

ON PITCH ACCENT IN THE MU-NYA LANGUAGE*

IKEDA Takumi

Kyoto University

1. INTRODUCTION

Mu-nya (or Minyag) 木雅, a Tibeto-Burman language of China, is spoken by a part of the Tibetan nationality in southwest Sichuan, around the famous Minya Konka mountain. Presently six works on the Mu-nya language are available: two brief descriptive analyses (SUN 1983 and HUANG 1985), two vocabulary lists (ZMYYC and TBL), one brief phonological analysis (IKEDA 1998), and one short folk tale text (LIN 1998). All these descriptions are of the western dialect of Mu-nya, spoken around the Sade 沙德 district. We have no linguistic information on the eastern dialect spoken in the Shimian 石綿 district, which might be in danger of extinction.

All of these sources recognize that the western dialect of Mu-nya has four different tonemes: high-level [55], high-falling [53], high-rising [35], low-level [33]. (HUANG1985 treats [35] as [24], and recognizes an additional tone [15] which appears in some morphological environments.) But these descriptions do not agree with one another regarding the tones of Mu-nya words and these disagreements are found throughout the lexicon.

While Mu-nya has been assumed to be a tonal language, we question exactly how to characterize the precise nature of its suprasegmental features and the phonological mechanism that drives this system. In this paper, I analyze the tonal features of Mu-nya, and argue that based on my observations and field data the suprasegmental features must constitute a kind of pitch accent rather than tone.

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2. MU-NYA AS A TONE LANGUAGE

First let us consider some example words, selected at random:

	SUN 1983	HUANG 1985	IKEDA 1998
'hair (animal)'	mo ³⁵	mo ³⁵	mo ⁵⁵
'dragon'	ndzɿ ³⁵	ndzɿ ⁵³	ndzɿ ³⁵
'small'	tsu ³³ tsɛ ³⁵	tsə ³³ tsæ ⁵³	tsu ³³ tsa ⁵⁵
'wet'	ndzɿ ³⁵ ndzɿ ⁵⁵	ndzɿ ³³ ndzɿ ⁵³	ndzɿ ³³ ndzɿ ⁵⁵

Now let us tentatively represent the feature high-level [55] as H, high-falling [53] as F, high-rising [35] as R, and low-level [33] as L. The "correspondences" among the descriptions of SUN-HUANG-IKEDA are striking; 'hair (animal)': R-R-H, 'dragon' : R-F-R, 'small' : R-F-H (the second syllable), 'wet' : RH-LF-LH. As speakers of Mandarin Chinese – a typical tone language – know, it is absolutely impossible for one person to pronounce the word *shuǐjiǎo* 水餃 'dumpling' as if it were *shuìjiào* 睡覺 'sleep' and expect to be understood!

Why has this disagreement in the description of tones occurred? The first possibility is recording error. But Professors SUN and HUANG are both excellent linguists with rich field experience, so their data may be taken as reliable. A second possibility is dialectal differences among our informants. However, although we worked with different informants, in some cases from different home villages, there were very few dialectal differences between the speech of my informants and those of SUN and HUANG. Based on my observations, it is impossible to attribute these differences to dialect variation. I have worked with four Mu-nya informants from different villages, and to the best of my knowledge, there were no obvious differences in the suprasegmental features of their speech.

2.1 Sun's Description of Mu-nya Tones

According to the description in SUN 1983, the Mu-nya language has four different tones, with many contrasts between high-rising and high-falling tones, but comparatively very few between high-level and mid-level. Almost of these tonal contrasts appear in disyllabic words. Examples of these four tonal contrasts:

1. High Level [55]	zɑ ⁵⁵ 'to sweat'	ɣw ³³ ɣw ⁵⁵ 'heavy'	ni ³³ ni ⁵⁵ 'deep, few'
2. Mid Level [33]	zɑ ³³ 'bark'	ɣw ³³ ɣw ⁵⁵ 'heavy'	ni ⁵⁵ ni ³³ 'red'
3. High Rising [35]	zɤ ³⁵ 'tongue'	ɣw ³⁵ 'seed'	ni ³⁵ 'brain'
4. High Falling [53]	zɑ ⁵³ 'times'	ɣw ⁵³ 'ladder'	nw ⁵³ 'west'

Although SUN's explanation is simple and clear, it is difficult to find monosyllabic words which form tonal minimal pairs. This is because there are many disyllabic words in Mu-nya, but very few free monosyllabic words. Almost of all the morphemes of the Mu-nya language are monosyllabic, but are rarely used alone. For example, the word [zɑ⁵³] 'times' in SUN's list must be used in a phrase such as '(go) once'. Although the informant might be able to isolate the word for the benefit of the eliciting linguist, he would only ever use it in phrases, and would dislike using it as a free word. Since my informant used another word for 'times' (ku⁵⁵ as in tɛ³³ ku⁵⁵ (tɑ³³ xw⁵⁵) '(go) once'), instead of the word [zɑ⁵³], I have not been able to verify the form of that word.

SUN also indicates some vowel features related to the tones: a vowel in the high-rising tone appears slightly longer than other tones, but a vowel in the high-falling tone appears slightly shorter than other tones. According to my observations, these sub-features of vowels related to tone are not fixed on the syllable as invariant features, but are easily changeable according to the situation or the personal style of speech. So it could be at most a tendency.

2.2 Huang's Description of Mu-nya Tones

The description of tone features by HUANG 1985 is as follows:

high-falling [53] mid-rising [24] high-level [55] mid-level [33]
low-to-high rising [15]

Monosyllabic words only have [53] or [24] tone; [55] and [33] only appear in polysyllabic words; [15] appears in certain morphological environments. Besides pitch differences, Mu-nya tones have different apparent lengths: [53] and [33] are slightly shorter, [24] and [55] are comparatively longer, and [15] is the longest. [24] In polysyllabic words turns into [35] (either in the first or second syllable). For example:

'sky, fire'	mə ⁵³	'tail'	mə ²⁴
'(you pl.) wear (a hat)'	tə ⁵⁵ tə ³³	'(you pl.) take out'	tə ³³ tə ²⁴
'few, little'	ni ⁵⁵ ni ⁵³	'make few, little'	ni ³³ ni ⁵³
'(you sg.) measure'	fiæ ²⁴ ts'æ ⁵³	'Have you (sg.) measured?'	fiæ ¹⁵ ts'æ ³³

[53] and [24] in the second syllable of disyllabic words are unstable, frequently interchangeable with each other or with [55]. For example:

'basket with shoulder straps'	kə ³³ lə ^{24/53/55}
'you (sg.) finish up'	t'ə ³³ dæ ^{24/55}

The last syllable or the final two syllables of words or phrases consisting of four syllables are often pronounced as [33]. Some function words and prefixes, or verbs and adjectives acting as predicates are also often changed in pronunciation to [33].

'habit'	kə ³³ mu ⁵⁵ mu ³³
'bright red'	ni ⁵⁵ zə ³³ zə ³³
'like'	gæ ³³ gæ ⁵³ nɐ ³³ βə ³³
'We have power.'	ŋə ³³ nə ⁵³ le ³³ (²⁴) xu ⁵³ k'ui ³³ (²⁴) ŋɐ ³³ (²⁴) ¹

HUANG notes that the longest rising tone [15] only appears in a specific morphological environment. In the course of my research I couldn't determine the precise environment in which this tone is supposed to appear, so we cannot discuss it here. Seeing only HUANG's example 'Have you (sg.) measured?' [fiæ¹⁵ts'æ³³], it remains possible that it is an intonation characteristic of the interrogative verb phrase. The [fi] is a interrogative verb prefix, with a tendency to lengthen when it is emphasized.

Further questions are: If Mu-nya has these four basic tonemes, why do monosyllabic words only have two: the falling and rising tones? On the other hand, why do level tones only appear in polysyllabic words?

In my data [24/35] and [53] basically appear at the end of polysyllabic words or phrases. Let us consider the last example: 'We have power.'²

¹ The tone in parentheses is the 'original' tone.

² It may seem as if the [53] tone also appears on the non-final syllable of a polysyllabic word or phrase in this example. A word-level analysis of this sentence shows that this is not the case:

ŋə ³³ nə ⁵³	le ³³	xu ⁵³	k'ui ³³	ŋɐ ³³ .
We	particle	power	have	particle
	(locative)			(1st person / affirm)

So the [53] tones are appearing at the end of the disyllabic word /ŋə³³ nə⁵³/ 'we', and on the monosyllabic word /xu⁵³/ 'power'.

ŋə³³ nə⁵³ le³³ xu⁵³ k'ui³³ ŋə³³. > ŋə³³ nə⁵³ le²⁴ | xu⁵³ k'ui²⁴ | ŋə²⁴ |.

The vertical bars represent phrase boundaries. This example illustrates that if this sentence is spoken with pauses between each phrase, a rising pitch will appear at the end of each phrase. This explanation seems to be more natural than positing that all of the 'original (rising) tones' change into level tones in a sentence.

2.3 Lin's Description of Mu-nya Tones

LIN 1997 is a short story about a lion and a rabbit recorded in phonological transcription. LIN follows HUANG's analysis in the phonetic transcription, apparently recording the 'original' or 'basic' tone on each word. In LIN 1997, she only commented "As for tones, I follow professor HUANG's scheme, recording the tone of each syllable to the extent possible. But in the speech of a short story, it is very easy to see that the tones on the monosyllabic words are actually not fixed. I think that, regarding the analysis of tone, further investigation is required." (LIN 1997: p.431)

But in another report on the Mu-nya language for Academia Sinica, with regard to the recording of tones, she said:

In my description, I largely continue to record the pitch on a monosyllabic basis, but when I recorded the text of a story, I could only record the liaison pitch on polysyllables according to the informant's speech. But as for those words pronounced like the atonic sentence-final particles in Mandarin Chinese, I gave no tonal marking (LIN 1995).

This is an important comment on the difficulty of recording the pitch features of Mu-nya. Before this comment, LIN had stated her analysis of the nature of pitch in Mu-nya, which is equally worthy of note:

Furthermore, I changed to a word-basis recording rather than a syllable-basis recording when I observed the pitch curves of Mu-nya. Basically I recognize that Mu-nya has only two different pitch contours: rising and falling. Rising tone or falling tone appear when a syllable is pronounced alone, but because of the difference in the pitch of the neighboring words in phrases or sentences, the original rising or falling pitch in a word changes. So when I recorded the story text, I often encountered situations that did not agree with the pronunciation of words in isolation. It seems to me as if the suprasegmental features of this language do not constitute tonemes.

I think Chinese linguists have a respect for the traditional descriptive method, taking the monosyllabic word or morpheme as a basis, treating the pitches that appear on them as the basic or original tones, and treating the

pitches that appear on polysyllabic words as due to pitch change or tone sandhi. It is very clear that the above comment by LIN reflects this viewpoint.

2.4 *Tone or Accent*

Some additional noteworthy characteristics that I have observed in the suprasegmental features of Mu-nya are as follows:

- (1) The ‘tones’ of Mu-nya are very unstable and these ‘tones’ are not fixed to each morpheme.
- (2) As HUANG pointed out: Monosyllabic words only have [53] or [35]([24] by HUANG) tone, while [55] and [33] only appear in polysyllabic words. But this is merely the default situation: [53] and [35] are both changeable to [55], especially when they serve as the subject or topic of a sentence.
- (3) Not all mathematically possible combinations of the ‘tonemes’ in polysyllabic words are attested. For example, there are no *[35][35]/R/R/ or *[53][53]/F/F/ sequences in disyllabic words.
- (4) [35] and [53] mainly appear at the end of polysyllabic words or phrases, but they have no distinctive function with respect to tone [55]. For example, the word ‘child’ may be realized as [pə³³tʂi^{35/53/55}].

If we recognize the suprasegmental features of Mu-nya as a kind of ‘tone’, it is very hard to analyze the following example.³

TBL #0745	‘tonight’	[pə ⁵³ xu ³³]
TBL #0746	‘tomorrow night’	[sæ ²⁴ xu ⁵³]
TBL #0747	‘last night’	[mə ⁵³ xu ²⁴]

[xu] is the morpheme for ‘night’. If the word is pronounced alone, it is realized as [xu⁵³] (which my informants also pronounce as [55]), but it appears with three different ‘tones’ in the disyllabic words given here. Is the pitch that appears on the monosyllabic word the ‘basic tone’, and are the tones appearing in the disyllabic words ‘sandhi tones’? I think this data is hard to explain as the result of tone sandhi because after the same toneme [53], we may observe two different kinds of ‘sandhi’. Compare #0745 and #0747. Apparently the pitch patterns are not intrinsic to the morpheme.

³ In HUANG’s data the tone [53] sometimes appears at the non-final position in polysyllabic words or phrases. My informants pronounced the tone as [55] in that position. Compare IKEDA’s transcription below. I can point out that when these syllables are followed by /L/ [33], they have a tendency to be short and may be perceived as falling. Another possibility is that HUANG recorded as the “original tone” the pitch of each syllable as it was pronounced in isolation. Regarding this problem, please refer to note 5 below.

		HUANG	IKEDA
TBL #0745	'tonight'	[pə ⁵³ xu ³³]	[puw ⁵⁵ xu ³³]
TBL #0746	'tomorrow night'	[sæ ²⁴ xu ⁵³]	[sa ³³ xu ⁵⁵]
TBL #0747	'last night'	[mə ⁵³ xu ²⁴]	[mə ⁵⁵ xu ³³]

Now turning our attention to the correspondence between HUANG's and IKEDA's transcription of each word form, we see that only the high position of the pitch is in consistent correspondence. On the other hand, the non-high position does not mean [+low] but [-high], and any pitch may appear. Thus all we need to do is to indicate in the lexicon the position in each word bearing the high pitch.

TBL #0745	'tonight'	/pə xu/
TBL #0746	'tomorrow night'	/sæ xú/
TBL #0747	'last night'	/mə xu/

So we can recognize that the basic mechanism driving the prosody of Mu-nya is to indicate the location of marking of the words in their lexicon: "where is high point?" or "which syllable is marked?" It is not a mechanism wherein each syllable chooses which melody it will bear. We can refer to the lucid definition of tone and accent in HAYATA 1998:

Accent is a prosodic property which is contrastive in terms of its location. Location means an answer to the question "Where (which syllable/mora)?" This question is by nature syntagmatic. "Nowhere" may be an answer. Tone, on the other hand, is a prosodic property which contrasts in shape. The prosodic information of tone is an answer to the question "Which melody?" This question is by nature paradigmatic.

From another standpoint, we may consider the distinctive function of suprasegmental features in Mu-nya. Their functional load is very marginal. At least it is unlike the suprasegmentals of the Chinese language, and rather like Japanese pitch accent. It is worth referring to the result of a statistical investigation of suprasegmental function in this regard. The functional ability of Mandarin Chinese tones to distinguish homonyms is very high — up to 71%, compared to 13.57 % for Japanese pitch accent and 0.47 % for English stress accent (SHIBATA & SHIBATA 1990). Thus it can be seen that the prosodic features of Mu-nya constitute a kind of pitch accent, rather than tone.

3. ASPECTS OF MU-NYA PITCH ACCENT

3.1 *Monosyllabic Words*

Almost all of the basic words in Mu-nya are polysyllabic, so it is somewhat difficult to find monosyllabic words. Therefore it is not easy to find minimal pairs of phonemes or ‘tones’. I think that we will someday be able to identify the basic meaning of each morpheme in polysyllabic words, but now the morphological analysis of Qiangic languages is still in progress. In any case, Mu-nya monosyllabic words which contrast tonally in isolation are very few. These words constitute minimal pairs for ‘tones’:

	SUN 1983	HUANG 1985	IKEDA 1998
‘sky’	mu³⁵	mə⁵³	mə⁵³
‘fire’	mu ⁵³	mə⁵³	mə⁵⁵
‘tail’	mu³⁵	mə ²⁴	mə⁵⁵

SUN described ‘rain (=sky)’ and ‘tail’ as homophones contrasting with ‘fire’ only in tone. HUANG recognized ‘sky’ and ‘fire’ as homophones contrasting with ‘tail’ only by tone. IKEDA recognized ‘fire’ and ‘tail’ as homophones contrasting with ‘sky’ by tone.

We can only say this is not really a tonal contrast, and that there must be some other important suprasegmental feature that is misleading us.

How we should understand these confused descriptions? We can get some insight into this situation from the case of Japanese pitch accent. Even though I am a native speaker of Japanese, I will always have some difficulty in judging the pitch of a monosyllabic word when the word is pronounced alone. For example, /hi/ with high pitch means ‘fire’, but also means ‘sun’ with low pitch. We are hardly able to tell the difference between high or low by hearing only this one syllable. If the word is followed by the particle /ga/ (nominative case marker), it is easy to judge the pitch of the word. /hi ga / HL means ‘the fire (nominative case)’, and LH means ‘the sun (nominative case)’.

There is no case-marking particle for the nominative in Mu-nya corresponding to Japanese /ga/. But if we put the word into phrases, we can make another interesting observation:

‘the day has broken’	mu ⁵⁵	to ³³	sɿ ⁵⁵	ra ³³ .
	sky	prefix	break	particle (perfect)

⁴ ‘Sky’ and ‘rain’ are the same word in Mu-nya. [u] and [ə] are allophones of the same phoneme / u /.

'to have lit a fire'	mw⁵⁵	q^ho³³	sa⁵⁵	ra³³
	fire	prefix	light	particle (perfect)
'to have wagged the tail'	mw⁵⁵	te³³	rw⁵⁵	ra³³
	tail	prefix	wag	particle (perfect)

The vertical bar in the sentence indicates the phrase boundary. When the words 'sky', 'fire', and 'tail' are the topic (or subject) of a sentence, they will be marked by high pitch, and have no tonal distinctions among them.

Monosyllabic words with accent appear with high pitch, while those without accent appear, in contrast, with low pitch. Based upon my observations, the falling and rising are both secondary features of the pitch, because they are not fixed to morphemes contrastively. The rising and falling features by themselves do not serve any special function in distinguishing words or morphemes from these bearing some other suprasegmental feature.

Under my analysis, to isolate single words from the lexicon is to place them in a very special phonological environment with nothing to either the right or the left.

/H/ [55] > [53] # ____ # /L/ [33] > [35] # ____ #

Why does the unmarked low pitch rise before pause? I think it is a kind of intonation, indicating the end of each phrase.

3.2 Disyllabic Words

Since we recognize that the distinctive feature of pitch in Mu-nya is not rising vs. falling, but rather high vs. low, we can arrange the pitch pattern for disyllabic words very simply. The combinations of pitch patterns in disyllabic words are as follows:

(1) /H//H/ > [55][55] or [55][53]#

'body'	q^ho⁵⁵ po⁵⁵	'rib'	tsu⁵⁵ ma⁵⁵
'thin'	ts^he⁵⁵ ts^he⁵⁵	'dry'	ra⁵⁵ ra⁵⁵
'school'	la⁵⁵ ts^ha⁵⁵ < Tib.	'thoughts'	sã⁵⁵ mba⁵⁵ < Tib.

The /H//H/ pitch pattern is infrequent in disyllabic words, especially in nouns. And there is a distinct tendency for the words which take /H//H/ pitch pattern to be Tibetan loanwords.

(2) /H//L/ > [55][33] or [55][35]#

'this'	ʔe ⁵⁵ tsw ³³	'tonight'	pu ⁵⁵ xu ³³
'blue'	ɲu ⁵⁵ ɲu ³³	'red'	ni ⁵⁵ ni ³³
'slowly'	ko ⁵⁵ ko ³³	'who'	fiə ⁵⁵ nɔ ³³

We can see that nouns with the /H//L/ pitch pattern are very few. And I have found no verb (consisting of a prefix and a stem) representing the /H//L/ pitch pattern.

(3) /L//H/ > [33][55] or [33][53]#

'we'	ɲu ³³ nu ⁵⁵	'last year'	ja ³³ zo ⁵⁵
'small'	tsu ³³ tsa ⁵⁵	'at once'	kɪ ³³ ɕa ⁵⁵
'decrease'	ne ³³ ni ⁵⁵	'eat'	fiə ³³ ndzu ⁵⁵
'fear'	thə ³³ qa ⁵⁵	'separate'	fiə ³³ phə ⁵⁵

I have found that this is the default pitch pattern for all classes of words in Mu-nya. And we can observe that all the verbs (prefix + verb stem) display the /L//H/ pitch pattern.

(4) */L//L/ > *[33][33] > *[33][35]# > /L//H/

We cannot find the */L//L/ pitch pattern in Mu-nya. For arguments as to why this is so, see below.

The accent /H/ is realized as high pitch. It comprises [55] and [53], two pitches which are not distinctive from one another. I have never found a contrastive pair with the melody [55][55] vs. [55][53], or [33][55] vs. [33][53]. These are, on the contrary, free variants. I assume that the position where high pitch appears is the 'marked' position, so that high pitch is the marked pitch. Because our data are basically in agreement on this point, we need only indicate the position of high pitch on entries in the lexicon in order to derive the surface pitch pattern.

At the same time we also must pay attention to the final position of each phrase. For at the end of the word or phrase the last syllable overlaps the phrase boundary intonation, another kind of 'marked' position which can produce another 'marked' pitch. That is why /H//L/ > [55][33] or [55][35]# can change into [55][55] /H//H/ prepausally.

We can illustrate why there are few */L//L/ pitch patterns through the same reasoning. The combination of */L//L/ might be realized as *[33][33], but the

final syllable changes into [35] before phrase boundary. Thus [33][35]# may also change into [33][55] /L//H/.⁵

Now for convenience's sake I would like to treat the environment in which high pitch appears as *marked (a)*, and the environment where the rising pitch appears as *marked (b)*.

3.3 Some notable pitch patterns in polysyllabic words

We find that the pitch pattern of polysyllabic words reflects the structure of the combination of morphemes in the phrase. The typical trisyllabic word or compound bears the pitch pattern /H//L//H/ or /L//H//L/.

(1) /H//L//H/ < /H+/L//H/

Almost always the /H//L//H/ pitch pattern indicates that the structure is /H+/L//H/, consisting of a monosyllabic morpheme plus a disyllabic compound.

'vacant house'	tɕe ⁵⁵ to ³³ mba ⁵⁵ tɕe ⁵⁵ to ³³ mba ⁵⁵	/H+/L//H/ 'house' 'vacant'
'eat meal'	ndzu ⁵⁵ fia ³³ ndzu ⁵⁵ ndzu ⁵⁵ fia ³³ ndzu ⁵⁵	/H+/L//H/ 'meal' 'eat' (prefix + stem)

(2) /L//H//L/ < /L//H+/L/

The /L//H//L/ pitch pattern indicates that the structure is /L//H+/L/, consisting of a disyllabic compound plus a monosyllabic morpheme, which is often a morpheme or a particle with unmarked pitch.

'student'	kbj ³³ zi ⁵⁵ mi ³³ kbj ³³ zi ⁵⁵ mi ³³	/L//H+/L/ 'study' (n / v: prefix + stem) (indicates person, but occurs only as a bound
'(he is) eating'	(ndzu ⁵⁵) fia ³³ ndzu ⁵⁵ pi ³³ fia ³³ ndzu ⁵⁵ pi ³³	/L//H+/L/ 'eat' (v: prefix + stem) (suffix: 3rd person imperfect aspe

⁵ In SUN's data, we sometimes find words with [35][35] pitch melodies behaving as if they had the */R//R/ pitch pattern. I would speculate that the reason he recorded them this way is that these words would have been pronounced by the informant as distinct separate syllables for the benefit of the researcher. SUN following the traditional descriptive method, selected 'the original tone pitch' — the pitch of each syllable in isolation — and recorded it.

Quadrisyllabic compounds consist of two disyllabic compounds. We can observe some significant pitch patterns below:

(3) /L//H//L//H/ ~ /L//H//L//L/ < /L//H//+//L//H/

This is the most typical pitch pattern for quadrisyllabic compounds, regardless of their syntactic structure, and there are many examples. They have a tendency to be pronounced as /L//H//L//L/ [33][55][33][33] in the natural speech stream.

'a bird'	ndze ³³ fiu ⁵⁵ tɕ ³³ va ^{55/33}	/L//H//L//H/ ~ /L//H//L//L/
	ndze ³³ fiu ⁵⁵	'bird'
	tɕ ³³	'one'
	va ⁵⁵	(classifier / quantifier)

'headache'	ɣɑ ³³ lɔ ⁵⁵ tu ³³ ŋe ^{55/33}	/L//H//L//H/ ~ /L//H//L//L/
	ɣɑ ³³ lɔ ⁵⁵	'head'
	tu ³³ ŋe ⁵⁵	'(feel) pain'

(4) /H//H//L//H/ ~ /H//H//L//L/ < /H//H//+//L//H/

As mentioned above (4.2), there is a distinct tendency for disyllabic words which bear the /H//H/ pitch pattern to be Tibetan loanwords. Some compound words, consisting of native Mu-nya morphemes after Tibetan loanwords, typically bear the /H//H//L//H/ or /H//H//L//L/ pitch pattern.

'conscience'	sā ⁵⁵ mba ⁵⁵ si ³³ vu ^{55/33}	/H//H//L//H/ ~ /H//H//L//L/
	sā ⁵⁵ mba ⁵⁵	'thoughts' < Tib.
	si ³³ vu ⁵⁵	'good'

'famous'	ke ⁵⁵ tɕɑ ⁵⁵ ki ³³ kʌ ^{55/33}	/H//H//L//H/ ~ /H//H//L//L/
	ke ⁵⁵ tɕɑ ⁵⁵	'fame' < Tib.
	ki ³³ kʌ ⁵⁵	'big'

(5) /H//L//R//L/: Plural reflexive pronouns

Plural reflexive pronouns have the /H//L//R//L/ pitch pattern. This pattern is only seen in the plural reflexive pronouns. I think this is a variant of /H//L//H//L/. First we see the morphological structure of the singular reflexive pronouns:

'myself'	ŋu ⁵⁵ ŋe ³⁵
'yourself'	na ⁵⁵ ne ³⁵
'himself / herself'	ʔɐ ⁵⁵ tsu ³³ tse ³⁵

Reflexive pronouns consists of the pronoun plus a morpheme with vowel [e] that is derived from the personal pronoun. The plural form consists of four syllables:

'ourselves'	ŋe ⁵⁵ nɯ ³³ ɲe ³⁵ nɯ ³³	<	'we'	ŋɯ ⁵⁵ nɯ ³³
'ourselves' (incl.)	je ⁵⁵ nɯ ³³ je ³⁵ nɯ ³³	<	'we' (incl.)	je ⁵⁵ nɯ ³³
'yourselves'	ne ⁵⁵ nɯ ³³ ne ³⁵ nɯ ³³	<	'you'	na ⁵⁵ nɯ ³³
'themselves'	ʔe ⁵⁵ nɯ ³³ tse ³⁵ nɯ ³³	<	'they'	ʔe ⁵⁵ tsw ³³ nɯ ³³

Obviously the third syllable of the reflexive pronouns bears a rising pitch in these words. However, one of my informants pronounced them as [55][33][55][33] /H//L/H//L/ as well. And he also gave yet another form [ŋɯ³³ nɯ⁵⁵ ŋɯ³³ nɯ⁵⁵] for the word 'ourselves', and [na⁵⁵ nɯ³³ ne³⁵ nɯ³³] for 'yourselves'. It is worthy of note that we also find this pitch pattern in SUN and HUANG's data:

	SUN 1983	HUANG 1985
'ourselves'	ŋɯ ⁵⁵ nɯ ³³ ɲe ³⁵ ne ³³	ŋə ³³ nə ⁵³ ɲe ²⁴ nə ³³
'ourselves (incl.)'	je ⁵⁵ nɯ ³³ je ³³ nɯ ³³	je ³³ nə ⁵³ jə ²⁴ nə ³³
'yourselves'	ne ³⁵ nɯ ³³ ne ³⁵ ne ³³	nə ³³ nə ⁵³ ne ²⁴ nə ³³
'themselves'	tsw ⁵⁵ nɯ ³³ tse ³⁵ ne ³³	ɐ ⁵⁵ nə ³³ tse ²⁴ nə ³³

I analyze this pitch pattern as a kind of emphatic '-self'. The rising pitch does not appear at the end of the phrase, but there is another similar situation that hints at a way of comprehending this phenomenon. Some interrogative verb prefixes have a tendency to be lengthened when they are pronounced emphatically (see 2.2 above).

4. HOW TO INDICATE THE ACCENT IN THE LEXICON

According to the argument regarding the Mu-nya suprasegmental features presented above, we can summarize the pitch accent system as follows:

marked (a):	[55 / 53]	H	-□
marked (b):	[35]#	(R)	´□
unmarked:	[33]	L	□

- *marked (a)* includes [55] and [53], and though [+falling] is not a distinctive feature, it will appear on monosyllabic words when pronounced alone, or on the second morpheme of a disyllabic word, when the marked syllable appears prepausally or at the end of a phrase.

• *marked (b)* sounds like rising tone, but [+rising] is not a distinctive feature. It will appear in monosyllabic words when pronounced alone, or on the second syllable of a disyllabic word, when the syllable comes at the end of a phrase (prepausally). So I suspect that the rising pitch might be a kind of intonation indicating the end of a phrase.

Now we should return to our first examples and inspect them again.

	SUN 1983	HUANG 1985	IKEDA 1998
'hair (animal)'	mo ³⁵	mo ³⁵	mo ⁵⁵
'dragon'	ndz u ³⁵	ndz u ⁵³	ndz u ³⁵
'small'	tsu ³³ tsə ³⁵	tsə ³³ tsə ⁵³	tsu ³³ tsa ⁵⁵
'wet'	ndz a ³⁵ ndz a ⁵⁵	ndz a ³³ ndz a ⁵³	ndz a ³³ ndz a ⁵⁵

As I mentioned above, low [33] is unmarked, while the other melodies — [55][53][35] — are marked accents, but neither rising nor falling are distinctive features. Thus we can see that although the pitch contours do not agree with each other, the syllables which are marked do coincide. So we can reinterpret these phonetic data according to the following phonemicizations (using HUANG's data):

	(A)	(B)	(C)
'hair (animal)'	/mo ^L /	/mo/	/mo/
'dragon'	/ndru ^H /	/ndrú/	/ˈndru/
'small'	/tsu ^L tsə ^H /	/tsu tsə/	/tsu ʔsə/
'wet'	/ndra ^L ndra ^H /	/ndra ndrá/	/ndra ˈndra/

I would like to adopt the notation used in (C), because [33] is a low and unmarked syllable, and all marked syllables are distinguished with tone marks. If we add marks for rising and falling contours, we can also express the *marked (b)* and its sub-features when needed.

	SUN 1983	HUANG 1985	IKEDA 1998
'hair (animal)'	/ˈmo/	/ˈmo/	/ˈ mo/
'dragon'	/ˈndru/	/ˈ ndru/	/ˈndru/
'small'	/tsu ˈtsa/	/tsu ˈtsa/	/tsu ʔsa/
'wet'	/ndra ˈndra/ ⁶	/ndra ˈndra/	/ndra ˈndra/

⁶ Although the first syllable appears as [35], it shows a contrast with the second syllable, and we can recognize that it must have *unmarked* low pitch accent.

'ourselves'	/ŋe nuw ʔe nuw/
'ourselves (inclusive)'	/ʔe nuw ʔe nuw/
'yourselves'	/na nuw ʔe nuw/
'themselves'	/ɛ nuw ʔse nuw/

I think it is enough to indicate *marked (a)* accent with a macron, and *marked (b)* with an acute accent. But there is no need to mark cases where the unmarked accent is realized as a rising contour at the end of phrases. This approach enables us to understand how the phonetic surface realizations were derived from the substratal structure of the lexicon. I believe this is a rational means for indicating accent in the lexicon of Mu-nya.

APPENDIX

Spreading

Even though we can observe spreading phenomena in the pitch accent system of Mu-nya, it seems that the influence of high marked pitch on the pitch of other syllables is very weak.

'book'	γũ ³³ ndw ⁵⁵	
'my book'	ŋw ⁵⁵ γa ⁵³ + γũ ³³ ndw ⁵⁵	
	I particle book	
	> ŋw ⁵⁵ γa ⁵⁵ γũ ⁵³ ndw ³³	
	my book	

The pitch accent of the possessive particle [γa] goes with the former syllable, so if the former syllable is /H/, this particle will be high. In the above example, although the high pitch spreads over 3 syllables, the first syllable is the only one which is marked with /H/ pitch accent in this phrase, and the influence of the marked accent is not strong, unlike e.g. in the Shanghai dialect of Chinese. So it will make no difference if the sentence is pronounced as:

'my book'	ŋw ⁵⁵ γa ³³ γũ ³³ ndw ³³
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The marked syllable must be /H/, but all following syllables may be low. Compare the next example phrase. The word 'book' has no accent, and appears as /L//L/ [33][33]. 'our (dual)' is: ŋw³³ ni⁵⁵ na³³ /L//H//L/, the last syllable of this phrase is /L/ with no intonational marking, so the /H/ on second syllable does not spread onto the word 'book'.

‘our (dual) book’ ŋu³³ ni⁵⁵ na³³ yũ³³ ndu³³

We can observe a typical spreading phenomenon in the Tokyo dialect of Japanese. Particularly in combinations of Chinese loan words (or compounds of morphemes), sometimes high pitch persists for several successive syllables as the examples below illustrate.

Shi ¹ njuku ¹	‘Shinjuku (place name in Tokyo)’
Shi ¹ njuku gyo ¹ en	‘royal garden of Shinjuku’
Shi ¹ njuku gyoen e ¹ ki	‘Shinjuku Gyoen Station’
Shi ¹ njuku gyoen eki ma ¹ e	‘the front of Shinjuku Gyoen Station’
Shi ¹ njuku gyoen eki mae ko ¹ uban (新宿御苑駅前交番)	‘the policebox at the front of Shinjuku Gyoen Station’

A longer example is:

Ka¹ gaku bankoku hakurankai kaisetsu junbi ii¹ nkai.

(科学万国博覧会開設準備委員会)

‘the Preparatory Committee for the International Exhibition of Science’

The (ˊ) mark in these examples represents the “core” of the accent, which indicates where to fall. When the core is on the first syllable, it appears to be high, but otherwise the first syllable is always low. From the second syllable to the position of the core, all the syllables will bear a high pitch. See the examples below:

‘rain’ 「あ¹め / a¹ me / H-L ‘life’ 「い¹」のち / i¹ no chi / H-L-L

‘candy’ あ¹め / a me / L-H ‘head’ あ¹たま¹ / a ta ma¹ / L-H-H

We can see that, in contrast to the Tokyo dialect of Japanese, Mu-nya does not possess a pitch spreading function.

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