominant language variety of the area – Monguor or non-Monguor – has developed tone in native lexemes. Salar (Turkic) and Baonan (Mongolic) to the south, also in heavy contact with Chinese (and Tibetan), have developed tone contrasts, though largely in Chinese lexemes. Only borrowed forms have tonal contrasts in other Mongolic languages.

3. The Monguor data

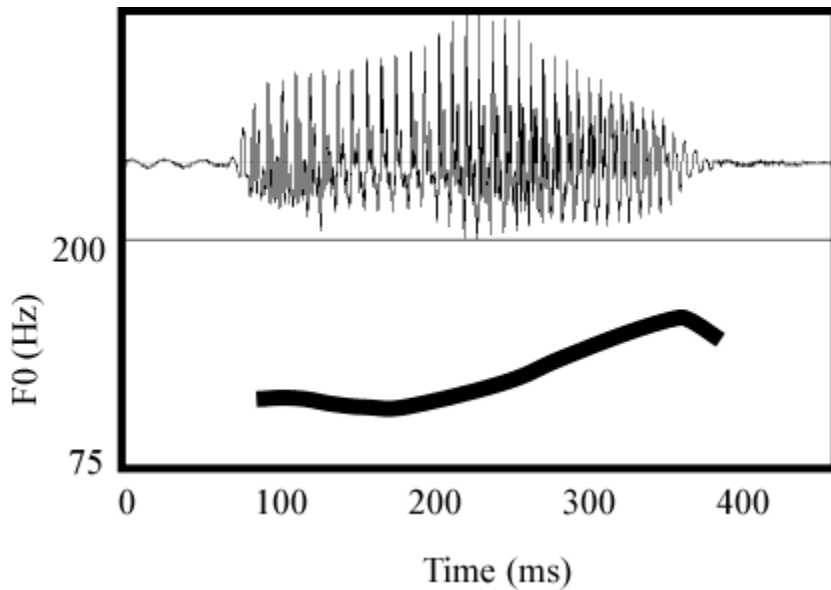
The following examples serve to illustrate the two contours, a low-rising (LR) and a low-falling (LF). The rising pattern is the default tonal melody, even for monosyllables, and constitutes a high (H) tone; the falling melody is the realization of a low (L) tone. The contrastive LF pattern arises in cases that would otherwise result in homophony.

The data are from a speaker who has native competence in SEM.⁹ Elicitation of these materials with village-based speakers later that same year yielded results that were perceptually equivalent. In the future a broader sampling of speakers together with a study in variation is desirable.

3.1. Patterns in monosyllables

Monosyllables pronounced in isolation are [H], realized as a rising tone. There is an F_0 rise on the vowel in syllables with short vowels, transcribed with rising tone notation as in *yang* [jãŋ₂₄] ‘what,’ illustrated in Fig. 1 below. (Data in this paper appears in a practical orthography, followed by I.P.A. in square brackets and an English gloss.)

Fig. 1. *yang* [jãŋ₂₄] ‘what?’



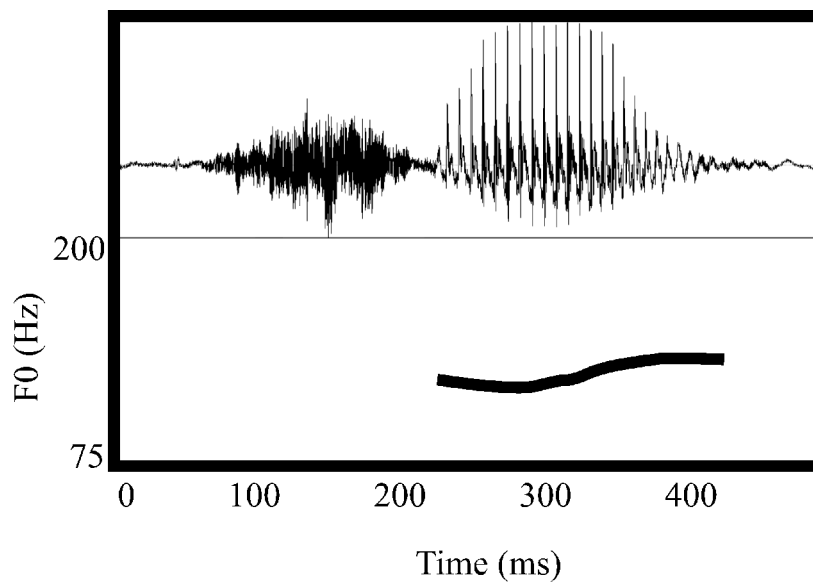
The monosyllables in the current corpus have a low F_0 rise, regardless of syllable weight and vowel length. Unlike in most other Mongolic languages, long vowels are not contrastive in SEM. In syllables realized as long as in

examples (2)a-b, the first half of the vowel has low F₀ and the second, high.

- (2) a. *sho* [ʃou₂₄] ‘dirt’
b. *sha* [ʃa:₂₄] ‘yellow’

The tonal pattern occurs whether or not words are intrinsically interrogative:

Fig. 2. *sha* [ʃa:₂₄] ‘yellow’



The high tonal melody in Figures (1) and (2), as well as in examples (2) a & b does not need to be described as a contour tone. The contour effect likely stems from the time it takes F₀ to reach its target, and can thus simply be described as High. Just as in the Chinese loans ‘fish’ and ‘claw’ in (1)a-b, monosyllables pronounced in isolation receive a rising pitch regardless of the prosody of the originating language, syllable weight, or semantic value.

3.2. CV.CV and CV.CVN lexemes

The speaker produced as many segmentally homophonic pairs as he could think of; these were elicited in isolation and also in carrier sentences. The pairs in isolation were also elicited in reverse order to avoid list effects. The pairs generally contrast a High pitch pattern (rising-high) with a Low pattern (low-falling), as is exemplified in (3):

H

(3) a. bo₁₄ si₅₄ [p^uo₄₃₄ s₁54] ‘cloth’ (and in Figure 3)

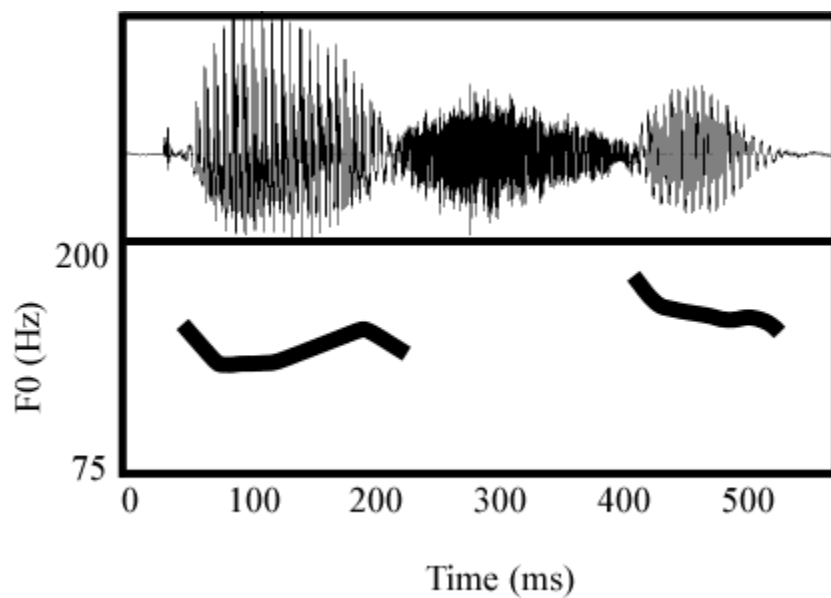
L

b. bo₂₁ si₅₁ [p^uo₁₄ s₁51] ‘louse’ (and in Figure 4)

Illustrating (3)a, Figure 3 below shows more complexity than our notational shorthand of H (i.e. ₄₃₄ - ₅₄) allows: the melody falls slightly after the onset, perhaps due to its voicelessness, and then rises steadily through the syllable. The extent of the slight fall at the end of the nucleus could be due to careful speech; compare the first syllable of Figure 5, in which the nucleus also shows a slight fall, noticeably less than in Figure 3. In the second syllable of the latter, the H target is reached; the slight falling contour is

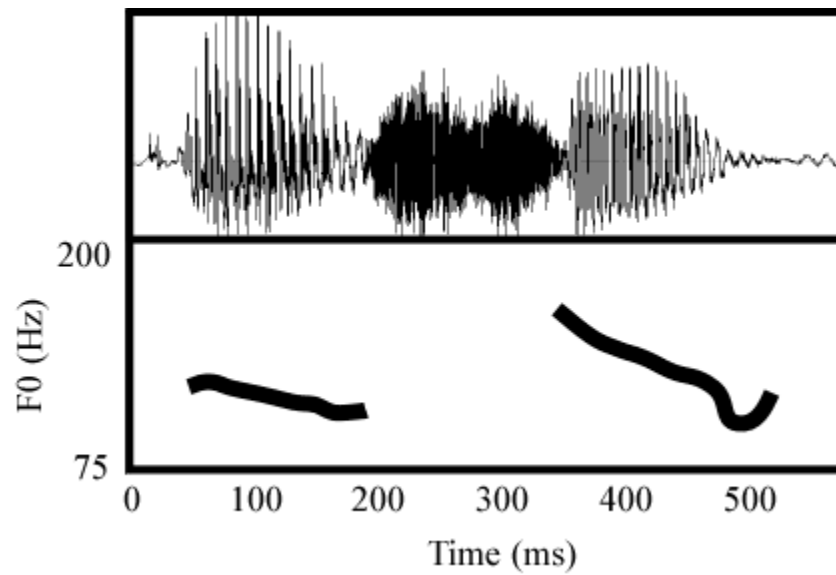
probably due to its being produced in isolation. The final F_0 is higher than that of the first syllable at all but the final time frame.

Figure 3. *bosi* [p^u₄₃₄o s₁₅₄] 'cloth'



In contrast to the High pattern of Figure 3, Figure 4 shows a low level tone with a high fall. The fall in this syllable is clear and unambiguous, unlike the slight drop-off in the second syllable of Figure 3.

Figure 4. [p^u₂₁o₅₁ sɿ₅₁] *bosi* ‘louse’

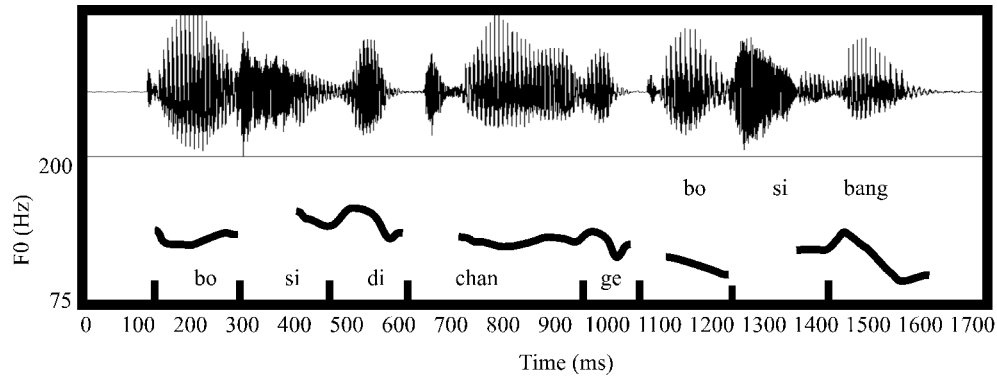


These lexemes are also distinct in a carrier utterance. ‘Cloth’ displays the High contour (realized as a low rise as in example (4) and Figure 5 below), while ‘louse’ is articulated low-low (LL) as part of the general prosodic downdrift of the Monguor utterance.¹⁰ The second form ‘louse,’ which in isolation was a high falling (i.e. low) tone, surfaces below as a slight fall (32) contour, whose pitch has been lowered by downdrift.

	H		L	
(4)	<i>bo₂₃ si₅₅ -di</i>	<i>change</i>	<i>bo₂₁ si₃₂</i>	<i>bang</i>
	[p ^u ₂₃ o ₅₅ sɿ ₃ ti ₃	tɕ ^h æŋ ₃₃ gə ₃₂₃	p ^u ₂₁ o ₃₂ sɿ ₃₂	wã ^ŋ ₃₁]
	cloth-LOC	totally	louse	COPindir
	‘There are lice all over the cloth.’			

The small lines above the x-axis indicate syllable boundaries.

Figure 5. *bosidi changge bosibang* ‘There are lice all over the cloth.’



Looking at a second pair, we see the same pattern for both isolation and carrier-utterance forms. H is assigned to the ultimate syllable in (5)a (and in Figure 6), and L to the ultimate syllable of (5)b (and in Figure 7).

H

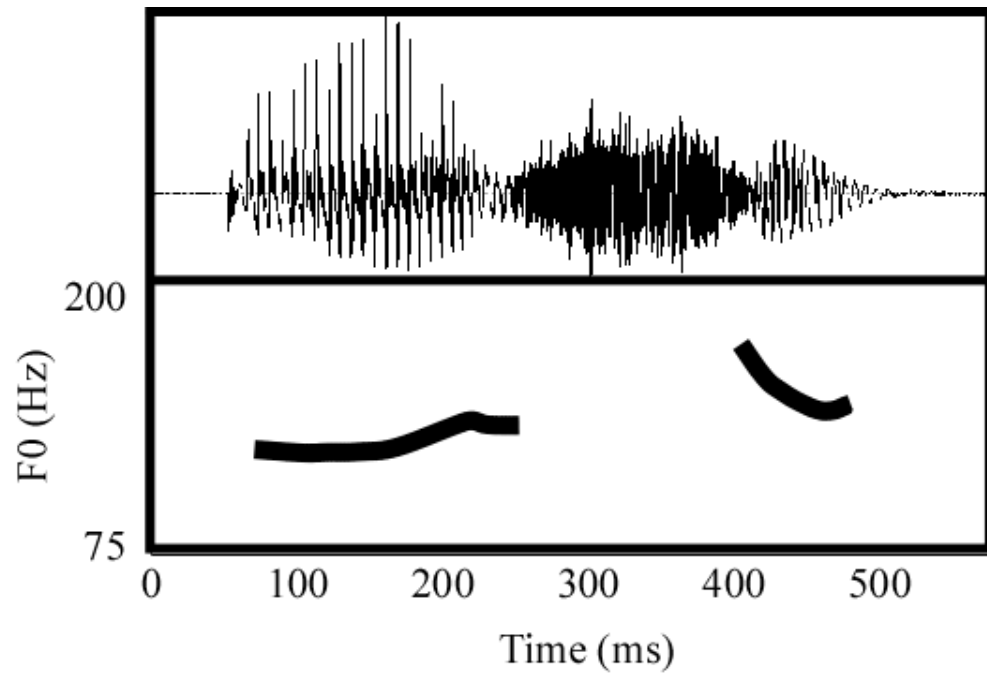
(5) a. $da_{11}si_{55} [ta_{21}s_{54}]$ ‘we’

L

b. $da_{11}si_{51} [ta_{21}s_{41}]$ ‘thread’

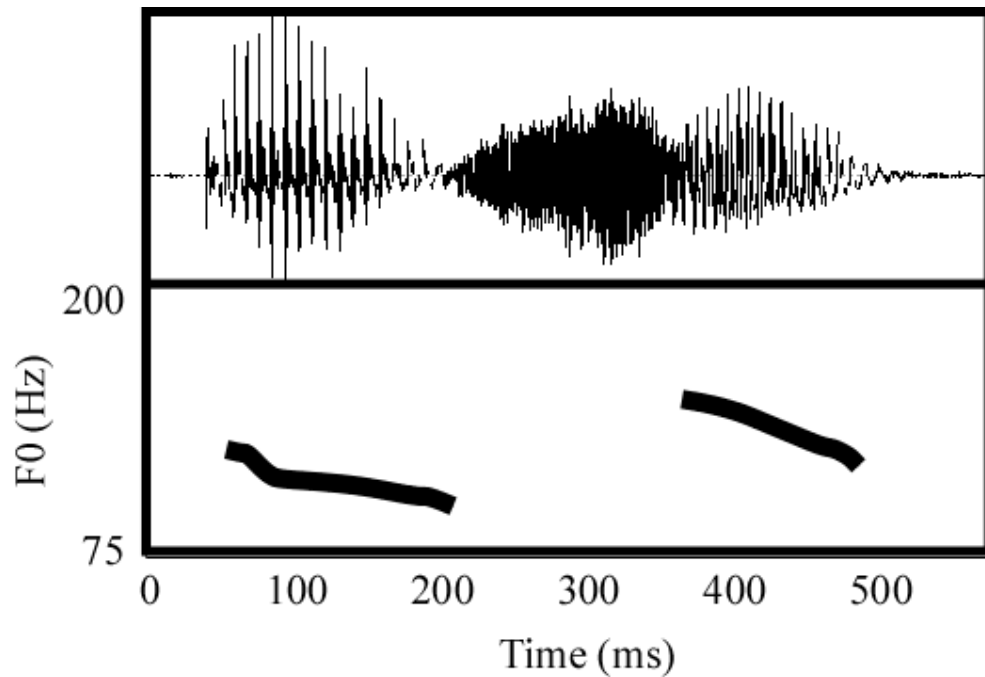
Figure 6, as in Figure 3, has a rising contour on the initial syllable, followed by a high tone that ends on a slight fall. Both Figures 6 and 7 have a falling F_0 due to the voicelessness of the initial stops (Hombert, Ohala and Ewan 1979).

Figure 6. *dasi* [ta₂₃S]₅₄] ‘we’



In Figure 7 below, the L-F pattern has a melody similar to its counterpart above in Figure 4 (21-41 vs. 21-51, respectively).

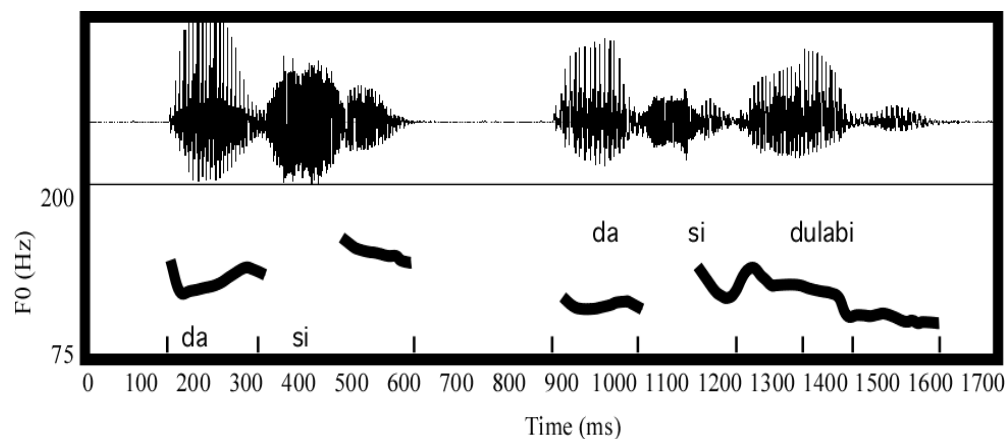
Figure 7. *dasi* [ta₂₁S₁₄₁] ‘thread’



These distinctive pairs pattern similarly in a carrier utterance, just as ‘cloth’ and ‘louse’ did above in (4). In example (6) and Figure 8 below, the F₀ starts very high after the first syllable, and low after the second one. Downdrift results in a relatively low F₀ for the peak of the high falling tone in the second syllable of ‘thread.’

	H	L		
(6)	<i>da</i> ₂₄ <i>si</i> ₅₅	<i>da</i> ₁₁ <i>si</i> ₃₃	<i>dula bi</i>	‘We buy thread’
	[ta ₂₄ S ₅₄]	[ta ₁₂ S ₃₂₃]	[tu ₄₄ la ₄₃ wi ₁₁]	
	we	thread	buy COPdir	

Figure 8. *dasi dasi dulabi* ‘We buy thread’



The above lexical pairs (for ‘cloth’ and ‘louse’ in examples (3)-(4) and Figures 3-5, and for ‘thread’ and ‘we’ in examples (5)-(6) and in Figures 6-8) clearly illustrate a repeating H (L-H) vs. L (L-F) distinctive pattern. Two further pairs (in examples(7)-(9)) also show this patterning:

- H
- (7) a. *chige* [$t\phi^h_{\circ}i_{11}k\gamma_{44}$] ‘ear’
- L
- b. *chige* [$t\phi^h_{\circ}i_{11}k\gamma_{52}$] ‘to see’

In a carrier sentence, we get the same patterns as in Figures 5 and 8, with downdrift; given this similarity, another figure is not included here.

- | | | | | |
|-----|-----------|---------------|--|---|
| | | H | L | |
| (8) | <i>bi</i> | <i>chi-ni</i> | <i>chige-ni</i> | <i>chige-ba</i> ‘I saw your ear’ |
| | | | [$t\phi^h_{\circ}i_{11}k\gamma_{43}j_{i_3}$ | [$t\phi^h_{\circ}i_{12}k\gamma_{32}\beta a_{11}$] |
| | I | you-GEN | ear-ACC | see-PERFdir |

Even when the second syllable is heavy (in (9), as CVN), we can observe a similar tone pattern. Again, it is the pitch of the second syllable that is critical; the slight pitch difference between the two low initial syllables in (9) a-b is not significant.

H

(9) a. *wulang* [^wu₂₂lã₅₅] ‘drinking’

L

b. *wulang* [^wu₁₁lã₅₁] ‘many’

So far, then, the final high or rising pitch appears to be the North Tibetan Monguor equivalent of Mongolic default final “stress”; the final low tone (realized as falling pitch), we would hypothesize, is a contrastive prosodic pattern as seen above in examples (3)-(9). Now we turn from disyllabic pairs to reduplicated syllables.

3.3. Reduplication

Further data on the default status of the final high pitch is provided by reduplicated lexemes. Reduplicated forms, both mono- and disyllabic, also receive default ultimate high tone assignment, marked below in (10)a-h. In SEM, typically the first root syllable is reduplicated and lengthened. The tone

of non-initial syllables is not notated in the practical orthography since it is typically realized as a low or low-rising tone, except for (10)b:

(10) a.	<i>sha</i> H	[ʂa ₁₄]	‘yellow’
b.	<i>sha sha</i> H H	[ʂa ₁₄ ʂa ₁₄]	‘very yellow’
c.	<i>khara</i> H	[k ^h a ₁₁ ra ₅₅]	‘black’
d.	<i>kha khara</i> H	[k ^h a ₁₁ k ^h a ₁₁ ra ₅₅]	‘very black’
e.	<i>khuguo</i> H	[k ^h u ₁₁ g ^u o ₅₅]	‘blue’
f.	<i>khu khuguo</i> H	[k ^h u ₁₁ k ^h u ₁₁ g ^u o ₅₅]	‘very blue’
g.	<i>nokhuang</i> H	[no ₁₁ k ^h uaŋ ₅₅]	‘green’
h.	<i>no nokhuang</i> H	[no ₁₁ no ₁₁ k ^h uaŋ ₅₅]	‘very green’

These data indicate that there is only one H assigned to the word, even if the carrying syllable is reduplicated. The two High tones of (10)b, may be due to segmental properties, or possibly some remnant of the distinctive vowel length still present in other varieties of Monguor. Such questions await a larger corpus.

3.4. Anomalous tonal patterns

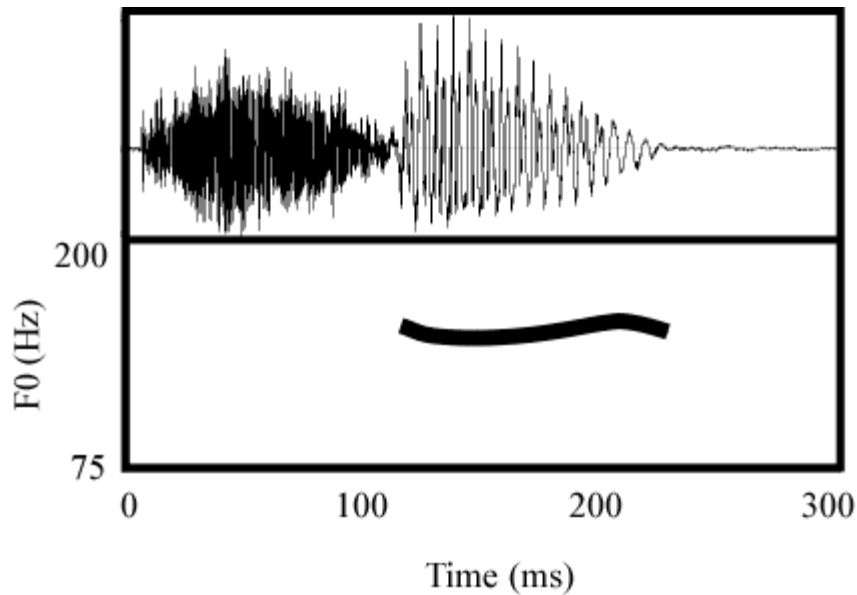
The marked low tone, realized as low-falling (LF), of the words like

[p^u₀₁₄s₁₅₁] ‘louse,’ while most obvious in contrastive pairs, occasionally occurs independently. Some words have a high pitch or a rising-falling intonation, both in monosyllables as in *ti* ‘this’ in example (11) and in Figure 9 below; and as disyllabic words as in *nyaanaa* ‘grandmother,’ in (12) and Figure 10 below. The onset of *ti* is unusually high and the nucleus remains so:

(11) *ti* [t^s₁₅₅] ‘this’

The F₀ track of *ti* ‘this’ in Figure 9 represents a slightly anomalous realization of a high tone in that it has very little noticeable rise, indeed, perceptually it is a high level tone through the nucleus, remaining around 161 Hz. It also dips slightly in the onset’s transition into the vowel, due to the voicelessness of the initial consonant.

Fig 9. *ti* [t^s₁₅₅] ‘this’

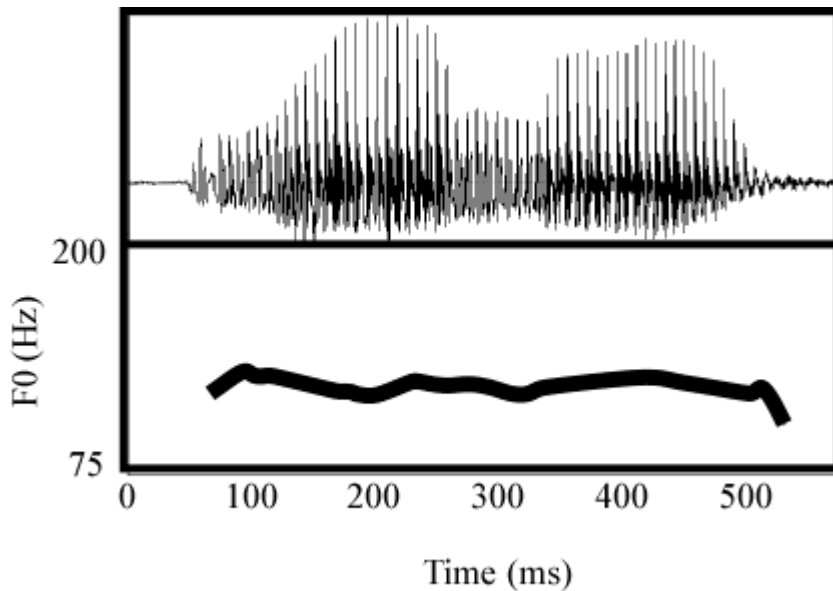


The syllable *ti* as illustrated above is unusually short. If non-contrasting SEM syllables all receive [H], short syllables like *ti* may well not show the rising melody that is clearly perceptible in syllables of greater duration.

Another anomalous example that is more difficult to explain – the only other one that we have so far found – is disyllabic *nyaanaa*. The transcription in (12) and especially the F₀ track in Figure 10 show a low rise, followed by slight falling-rising between the nucleus of the first syllable and the second, and finished by a low fall.

(12) *nyana* [ɲa:₂₃na:₂₁] ‘grandmother’

Fig. 10. *nyana* [na:₂₃na:₂₁] ‘grandmother’



Perhaps the two heavy syllables in *nyaanaa* account for the wavering quality of the tonal melody, and for the violation of the default final high assignment. Kinship terms are often exceptional in phonology.

4. Discussion

We have seen that monosyllables and disyllabic lexemes, reduplicated or not, have a final high or rising pitch – an innovative realization of lexical stress likely induced by contact with Northwestern Chinese. This intonation is overridden only in cases of homophony. One of the members of the pair then receives a falling pitch. Since homophony is rare yet apparently increasing over time, tone may be considered incipiently distinctive. In such cases of

potential homophony, why does a particular syllable receive the default high pitch, while another syllable receives contrastive low pitch?

Even if the majority of tonal contours are non-distinctive, we still must refer to diachrony and morphology to account for the near homophony of some lexical pairs. Recalling (3)a-b $bo_{14}si_{54}$ [$p^u o_{434} s_{154}$] ‘cloth’ and $bo_{21}si_{51}$ [$p^u o_{14} s_{151}$] ‘louse,’ we note that historically, *bosi* ‘cloth’ was derived from Greek *bussos* via Turkic /*boz*/. Though the neighboring Turkic Salar language has retained this lexeme as [poz], SEM’s strict CV(V)(R) syllable structure allows only a sonorant in coda position of this syllable, and in SEM, /z/ does not occur. Therefore, *boz* was restructured as CVCV with an epenthetic consonantal extension *i* as *bosi* ‘cloth’ and received regular final pitch prominence:

(13) Gk. *bussos* > Tkc. *boz* > SEM /bos/ > /bo.si/ → bo^1si [$p^u o_{14} s_{154}$]

In (13), the syllable receiving a high tone is an innovation. In contrast, the second syllable of *bosi* ‘louse’ was present in the originating lexeme; *bosi* is derived from Middle Mongol *bögesü/n*¹¹ and has an underlying long vowel *o* as a result of velar deletion:

(14) MM *bögesü/n* > SEM /bo:s/ > /bo:.si/ → 1bosi [$bo_{21}si_{51}$] ‘louse’

Long vowels attract prosodic accent, so we would expect a high or rising tone on the first syllable. Instead, however, we get a low tone preceding a falling tone. This pattern can be explained in two ways: it constitutes either contrastive intonation (where default final stress is reassigned to the penult in the case of homophony), or the low tone is a sandhi form of a rising tone, i.e.

/bo₁₄si₁₄/ → 'bosi [po₂₁s₁]₅₁] 'louse.'

In the lexical pair in (5), the H example is given in (5)b (da₁₁si₅₅ [ta₂₁ s₁]₅₃] 'we'), and the L example in (5)a (da₁₁ si₅₁ [ta₂₁ s₁]₄₁] 'thread'). In (5)a-b, and *both* lexemes have been resyllabified with an epenthetic *i*. For bimorphemic

da₁₁ si₅₁ 'we,' epenthesis of the final vowel was a historical process as in (15):

(15) /da/ + plural *s (> si) → 'dasi [ta₂₁ s₁]₅₃] 'we'

In (15), default final stress can well have been reassigned to the penult due to plural morphology.¹² For 'thread' in (16) below, the initial syllable of Middle Mongol *udasu/n* was deleted, likely as a result of stress shift; cf.

Northern Monguor '᠘ *da:si* 'thread' and Dagur *də:s* 'rope.'

(16) /da:si/ < Mong. 'udasu/n → da'si [ta₂₁s₁]₄₁] 'thread'

The final lexical pairs, high (7)a *chige* [tʰ_i₁₁kʰ₄₄] ‘ear’ vs. (7)b *chige* [tʰ_i₁₁kʰ₅₂] ‘to see’ and (9)a *wulang* [ʷu₂₂lã₅₅] ‘drinking’ vs. (9)b *wulang* [ʷu₁₁lã₅₁] ‘many’ were not subject to historical deletion processes but vary in their morphology. Monomorphemic ‘ear’ simply underwent diachronic stress shift; bimorphemic ‘see’ shows contrastive pitch on the penult (chi'ge ‘ear’ vs. 'chige ‘see’). But in the diachronic differentiation of the pair first introduced in (9)a-b, it is bimorphemic *wu'lang* ‘drinking’ (/u/ + gerundial *lang*) which receives the default high pitch; see (17)a-b below. That the verb root in (17)a does not attract stress is particularly interesting, since long vowels often attract stress. Although SEM no longer has phonemic vowel length, ‘drink’ was long in Mongolic (< Old Mongolian **uhu*) and is still realized as long in most other Mongolic languages, including Northern Monguor. In contrast, in (17)b the monomorphemic 'wulang ‘many’ has contrastive stress on the penult accompanied by a final falling pitch.

(17) a. Mong. u:- ‘to drink’ > /u-/ + *-lang* → *wu'lang* [ʷu₂₂lã₅₅] ‘drinking’

b. Mong. 'ulan > /ulang/ → 'wulang RF [ʷu₁₁lã₅₁] ‘many’

We may conclude that inflectional suffixes vary in attracting prosodic prominence. If they do attract stress, they surface as in (17b). When suffixes

do not attract stress as in (16), default final stress is reassigned to the prior syllable. This is often the case for light syllables, and *si* in *dasi* ‘thread’ can be considered ultralight. However, this hypothesis must be tested on a broader database.

Synchronic morphophonology in (16) and (17b) is to be distinguished from the diachronic resyllabification in (13)-(15). If we used morphophonology alone to analyze (15), for example, we would expect that the stress patterning for both ‘cloth’ and ‘louse’ to be 'bosi, since epenthetic vowels do not generally attract stress.

5. Evidence from neighboring languages

We noted above that Southeastern Monguor is one of a handful of small Mongolic language varieties in the region, which have shifted from initial to final stress. This shift, at least in the case of SEM, appears to be due largely to resyllabification due to historical deletion processes. Chinese and Tibetan have undoubtedly played a role in shaping Monguor syllable structure constraints (Chinese for Southeastern Monguor, and Tibetan for Southwestern and Northern Monguor).

That prosodic accent in Southeastern Monguor is marked with contour tones instead of intensity also reflects the heavy Chinese influence in the Southeastern area, and makes SEM unique within Monguor and quite possibly within Mongolic.

One obvious avenue of inquiry is comparing the behavior of Chinese loans in SEM and surrounding languages. Of the Mongolic Baonan language spoken across the Yellow River, Li (1986) discovered that syllables of Chinese origin with high pitch attract stress no matter where they occur in the word, whereas lexemes of Mongolic origin have fixed final stress. As evidence, he cites (18)a-b:

- (18) a. (Chinese origin) 'fama 'numerous, a lot'
 b. (Mongolic origin) fa'ma- 'to collapse, fall over'

This hypothesis does not hold for SEM data. If it did, we would expect the disyllabic noun *jiaozi* 轿子 'palanquin, deity sedan,' which in Chinese has a high followed by a neutral tone, to have a high-low pattern. Instead, SEM shows its typical default prosody of a low-high pattern:

H

- (19) (Chinese origin) *jiaozi* [tɕiao₁₁ts₅₅] 'palanquin, deity sedan'

Thus even for Chinese loans, we cannot claim that syllables with original high tones in Chinese are always assigned high tone. If this were the case, *jiaozi* ought to have initial stress in SEM, yet it does not.

The tonal phenomena we have observed in SEM have occurred in both Chinese and non-Chinese lexemes. For Chinese loans, tonal assignment is

independent from the original Chinese tone category, unlike in the neighboring Mongolic language Baonan. This suggests that tone, including distinctive tone, is more integrated into the SEM prosodic system than that of Baonan. Furthermore, tone serves more functions in SEM, signaling word boundaries and occasionally marking lexical distinctions. Its role in discourse focus is as yet unknown, but we would predict that the role of tone is significant here.

6. Conclusions

This paper has identified two basic facts: (1) SEM has a default pitch rise on word boundaries. Since these tonal melodies are largely non-contrastive, these appear to be realizations of pitch accent or stress. Accent is placed on the last syllable of the word and is realized by a raised F_0 . (2) Additionally, the diachronic loss of segments (via for example syllable structure constraints) has sometimes led to homophony. Some of these words were native Mongolic, some entered SEM as loans. In order to distinguish potential cases of homophony, SEM assigned one of the pair a high tone, one low tone, making tone distinctive for a small set of items.

These interactions between stress, tone, and morphology can be accounted for by an incipient tonal or at least pitch accent system. Given both internal factors (SEM's restricted syllable structure) and external ones (its continued

heavy contact with Chinese), the number of homophones is likely to increase over time, leading to increased complexity of distinctive tone.

At present, the simple H-L contrast is distinct from the contours that result from phonological and prosodic processes. Tonogenesis in Southeastern Monguor is only partly explained by internal phonetic causes, and even then not by the usual ones; it was not changes in voicing but rather changes in syllable structure, which through language contact gave rise to SEM tone. The acoustic form that Southeastern Monguor prosody takes strongly resembles (and almost certainly has its source in) Sinitic lexical tone, but the underlying patterning is still one of prominence assignment to final syllables. This prominence, or stress, may have shifted historically from the initial to the final syllable.

Further research must considerably broaden the data basis for the types noted above, comparing elicited with non-elicited data. These target lexemes must then be acoustically analyzed in the other two Monguor dialects, as well as the historically related Baonan language. Such research should re-examine the relationship between tonogenesis and obstruent voicing, as in classic tonogenesis cases. Finally, the sensitivity of tone assignment to morphological processes (as glimpsed above) should be more fully investigated.

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Endnotes

- 1 Many thanks are due to the Southeastern Monguor speech community and to four individuals: the speaker, Xianzhen Wang, whose corrections of students during a 2004 field methods class led to the discovery of the SEM tonal contrasts; Jie Zhang, with whom the elicitation and preliminary analysis were undertaken, and two helpful anonymous reviewers, in addition to the Volkswagen Foundation.
- 2 Many native Mongolian scholars have stated that Khalkha and Buryat Mongolian have “initial stress” (id.); Santa (Field 1997: 151) is said to have “ultimate stress”; and Moghol is said to have “a strong high pitch...located mainly on the last syllable, seldom on the penult” (Weiers 2003: 252).
- 3 Belying an initial assumption that list intonation obscures all pitch differences when lexemes are uttered in isolation, I include such lexemes here, since pitch differences *are* present in some monosyllabic lexemes, quite independent of list intonation. It was precisely because of these differences that these prosodic phenomena were initially discovered. A comprehensive discussion of all utterance-level functions of intonation, however, awaits a future study.
- 4 These varieties include *Northern Monguor* (also known as *Mongghul* or *Huzhu Monguor*); *Southwestern Monguor* (also known as *Tongren Monguor*), and the variety under investigation here, *Southeastern Monguor*. Monguor is spoken primarily in Qinghai province, though some speakers are found in two areas of neighboring Gansu province: Northern Monguor speakers in the Tianzhu area, and Southwestern Monguor’s scion *Baonan/Bao’an* speakers in the Dahejia area (the latter are officially a separate ethnic group).
- 5 The 2000 census identifies over 241,000 “Tu” (Monguors) in the entire ethnolinguistic complex, but the population having fluency in the native language varies from 0-90% depending on region and age of the speakers. Since sociolinguistic data are not part of the official census, estimates are based on my own field surveys and especially the experience of my Monguor research partners Dr. Xianzhen Wang and Limusishiden (Dr. Dechun Li).
- 6 The numbers 1 to 5 represent an abstract five-pitch scale (from low to high). For example, the sequence ₅₅ represents a high level tone, ₂₄ a rising tone, and ₄₂ a falling tone. (A single numeral represents a short noncontour “neutral” tone, as in e.g. Figure 5’s locative *di*, notated with a single, mid ₃.) These are used in this paper as a shorthand to approximately illustrate phonetic pitch in a maximally compact manner. Also, the final *r* on these monosyllables is an SEM innovation: though it resembles Standard Chinese nominal *-r* 儿, note that the Northwest Chinese examples do not include this morpheme. Data from Dwyer 1995.
- 7 Here *Northwest Chinese* refers to the Northern (Mandarin) Chinese spoken principally in Gansu, Qinghai, Ningxia, and Xinjiang, and also in Shanxi, Shaanxi, and parts of western Inner Mongolia. Whereas Standard Mandarin has four tones, in most northwestern Mandarin dialects, including those in contact with SEM, the first two historical *ping* tones have merged, resulting in e.g. nearby Xunhua Chinese 13 (平), in addition to rising and departing tones (Zhang 1984, realized in Xunhua as 53 (上) and 55 (去)).
- 8 Many scholars consider the assignment of “stress” to ultimate syllables of phonological words as a *shift* from the initial syllable. In addition to Santa, Baonan and Shira Yugur are examples of such languages, all found, like SEM, in Northern Tibet; see Janhunen 2003.
- 9 The speaker also has native competence in the Qinghai variety of Modern Standard Chinese (青海普通话), as well as high competence in Qinghai vernacular Chinese (青海话) and American English. Regular telephone contact with and regular visits to his natal home, coupled with intensive linguistic work on the language, allow his idiolect to be fairly representative, as confirmed by field testing later with other speakers that year.
- 10 Prosodic downdrift in SEM utterances includes monomorphemic utterances, e.g. *zha* [zə₅₁] ‘yes’ and *bang* [pəŋ₅₁] (the indirect copula, which alternates with [wəŋ₅₁] in rapid speech).
- 11 The string /n denotes an unstable morpheme, see Janhunen 2003.
- 12 The contrastive falling contour is itself prosodically prominent, a fact which may have led Slater (2003: 103-104) to suggest that both morphemes receive “stress” (i.e. 'da 'si 'we,' but 'da si'nanɡ 'we ourselves').