

THE STATUS OF THE 44 TONE IN NOSU¹

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1. Introduction

Comparative linguistic evidence indicates that the 44 tone of Nosu² is secondary. It is essentially a sandhi tone, most frequent in the “standard” Shengza local variety and derived by two regular and partly productive processes: from a 33 tone immediately preceded or followed by another 33 tone, and from a 21 tone in a verbal element with reduplication and in various other syntactic environments. This paper describes the two processes and three examples of the development of paradigms resulting from these and other processes: verb/adjectives of extent, pronouns and numbers.

2. Phonology of Nosu

In the “standard” Shengza variety of Nosu, the 44 tone frequently has slight creakiness in phonation, and varies somewhat between a completely level tone and one with a slight rise or rise-fall; for this reason some studies have described it as a 34 tone. The other tones of the Shengza local variety are 55, 33 and 21; these all occur with normal phonation with the eight syllabics of Nosu. With the two nonvowel syllabics *u* *y* there is also a contrasting strongly creaky 33 tone.³

The syllabics⁴ are *i* [*ie* [ε] *a* [a] *uo* [ɔ] *o* [o] *e* [*u*] *u* [β] *y* [z] There are forty-four contrasting initial consonants as shown in Table 1, with initial glottal stop occurring in all syllables without one of these forty-four. Every syllable has one of these initials (or glottal stop), plus a syllabic and a tone; there are no final consonants.

The usual description of Nosu omits the voiceless palato-alveolar nasal as it only occurs in one word, the causative *hnyi* ‘cause to sit’.⁵ In the romanised version of Nosu used here, the tones are represented by consonant letters after the vowel, as shown in Table 2.

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² Nosu is officially considered as the ‘Northern’ dialect of the language of the Yi nationality, spoken in Sichuan and some parts of northwestern Yunnan provinces in China by over two million people. In fact the so-called dialects are not mutually intelligible, though Nosu is quite close to ‘Eastern’ Yi or Nasu of Guizhou and northeastern Yunnan provinces with another million speakers. For more details see Bradley (1979, 1987, 1990). Tones are described in this paper using the tone numbers of Chao (1930); 5 represents the top of the pitch range and 1 the bottom, so for example a 44 tone is a higher-mid level tone.

³ This creakiness is here indicated by an underline, as is conventional in Chinese phonetic data.

⁴ These and the consonants are here transcribed using the official romanisation; the actual orthography is a syllabic system which uses characters derived from the traditional Nosu pictographic system. The syllabic *u* is normally a voiced bilabial trill after oral stop consonants and a bilabial fricative syllabic after other consonants in most varieties of Nosu. The apical fricative syllabic *y* is retroflex after a preceding retroflex consonant, and otherwise nonretroflex; in some varieties (but not the “standard” Shengza) there is a contrast between a rounded and a spread apical syllabic fricative.

⁵ There is a large number of simplex/causative pairs of verbs in Nosu and closely-related languages, reflecting a Proto-Tibeto-Burman *s- causative prefix through initial and tonal alternations; see Bradley (1979: 238-39, 366-69).

TABLE 1: **Initial consonants of Nosu**

	labial stops! fricatives	alveolar stops affricates/ fricatives	retroflex affricates/ fricatives	alveopalatal affricates/ fricatives	velar stops/ fricatives	
stops/affricates:						
unaspirated	<i>b</i>	<i>d</i>	<i>z</i>	<i>zh</i>	<i>j</i>	<i>g</i>
aspirated	<i>p</i>	<i>t</i>	<i>c</i>	<i>ch</i>	<i>q</i>	<i>k</i>
voiced	<i>bb</i>	<i>dd</i>	<i>zz</i>	<i>rr</i>	<i>jj</i>	<i>gg</i>
prenasalised	<i>nb</i>	<i>nd</i>	<i>nz</i>	<i>nr</i>	<i>nj</i>	<i>mg</i>
nasals:						
voiceless	<i>hm</i>	<i>hn</i>		<i>hny</i>	<i>hx</i>	
voiced	<i>m</i>	<i>n</i>		<i>ny</i>	<i>ng</i>	
fricatives:						
voiceless	<i>f</i>		<i>s</i>	<i>sh</i>	<i>x</i>	<i>h</i>
voiced	<i>v</i>		<i>ss</i>	<i>r</i>	<i>y</i>	<i>w</i>
lateral:						
voiceless		<i>hl</i>				
voiced		<i>l</i>				

TABLE 2: **Romanised forms of Nosu tones**

33	unmarked
21	- <i>p</i>
55	- <i>t</i>
<u>33</u>	- <i>r</i>
44	- <i>x</i>

The tonal systems of other varieties of Nosu differ slightly from that of central Shengza. The northernmost Lindimu (Chinese Tianba) variety as described in Fu (1950) lacks the 44 tone altogether; northern Yinuo has it, but there it is phonetically always a level, noncreaky 44 tone with slightly different distribution. In southern Sondi the 44 tone occurs but in much more restricted distribution than in Shengza. Yinuo also has a 22 sandhi tone, here indicated by postscript *-k*.

2. Comparative status of the 44 tone

The tonal correspondences to other closely-related Loloish languages are as shown in Table 3. These were first presented in Bradley (1979: 214-215).

TABLE 3: **Regular reflexes of Proto-Loloish tones in Nosu**

*Tone 1	33
*Tone2	33
*Tone3	21
*High Stopped	33/ <u>33</u>
*Low Stopped	55

The creaky reflexes of the *High Stopped tone occur only with the two syllabics that retain the creakiness reflecting an earlier final stop, *u* and *y*; otherwise the syllable is noncreaky.

The regular 55 reflex of the *Low Stopped tone is a development unique to Nosu and some of the western subvarieties of Nasu. It is partially shared by some Central Loloish languages such as Lahu (with 35) and Lisu (with 55), but only after certain initial consonants; see Matisoff (1970, 1972) on Lahu, and Bradley (1979: 228-230) on Lisu.

It can be noted that a 44 reflex is not included; and that three of the five tonal categories have merged into one Nosu tone, 33. These three categories represent about seventy-five per cent of the etyma reconstructed for Proto-Loloish in Bradley (1979: 228), leaving *Tone 3 reflexes, which regularly give Nosu 21, with ten per cent and *Low Stopped reflexes, which regularly give Nosu 55, with fifteen per cent. It is hardly surprising that various secondary processes redistribute 33 tones in a reaction to this imbalance; and that 33 tones still form a high proportion of words in the Nosu lexicon.

The earliest of these processes is first described in Bradley (1979: 214): in two-syllable compounds both having *Tone 1 or *Tone 2 the first syllable shows a 21 reflex instead of 33; see for example (11) below. This presumably reflects an earlier sandhi process of 33 > 21/ — 33, which is now completely nonproductive. The second of these processes is the main source of the 44 tone, and is synchronically very productive though not categorical. The third process creates 44 tones from underlying 21 tones and is discussed in section 4 below.

3. 33 > 44 sandhi

3.1 Second-syllable sandhi

There is a fairly frequent but now non-productive process in which the second of two 33 tones shifts to 44; this occurs only with the vowels i o e u y. It is mainly restricted to noun compounds and temporal adverbs; some words which show this process have the 44 tone in most varieties of Nosu including Shengza, Yinuo and Sondi, as in (1) - (3); others show the 33 tone instead in other varieties, especially Sondi, as in (4), or noncognate forms, as for (5) in Yinuo which is cognate with the Shengza word for ‘skirt’.

	Shengza	Yinuo	Sondi	
(1)	<i>bimox</i>	<i>bimex</i>	<i>bimox</i>	‘shaman’
(2)	<i>cocux</i>	<i>cocux</i>	<i>cocux</i>	‘people’
(3)	<i>katix</i>	<i>katix</i>	<i>katix</i>	‘wood basin’
(4)	<i>gakux</i>	<i>gaku</i>	<i>gaku</i>	‘stove’
(5)	<i>idix</i>	<i>nbuo</i>	<i>itu</i>	‘jacket’

(5) is a particularly interesting example. The traditional female clothing of most Northern and Central Loloish groups includes a very long jacket, so long that it is often belted and also serves as a skirt. The word for this item of clothing, etymon 231 in Bradley (1979), is reconstructed as *(C)ti based on non-Nosu data; the Shengza Nosu form may represent a prefixed form retaining the first syllable of this etymon, while the Sondi may derive from the same prefix with the second syllable of the etymon. The Yinuo form can be related to etymon 227, *(m)bun¹ ‘shirt’; *nbuo* also occurs with the meaning ‘skirt’ in Shengza. The Shengza and Sondi forms might indicate that both syllables of etymon 231 were present in pre-Nosu, and so the pre-Shengza form may have been something like *ditu*. If it had previously been 33 + 33, this form could have regularly undergone the sandhi process discussed in 3.2 below, then lost the second syllable still reflected in Sondi but kept the 44 tone. Alternatively, if the regular *Tone 3 reflex, 21, was present, it may reflect the less productive sandhi process described in 4 below. Or it may simply reflect a sporadic vowel harmony phenomenon adapting to the prefix in Shengza, with the Sondi form reflecting a more conservative vocalism and both Shengza and Sondi deriving from the second syllable of etymon 231. The

third alternative fits better with forms in other closely-related types of Yi, such as Hei Yi *nd'e* 33, Nasu *tho* 13, and Panxian/Longlin *tho* 21 all representing Eastern Yi; or Nisu (Southern Yi) Shuangbai *tha* 21 and Xinping *pha* 33*da* 33, though the manner of the initial is not quite regular. Similar etymological bases for the application of 33 > 44 sandhi in many other examples could be cited.

Some particular first syllables favour the sandhi process, even across constituent boundaries as in (8); for example *gga* ‘road/path’, etymon 416 *(?)ga¹; again other varieties than Shengza differ in the details of sandhi here, with (9) for example showing the productive sandhi process discussed in section 3.2 below in Yinuo; Sondi forms do not show 44 tone here.

	Shengza	Yinuo	
(6)	<i>ggabox</i>	<i>ggabex</i>	‘correct road’
(7)	<i>ggapix</i>	<i>ggapix</i>	‘road surface’
(8)	<i>gga cyx</i>	<i>gga cyx</i>	‘block the road’
(9)	<i>ggajjyx</i>	<i>ggaajjy</i>	‘easy road’

There are also a few two-syllable verb compounds which show this pattern, most in Shengza and least in Sondi.

	Shengza	Yinuo	Sondi	
(10)	<i>ddibyx</i>	<i>ddibyx</i>	<i>ddiby</i>	‘carry on back’ cf. etymon 661A *bo ²
(11)	<i>ahxox</i>	<i>ahxox</i>	<i>ahxo</i>	‘long (time)’
(12)	<i>ddeplox</i>	<i>ddulu</i>	<i>ddolo</i>	‘hope’ etymon 591 *mdaŋ ² laŋ ¹

Another area of frequent application of this process is in temporal adverbs. In some of these, such as (17), the temporal adverbialiser has fossilised to 44 tone even though it does not immediately follow a 33 tone. This may also be the case for the temporal verb/adjective *hxox* ‘long (time)’, example (11) above, further discussed below in section 5; compare (16) and the negative ‘not a long time’ (57) *ixho*.

(13)	<i>goshex</i>	‘often’
(14)	<i>muvipux</i>	‘late dusk’
(15)	<i>ggothuogex</i>	‘as soon as’
(16)	<i>ihxox</i>	‘a while’
(17)	<i>apndiphxix</i>	‘yesterday’

The above examples account for nearly all types of second-syllable 33 > 44 sandhi; some additional grammaticalised types are discussed in sections 5 and 6 below. However it should be emphasised that this is much less frequent than first-syllable 33 > 44 sandhi; it represents only about five per cent of the lexical items in Anonymous (1978), a fairly comprehensive dictionary of Nosu. This process is fossilised rather than productive. If it has applied in an item then the conditioning for the productive first-syllable 33 > 44 sandhi discussed in the following section is not met and so that extremely productive process is blocked.

3.2 First syllable sandhi

In two-syllable Shengza words both with underlying 33 tone, the first very productively changes to 44 if it contains the vowels *i o e u y a*, less frequently with the low front and back vowels *ie uo*, or with the creaky vowels *ur yr*. This process is nearly categorical for noun compounds and proper names, especially with certain prefixes; it is less frequent for verb and other compounds. It is very infrequent in the case of two-syllable reduplicated words but

categorical when a verb is productively reduplicated to form a yes-no question. This kind of sandhi is found in over twenty per cent of the words in Anonymous (1978), but forms where it does not apply are about five per cent of the vocabulary. It is much less productive in closely-related varieties of Nosu such as Yinuo and Sondi.

There are some pairs of words which maintain a contrast due to one undergoing the sandhi process and the other not; for example:

- (18) *bboxfu/bbofu* 'collar of rain cape'/'cheekbone'
 (19) *ggaxpi/ggapi* 'start'/'way out'⁶
 (20) *coxgo/cogo* 'criminal'/'member of a family'

Some particular first syllables, especially those derived from *High Stopped tone, undergo the sandhi process less frequently or not at all; for example *nuo* 'black', etymon 503, *C-nak^H; *mge* 'buckwheat', and so on.

- (21) *nuopyr* 'shiny black'
 (22) *nuodda* 'glossy black'
 (23) *mgepu* 'chaff of buckwheat'
 (24) *mgehlu* 'buckwheat dumpling'

Some particular second-syllables condition the process much less frequently than others; for example *qu* 'white', etymon 507 *plu¹:

- (25) *diqu* 'white clouds'
 (26) *waqu* 'empty land' (white land)

3.3 33 > 44 tone in morphosyntactic environments

In addition to the examples of this sandhi which occur within a word, there are several syntactic environments where it reflects the constituency of the sentence. These include yes-no questions with a 33 tone verb, in which a non-adjective verb is reduplicated; adjectives form yes-no questions differently, by reduplication with a prefix *a-* and with no 33 > 44 sandhi:

- (27) *Ne zza zzezze.* 'Have you eaten?'
 you food eat44-eat
 (28) *Yi anuonuo.* 'Is the house black?'
 house a-black-black

For non-adjective verbs with other tones yes-no questions also involve a sandhi form of the verb, but the second syllable rather than the first in Shengza: 55 > 33 and 21 > 44. For adjective verbs the same 55 > 33 applies, but not 21 > 44:

- (29) *Ne yityi.* 'Are you asleep?'
 you sleep-sleep33
 (30) *Ne sypsyx.* 'Do you know?'
 you know-know44
 (31) *Cy avutvu.* 'Is he/she/it green?'
 he/she/it a-green-green33

⁶ See also (7) above for second-syllable sandhi with a third meaning in this form.

- (32) *Cy amopmop.* 'Is he/she old?'
 he/she a-old-old

The 21 > 44 sandhi as in (30) is further discussed in section 4 below. The verb sandhi in yes-no questions operates rather differently and is much more restricted in Yinuo and other varieties of Nosu.

Another example of this sandhi links a pronoun direct object and the immediately following:

- (33) *Nga nex zze.* 'I eat you.'
 I you eat

This process is not recursive with the preceding one: if a verb has had its tone shifted to in a yes-no question, the preceding pronoun object does not receive 44 tone:

- (34) *Nga ne zzexzze.* 'Do I eat you?'
 I you eat44-eat

A third syntactic example has become fossilised in the pronoun paradigm: a possessor pronoun followed by a 33 tone possessed noun receives 44 tone; but this has been generalised to give the possessive forms of the three singular pronouns a 44 tone regardless of the tone of the following noun:

- (35) *ngax yi* 'my house'
 (36) *cyx yixnuo* 'his tobacco'
 (37) *nex hlat* 'your pants'

Examples like (36) which involve a sequence of two 44 tones in one constituent are otherwise very rare; if a 33 syllable has been shifted to 44 with a preceding or following 33 syllable, it normally does not recursively continue to condition other 33 syllables to shift to 44. The only other frequent type of immediate sequence of 44 plus 44 occurs in a four-syllable compound which has second-syllable 33 > in the first two-syllable constituent and first-syllable 33 > 44 in the second two-syllable constituent.

3.4 Summary of 33 > 44 processes

Approximately one quarter of all words in the Shengza variety of Nosu contain a 44 tone as a result of the word-internal sandhi processes deriving it from an underlying 33 tone adjacent to another 33 tone; an additional proportion receives the 44 tone due to morphosyntactic processes. Of the approximately thirty per cent of the vocabulary in Anonymous (1978) consisting of sequences potentially involving 33 and 44, about twenty per cent is 44+33, showing productive application of first-syllable sandhi; about five per cent is 33+44, showing fossilised application of second-syllable sandhi; and about five per cent is 33+33, showing neither. These latter comprise some which contain first or second syllables which for etymological reasons disfavour sandhi, some in which the vowel or creakiness of the tone synchronically disfavour sandhi, and some in which avoidance of homophony may be a motivating factor. The net result is that the sandhi process applies in one direction or the other over eighty per cent of the time, and so about forty per cent of the underlying 33 tone syllables in two-syllable or larger compounds with other 33 tone syllables become surface 44 tone.

Some one-syllable words in small closed classes such as serial auxiliary verbs are reanalysed as containing the 44 tone underlyingly, as they most frequently occur in an environment which would condition the sandhi process; see section 8 below for examples. There are also various morphological processes of fusion, to be discussed below in sections 5, 6 and 7,

which derive from the same sandhi phenomena and likewise result in surface 44 tones in non sandhi environments.

4. 21 > 44 derivational processes

There is a productive but somewhat less frequent process mainly affecting verbs, by which a 21 tone is changed to a sandhi 44 tone. One type of example involves verb reduplication; the other relates to the constituency of the verb. This sandhi process is also seen in extensive verb, pronoun and perhaps number developments (sections 5-7 below) but not usually in noun forms.

As noted above, yes-no questions are formed by reduplicating the verb; the second of two 21 tones is regularly shifted to a 44 tone in this environment, as example (30) above shows. The other type of reduplication is in four-syllable elaborate ABAB, ABAC, and ABCB compounds; where the reduplicated syllable has underlying 21 tone, the second of the two is shifted to 44. Some of these elaborate compounds have a simplex AB or other shorter form, others are onomatopoeic and do not correspond to a shorter verb form.

(38) *fuplurfuxlur* 'wheeze'

(39) *puplupuxlu* 'dawdle'

(40) *opngepwangex* 'hesitate'

Single 21 tone verbs shift to 44 in several syntactic environments, the most frequent of which is sentence-final and not negated; for example *ndop* 'hit' in.

(41) *Nga hmatmo ndox.* 'I hit the teacher.'
I teacher hit

This does not apply if the verb is negated.

(42) *Nga hmatmo ap, ndop.* 'I don't hit the teacher.'
I teacher NEG hit

The same pattern applies to a 21 tone posthead serial verb, final particle or conjunction: in absolute non-negated sentence-final position these are realised as 44. Similarly a prehead serial verb with 21 tone immediately preceded by an object pronoun likewise receives 44 tone instead. These alternations have been levelled out, replacing the underlying 21 tone with a 44 tone, in thirteen such words as described in section 8.

The 21 tone verb also shifts to 44 tone if it is immediately preceded by a pronoun object, but not if preceded by a pronoun subject; this is an identical environment to the 33 > 44 sandhi affecting an object but not a subject pronoun before a 33 tone verb.

(43) *Nga ne ndox ap qi.* 'I don't plan to hit you.'
I you hit NEG plan

Similar tone alternations in verbs are a feature of a number of Burmese-Lob languages including Gong (Bradley 1989), Burmish Maru (Okell 1989) and Southern Loloish Mpi (Bradley 1979: 47- 49).

There are also about twenty nouns which alternate between 21, 33 and 44 forms. The 44 forms occur in environments to which 33 > 44 sandhi applies, and the 21 forms are in the environment for the earlier 33 > 21/_33 sandhi now no longer productive but fossilised in these few words, for example 'bear' and 'earth'; or immediately preceding another 21 tone and showing an irregular 33 > 21 sandhi in this restricted environment. Some examples are seen in 'earth', 'jar', 'road/path' and 'fence'.

- (44) *wo/wopju/woxnuo* ‘bear’/panda’/black bear’
 (45) *za/zapnyo/zapbbyp/zaxjuoddu* ‘soil’/’clay’/’lump of soil’/pat the wall”
 (46) *ta/tapmop/taxsse* ‘jar’/’big jar’/’small jar’
 (47) *ggapmop/ggasa/ggaxli* ‘road/path’/’wide road’/’old road’; cf.(6)-(9) above
 (48) *hopyip/ho/hoxmguo* ‘fence’/’pen’/garden fence”

Finally, there are a couple of apparent one-syllable noun forms showing 21/44 alternation, such as (76) and (77) below.

5. Extensive verb/adjectives

There is a set of verbs, five of which show parallel morphological alternations of tone in a variety of Loloish languages (Bradley 1979: 240-41, 366-67): ‘far/near’, ‘many/few’, ‘long/short’, ‘big/little’ and ‘high/low’. Nosu has a somewhat larger set of nine such verbs, including four of these five and five others. In “standard” Shengza they show an alternation between 33, 44 and in the very emphatic form also 21, as shown in Table 4.

Note the unrelated negative form in (51) and the alternative negative form in (54), derived from cognate forms meaning ‘little’ and ‘light’.

Most of the verb stem tones reflect etyma reconstructed with *Tone 1 or *Tone 2, so the Nosu 33 tone is regular; for (52) ‘high’, etymon 758 shows *Tone 3 reflexes outside Nosu but this has been levelled to 33 rather than expected 21, keeping it parallel to most other extensives; it also occasionally shows an irregular 44 sandhi form. (57) ‘long (time)’ has been noted above (section 3.1, example (12)) as an instance of second-syllable 33 > 44 sandhi, and is the only such among these extensives. The 21 sandhi tone on the stem when it is final in the reduplicated very

TABLE 4: Extensive forms in Shengza

	positive	negative ⁷	question	emphatic	very emphatic
(49) ‘many/few’	<i>axnyi</i>	<i>ixnyi</i>	<i>kepnyix</i>	<i>cypnyixnyi</i>	<i>cypnyixnyip</i>
(50) ‘long/short’	<i>asho</i>	<i>ixsho</i>	<i>kepshox</i>	<i>cypshoxsho</i>	<i>cypshoxshop</i>
(51) ‘big/little’	<i>axy</i>	<i>iezyt</i>	<i>kepyyx</i>	<i>cypyyxyy</i>	<i>cypyyxyyp</i>
(52) ‘high/low’	<i>ahmu</i>	<i>ixhmu</i>	<i>kephmux</i>	<i>cyphmuxhmu</i>	<i>cyphmuxhmup</i>
(53) ‘wide/narrow’	<i>ajjy</i>	<i>ixjjy</i>	<i>kepjjyx</i>	<i>cypjjyxjjy</i>	<i>cypjjyxjjyp</i>
(54) ‘heavy/light’	<i>axly</i>	<i>ixly/loxso</i>	<i>keplyx</i>	<i>cyplyxly</i>	<i>cyplyxlyp</i>
(55) ‘thick/thin’(flat)	<i>axdu</i>	<i>ixdu</i>	<i>kepdux</i>	<i>cypduxdu</i>	<i>cypduxdup</i>
(56) ‘thick/thin(nonflat)	<i>afi</i>	<i>ixfi</i>	<i>kepfix</i>	<i>cypfixfi</i>	<i>cypfixfip</i>
(57) ‘long/short (time)’	<i>ahxox</i>	<i>ixhxo</i>	<i>kephxox</i>	<i>cyphxoxhxo</i>	<i>cyphxoxhxop</i>

emphatic form may reflect similar morphotonemic alternations to those seen in other Loloish languages, rather than productive sandhi processes of Nosu. Reflexes reflecting *Tone 3 (e.g. Nosu 21) are regularly seen in extensive adverbials like the very emphatic forms in other Loloish languages. The question form includes the question prefix or adverbialiser *(k)a¹,

⁷ The normal negative prefix, as seen above, is *ap*. This special invariant *ix* negative prefix occurs with these and a few other verb/adjectives, always before a form with 33 tone; thus it could be seen as an instance of 33 > 44/ 33 sandhi from underlying *i*; but note *ahxox* ‘long (time)’ which shows the sandhi process of 3.1 in the positive form but of 3.2 in the negative.

etymon 811. The emphatic forms show a reflex of etymon 804, *ʔci² Both of these show the early 33 > 21/ _33 tonal development noted in section 2 above. While the *a* prefix is a productive nominalising prefix found in nearly all Tibeto-Burman languages, the *ix* prefix is less solidly reconstructible; it may be related to the adverbialiser *(y)a(ŋ)^{l/3} etymon 866, but that lacks the negative meaning.

The 44 tone of the verb stem in the question and medially in the reduplicated emphatic forms as well as the 44 tone in the prefixes *ax* and *ix* (where it occurs) are the results of regular processes of 33 > 44 sandhi, morphologised to make the paradigms completely regular. The sole exceptions are the positive (57) with 44 tone in the second syllable and the suppletive negatives (51) and (54), with a regular alternative for (54) as well.

These verbs show parallel patterns with differences in the tone sandhi in other varieties such as Yinuo and Sondi. The verb (56) in Yinuo does not share the pattern, but all others do. Naturally there are some minor phonological differences in the form of some verb stems, most notably ‘high/low’ which is *mu* in Sondi⁸ and *hxo* in Yinuo. The overall Sondi pattern is quite similar but has *hxap* rather than *kep* in the question forms, collapses the emphatic form into the very emphatic form, and completely levels all stems to 33 tone and all positive and negative prefixes to *ax* and *ix* as a result. In Yinuo the 33 > 44 sandhi does not apply with the positive and negative prefixes, and the question prefix has 44 instead of 21 tone; the first three prefixes are thus invariably *a i kex*, and five of eight verb stems have 33 tone in these forms. The Yinuo positive forms (53) (55) (57) have 44 tone on the verb stem, showing second-syllable sandhi (absent from the negative and question forms in Yinuo as in Shengza) in two stems more than Shengza. The emphatic and very emphatic do not contrast, as in Sondi; in Yinuo the emphatic forms have either of two prefixes *kex/cyx*, with a 22 sandhi form on the second of the reduplicated stems; for example, *kexnyinyik/cyxnyinyik* ‘very big’.

The extensive forms thus exemplify all sandhi processes in various varieties of Nosu, but these processes have been grammaticalised differently in each variety and do not follow regular phonological conditioning as seen elsewhere.

6. Pronoun alternations

The pronouns show the results of various kinds of fusion and reanalysis, which lead to the development of quasi-inflectional paradigms - something most unusual among Loloish languages! Table 5 gives the forms.

TABLE 5: Shengza pronoun paradigms

	core	possessor	intensified/reflexive	oblique
1 sg.	<i>nga</i>	<i>ngax</i>	<i>ngatngat</i>	<i>ngat</i>
1 du. excl.	<i>nganyit</i>	<i>nganyit</i>	<i>nganyitnganyit</i>	<i>nganyit</i>
1 pl. excl.	<i>ngopwox</i>	<i>ngopwox</i>	<i>ngopngox</i>	<i>ngopwox</i>
1 du. incl.	<i>nitnga</i>	<i>nitngax</i>	<i>nitngatnitngat</i>	<i>nitngat</i>
1 pl. incl.	<i>nitngop</i>	<i>nitngop</i>	<i>nitngopnitngop</i>	<i>nitngop</i>
2 sg.	<i>ne</i>	<i>nex</i>	<i>nitnit</i>	<i>nit</i>
2 du.	<i>nepnyit</i>	<i>nepnyit</i>	<i>nepnyitnepnyit</i>	<i>nepnyit</i>
2 pl.	<i>nopwox</i>	<i>nopwox</i>	<i>nopnox</i>	<i>nopwox</i>
3 sg.	<i>cy</i>	<i>cyx</i>	<i>cypcyx</i>	<i>cyp</i>
3 du.	<i>cypnyit</i>	<i>cypnyit</i>	<i>cypnyitcypnyit</i>	<i>cypnyit</i>
3 pl.	<i>cowox</i>	<i>cowox</i>	<i>copcox</i>	<i>cowox</i>

⁸ Sondi lacks voiceless nasals; they merge with the voiced nasals.

The first and second person core forms *nga ne* represent regular cognate forms. The third person singular does not correspond to the regular cognate forms; this is not too surprising, given that it also does not fit with Nasu, Nisu or other Northern Loloish forms either, and is thus probably a Nosu innovation. The third plural form may suggest the source of this innovation: *co* is the word for ‘person’, regularly derived from **tsaŋ*¹, etymon 156, attested throughout southeastern Tibeto-Burman; but the vowel of the singular remains a problem.

The dual suffix *nyit* clearly comes from the number ‘two’ *nyip* which is discussed further in section 7 below; but the 55 tone is unexpected, as is the 55 tone of the second person form *nit* which is seen in intensified/reflexive, oblique, and first inclusive forms as well as *ngat* in the first singular and first dual inclusive intensified/reflexive and oblique forms; there is no regular sandhi process linking the 33 and 55 tones in nouns, but note the parallel alternation in verbs seen in (29) and (31) above.

The possessor forms are not unexpected, as the possessor precedes the possessed noun in this typical SOV language. Since about seventy-five per cent of nouns start with a 33 tone, it is quite natural that the 33 > 44 sandhi should be generalised to mark the possessive form of the three singular pronouns, *ngax nex cyx*, all of which have underlying 33 tone.

The remaining tonal irregularities in this paradigm involve 21 tones and 44 tones derived from 21 tones by the process described in section 4. The 21 tones are found on the pronoun stem in first and second plural, with a different vowel in the second dual and finally in the third dual and intensified/reflexive and oblique singular as well as intensified/reflexive plural.

The apparent plural suffix *wox* can be related to the **ʔ-way*³ plural etymon. The core plural forms all involve a vowel change on the stem as well; it appears that a suffixation of *-op* is involved here. Again, this could be related to the reconstructed pronoun plural suffix, and implies that the plural suffix on the core forms is reduplicated, *-op wox*, and originates from *wop wop* with the consonant of the first eliminated by fusion with the pronoun stem and the tone of the second shifted to 44 by sandhi. The other exactly parallel instances of 21 > 44 sandhi in the pronouns are in the second of two reduplicated syllables in the intensified/reflexive plural forms; parallel to but slightly different from the reduplication conditioning for this phenomenon in four-syllable compounds described in section 4 above, and similar to the conditioning for the fused reduplicated plural suffix.

Thus, like the extensives, the pronouns show both of the main sandhi processes of Nosu, but with fusion and reanalysis that have led to the development of a quite irregular and unparalleled paradigm. There are also some aspects of the pronoun paradigm which are synchronically more unusual, such as the apparent 33 > 55 tone shift in some forms.

7. Number alternations

The isolation forms of the numbers ‘1’ ‘2’ ‘7’ have 21 tone, but show irregular alternations with

44 and (at least for ‘1’) with 33. Table 6 presents the relevant examples.

TABLE 6: Irregular sandhi in ‘1’ ‘2’ ‘7’

	isolation	11-17	21-27 (and other tens)
‘1’	<i>cyp</i>	<i>cixzy</i>	<i>nyipcicyx</i>
‘2’	<i>nyip</i>	<i>cinyix</i>	<i>nyipcinyix</i>
‘7’	<i>shyp</i>	<i>cishyx</i>	<i>nyipcishyx</i>
‘10’	<i>ci</i>	-	<i>nyipci</i>

The irregular 33 tone and unaspirated initial in the form of ‘1’ in ‘11’ is paralleled in some other languages, such as Lisu; given this tone, the 44 tone of the preceding ‘10’ form is predictable by regular 33 > 44 sandhi. The 44 tones finally in ‘12’ ‘17’ ‘21’ ‘22’ ‘27’ and so on could be derived by a constituent-final 21 > 44 process which applies; but this does not apply in the isolation forms ‘1’ ‘2’ ‘7’. Etymologically these three numbers show an alternation between *Low Stopped and *Tone 2 forms, which would regularly give Nosu 55 and 33 tones; hence the 21 tone is unexpected. As noted in section 6 above, there is a dual suffix *nyit* with the 55 tone; so ‘2’ and ‘7’ occur with every possible tone except the expected 33.

Thus it appears that tonal developments in these three numbers have followed a path that results in various irregularities absent from other numbers and other areas of the lexicon. This has created a new paradigm which involves 44 tones apparently derived from 21 tones.

8. Single-syllable 44 tone words

Apart from the examples discussed in sections 3 to 7 above, there is a small number of single-syllable words which have the 44 tone. Of the many thousands of words in Anonymous (1978) these include three verbs, six serial auxiliary verbs and four temporal and other clause coordinating conjunctions. It is of course possible that these thirteen examples also occur with 21 tone in the appropriate environment, as do many hundreds of verbs and some other serials and conjunctions, but are not cited thus in the dictionary. There are also a couple of one-syllable nominals with 44 tone.

The three verbs with 44 tone presumably reflect a reanalysis based on the sentence-final 21 > 44 sandhi forms, in which the sandhi form has been generalised. As in the case of some compound nouns (above section 3.2) it may be that elimination of homophony is a motivation for some of these relexicalised forms:

- (58) *vix/vi/vip* ‘cross’/’belong to’/’stitch’
- (59) *fux/fu/fup* ‘very sleepy, urgent, hurt’/’burn, torture’/’build, seize, button up’
- (60) *zyxl* ‘rely on’temper in water or oil’

The serial verbs with invariant 44 tone in Anonymous (1978) are in some cases clearly derived from verbs which show the regular 2 1/44 alternation; some other serial verbs such as (67) to (69) themselves alternate between 21 and 44.

- (61) *mix* ‘want to’
- (62) *lox* ‘completed action’
- (63) *hxax* ‘do action of verb for a short time’
- (64) *nzox* ‘experiential’
- (65) *ddix* ‘quotative’; cf. *ddip/ddix* ‘speak’
- (66) *hxex* ‘try to’; cf. *hxep/hxex* ‘watch’
- (67) *kop/kox* ‘need to’
- (68) *dop/dox* ‘able to’
- (69) *ssop/ssox* ‘must’

The conjunctions include one homophonous with (62) and three others; again, some conjunctions such as (74) and (75) do alternate.

- (70) *lox* ‘and’
 (71) *wax* ‘after’
 (72) *nguox* ‘because’
 (73) *mox* ‘before’; cf. possibly mop ‘old’
 (74) *jop/jox* ‘to/toward’
 (75) *hnop/hnox* ‘from/to’

All thirteen items, especially posthead serials and final conjunctions, would most frequently occur in sentence-final position where 21 > 44 sandhi regularly applies as discussed above. Another pair of nominal forms showing this alternation can be cited in this context:

- (76) *chop* ‘breakfast’
 (77) *chox* ‘dinner’

There is now no homophonous verb *chop* ‘eat a meal’, but perhaps such a verb would be the source of these two words, showing a tonal alternation not otherwise found in nominal forms.

The 33 > 44 sandhi is less frequently lexicalised, but some sporadic examples exist. The most notable examples are parts of the pronoun, number and extensive paradigms noted above, also the extensive *hxox* ‘long (time)’; see (11), (16), (57) and possibly (63) above. Another example is (78); as in the pronouns, an irregular 55/44 alternation occurs here.

- (78) *xix/xiet* ‘what?’

In general, however, the number of 44 tones in single-syllable items is strikingly small, especially given the frequency of these forms in the lexicon overall and the productivity of the processes creating them.

9. Conclusion

Two tone sandhi processes, 33 > 44 and 21 > 44, have led to the development of a frequent 44 tone in the Shengza variety of Nosu. These developments are less productive in other major varieties of Nosu such as Yinuo and Sondi, and absent from some varieties such as Lindimu. The sandhi is also completely absent from closely related varieties of Nasu as spoken in Yunnan and Guizhou Provinces.

The same processes are also reflected in the paradigms of extensive verbs, pronouns and numbers which show unusually complex patterns for a Loloish language. There is a small residue of other single-syllable 44 tone words, mainly verbs, serial auxiliary verbs and temporal and other subordinating conjunctions; these appear to have resulted from reanalysis.

Speakers of all varieties need to be able to learn the “standard” Shengza variety easily; therefore the decision to indicate the 44 tone separately in the orthography is a wise one. Its source is the 33 tone, so the decision to represent it as a variety of the 33 tone is also correct.⁹

⁹ In the Nosu syllabic orthography, 44 tone syllables are represented by placing a semicircle above the syllabic character for the corresponding 33 tone syllable.

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